



Knowledge, Attitude, and Self-reported Practices on Prevention of Respiratory Infections among Two Groups of Islamic Pilgrims, Thailand, 2021

Farooq Phiriyasart^{1*}, Choopong Sangsawang², Rapeepong Suphanchaimat^{1,3}, Natthaprang Nittayasoot¹, Amin Sa-idi⁴, Ruskee Che-ae⁵, Abdullah Hamad⁴, Marwan Sataeputeh⁴, Abdulloh Dahamae⁶, Yuwaireeya Yunu⁵, Chiravadee Hayitantu⁵, Ismalae Jueloh⁵, Anuttarasakdi Ratchatatat⁷

- 1 Division of Epidemiology, Department of Disease Control, Ministry of Public Health, Thailand
- 2 Office of Disease Prevention and Control Region 12 Songkhla, Department of Disease Control, Ministry of Public Health, Thailand
- 3 International Health Policy Program, Ministry of Public Health, Thailand
- 4 Pattani Provincial Health Office, Ministry of Public Health, Thailand
- 5 Yala Provincial Health Office, Ministry of Public Health, Thailand
- 6 Narathiwat Provincial Health Office, Ministry of Public Health, Thailand
- 7 Institute for Urban Disease Control and Prevention, Department of Disease Control, Ministry of Public Health, Thailand

*Corresponding author email: farooqmedicine@gmail.com

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Abstract

Religious mass gatherings can foster contagious disease transmission in the home countries of pilgrims. Thailand has two major Muslim pilgrims: the Hajj and the Dawah. This study aimed to compare their knowledge (K), attitude (A), and self-reported practice (P), and qualitatively evaluate their perceptions regarding the prevention of respiratory infections. A cross-sectional mixed methods study was conducted. Multistage sampling was conducted in Hajj participants, while convenience sampling was used with the Dawah participants at two gathering places. Pearson's chi-square test was used to compare KAP scores between the two groups. We conducted qualitative interviews with 13 purposively chosen participants. There were 111 Hajj and 228 Dawah participants. Most Hajj respondents were in the age group of ≥ 50 years, while most Dawah respondents were between 30–49 years. Overall, the Hajj group had a significantly higher proportion of good knowledge scores than the Dawah group, with 76.6 and 56.1, as well as the positive attitude score of 97.3 and 87.7. The Hajj group was more receptive to receive health education about respiratory infections before their pilgrimage. Preparatory education classes should be initiated for Dawah Muslims before they attend a foreign gathering event.

Keywords: mass gatherings, respiratory infections, health education, perception, Thailand

Introduction

A mass gathering has been defined by the World Health Organization as an occasion, either by spontaneous accumulation or organized gatherings, where the number of people attending is sufficient to strain the planning and utilization of resources by the

host.¹ The World Health Organization is concerned about mass gatherings as they have a tendency to increase the spread of infectious diseases, particularly coronavirus disease 2019 (COVID-19) cases.²

An example of a mass religious gathering is the Hajj, when approximately two million Muslims from all over

the world travel to Mecca in Saudi Arabia each year.³ Another specific group of Muslims, the Dawah Tablighi, who are similar to missionaries, are known to arrange religious mass gatherings several times in a year in various countries in South Asia.⁴ In Thailand, most members of the Hajj and Dawah groups reside in the south of Thailand in Pattani, Yala, and Narathiwat Provinces, where they constitute 43.8% of all Hajj Thais and 80.0% of all Dawah Thais.⁵

A previous report by the Office of Disease Prevention and Control (Region 12) showed that, during the first wave of the COVID-19 outbreak in Thailand, about 42.0% of all COVID-19 cases in the three southernmost provinces, namely Pattani, Yala, and Narathiwat, were imported from attendees of Dawah events outside Thailand.⁶ Therefore, it is crucial to assess the level of knowledge (K), attitude (A), and self-reported practice (P) regarding respiratory infections among the Hajj and Dawah Muslims. This study aimed to compare their KAP level and qualitatively evaluate their perceptions regarding the prevention of respiratory infections.

Methods

We used a mixed method approach composed of quantitative and qualitative studies. A semi-structured questionnaire was used for data collection. The inclusion criteria were Thai Muslims aged 18 years or above, who could read Thai or Yawi language and had ever attended overseas Hajj in 2019 or Dawah events between 2015 and 2019. Those who had ever attended both events were excluded.

