Available online at
https://ijpncs.uitm.edu.my/index.php/en/

IJPNaCS International Journal of Pharmaceuticals, Nutraceuticals and Cosmetic Science
e-ISSN: 2682-8146

International Journal of Pharmaceuticals, Nutraceuticals and Cosmetic Science
9(1) 2026, 126-139

**International Journal of Pharmaceuticals, Nutraceuticals and Cosmetic Science**

# Public knowledge and perceptions of influenza among Malaysians: An evaluation of video-based health messaging

Siti Nooraishah Hussin[1*], Wan Nurafiqah Auni Wan Mohd Maizudin[1]

[1]*Department of Pharmacology and Life Sciences, Faculty of Pharmacy, Universiti Teknologi MARA (UiTM) Cawangan Selangor, Bandar Puncak Alam, 42300 Selangor Darul Ehsan, Malaysia*

ARTICLE INFO

*Article history:*
Received 20 January 2026
Revised 10 May 2026
Accepted 29 May 2026
Online first
Published 15 June 2026

*Keywords:*
Influenza,
Knowledge,
Attitude,
Perception,
Video,
Intervention

*DOI:*
10.24191/IJPNaCS.v9i1.08

ABSTRACT

Influenza is a highly contagious respiratory illness. As a widespread condition, it poses a significant global health threat due to its potential to cause symptoms ranging from mild to severe, including fatalities. This study aims to explore the knowledge, attitudes, and perceptions (KAP) of influenza among the Malaysian public and assess the efficacy of a video-aided tool in disseminating information and combating misconceptions. This cross-sectional study was conducted from March to May 2024 across 14 states in Malaysia, involving 405 respondents selected using convenience sampling. Participants completed a self-administered questionnaire in two phases: prior to and following exposure to a video-based educational intervention to assess changes in knowledge, attitudes, and practices (KAP). Scores were assessed using Bloom's cutoff point criteria, and data were analyzed using SPSS version 28.0. Analysis of the respondents' sociodemographic data found that marital status ($X^2$=10.891, $p$=0.028, Cramer's V = 0.25), level of education ($X^2$=34.228, $p$<0.001, Cramer's V = 0.31) and age group ($X^2$=30.056, $p$<0.001, Cramer's V = 0.28) had significant associations with knowledge of influenza. The mean scores for pre- and post-video intervention of attitude were 20.07 ± 4.15 and 22.10 ± 3.39, respectively, suggesting a moderate initial level of awareness that increased following the video intervention. There was also a positive shift in perceptions' mean scores from moderate (19.42 ± 2.70) to good (20.09 ± 2.55) following the video intervention, suggesting that the video can effectively improve participants' understanding of influenza. This study suggests that a video-based educational tool has the potential to improve knowledge, attitudes, and practices (KAP) related to influenza and its prevention. Consequently, video-based interventions should be considered to be incorporated into public health education systems and national health campaigns. Future studies using more rigorous designs, such as randomized controlled trials, are needed to establish the effectiveness of this video aid.

[1*]Corresponding author. *E-mail address* : nooraishah0352@uitm.edu.my

## 1. INTRODUCTION

Influenza, often known as flu, is a highly contagious respiratory illness that can affect the nose, throat, and occasionally the lungs, thus causing mild to severe illness and, in some cases, even resulting in death (Skelton & Huber, 2022). Individuals with the flu often experience various symptoms, including a stuffy nose, sneezing, sore throat or cough, fever, fatigue or weakness, muscular or body aches, and a headache (Eccles, 2005). According to the Ministry of Health (MOH), Malaysia recorded 30,403 cases of influenza in 2024. Historically, vaccinations have played a critical role in preventing most infectious diseases (Ellwanger et al., 2021; Excler et al., 2021). Influenza vaccination is among the most significant immunizations, and it has been shown to reduce the incidence of seasonal influenza (Han et al., 2024).

According to World Health Organization (WHO, 2023), three to five million cases of seasonal influenza are classified as severe, out of the one billion cases that are reported each year. An estimated 290,000 to 650,000 respiratory-related deaths occur annually as a result of these infections, posing a significant burden. Alarmingly, 99% of the fatalities resulting from lower respiratory tract infections caused by influenza among children under 5 years of age are concentrated in developing countries (Sun et al., 2024). The Centers for Disease Control and Prevention (CDC, 2019) suggests that getting an influenza vaccine every year is the initial and most critical measure for safeguarding against influenza and its potentially serious complications.

Conventional methods of health communication, such as pamphlets and posters, have known limitations in effectively disseminating knowledge to the public. Although pamphlets can be well-crafted, they should not be the sole means of conveying health information (Liu, 2010). This issue is further highlighted by the prevalent use of one-way communication strategies in many community-based health education programs, which often lack thorough evaluation (Yuan et al., 2021). The utilization of digital media and video-based educational tools has emerged as an effective means to deliver health information, educate the public, and influence behavioral change (Yang et al., 2021). Videos possess advantages due to their visual engagement, ease of sharing, and ability to deliver information effectively (Goodman et al., 2015). To successfully drive this behavioral change, digital health interventions are most effective when grounded in established behavioral change theories, such as the Health Belief Model (HBM). By structuring video content to address an individual's perceived susceptibility to influenza, the perceived severity of the infection, and the perceived benefits of preventive actions, educational tools can more effectively translate knowledge into actual health practices.

Despite the widespread use of digital media, limited evidence exists on the effectiveness of video-based interventions in improving influenza knowledge, attitudes, and perceptions (KAP) among the Malaysian general population. This highlights a significant research gap, as most existing local studies either rely on traditional communication methods or lack a theoretical framework to evaluate digital health literacy. This study aims to bridge this gap by introducing a novel approach that investigates the KAP of influenza among the Malaysian population using a theoretically grounded video-aided tool. This study is crucial for developing effective public health communication strategies, especially in understanding the topic of influenza. Additionally, this research will shed light on enhancing comprehension and promoting the safe and effective uptake of influenza vaccination and preventive practices among the Malaysian population.

https://doi.org/10.24191/IJPNaCS.v9i1.08 

## 2. MATERIAL & METHODOLOGY

### 2.1 Study design and setting

A cross-sectional study with a convenience sampling design was conducted involving fourteen states in Malaysia from March to May 2024.

