

Knowledge, attitudes, and practices related to food poisoning prevention among Vietnamese medical students: Results of an online survey

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ABSTRACT

Food poisoning (FP) has emerged as a global public health concern. Knowledge, attitudes, and practices (KAP) play pivotal roles in mitigating the occurrence of foodborne illnesses. This study aimed to assess the prevalence of KAP in relation to FP prevention and its associated factors among medical students. This cross-sectional study used an online survey platform to select participants through convenience sampling using a structured self-administered questionnaire. Out of 3,126 students, the response rate was approximately 49%. Among the 1,534 participants, 63.0% were females, and the average age was 20.62 ± 1.98 . The percentages of participants with good knowledge, good attitudes, and good practices regarding FP prevention were 28.2%, 44.1%, and 68%, respectively. In the multivariate logistic regression analysis, grade level (Year 3 [AOR= 1.98; 95%CI: 1.31-2.99], Year 4 [AOR= 2.30; 95%CI: 1.53-3.46], Year 5 [AOR= 1.52; 95%CI: 1.01-2.30], Year 6 [AOR= 2.59; 95%CI: 1.80-3.72] compared to Year 1), previous participation in courses or subjects related to FP (AOR= 1.66; 95%CI: 1.29-2.14), and hearing about an FP outbreak (AOR= 1.67; 95%CI: 1.24-2.24) were significant factors associated with good knowledge. Females (AOR= 1.28; 95%CI: 1.03-1.59) and participants who had previously participated in courses or subjects associated with FP (AOR= 1.32; 95%CI: 1.04 -1.68) showed significantly good attitudes. Females (AOR= 1.63; 95%CI: 1.29-2.06), participants with no previous history of FP illness (AOR= 0.65; 95%CI: 0.52-0.84), and those with good attitudes (AOR= 3.64; 95%CI: 2.85-4.64) were significantly associated with good practices. This is the first study to provide new insights into the prevalence of KAP towards FP prevention and the contributing factors among Vietnamese medical students. Various health interventions are necessary, primarily focusing on health education targeting key relevant factors.

Key words:

knowledge; attitudes; practices; food poisoning; Vietnam

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INTRODUCTION

Food poisoning (FP) is an infection or irritation of the digestive tract spread through food or drink.¹ It can sometimes lead to illnesses and other health problems, such as meningitis, kidney damage, arthritis, and brain and nerve damage. Each year, unsafe food is responsible for causing 600 million cases of foodborne diseases and resulting in 420,000 deaths worldwide.^{2,3} In Vietnam, from 2011 to 2016, on average, there were 668,673 foodborne disease cases and 21 deaths yearly.⁴ Research results from a nationwide data search conducted from March 2020 to August 2022, which analyzed 184 articles reporting FP, indicated that 3,711 people were affected by FP.⁵

Foodborne diseases have been a problem in every society since the emergence of humanity. The types, severity, and effects of the disease change over time and across regions, countries, and communities. Foodborne diseases are common causes of illness and death, hindering socioeconomic development worldwide.² According to the World Health Organization, an estimated 600 million people—nearly 1 in 10—become ill after eating contaminated food, resulting in 420,000 deaths each year and the loss of 33 million healthy life years. Children under five bear 40% of the burden of foodborne illness, with 125,000 deaths occurring yearly.⁶

Numerous studies worldwide have examined knowledge, attitudes, and practices (KAP) concerning FP, yet only a limited number have focused on university students,⁷⁻¹⁵ and only a few studies have been conducted on university students. A survey conducted on dietetic students at a public university in Malaysia found that 89.36% of the respondents had good knowledge, 26% had good attitudes, and only 19.94% had good practices regarding

FP. This implies that students have good knowledge but poor attitudes and practices regarding FP.¹⁶ Another study on 1,020 students at Taif University, Saudi Arabia, revealed that 74.95%, 67.26%, and 80.29% of the participants had good KAP, respectively.¹⁷ Additionally, a study of 244 students in Saudi Arabia confirmed that 88% of the participants had negative attitudes toward FP, and 93% did not wash their hands with soap and water before eating.¹⁸

According to our findings, no study has evaluated the KAP related to FP among Vietnamese university students, especially medical students. These students are future doctors who hold pivotal roles in community healthcare, directly engaging in health education and communication efforts. They are instrumental in advising patients and the community on FP prevention measures. This research aimed to evaluate the prevalence of KAP and factors associated with FP prevention among medical students.