Quantitative Study

We purposively selected two districts in each of Pattani, Yala, and Narathiwat Provinces. For the Hajj group, we used simple random sampling with proportionate to size using a sampling frame from a list of Thai Hajj participants in 2019. For the Dawah group, we selected participants from those who attended weekly local gathering events at the two prominent mosques of the Dawah group. Then, we categorized the participants according to their domicile province, and conveniently chose participants proportionately to the volume of Muslim population.

We determined the sample size using two independent proportions comparison formula with a level of statistical significance of 0.05. An initially estimated proportion of good knowledge level among Hajj and Dawah participants was 80% and 65%, respectively. Therefore, 115 Hajj and 229 Dawah members were required.

We collected the data using a self-administered paper-based questionnaire which was validated by experts,

such as respiratory physician, epidemiologist, health educators, the spiritual leader of the Dawah Tablighi group, and the chief of the Thailand Hajj Medical Office. The item-objective congruence score was 0.7. The questionnaire was piloted and the Cronbach's coefficient alpha for knowledge, attitude, and reported practice equaled 0.96, 0.81, and 0.72, respectively, with an acceptable cutoff ≥ 0.7 .⁷

The participants' socio-demographic characteristics were analyzed using frequency and percentage. The participants' KAP (Knowledge, Attitude and Practice) level was assessed through five sub-domains: infectious respiratory diseases, wearing a mask, hand washing, vaccines, and contact avoidance behaviors. The infectious respiratory diseases sub-domain was evaluated only knowledge and attitude. In total, there were 53 questions with 24 focused on knowledge (K), 16 on attitude (A), and 13 on practice (P). Bloom's cutoff point was used to define "good" or "poor" scores.^{8,9} Knowledge scores of ≥ 14 ($\geq 60\%$) were considered as good, while scores < 14 were considered poor. Attitude scores of ≥ 51 ($\geq 80\%$), 38–50 (60–79%), and < 38 ($\leq 59\%$) were defined as positive, neutral, and negative, respectively. Practice scores of ≥ 29 ($\geq 80\%$) were considered good, while scores < 29 were considered poor. Pearson's chi-square test was used to compare the KAP level between the two groups, the Hajj group and the Dawah group. Weight calculations were used to adjust for the size of the source populations of about 3,300 and 5,000 people among the Hajj group and the Dawah group, respectively.

Qualitative Study

We purposively selected 13 participants, 5 Hajj participants and 8 Dawah participants. First, we recruited two Dawah spiritual leaders to explore their perception toward respiratory infection prevention practices among the followers. Then, six participants of the Dawah group and five participants of the Hajj group were recruited for interview.

We used semi-structured in-depth interviews. The interview focused on the perception of respiratory infections and their prevention practices while they were at the gathering events. Thematic analysis was conducted. Important quotes for each theme were collated and reviewed.

Ethics

This study was approved by the Human Research Ethics Committees from each Provincial Health Office in the three southernmost provinces with research codes 27/63 (Narathiwat Province), 38/63 (Pattani Province), and 01/64 (Yala Province). The research protocol strictly followed international

standards. All participants provided consent for joining the study and were given a study information sheet.

Results

Quantitative Study

Of 344 participants enrolled in the study, 339 (111 Hajj and 228 Dawah participants) returned the questionnaire (response rate 98.5%). The overall male to female ratio was 2.8:1. The Hajj group had a median

age of 55 years, while the Dawah group had a median age of 43 years. Most participants in both groups were self-employed (41.4% in the Hajj group and 58.8% in the Dawah group). Most of the Hajj group had completed secondary school (36.9%). However, most of the Dawah group achieved at most a primary school level of education (39.9%). About one fifth of the Hajj group had a monthly income of more than 20,000 Thai baht. About 3.9% of the Dawah group had a monthly income of more than 20,000 Thai baht (Table 1).

Table 1. Characteristics of the study participants of knowledge, attitude, and self-reported practices on prevention of respiratory infections among two groups of Islamic pilgrims, Thailand, 2021 (n=339)