### 2.2 Study population and sampling

A pre- and post-test approach was conducted to compare KAP scores on influenza among the Malaysian population. The study population was among Malaysian citizens who were aged 18 years old and above and on a voluntary basis. In contrast, the exclusion criteria for this study included individuals with visual and audio impairments, as well as those with low literacy skills. The sample size was calculated using Raosoft's sample size calculator, which accepted a 5% margin of error with a 95% confidence level and a 50% response distribution for the population sample size. A total of 405 respondents participated in this study. An additional 10% of the overall sample size were added to account for potential incomplete data and dropouts. To ensure the validity and reliability of the self-administered survey data, participants' functional health literacy was evaluated during the initial recruitment phase. Literacy was assessed using the Rapid Estimate of Adult Literacy in Medicine (REALM-SF), a validated 7-item instrument designed to quickly measure a respondent's ability to recognize and pronounce common medical terms.

### 2.3 Data collection tool and technique

The questionnaire was designed in two languages, English and Malay, to ensure the best response from respondents. The questionnaire was divided into four sections. Section A consisted of ten questions that were subjected to the demographic data of the respondents. Section B consisted of five questions that were related to knowledge of influenza, while section C comprised five positive statements that were related to attitudes toward influenza. Lastly, section D contained five questions related to the perception of influenza. For section B, questions were presented with three answer options: yes, no, and I don't know. Each 'yes' response was assigned one point (1), while 'I don't know' or 'no' responses received zero points (0). Scores were categorized as follows: 0-1 indicated poor knowledge, 2-3 indicated moderate knowledge, and 4-5 indicated good knowledge. Thus, the total knowledge score ranged from 0 to 5. Meanwhile, sections C and D were measured using a five-Likert scale that consisted of "strongly agree", "agree", "neutral", "disagree", and "strongly disagree" for each question. The score was rated on a scale from "strongly agree" (5 points) to "strongly disagree" (1 point), with the total score ranging from 5 to 25. Scores for attitudes and perceptions were classified based on a study by Jiang et al. (2021).

The respondents were given a link to a Google Form via WhatsApp, Telegram, and Facebook platforms. Respondents were required to respond to the questions given twice, once before watching the intervention video and again after watching the video. The video was a 3 minutes duration of video. Before data collection, the questionnaire underwent a rigorous validation process. Face and content validity were first evaluated by a panel of experts in Department of Pharmacology and Life Sciences of Faculty of Pharmacy, UiTM to ensure the clarity, relevance, and appropriateness of the items. Following this, a pilot study was conducted among a small sample of the target population (n = 30), who were excluded from the final analysis. Prior to the main statistical analysis, a preliminary test using Cronbach's alpha was conducted

https://doi.org/10.24191/IJPNaCS.v9i1.08 

to confirm the internal consistency and reliability of the data. The instrument demonstrated acceptable reliability, yielding an overall Cronbach's alpha coefficient of 0.75.

Several potential biases inherent to the study design were considered and managed where feasible. First, given the use of a digital video-aided tool and online data collection, selection bias may be present, as the study inherently requires participants to have internet access and baseline digital literacy. To mitigate this, the survey was distributed across diverse community networks and social media platforms to reach a broad demographic. Second, as the KAP questionnaire relies on participant honesty, self-report bias could influence the attitude and perception responses. To minimize this effect, data collection was completely anonymous, and participants were explicitly assured of their confidentiality, encouraging genuine responses without fear of judgment. Finally, due to the pre- and post-test nature of the study, the Hawthorne effect must be acknowledged. Participants may have improved their post-intervention scores or altered their behavior simply because they were aware they were being tested and observed. While this effect is difficult to eliminate entirely, the study attempted to reduce it by utilizing standardized, neutral instructions and allowing participants to complete the intervention in their own natural environment without direct researcher supervision.

### 2.4 Statistical analysis

The Statistical Package for the Social Sciences (SPSS) software version 28.0 was used for statistical analysis in this study. The data were described and compared using both descriptive and inferential statistical analyses.

## 3. RESULTS

The sociodemographic characteristics of the respondents are presented in Table 1. There were more female respondents (N = 261, 64.4%) in comparison to the male respondents (N = 144, 35.6%). The respondents ranged from 18 to 89 years old, with a mean age of 32.7 years. The proportions of respondents aged between 18–29, 30–45, 46–60, and 61 years or older were 54.1%, 23.2%, 22% and 0.7%, respectively. Half of the respondents were single (N = 223, 55.1%), and approximately 44% (N = 178) were married. Most respondents held a bachelor's degree (N = 239, 59%), a certificate or diploma (N = 80, 19.8%), or a postgraduate degree (N = 70, 17.3%), whereas the minority had a secondary school education (N = 16, 4%).

Table 1 also presents the association between the demographic data and the level of influenza knowledge among the respondents using the Chi-square analysis. The results showed there was a significant association between knowledge of influenza and marital status ($p = 0.028$, Cramer's $V = 0.25$), highest level of education ($p < 0.001$, Cramer's $V = 0.31$), and age group ($p < 0.001$, Cramer's $V = 0.28$). Furthermore, higher percentage of individuals living in urban regions demonstrated good knowledge regarding influenza compared to those living in rural and suburban areas. Specifically, 71.1% of urban residents had a good understanding of influenza, whereas only 23.7% of suburban residents and 5.3% of rural residents demonstrated the same level of knowledge. Overall, individuals who were employed (47.4%) and students (42.1%) showed a good knowledge of influenza.

https://doi.org/10.24191/IJPNaCS.v9i1.08 

Table 1. Association between sociodemographic data and knowledge among the Malaysian adult.

