*Multidisciplinary Informatics Journal*
*Vol. 2, No. 1, June 2019, Pg. 01 – 08*

# KNOWLEDGE, ATTITUDE AND PRACTICE ON HAND, FOOT, AND MOUTH DISEASE (HFMD) AMONG CAREGIVER OF FIVE YEARS OLD CHILDREN

Mohammad Nasir Abdullah[1], Ahmad Farid Najmuddin[1], Norhafizzah Zuraimi[1], Nur A'fini Mohd Muzi[1], Nur Aisyah Mohd Nadzir[1], Nuramanina Husna Shamsul Kamal[1] and Muhammad Akmal Hakim Bohari[1]

[1]Faculty of Computer and Mathematical Sciences,
Universiti Teknologi MARA, Perak Branch, Tapah Campus,
35400 Tapah Road, Perak, Malaysia
Author Correspondence, e-mail: nasir916@uitm.edu.my

Received: 10 April 2019 / Accepted: 15 May 2019 / Published online: 15 June 2019

## ABSTRACT

Hand, foot and mouth disease (HFMD) is caused by a group of viruses known as enteroviruses which is coxsackievirus A16 (CA16) and enterovirus A71 (EV-A71). These viruses are the common causes of HFMD. The public usually recognized HFMD as infection to the children. This report describes knowledge, attitude, and practice on HFMD among caregiver of five years old children. Knowledge, practice, and attitude of caregivers towards this disease are important factors to prevent the outbreak of HFMD for children. The aim of these study was to investigate knowledge, attitude and practice towards HFMD among caregivers of children, especially at childcare centers. At Kinta, the district of Ipoh, 314 children (81.77%) have not been infected with HFMD while the remaining 70 children (18.23%) have experience with HFMD. By using multiple linear regression analysis, there were two important factors that contribute to respondent's practice which were Knowledge score and Attitude score. There was a significant linear relationship between practice score and knowledge score (adjusted b= 0.33795; 95% CI = (0.2154, 0.4605); p-value = 0.001). Next, there was a significant linear relationship between attitude score and practice score (adjusted b= 0.16664; 95% CI = (0.0759, 0.2573); p-value < 0.001). The findings also show that the caregivers' knowledge needs to be improved, as well as their preventive attitude and behavior on HFMD. The caregivers need to take care of their children and pay more attention to this infection.

**Keywords:** HFMD; Attitude; Behavior; Knowledge; Practice; Infection.

## 1. INTRODUCTION

Hand, foot, and mouth disease (HFMD) is typically a harmless childhood infection except when it isn't so benign or when it happens in adults. New Zealand was the first country that been reported on HFMD in 1957. A year after, Coxsackievirus A16 was first identified in Canada [2].

HFMD has become an endemic childhood disease in East and Southeast Asia. Its main etiologic agents are human enterovirus 71 (EV-A71) and Coxsackievirus 16 (CV-A16). Although usually lenient with symptoms limited to more than 38°C fever, malaise, rashes on the polar regions of the hands and feet, herpangina and difficulty on eating and drinking, the infection can cause a complication of the nervous or cardiopulmonary systems [3]. When HFMD epidemic has kept on recurring worldwide, effective vaccine and specific treatment for HFMD are still not available. This eventually calls attention to preventive practices as the mainstay of the management [4]. Malaysia has recorded 51,147 cases of HFMD between 1st January and 14th August 2018 said Health Minister Dr. Dzulkefly Ahmad. Sarawak recorded the highest number of cases at 6,209 or 12.1 percent of the total [1].

However, there are different viruses that prompt HFMD result in a similar clinical presentation in most patients. Discovering HFMD that caused by enterovirus 71 (EV71), which carries a risk of severe and even fatal disease in young children versus a virus such as a coxsackievirus A16 (CA16), can be very difficult in practice without virologic testing. Thus, patients who diagnosed with HFMD should be counseled to control all variables that could lead to further spread of the disease. In addition to standard supportive care, an analysis of epidemics in Asia believed that public health awareness may have averted deaths in successive epidemics, highlighting the need to identify HFMD epidemics in communities and to enlighten patients and families about actions to prevent further spread of the virus [2]. Hence, the aim of this study is to determine the mean knowledge, attitude and practice on HFMD among caregiver of 5 years old children in Kinta District, Perak, Malaysia.