Variables	Frequency n (%)			P-value
	Total (n=339)	Hajj group (n=111)	Dawah group (n=228)	
Gender				
Male	250 (73.8)	48 (43.2)	202 (88.6)	<0.01
Female	89 (26.3)	63 (56.7)	26 (11.4)	
Age group (years)				
18–29	37 (10.9)	0 (0)	37 (16.2)	<0.01
30–49	123 (36.3)	22 (19.8)	101 (44.3)	
≥50	179 (52.8)	89 (80.2)	90 (39.5)	
Occupation				
Homemaker	24 (7.1)	15 (13.5)	9 (3.9)	0.03
Civil servant	19 (5.6)	12 (10.8)	7 (3.1)	
Self-employed	180 (53.1)	46 (41.4)	134 (58.8)	
Student	26 (7.7)	0 (0)	26 (11.4)	
Farmer	75 (22.1)	31 (27.9)	44 (19.2)	
Highest formal education level				
None	33 (9.7)	13 (11.7)	20 (8.8)	0.10
Primary school	123 (36.3)	32 (28.8)	91 (39.9)	
Secondary school	122 (35.9)	41 (36.9)	81 (35.5)	
Vocational certificate	16 (4.7)	4 (3.6)	12 (5.3)	
Bachelor's degree or above	45 (13.3)	21 (18.9)	24 (10.5)	
Monthly income (baht)				
<5,000	120 (35.4)	41 (36.9)	79 (34.6)	0.03
5,000–10,000	144 (42.4)	35 (31.5)	109 (47.8)	
10,001–20,000	43 (12.7)	14 (12.6)	29 (12.7)	
>20,000	29 (8.6)	20 (18.0)	9 (3.9)	

Table 2 presents a comparison of the KAP levels between the two groups. From a macro-view, 76.6% of the Hajj group and 56.1% of the Dawah group had good knowledge. A significant difference between the groups was found in overall knowledge in terms of mask wearing, hand washing, and contact avoidance. Almost all Hajj participants (97.3%) had either neutral or positive attitudes for all sub-domains combined, and the percentage was significantly

higher than that for the Dawah group (87.7%). In all sub-domains except for contact avoidance, the percentage of Hajj participants showing either neutral or positive attitudes was significantly higher than that in the Dawah group. The percentage of participants with a neutral or positive attitude towards contact avoidance was similar between the two groups. For self-reported practice, about half of the Hajj participants (52.3%) showed good practice for

overall, compared to 42.9% among the Dawah participants. The percentage of Hajj participants reporting good practice was higher than the

percentage of the Dawah participants in terms of mask-wearing (p -value <0.05) and vaccination (p -value <0.01).

Table 2. Comparison of knowledge, attitude and self-reported practice levels regarding respiratory infection and preventive practices between Hajj and Dawah participants (n=339)

	Frequency n (%)								
	Good knowledge			Neutral to positive attitude			Good practice		
	Hajj (n=111)	Dawah (n=228)	P-value	Hajj (n=111)	Dawah (n=228)	P-value	Hajj (n=111)	Dawah (n=228)	P-value
Overall	85 (76.6)	128 (56.1)	0.04	108 (97.3)	200 (87.7)	<0.01	58 (52.3)	98 (42.9)	0.78
Sub-domain									
Infectious respiratory diseases	76 (68.5)	120 (52.6)	0.12	28 (25.2)	27 (11.8)	<0.01	NA	NA	NA
Mask wearing	96 (86.5)	144 (63.2)	<0.01	110 (99.1)	205 (89.9)	<0.01	40 (36.0)	55 (24.1)	<0.05
Hand washing	95 (85.6)	146 (64.0)	<0.01	110 (99.1)	190 (83.3)	<0.05	90 (81.1)	181 (79.4)	0.92
Vaccination	83 (74.8)	137 (60.1)	0.09	91 (81.9)	143 (62.7)	<0.05	101 (90.9)	144 (63.2)	<0.01
Contact avoidance	86 (77.5)	126 (55.3)	<0.01	107 (96.4)	191 (83.8)	0.05	55 (49.6)	114 (50.0)	0.24

NA: not applicable

Qualitative Study

We found four main themes from the interview.

Different perspectives about respiratory infections

Five out of eight Dawah interviewees said that respiratory infection was caused by viral pathogens, and two said that the infection was caused by other factors such as weather changes. All Hajj interviewees said that viral pathogens were likely to be the cause of respiratory infections. The Hajj interviewees also raised concerns about the negative consequences of respiratory infection as it might disturb the Hajj ritual.

“During the event, a lot of people got cold due to weather change.” ...Dawah, A1

“We believe that respiratory symptom is the test of mankind.” ...Dawah, A2

“I don't want to get a cold... it makes me cough and gives me muscle pain so much that I could not perform my worships during the Hajj” ...Hajj, B1

Careless practices and misconceptions of preventive behavior

All Dawah interviewees said that they were not familiar with mask wearing. For the Hajj group, three out of five interviewees did not wear a face mask all the time, but they used it when facing unfamiliar groups of people or unfavorable environments.