| Variable | Knowledge of Influenza n (%) | | | Total, n | $X^2$ | p-value |
|---|---|---|---|---|---|---|
| | Poor | Fair | Good | | | |
| Gender | | | | | 4.004[a] | 0.135 |
| Male | 86 (39.1) | 43 (29.3) | 23 (60.5) | 261 | | |
| Female | 134 (60.9) | 104 (70.7) | 15 (39.5) | 144 | | |
| Age Group | | | | | 30.056[a] | <0.001** |
| 18-29 | 139 (63.2) | 62 (42.2) | 18 (47.4) | 219 | | |
| 30-45 | 37 (16.8) | 48 (32.7) | 9 (23.7) | 94 | | |
| 46-60 | 44 (20) | 36 (24.5) | 9 (23.7) | 89 | | |
| Above 61 | 0 | 1 (0.7) | 2 (5.3) | 3 | | |
| Area of Living | | | | | 3.827[a] | 0.430 |
| Rural | 30 (13.6) | 21 (14.3) | 2 (5.3) | 53 | | |
| Sub-urban | 67 (30.5) | 42 (28.6) | 9 (23.7) | 118 | | |
| Urban | 123 (55.9) | 84 (57.1) | 27 (71.1) | 234 | | |
| Marital status | | | | | 10.891[a] | 0.028* |
| Single | 137 (62.3) | 67 (45.6) | 19 (50) | 223 | | |
| Married | 81 (36.8) | 78 (53.1) | 19 (50) | 178 | | |
| Divorced | 2 (0.9) | 2 (1.4) | 0 | 4 | | |
| Occupation | | | | | | |
| Unemployed | 5 (2.3) | 4 (2.7) | 0 | 9 | 12.660[a] | 0.243 |
| Student | 101 (45.9) | 47 (32) | 16 (42.1) | 164 | | |
| Housewife | 2 (0.9) | 2 (1.4) | 1 (2.6) | 5 | | |
| Self-employed | 15 (6.8) | 9 (6.1) | 1 (2.6) | 25 | | |
| Employed | 94 (42.7) | 79 (53.7) | 18 (47.4) | 191 | | |
| Retired | 3 (1.4) | 6 (4.1) | 2 (5.3) | 11 | | |
| Highest level of education | | | | | | |
| Secondary education | 6 (2.7) | 3 (2) | 7 (18.4) | 16 | 34.228[a] | <0.001** |
| Certificate o Diploma | 47 (21.4) | 26 (17.7) | 7 (18.4) | 80 | | |
| Bachelor's degree | 140 (63.6) | 85 (57.8) | 14 (36.8) | 239 | | |
| Postgraduate degree | 27 (12.3) | 33 (22.4) | 10 (26.3) | 70 | | |
| Family income | | | | | 9.285[a] | 0.319 |
| < RM 1000 | 13 (5.9) | 5 (3.4) | 1 (2.6) | 19 | | |
| RM1000 - RM3500 | 57 (25.9) | 33 (22.4) | 6 (15.8) | 96 | | |
| RM3501 - RM5000 | 33 (15) | 23 (15.6) | 6 (15.8) | 62 | | |
| RM5001 - RM7500 | 55 (25) | 37 (25.2) | 6 (15.8) | 98 | | |
| > RM 10 000 | 62 (28.2) | 49 (33.3) | 19 (50) | 130 | | |

[a]Based on the Chi-Square Test
**Statistically significant at p-value <0.001
*Statistically significant at p-value <0.05

https://doi.org/10.24191/IJPNaCS.v9i1.08

The results of the paired sample T-test (Table 2) show a significant improvement in respondents' KAP due to the video intervention. More precisely, the mean knowledge score increased from 1.54 ± 1.39 to 2.71 ± 1.73 ($p<0.001$), Cohen's d = 0.84, indicating a significant increase in knowledge. In addition, there was an improvement in attitudes towards influenza, as indicated by an increase in mean scores from 20.07 ± 4.15 to 22.10 ± 3.39 ($p<0.001$), Cohen's d = 0.79. Similarly, the perception scores significantly increased from 19.42 ± 2.70 to 20.10 ± 2.55 ($p < 0.001$), Cohen's d = 0.86, indicating a beneficial change in perception at post-video intervention. These significant changes across all KAP components underscore the effectiveness of the video intervention in educating respondents about influenza. As a result, the intervention successfully conveyed important information and had a positive impact on the attitudes and perceptions of the respondents towards influenza. This demonstrates the potential of using the video as a formal educational tool to increase awareness among the public.

Table 2. Paired sample t-test KAP before and after video intervention.

| Criteria | Mean ± SD | | t | p-value |
|---|---|---|---|---|
| | Before video intervention | After video intervention | | |
| Knowledge | 1.54 ± 1.39 | 2.71 ± 1.73 | -12.28[a] | <0.001* |
| Attitude | 20.07 ±4.15 | 22.10 ±3.39 | -9.01[a] | <0.001* |
| Perception | 19.42 ±2.70 | 20.10 ±2.55 | -4.83[a] | <0.001* |

[a]Based on paired sample t-test
*Statistically significant at p-value <0.001

Initially, most respondents acknowledged the preventive benefits of the influenza vaccine, with 46.2% agreeing and 29.9% strongly agreeing that vaccination would reduce their risk of contracting the flu (Fig. 1). However, a small but significant percentage of the population remained skeptical, with 8.9% expressing disagreement and 2.2% strongly expressing disagreement towards the statement. After the video intervention, there was a distinct change in attitude. The percentage of respondents who strongly agreed increased to 52.1%, while the percentage of those who agreed increased to 37.5% (Fig. 2). This indicates that the video successfully highlighted the significance of vaccination as a crucial individual health precaution measure.

Similarly, the belief in the effectiveness of wearing masks in preventing influenza transmission saw a marked improvement. Initially, 43% of respondents agreed, and 44.4% strongly agreed that masks could prevent the spread of the virus in crowded places. Following the intervention, strong agreement rose to 61.2%. This indicates that the video successfully communicated the importance of mask-wearing, enhancing its acceptability and understanding among respondents.