## 2. MATERIALS AND METHODS

### 2.1 Participants

This cross-sectional study was used to investigate knowledge, attitude and practice towards HFMD among caregivers of children in childcare centers. This study was conducted during October to November 2018 at schools around Kinta district in Perak. Sampling frame would be the list of districts in Perak. Cluster sampling technique was used to select 1 from 12 districts in Perak randomly. All schools in Kinta which have kindergartens were chosen. The

sample size was calculated by using "Check Market Calculator" as margin of error was set for 5% and confidence interval of 95%. As a result, the calculator gave the sample size of 384.

### 2.2 Materials

A standardized self-reported questionnaire was used in this study. The questionnaire was taken from the previous study by [13]. It contained 4 sections such as Socio-demographic, to record the respondents' profile, knowledge, attitude, and practice. The Knowledge section was separated into the cause of disease and general information, transmission, prevention and treatment, signs and symptoms of severe HFMD. The Attitude section was divided into child's susceptibility to HFMD, the child's severity to HFMD and benefits of HFMD prevention, and the barrier to performing HFMD preventive behaviors. While Practice section contained 13 questions on respondents' preventive behaviors. As stated in the journal, the questionnaire's contents were validated by consulting experts. Based on the revised journal, the questionnaire was used on a pilot test and got Cronbach's alpha that scores 0.916, 0.703 and 0.771 on knowledge, attitude and practices each part respectively.

### 2.3 Data analysis

The results were analyzed by descriptive statistics, Chi-Square test, simple and multiple linear regression. A significance level was set at p-value less than 0.05.

## 3. RESULTS AND DISCUSSION

**Table 1.** Association of knowledge and attitude with practice among the caregiver of 5 years old children on HFMD

| Variables | ß[a] (95% CI) | t-statistic (df) | p-value[b] | $R^2$ |
|---|---|---|---|---|
| Knowledge | 0.394 (0.273, 0.514) | 6.421 (382) | <0.001 | 0.095 |
| Attitude | 0.229 (0.138, 0.32) | 4.935 (382) | 0.005 | 0.057 |

[a]Crude regression coefficient [b]Simple linear regression

Table 1 shows the association between knowledge and attitude with practice towards HFMD by simple linear regression. The result from simple linear regression analysis has shown that there is a significant linear relationship between knowledge and practice since the p-value for knowledge is less than 0.05. Based on predicted regression equation, we can explain that for

every 1 point of knowledge increased, the practice will also increase by 0.394 point. (b=0.394, 95% CI (0.273, 0.514), p-value <0.001). Based on coefficients of determination (R-squared = 0.095); there is 9.5% of the total variation of practice is explained by knowledge, the remaining of 90.5% is explained by others variable is not included in the model.

Since there was a positive relationship between caregivers' knowledge and practice on HFMD, it could be implied that if the caregivers of 5 years old children had more knowledge, their practice towards HFMD was better. Other studies also show that knowledge was assumed to be a predictor of preventive practice towards HFMD [13]. In Precede-proceed model states that knowledge played as a significant antecedent factor to practice [5]. Another study revealed that there is a positive association between knowledge and practice where it showed that housewives with more knowledge about dengue infection, had better practice in preventing dengue infection in their children (p-value < 0.05) [6].

Besides that, the result from a simple linear regression analysis has shown that there was a significant linear relationship between attitude and practice since the p-value for attitude was less than 0.05. Based on the predicted regression equation, we can explain as for every 1 point of attitude increased, the practice will also increase by 0.229 points. (b=0.229, 95% CI (0.138, 0.32), p-value = 0.005). Based on coefficients of determination (R-squared = 0.057); there is 5.7% of the total variation of practice is explained by attitude, the remaining of 94.3% is explained by others variable is not included in the model.

Due to the results, there was a significantly positive relationship between an attitude of caregivers of 5 years old children on HFMD and practice on HFMD, it could indicate that caregivers with a good attitude will perform more in practice on preventing HFMD. In addition, good attitude influences all aspects of behaviours [7]. Other studies showed that better performance in attitude, will increasing the practice on preventive behaviours [8,11].