“It is rare that someone wears a mask during a gathering” ...Dawah, A1–A6

“I wore a mask just while walking through a group of strangers.” ...Hajj, B2

“I wore a mask to protect myself from dust.” ...Hajj, B3 and B4

Ignorance of washing hands outside of prayer times

Regarding hand-washing perceptions, nine out of 13 interviewees from both groups mentioned that hand washing was usually done before daily prayers, but they did not use soap after touching ill people or commonly used objects, and after coming back from the outside.

“We wash our hands five times before praying” ...Dawah, A1–A7

“Washing hands five times before praying is enough” ...Hajj, B3 and B5

Conflict of trust and the necessity of vaccinations

There were differing opinions on pre-travel vaccination. Some Dawah participants highlighted the benefit of receiving vaccines. However, four Dawah participants expressed doubts about vaccination, whether it met the halal standards. Hajj interviewees said that the vaccines were acceptable, and vaccination was a prerequisite for performing the Hajj in Mecca.

“I doubt the ingredients of the vaccine, whether it is halal and safe.” ...Dawah A2, A5–A7

“We must be vaccinated, or we will not be allowed to perform the Hajj.” ...Hajj, B3

Discussion

This study is, to our knowledge, the first to explore the knowledge, attitude, practices and perceptions related to respiratory infections among two different groups of Thai Muslims. We found that the Hajj participants, in general, had a significantly higher level of knowledge and more positive attitude toward respiratory infection prevention than the Dawah group, especially for mask-wearing, hand washing and contact avoidance.

The Dawah group had a lower level of knowledge on the prevention of respiratory infections than the Hajj group, which is likely explained by the fact that most of the Dawah participants had never been informed about respiratory infections before traveling abroad to Dawah events. While most of the Hajj people received pre-travel healthcare training at a Hajj clinic that provided pre-departure health education, vaccination, and health assessment.^{5,10} Our finding was supported by a previous study among Australian Hajj pilgrims, which revealed that pre-departure health education interventions were beneficial in promoting travelers' preventive practices.¹¹

A low rate of mask wearing among the two groups was found. This might be because most of the participants did not view respiratory symptoms as a sign of infection. They mostly viewed these as an allergic reaction related to changes in the weather. They wore a mask only when walking through unfamiliar groups of people or for protecting them from a dusty environment.

The proportion of participants with neutral or positive attitude and good level of practice toward pre-departure vaccination was significantly lower in the Dawah group than in the Hajj group. This finding was consistent with the qualitative results that some participants distrusted vaccines or were not confident in being vaccinated. A previous study in the three southernmost provinces of Thailand reported that residents demonstrated conflicting attitudes towards disease prevention by vaccination due to distrust of ingredients in vaccines that may not be Halal (Islamic religious permission) and may be against the principle of Islam as bringing a part of the disease into the body.¹²⁻¹⁵ The advice on the usefulness and necessity of vaccination, especially during the pre-departure period, should be emphasized as a previous study suggested that pre-travel advice was twice as likely to contribute to vaccination, compared with the absence of this advice.¹¹

Limitations

There are some limitations in this study that should be acknowledged. First, memory bias is inevitable as

we asked the participants about their past experiences. However, these religious gatherings were the most important events in a Muslim's life, and most participants joined this important event only once in their lives. Therefore, memory bias may be minimal and may not affect the validity of our results. Second, selection bias could have occurred, especially in the Dawah group due to convenience sampling. Hence, the representativeness of our results is likely to be undermined. Although there is no information on population characteristics to be used for verifying the representativeness of the sample, other characteristics of the Dawah participants in this study, including age, occupation, education, and income, are essentially diverse and not clustered in any narrowly specific group. This result implies that the inferential statistics used in this study would be conceptually applicable, based on the concept of the superpopulation model, to understand more about this dynamic and relatively hard-to-reach population.¹⁶

Public Health Actions and Recommendations

The Thai Ministry of Public Health should collaborate with the National Islamic Authority of Thailand to involve religious leaders of the Dawah Tablighi to establish a registration system for travelers journeying abroad to Dawah events. The travelers should coordinate with the healthcare providers in their residential areas to organize pre-travel health training, check-ups, and vaccinations. Participants of these Dawah events should receive health education and health assessment similar to the Hajj travelers. Intensive vaccination campaigns should be conducted and the campaign message should be tailored to match the perceptions of the Thai Muslims in order to have them realize the benefits of vaccination and reassure them that it does not violate halal laws or regulations.^{13,15}

Conclusion

Hajj Muslims had better knowledge and attitudes towards prevention of respiratory infections than their Dawah counterparts. Dawah travelers to foreign countries should be considered as a target group for health education. Pre-travel clinics for Dawah Muslims should be set up in all district hospitals.