Furthermore, there was a notable improvement in attitude toward health education programs. Before the intervention, 34.3% of the respondents agreed, and 56.3% strongly agreed that participating in these programs would enhance their knowledge of influenza vaccination. After the intervention, the agreement percentage increased to 95.5%. This improvement underlines the video's efficacy in emphasizing the importance of health education and promoting greater awareness of informed preventative measures.

https://doi.org/10.24191/IJPNaCS.v9i1.08 

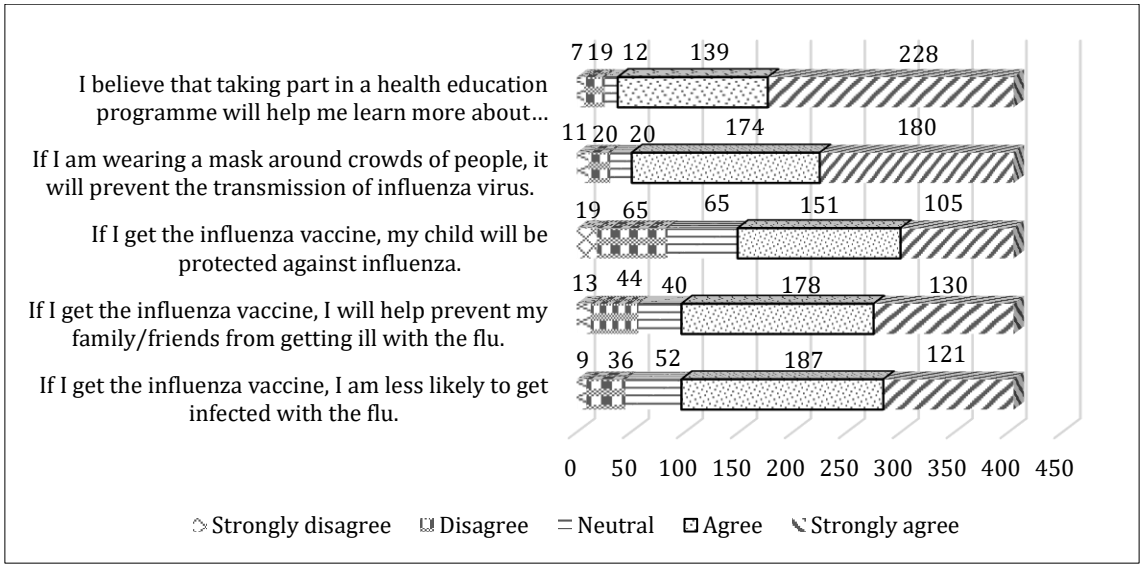


Fig 1. Attitude of the Malaysian adult towards influenza before video intervention.

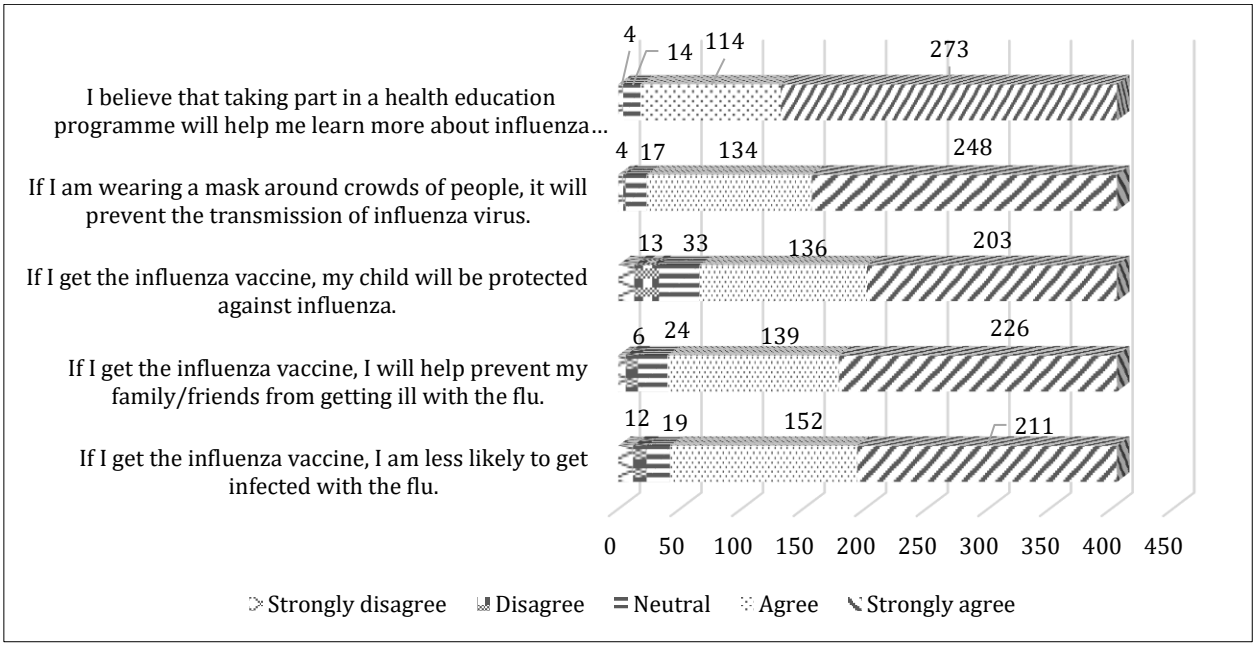


Fig 2. Attitude of the Malaysian adult towards influenza after video intervention.