**Table 2.** Association of knowledge with attitude among the caregiver of 5 years old children on HFMD.

| Variable | B[a] (95% CI) | t-statistic (df) | p-value[b] | $R^2$ |
|---|---|---|---|---|
| Knowledge | 0.334 (0.203, 0.466) | 4.995 (382) | 0.008 | 0.059 |

[a]Crude regression coefficient [b]Simple linear regression

Table 2 shows the association between knowledge with the attitude towards HFMD by simple linear regression. The result from a simple linear regression analysis has shown that there is a significant linear relationship between knowledge and attitude since the p-value for

knowledge is less than 0.05. Based on the predicted regression equation, we can explain as for every 1 point of knowledge increased, the attitude will also increase by 0.334 points. (b=0.334, 95% CI (0.203, 0.466), p-value = 0.008). Based on coefficients of determination (R-squared = 0.059); there is 5.9% of the total variation of attitude is explained by knowledge, the remaining of 94.1% is explained by others variable is not included in the model.

There was a significantly positive relationship between knowledge about HFMD and attitude on HFMD. We can say that knowledge is important in all aspects. Moreover, one study concluded that one of the reasons for the improvement in the treatment of water and storage behaviour of mother was the mothers' attitude to prevent diarrhoea for their children [10]. According to studies on diarrhoea, mothers who were more knowledgeable about oral rehydration solution would be better in preventing dehydration in their children [11,12]. From here, we can say that knowledge is the key.

**Table 3.** Association between gender and knowledge among the caregiver of 5 years old children on HFMD.

| **Knowledge level** | **Gender** | | **Chi-Square (df)** | **p-value[a]** |
|---|---|---|---|---|
| | **Male (n) (%)** | **Female (n) (%)** | | |
| Low | 77<br>65.8% | 169<br>63.3% | | |
| Moderate | 37<br>31.6% | 88<br>33% | 0.4602<br>(2) | 0.7945 |
| High | 3<br>2.6% | 10<br>3.7% | | |

[a]Pearson Chi Square test were applied

Based on Table 3, the total of 384 respondents were included in the analysis. We found that out of 117 Male respondents, 77 respondents (65.8%) have Low knowledge level, 37 respondents (31.6%) have Moderate knowledge level and 3 respondents (2.6%) have High knowledge level. Next, out of 267 female respondents, 169 respondents (63.3%) have Low knowledge level, 88 respondents (33%) have Moderate knowledge level and 10 respondents (3.7%) have High knowledge level. Furthermore, based on the Chi-Square analysis found that the gender and knowledge level do not have any association since the p-value is 0.4602 which is more than 0.05 [Chi-Square (df): 0.4602 (2)].

## 4. CONCLUSION

In conclusion, this study shows that caregivers in Kinta District, Perak still have insufficient knowledge about HFMD as 64.06% of them have low knowledge and only 3.39% of the population has a piece of high overall knowledge on HFMD. As for the result, we could see that 375 respondents (48%) had wrongly answered on the cause of HFMD disease and general information section. 128 respondents (33.33%) are still confused if sheep, cattle, and swine can transmit HFMD to human and 114 (29.69%) of the respondents had a wrong answer on prevention and treatment section. Surprisingly, the respondents are quite aware of HFMD symptoms as most of them answered the questions correctly.

The attitude on HFMD are quite good especially towards child's severity as 61.81% of the respondents have a good response to the questions given. This also shows that only 22.13% of them should aware that infected children need to absent from school to prevent and control the disease from transmitting to others.

As for the behavior on this disease, 23.96% of them are showing a good behavior by not letting the child share utensil such as a cup, spoon with other family members. However, 32.29% of them did not show good preventive behavior by feeding their children using a hand.

The findings also show that the caregivers' knowledge needs to be improved, as well as their preventive attitude and behavior on HFMD.

By using simple linear regression, the result shows a significant linear relationship between knowledge and attitude as p-value is lower than 0.05. There is also a significant linear relationship between knowledge and practice as p-value is lower than 0.05. Since the p-value for attitude and practice is lower than 0.05 so that there is a significant relationship between them. As p-value for gender and knowledge is higher than 0.05, there is no significant linear relationship between them.

Multiple linear regression analysis, we can conclude that there was a significant linear relationship between practice score and knowledge score (adjusted b= 0.33795; 95% CI = (0.2154, 0.4605); p-value = 0.001). Next, there is a significant linear relationship between attitude score and practice score (adjusted b= 0.16664; 95% CI = (0.0759, 0.2573); p-value < 0.001).