METHODS

Study Participants and Site

The medical students are studying at Hai Phong University of Medicine and Pharmacy, Vietnam, one of the major medical universities in the country. Particularly, first-year to sixth-year students majoring in general medicine participated in the study.

Study Design and Sample Size

This cross-sectional study employed an online survey platform and utilized convenience sampling to select participants. The questionnaire was keyed into Google Forms, and the survey link or QR code was provided to all general medicine students. Out of the 3,126 students enrolled in the academic year 2023–2024, the response rate achieved was

approximately 49%. Subsequently, data analysis was conducted based on the 1,534 responses received.

Instrument

A self-administered questionnaire was developed based on a previous study.¹⁹ A nutrition and epidemiology expert at the Hai Phong University of Medicine and Pharmacy reviewed and validated the questionnaire. Then, it was translated into Vietnamese (local language). Before distribution, the pre-designed questionnaire was tested on a random sample of students ($n = 10$) who did not participate in this study to ensure the understandability and clarity of the questions. Cronbach's alpha was 0.91 for the knowledge, 0.97 for the attitude, and 0.91 for the practice, indicating good internal consistency for each subscale.

The questionnaire consists of four sections: general information about the participants, knowledge, attitude, and practices toward FP. All the questions are closed-ended.

The participants' demographic information includes seven items, namely gender, age, ethnicity, grade level, experience in participating in courses or subjects mentioning FP, familiarity with the FP outbreak (i.e., whether the respondents have ever heard about the event), the source of information on the FP outbreak, and history of FP illness.

The knowledge section covers 42 items divided into five categories, namely the cause of FP, high-risk foods, the effects or complications of FP, how to detect spoiled food, and how to prevent FP. Each item has three options: True, false, and don't know/not sure. Each correct knowledge answer was given 1 point. Incorrect or don't know/not sure answers receive 0 points. The total score for the knowledge section is 42 points.

The attitude section comprises 10 items related to respondents' concerns about preventing FP. Each item was

assessed using a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree." The total score for the attitude section is 50 points.

The preventive practices section of FP has 10 items related to personal hygiene, food safety, food premise hygiene, reporting FP, and food hygiene preventive practices. Each item was assessed using a four-point Likert scale ranging from 1 (never) to 5 (always). The total score for the practice section is 40 points.

Data Analysis

The data, collected through accomplished Google Forms, were exported to Microsoft Office Excel 2016 and analyzed using the Statistical Package for the Social Sciences (SPSS version 25.0, SPSS Inc., Chicago, IL, USA). Frequencies and percentages (%) were used for categorical variables, while mean, standard deviation (SDs), and range were utilized for continuous variables. This study calculated KAP scores and converted them into percentages. Modified Bloom's cut-off points were employed to categorize KAP levels as good ($\geq 80\%$) and poor ($< 80\%$).^{16,19} Univariate and multivariate logistic regression analyses were applied to calculate Odds Ratios (ORs) and their 95% confidence intervals (CIs) to examine associations between KAP and potential factors. Variables with a p -value < 0.25 in univariate analysis were included in the multivariate analysis. Statistical significance was considered when $p < 0.05$.

ETHICAL APPROVAL

The Institutional Review Board of Hai Phong University of Medicine and Pharmacy has approved the research protocol (Ref 2297/QĐ-YDHP). All data collected from participants was kept confidential to ensure their privacy.