Before the video intervention, 75.3% of respondents agreed or strongly agreed that influenza can spread to others even before the symptoms appear (Table 3). Meanwhile, 11.1% disagreed or strongly disagreed. After the intervention, the agreement increased to 83%, and the disagreement decreased to 6.2%. This shift indicates that the video intervention effectively reinforced the knowledge that influenza can be

https://doi.org/10.24191/IJPNaCS.v9i1.08 

transmitted pre-symptomatically, underscoring the potential of educational tools in improving public health awareness. Post-intervention also effectively clarified the transmission methods of influenza. Before the video intervention, 87.6% of respondents agreed or strongly agreed that influenza spread through coughs, sneezes, and contaminated hands, with 3.4% of respondents disagreeing. After the intervention, agreement increased to 93.5%, and disagreement dropped to 1.7%, suggesting that it is essential to encourage preventive measures such as hand hygiene and respiratory etiquette.

There was a weak positive correlation between knowledge and perception ($r = 0.160$, $p < 0.001$), suggesting that simply educating the public with facts about influenza yields only a marginal improvement in how seriously they perceive the disease (Table 4). Similarly, the weak positive correlation ($r = 0.116$, $p = 0.019$) between knowledge and attitude indicates that possessing higher levels of factual knowledge does not automatically translate into highly favorable attitudes toward preventive measures. In contrast, there was a significant and moderately positive correlation ($r = 0.546$, $p < 0.001$) between attitude and perception. In practical terms, this stronger link highlights that individuals who view the disease as a credible threat (perception) are much more likely to adopt positive, proactive mindsets regarding prevention (attitude). Overall, these findings suggest that while basic education is a starting point, effective public health interventions must go beyond merely sharing facts. They must actively focus on shaping personal risk assessments and health beliefs to drive meaningful behavioral change.

Table 3. Perception of the Malaysian population towards influenza pre- and post-video interventions.

| | | N (%) | | | | | t | *p*-value |
|---|---|---|---|---|---|---|---|---|
| **Statement** | **Intervention Type** | **Strongly Disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly Agree** | | |
| Influenza can spread to others even before the symptoms appear. | Pre<br>Post | 6 (1.5)<br>8 (2.0) | 39 (9.6)<br>17 (4.2) | 55 (13.6)<br>44 (10.9) | 181 (44.7)<br>174 (43) | 124 (30.6)<br>162 (40) | 4.279 | <0.001* |
| Only people with chronic illness or comorbidities should get the influenza vaccine. | Pre<br>Post | 36 (8.9)<br>70 (17.3) | 58 (14.3)<br>80 (19.8) | 71 (17.5)<br>52 (12.8) | 135 (33.3)<br>107 (26.4) | 105 (25.9)<br>96 (23.7) | 4.552 | <0.001* |
| Antiviral drugs can help me recover from the influenza illness even if I do not get the influenza vaccine. | Pre<br>Post | 20 (4.9)<br>29 (7.2) | 59 (14.6)<br>47 (11.6) | 148 (36.5)<br>65 (16) | 116 (28.6)<br>140 (34.6) | 62 (15.3)<br>124 (30.6) | 5.596 | <0.001* |
| Influenza is transmitted from person to person via coughs/ sneezes/ touching mouths or noses with contaminated hands. | Pre<br>Post | 5 (1.2)<br>5 (1.2) | 9 (2.2)<br>2 (0.5) | 36 (8.9)<br>19 (4.7) | 175 (43.2)<br>135 (33.3) | 180 (44.4)<br>244 (60.2) | 5.832 | <0.001* |
| Influenza is a significant health concern with the potential to cause severe illness and should be taken seriously. | Pre<br>Post | 2 (0.5)<br>4 (1.0) | 13 (3.2)<br>18 (4.4) | 29 (7.2)<br>134 (33.1) | 165 (40.7)<br>249 (61.5) | 196 (48.4)<br>0 (0) | 4.973 | <0.001* |

*Statistically significant at p-value <0.001

https://doi.org/10.24191/IJPNaCS.v9i1.08 

Table 4. Correlation analysis between knowledge, attitude and perception (KAP) scores.

| Variables | Pearson correlation, r | p-value |
|---|---|---|
| Knowledge and Perception | 0.160 | <0.001** |
| Knowledge and Attitude | 0.116 | 0.019* |
| Attitude and Perception | 0.546 | <0.001** |

**Correlation is significant at p-value <0.001
*Correlation is significant at p-value <0.05

## 4. DISCUSSION

Influenza is an underestimated contributor to morbidity and mortality worldwide. Most of the research conducted to assess influenza knowledge and vaccine acceptance has been undertaken among healthcare professionals (Abu-Rish et al., 2016). The results of this study offer an initial insight into the KAP of influenza among the Malaysian population. The analysis of demographic data revealed that respondents' educational levels significantly influenced their knowledge of influenza. Furthermore, respondents who were married exhibited good knowledge of influenza, which can be attributed to the varying social responsibilities and interactions experienced by this group. Married individuals often have family-related health responsibilities that may prompt them to seek more health information (Fei et al., 2023). In the Malaysian context, this is heavily influenced by the cultural norm of close-knit, multigenerational living arrangements, where married adults frequently serve as primary caregivers for both young children and aging parents, inherently heightening their vigilance regarding infectious respiratory diseases. They might also experience greater exposure and alertness to health information through educational institutions and social media (). Moreover, young adults aged 18–29 years were the most knowledgeable about influenza compared to the other groups in this study. This could be attributed to their active pursuit of health information through digital media platforms, indicating their preference for using online resources for health-related knowledge (Okobi et al., 2023).