In the end, everybody plays an important role to increase the awareness of HFMD. In our opinion, the media plays an outstanding role in creating and shaping of public opinion and strengthening of society. Thus, it is important for the media to show and talks more about HFMD so that the public is aware of this crucial issue and be more careful in the future.

Another important role that can be played in the hospital or any health center is they could put up some posters and information about HFMD for their references. It is because people tend to go to clinic and hospital when they got sick so they can get information from that.

## 5. ACKNOWLEDGEMENTS

We would like to thank the principals of primary schools and teachers in Kinta Utara for their cooperation in coordinating data collection. We are also grateful to Poongkulali a/p Nadarajan and Tee Hwee Ying for the data translation.

## 6. REFERENCES

[1] Anon (2018, July 29). Child in Sarawak dies from suspected HFMD infection. The Star Online. Retrieved from https://www.thestar.com.my//news/nation/2018/07/29/child-in-swak-dies-from-suspected-hfmd-infection/#

[2] G. L. Repass, W. C. Palmer and F. F. Stancampiano (2014). Hand , foot , and mouth disease : Identifying and managing an acute viral syndrome. Cleveland Clinic Journal of Medicine, 81, 537. doi:10.3949/ccjm.81a.13132

[3] W. M. Koh, T. Bogich, K. Siegel, J. Jin, E. Y. Chong, C. Y. Tan, M. I. Chen, P. Horby and A. R. Cook (2016). The Epidemiology of Hand , Foot and Mouth Disease in Asia A Systematic Review and Analysis, 35, 285. doi: 10.1097/INF.0000000000001242

[4] Q. Suliman, S. Said, N. Afiah and M. Zulkefli (2017). Predictors of Preventive Practices towards HFMD among Mothers of Preschool Children in Klang District, *Malaysian Journal of Medicine and Health Sciences*, 13(3), 21 - 32.

[5] L. Green and M. W. Kreuter (2005). *Health Program Planning: An Educational and Ecological Approach. 4th Edition.* New York, NY: McGraw-Hill.

[6] C. Chanyasanha, G. R. Guruge, and D. Sujirarat (2015). Factors Influencing Preventive Behaviors for Dengue Infection Among Housewives in Colombo, Sri Lanka. Asia Pacific J. Public Heal., 27, 96. doi: 10.1177/1010539514545646.

[7] A. Bandura (1982). Self-Efficacy Mechanism in Human Agency. *American Psychologist*, 37(2), 122-147.

[8] S. Jirojwong and R. MacLennan (2003). Health beliefs, perceived self-efficacy, and breast self-examination among Thai migrants in Brisbane.," *J. Adv. Nurs.*, 41(3), 241–249.

[9] K. Sethuraman, R. Lansdown and K. Sullivan (2006). Women's empowerment and domestic violence: The role of sociocultural determinants in maternal and child undernutrition in tribal and rural communities in South India. *Food Nutr. Bull.*, 27(2), 128–143.

[10] R. E. Quick, A. Kimura, A. Thevos, M. Tembo, I. Shamputa, L. Hutwagner and E. Mintz (2002). Diarrhea prevention through household-level water disinfection and safe storage in Zambia. *Am. J. Trop. Med. Hyg.*, 66(5), 584–9.

[11] S. K. Rasania, D. Singh, S. Pathi, S. Matta and S. Singh (2005). Knowledge and Attitude of Mothers About Oral Rehydration Solution in Few Urban Slum of Delhi *Health and Population - Perspectives and issues*, 28(2), 100–107.

[12] S. A. Masiha, A. Khalid, B. Malik, S. Muhammad and A. Shah (2015). Oral Rehydration Therapy- Knowledge , Attitude and Practice ( KAP ) Survey of Pakistani Mothers. *J. Rawalpindi Med. Coll. Students Suppl.*, 19, 51–54.

[13] R. Charoenchokpanit and T. Pumpaibool (2013). Knowledge Attitude and Preventive Behaviors Towards Hand Foot and Mouth Disease Among Caregivers of Children Under Five Years Old in Bangkok, Thailand. *J Heal. Res.,* 27(5), 281–286.