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References

- World Health Organization. Public health for mass gatherings: key considerations [Internet]. Geneva: World Health Organization; 2015 [cited 2021 Jan 14]. p. 82–94. <https://apps.who.int/iris/bitstream/handle/10665/162109/WHO_HSE_GCR_2015.5_eng.pdf>
- World Health Organisation. Key planning recommendations for mass gatherings in the context of COVID-19 [Internet]. Geneva: World Health Organization; 2020 Feb 14 [updated 2020 May 29, cited 2021 Jan 4]. 9 p. <<https://www.who.int/publications/i/item/10665-332235>>
- Saleh S. Number of Hajj pilgrims in Saudi Arabia 1999-2019 [Internet]. New York: Statista; 2022 [cited 2022 May 5]. <<https://www.statista.com/statistics/617696/saudi-arabia-total-hajj-pilgrims/>>
- Pieri Z. Tablighī Jamā'at. In: Upal MA, Cusack CM, editors. *Handbook of Islamic Sects and Movements* [Internet]. Leiden: Brill; 2021 [cited 2022 May 10]. 49–72. <https://doi.org/10.1163/9789004435544_005>
- Thai Hajj Medical Office, Ministry of Public Health. Annual report on the situation of Thai people traveling to Hajj in Mecca, Saudi Arabia 2019. Nonthaburi: Thai Hajj Medical Office; 2019.
- Regional Health 12. Taking lessons from COVID-19 in Health Area 12 [Internet]. Songkhla: Regional Health 12, Ministry of Public Health; 2020 [cited 2021 Jan 5]. p. 28. <https://drive.google.com/file/d/1NjNg7YCbsk_oDQ0mr_Ntk64nTFrnGvAeF/view>. Thai.
- Cortina JM. What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology* [Internet]. 1993;78(1):98–104. <<https://www.psychosphere.com/what-is-coefficient-alpha-by-Cortina.pdf>>
- Goni MD, Hasan H, Naing NN, et al. Assessment of knowledge, attitude and practice towards prevention of respiratory tract infections among hajj and umrah pilgrims from Malaysia in 2018. *Int J Environ Res Public Health* [Internet]. 2019 Nov 18 [cited 2021 Jan 5];16(22):4569. doi:10.3390/ijerph16224569.
- Bloom BS. Learning for mastery. *Instruction and curriculum*. Regional Education Laboratory for the Carolinas and Virginia, Topical Papers and Reprints, Number 1. Evaluation Comment. 1968;1(2);1–12.
- Thinkohkaew A. MOPH organizes Training course for Thai Hajj Medical Team [Internet]. Bangkok: National News Bureau of Thailand; 2019 Apr 24 [cited 2021 Jan 6]. <https://thainews.prd.go.th/en/news/print_news/TCATG190424205042371>
- Alqahtani A, Wiley KE, Tashani M, Willaby HW, Heywood AE, BinDhim NF, et al. Exploring barriers to and facilitators of preventive measures against infectious diseases among Australian Hajj pilgrims: cross-sectional studies before and after Hajj. *Int J Infect Dis* [Internet]. 2016 Jun [cited 2021 May 28];47:53–9. <<https://doi.org/10.1016/j.ijid.2016.02.005>>
- Sa-idi A. A phenomenological study on the refusal of vaccines for children among people in the Tungyangdaeng district of Pattani province. Bangkok: Faculty of Medicine, Ramathibodi Hospital, Mahidol University; 2019.
- Hayeedamae S. Childhood vaccination refusal of Muslim's caregivers in a community of Muang Yala District. Songkhla: Faculty of Medicine, Prince of Songkla University; 2018.
- Salaeh T. Problems and Guidelines for Development of Registration Process and Vaccination of Muslims in Narathiwat Province to Reduce the Crisis of Coronavirus Disease 2019 in the New Cluster Efficiently. *pnujrhuso* [Internet]. 2023 Jan. 14 [cited 2023 Jan. 18];10(1):227-58. <<https://so05.tci-thaijo.org/index.php/pnuhuso/article/view/260708>>
- Domang R. Factors affecting parents on seeking basic immunization program for their children aged 0-5 years in Pattani province [master's thesis]. Songkhla: Prince of Songkla University; 2017.
- Dorfman AH, Valliant R. Superpopulation models in survey sampling [Internet]. Berlin: Researchgate.net; 2005 Jul [cited 2021 Jan 24]. <https://www.researchgate.net/publication/230241851_Superpopulation_Models_in_Survey_Sampling>