Social media can be effectively utilized to deliver health promotion campaigns and interventions, encouraging young adults to engage with health-related content (Klassen et al., 2018). Conversely, adults aged 30–45 and middle-aged individuals aged 46–60 years often face time constraints due to work and family responsibilities, which can limit their engagement with health-related information (Sah et al., 2018). Moreover, consistent with studies by Lind and Boomgaarden (2019) and Wang et al. (2023), education level was significantly correlated with knowledge scores. From our findings, individuals with higher educational attainment, particularly those with postgraduate degrees, displayed better knowledge about influenza. Previous studies have found that advanced education equips individuals with enhanced cognitive abilities and information-processing skills, enabling them to acquire and process new knowledge effectively (Lind & Boomgaarden, 2019; Wang et al., 2023). On the other hand, literature reports that individuals with secondary education levels may have lower knowledge levels, indicating potential gaps in health education at lower educational stages (Abdulla et al., 2020).

https://doi.org/10.24191/IJPNaCS.v9i1.08 

Prior to the intervention, the mean attitude score for all respondents was at a moderate level of awareness. However, the score increased following the video intervention, reflecting a notable improvement in attitudes and highlighting an increased understanding and acceptance of the importance of influenza vaccination and preventive measures. Before the intervention, nearly half of the respondents believed that getting the influenza vaccine would reduce the likelihood of infection. Post-intervention, strong agreement increased significantly, which can be attributed to the fact that the intervention helped to improve their understanding of the vaccine's effectiveness in preventing influenza (Domnich et al., 2021). The specific success of the video intervention can be attributed to its capacity to present complex medical information through an accessible, visually and auditorily engaging narrative that bypasses traditional health literacy barriers. Unlike static text-based pamphlets, video interventions stimulate dual cognitive pathways, which have been shown to enhance memory retention and emotional engagement. This is consistent with comparable studies across Southeast Asia, which demonstrated that audiovisual educational tools yielded significantly higher short-term KAP retention regarding infectious diseases compared to conventional written methods.

Additionally, the belief that getting vaccinated would help prevent family and friends from getting ill also showed a significant shift. This change indicated an enhanced understanding of herd immunity and the communal benefits of vaccination, likely because respondents realized that vaccination helps to protect not only themselves but also their loved ones, especially those who might be more vulnerable to the virus (Hakim et al., 2019). This conceptual shift resonates deeply with the Malaysian cultural ethos of communal responsibility and the spirit of *"gotong-royong"* (mutual assistance and community solidarity). Highlighting communal benefits effectively taps into these intrinsic societal values, making the abstract concept of herd immunity culturally relevant and emotionally compelling. A study has demonstrated that communication strategies highlighting the community benefits of vaccination are essential in addressing vaccine hesitancy and boosting vaccine uptake (Husted et al., 2023). This is supported by Xu et al. (2021), who highlighted that media coverage emphasizing the community benefits of widespread vaccination can enhance public awareness and understanding. Vaccination is seen as crucial not only for individual protection but also for the overall well-being of the community.

The importance of wide vaccination coverage among children is also essential in reducing the risk of influenza infection and its associated complications. Schmidt-Ott et al. (2020) demonstrated that pediatric vaccination coverage ranging from 10 to 60% annually could prevent a significant number of infections not only in children but also in young adults and the elderly, ultimately contributing to the prevention of a substantial proportion of infections in the total population. By recognizing children's vulnerability to influenza and the vital role of vaccination in safeguarding them, parents play a key part in promoting public health and preventing the spread of infectious diseases within communities (Lama et al., 2020).

Moreover, the attitude toward wearing masks to prevent the transmission of the influenza virus also improved post-intervention, reflecting an improved understanding of preventive measures. Ueki et al. (2020) emphasized the importance of face masks in preventing airborne transmission of SARS-CoV-2. Additionally, Gupta et al. (2022) supported the notion that masks are effective in avoiding COVID-19 transmission, with a significant percentage of respondents agreeing on their efficacy. It is also crucial to critically acknowledge that the rapid acceptability of mask-wearing in this study was likely heavily

https://doi.org/10.24191/IJPNaCS.v9i1.08 

facilitated by the post-COVID-19 landscape in Malaysia. The strict mask mandates previously implemented during the pandemic have culturally normalized this behavior, significantly reducing the social stigma and physical discomfort previously associated with mask-wearing for general respiratory illnesses.

Participation in health education programs enhances respondents' knowledge about influenza vaccination. The increased agreement post-intervention is supported by Al-Qerem et al. (2023), who highlighted the deficiencies in awareness concerning the influenza vaccine among diabetic adults. Their findings highlight the urgent need for effective educational interventions to improve understanding and boost vaccination rates. They emphasize the importance of personalized health education initiatives designed to enhance knowledge and encourage greater vaccine uptake.

Our findings indicate that the video successfully raised awareness about asymptomatic influenza transmission. However, the slight increase in disagreement may reflect lingering confusion or deeply held pre-existing beliefs that were resistant to change. Exploring these negative or resistant findings is critical for future intervention designs. The resistance observed in a subset of the population could stem from cognitive overload, where the scientific explanation of asymptomatic transmission contradicts simplified, traditional views of illness—specifically, the belief that one is only contagious if physical symptoms are actively present. Furthermore, in a diverse healthcare landscape like Malaysia, the heavy reliance on traditional and complementary medicine within certain communities can occasionally foster skepticism or dissonance toward modern biomedical explanations and preventative guidelines.

Studies have shown that conspiracy beliefs can play a role in maintaining resistance to new information, as individuals may hold onto deeply rooted misconceptions despite contrary evidence (Douglas et al., 2019). Studies in the United Arab Emirates and Canada emphasize the significance of universal influenza vaccination, especially during pandemics, to prevent influenza-related complications and reduce mortality rates (Isenor et al., 2018; Marzooqi et al., 2023). A study by Seki (2020) highlighted the effectiveness of anti-influenza drugs over antibiotics, emphasizing the benefits of advanced care strategies, including vaccines, in treating influenza.

## 5. CONCLUSION

In conclusion, this study revealed that a video-aided educational tool improved KAP toward influenza and its preventive measures within the studied demographic. While sampling limitations restrict the ability to generalize these findings to a broader national scale, the results strongly suggest that video interventions hold promise as effective supplementary tool for public health education. The positive impact observed highlights the potential of digital media to engage specific audiences, indicating that with further research and implementation across more representative groups, such targeted interventions could play a valuable role in building more informed and health-conscious communities.

### ACKNOWLEDGEMENTS/FUNDING

The authors were thankful to all respondents who participated in this research. The authors would like to acknowledge the Faculty of Pharmacy, Universiti Teknologi MARA and the staff of the university for their

 

continued support and efforts in making this publication possible. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

## CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest.

## AUTHORS' CONTRIBUTIONS

**Wan Nurafiqah Auni Wan Mohd Maizudin**: Carried out the survey, data analyses and drafted the manuscript; **Siti Nooraishah Hussin**: Involved in supervision, review and editing of the manuscript.

## DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

During the preparation of this work, the authors used ChatGPT (OpenAI) and Grammarly to improve language, grammar, and readability. All content was reviewed and edited by the authors, who take full responsibility for the final manuscript.

## ETHICS STATEMENT

This study was reviewed and approved by the Research Ethics Committee (REC) of Universiti Teknologi MARA (UiTM) (Ref No. REC (PH)/UG/073/2024). An electronic informed consent was obtained from the respondents prior to the survey activity.

## REFERENCES

Abdulla, E., Johnson, J., Munir, S., & O'Dwyer, R. (2020). Assessing primary health care nurses' knowledge toward immunizations: A quantitative study. *Journal of Public Health Research*, *9*(1), 1693. https://doi.org/10.4081/jphr.2020.1693

Abu-Rish, E. Y., Elayeh, E. R., Mousa, L. A., Butanji, Y. K., & Albsoul-Younes, A. M. (2016). Knowledge, awareness and practices towards seasonal influenza and its vaccine: Implications for future vaccination campaigns in Jordan. *Family Practice*, *33*(6), 690–697. https://doi.org/10.1093/fampra/cmw086

Al-Qerem, W., Jarab, A., AlBawab, A. Q., Hammad, A., Alazab, B., Abu Husein, D., Eberhardt, J., Alasmari, F., & Alassi, A. (2023). Examining influenza vaccination patterns and barriers: Insights into knowledge, attitudes, and practices among diabetic adults (A cross-sectional survey). *Vaccines*, *11*(11), 1642. https://doi.org/10.3390/vaccines11111642

Almotairy, A., Sheikh, W., Joraid, A. A., Bajwi, A., Alharbi, M. F., & Al-Dubai, S. R. (2019). Association between knowledge of influenza vaccine and vaccination status among general population attending primary health care centers in Al-Madinah, Saudi Arabia. *Journal of Family Medicine and Primary Care*, *8*(9), 2971–2976. https://doi.org/10.4103/jfmpc.jfmpc_505_19

Centers for Disease Control and Prevention. (2019). *Key facts about influenza (flu)*. https://www.cdc.gov/flu/about/keyfacts.htm

Domnich, A., Grassi, R., Fallani, E., Spurio, A., Bruzzone, B., Panatto, D., Marozzi, B., Cambiaggi, M., Vasco, A., Orsi, A., & Icardi, G. (2021). Changes in attitudes and beliefs concerning vaccination and influenza vaccines

 

between the first and second COVID-19 pandemic waves: A longitudinal study. *Vaccines*, *9*(9), 1016. https://doi.org/10.3390/vaccines9091016

Douglas, K. M., Uscinski, J. E., Sutton, R. M., Cichocka, A., Nefes, T., Ang, C. S., & Deravi, F. (2019). Understanding conspiracy theories. *Political Psychology*, *40*(S1), 3–35. https://doi.org/10.1111/pops.12568

Eccles, R. (2005). Understanding the symptoms of the common cold and influenza. *The Lancet Infectious Diseases*, *5*(11), 718–725. https://doi.org/10.1016/S1473-3099(05)70270-X

Ellwanger, J. H., da Veiga, A. B. G., Kaminski, V. D. L., Valverde-Villegas, J. M., de Freitas, A. W. Q., & Chies, J. A. B. (2021). Control and prevention of infectious diseases from a One Health perspective. *Genetics and Molecular Biology*, *44*(1), e20200256. https://doi.org/10.1590/1678-4685-gmb-2020-0256

Excler, J. L., Saville, M., Berkley, S., & Kim, J. H. (2021). Vaccine development for emerging infectious diseases. *Nature Medicine*, *27*(4), 591–600. https://doi.org/10.1038/s41591-021-01301-0

Fei, W., Xiao, T., Li, X., & Yang, F. (2023). Knowledge about hepatitis B and influencing factors among the residents in Qingdao: A cross-sectional study. *Journal of Infection in Developing Countries*, *17*(7), 1030–1036. https://doi.org/10.3855/jidc.17511

Goodman, K., Mossad, S. B., Taksler, G. B., Emery, J., Schramm, S., & Rothberg, M. B. (2015). Impact of video education on influenza vaccination in pregnancy. *The Journal of Reproductive Medicine*, *60*(11-12), 471–479.

Gupta, S., Chakraborty, A., Banerjee, R., De, A., Halder, S., & Das, D. (2022). Face mask use and disposal behaviour of frontline young doctors during the COVID-19 pandemic: A two-year study. *Journal of Infection in Developing Countries*, *16*(10), 1570–1577. https://doi.org/10.3855/jidc.16480

Hakim, H., Provencher, T., Chambers, C. T., Driedger, S. M., Dube, E., Gavaruzzi, T., Giguere, A. M. C., Ivers, N. M., MacDonald, S., Paquette, J.-S., Wilson, K., Reinharz, D., & Witteman, H. O. (2019). Interventions to help people understand community immunity: A systematic review. *Vaccine*, *37*(2), 235–247. https://doi.org/10.1016/j.vaccine.2018.11.034

Han, K., Hou, Z., Tu, S., Liu, M., Chantler, T., & Larson, H. (2024). Factors influencing childhood influenza vaccination: A systematic review. *Vaccines*, *12*(3), 233. https://doi.org/10.3390/vaccines12030233

Husted, M., Gibbons, A., Cheung, W. Y., & Keating, S. (2023). COVID-19 vaccination hesitancy in adults in the United Kingdom: Barriers and facilitators to uptake. *Health Psychology*, *42*(5), 332–342. https://doi.org/10.1037/hea0001256

Isenor, J. E., O'Reilly, B. A., & Bowles, S. K. (2018). Evaluation of the impact of immunization policies, including the addition of pharmacists as immunizers, on influenza vaccination coverage in Nova Scotia, Canada: 2006 to 2016. *BMC Public Health*, *18*(1), 795. https://doi.org/10.1186/s12889-018-5716-1

Jiang, M., Feng, L., Wang, W., Gong, Y., Ming, W.-K., Hayat, K., Li, P., Gillani, A. H., Yao, X., & Fang, Y. (2021). Knowledge, attitudes, and practices towards influenza among Chinese adults during the epidemic of COVID-19: A cross-sectional online survey. *Human Vaccines & Immunotherapeutics*, *17*(5), 1412–1419. https://doi.org/10.1080/21645515.2020.1830681

Klassen, K. M., Douglass, C. H., Brennan, L., Truby, H., & Lim, M. S. C. (2018). Social media use for nutrition outcomes in young adults: A mixed-methods systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, *15*, 70. https://doi.org/10.1186/s12966-018-0696-y

Lama, Y., Hancock, G. R., Freimuth, V. S., Jamison, A. M., & Quinn, S. C. (2020). Using classification and regression tree analysis to explore parental influenza vaccine decisions. *Vaccine*, *38*(5), 1032–1039. https://doi.org/10.1016/j.vaccine.2019.11.026

Lind, F., & Boomgaarden, H. G. (2019). What we do and don't know: A meta-analysis of the knowledge gap hypothesis. *Annals of the International Communication Association*, *43*(3), 210–224. https://doi.org/10.1080/23808985.2019.1614475

Liu, C. J. (2010). Comprehension of a colon cancer pamphlet among American adults at least 50 years of age. *Health*

 

*Education Journal*, *69*(1), 107–115. https://doi.org/10.1177/0017896910363294

Marzooqi, N. A., Aljasmi, L., Alshehhi, B., Alnahas, S., Hassan, M. B., & Zahran, M. (2023). Determinants for receiving the seasonal influenza vaccine during the COVID-19 pandemic in the United Arab Emirates. *Journal of Public Health and Development*, *21*(1), 137–149. https://doi.org/10.55131/jphd/2023/210111

Okobi, O. E., Odoma, V. A., Ogochukwu, O. A., Onyeaka, C. N., Sike, C. G., Mbaezue, R. N., Iyare, W., Akhani, V., Okeke, C. H., Ojo, S., & Moevi, A. A. (2023). Assessing the relationship between health information technology use and self-rated health among adults with chronic low back pain in the United States. *Cureus*, *15*(5), e39498. https://doi.org/10.7759/cureus.39498

Sah, P., Medlock, J., Fitzpatrick, M. C., Singer, B. H., & Galvani, A. P. (2018). Optimizing the impact of low-efficacy influenza vaccines. *Proceedings of the National Academy of Sciences*, *115*(20), 5151–5156. https://doi.org/10.1073/pnas.1802479115

Schmidt-Ott, R., Molnar, D., Anastassopoulou, A., Yanni, E., Krumm, C., Bekkat-Berkani, R., Dos Santos, G., Henneke, P., Knuf, M., Schwehm, M., & Eichner, M. (2020). Assessing direct and indirect effects of pediatric influenza vaccination in Germany by individual-based simulations. *Human Vaccines & Immunotherapeutics*, *16*(4), 836–845. https://doi.org/10.1080/21645515.2019.1670060

Seki, M. (2020). Strategies for geriatric pneumonia in healthcare facilities – how effective is combined influenza and pneumococcal vaccination? *International Journal of General Medicine*, *13*, 663–666. https://doi.org/10.2147/IJGM.S268670

Skelton, R. M., & Huber, V. C. (2022). Comparing influenza virus biology for understanding influenza D virus. *Viruses*, *14*(4), 794. https://doi.org/10.3390/v14040794

Sun, R., Zhang, X., Jia, W., Li, P., & Song, C. (2024). Analysis of clinical characteristics and risk factors for death due to severe influenza in children. *European Journal of Clinical Microbiology & Infectious Diseases*, *43*(3), 567–575. https://doi.org/10.1007/s10096-024-04759-1

Ueki, H., Furusawa, Y., Iwatsuki-Horimoto, K., Imai, M., Kabata, H., Nishimura, H., & Kawaoka, Y. (2020). Effectiveness of face masks in preventing airborne transmission of SARS-CoV-2. *mSphere*, *5*(5), e00637-20. https://doi.org/10.1128/msphere.00637-20

Wang, H., Song, W., Wang, Y., & Wu, X. (2023). Monkeypox knowledge investigation and knowledge gap analysis: An online cross-sectional survey in China. *Risk Management and Healthcare Policy*, *16*, 2741–2756. https://doi.org/10.2147/RMHP.S433355

Xu, Y., Xu, D., Luo, L., Ma, F., Wang, P., Li, H., Li, Q., Wei, L., Diao, J., Liu, Y., Zhang, W., & Zheng, X. (2021). A cross-sectional survey on COVID-19 vaccine hesitancy among parents from Shandong vs. Zhejiang. *Frontiers in Public Health*, *9*, 779720. https://doi.org/10.3389/fpubh.2021.779720

Yang, Q., Wu, Z., Xie, Y., Xiao, X., Wu, J., Sang, T., Zhang, K., Song, H., Wu, X., & Xu, X. (2021). The impact of health education videos on general public's mental health and behavior during COVID-19. *Global Health Research and Policy*, *6*(1), 32. https://doi.org/10.1186/s41256-021-00214-4

Yuan, M., Xiao, X., Wang, Y., Han, Y., Zhang, R., Fu, H., & Fang, Y. (2021). Design and evaluation of a cognitive health education pilot program according to the RE-AIM framework. *PLoS One*, *16*(12), e0261376. https://doi.org/10.1371/journal.pone.0261376