RESULTS

The proportion of females was 63.0%, and the average age was 20.62 ± 1.98 . Approximately 73.7% of participants have never participated in a course or subject that mentioned FP. Contrarily,

77.5% of participants had heard about an FP outbreak, with television being the main source of information, accounting for the highest proportion at 90.4%. The percentage of participants with a history of FP was 31.3% (Table 1).

Table 1. General information of the participants (N = 1,534)

Variables	N	%
Gender		
Male	567	37.0
Female	967	63.0
Age (Mean $\pm$ SD, Min - Max) (years)	20.62 $\pm$ 1.98 (18 - 33)	
Ethnicity		
Kinh	1347	87.8
Others	187	12.2
Grade level		
Year 1	331	21.6
Year 2	265	17.3
Year 3	198	12.9
Year 4	196	12.8
Year 5	218	14.2
Year 6	326	21.3
Have you ever participated in the courses/subjects that mentioned food poisoning?		
Yes	404	26.3
No	1130	73.7
Have you ever heard about a food poisoning outbreak?		
Yes	1189	77.5
No	345	22.5
The source of information on the food poisoning outbreak		
Television	1386	90.4
Internet	1153	75.2
Facebook/Tiktok/Youtube	1313	85.6
Family/relatives/friends	953	62.1
Medical staff	819	53.4
Previous history of a food poisoning illness		
Yes	480	31.3
No	1054	68.7

Most participants demonstrated awareness that bacteria (92.2%) and pesticide residues (81.7%) are the primary causes of food poisoning. They also claimed that seafood carries a high risk of causing food poisoning. Participants showed familiarity with the effects and complications of food poisoning, such as diarrhea (96.6%), vomiting (97%),

stomachache (96.9%), fatigue (93.5%), and dehydration (89%).

A significant percentage of participants demonstrated knowledge regarding the identification of spoiled food. Specifically, 91.4% of respondents thought that spoiled food changed its physical properties, 96.0% believed that spoiled food brings out a bad smell, and 78.7%

acknowledged that spoiled food changed its taste. In terms of prevention, nearly all respondents emphasized crucial practices, including thorough cooking (95.7%), regular handwashing with soap after using

the toilet (95.3%), maintaining a pest-free environment (95.6%), and practicing good personal hygiene (95.2%) as effective preventive measures (Table 2).

Table 2. Knowledge related to food poisoning prevention (N = 1,534)

No.	Variable	Correct answer	
		N	%
What is the cause of food poisoning?			
K1	Bacteria	1414	92.2
K2	Virus	698	45.5
K3	Parasites	1187	77.4
K4	Pesticide residues	1253	81.7
Which of the following is a high-risk food?			
K5	Chicken	699	45.6
K6	Meat	891	58.1
K7	Bread	413	26.9
K8	Dry food	408	26.6
K9	Dairy product	896	58.4
K10	Seafood	1161	75.7
K11	Rice	308	20.1
K12	Food in non-dented can	403	26.1
K13	Vegetables	872	56.8
K14	Fruits	869	56.6
What are the effects/complications of food poisoning?			
K15	Diarrhea	1482	96.6
K16	Vomiting	1488	97.0
K17	Stomachache	1487	96.9
K18	Dryness of the lips	939	61.2
K19	Lifeless or fatigue	1434	93.5
K20	Yellow eyes (jaundice)	604	39.4
K21	Fever	1221	79.6
K22	Bloody feces	777	50.7
K23	Muscle pain	749	48.8
K24	Bleeding gums	475	31.0
K25	Death	1221	79.6
K26	Kidney failure	838	54.6
K27	Liver damage	997	65.0
K28	Dehydration	1365	89.0
K29	Respiratory system failure	845	55.1
How do you detect spoiled food?			
K30	View physical changes in food	1402	91.4
K31	Spoiled food brings out a bad smell	1473	96.0
K32	The change of taste in food	1208	78.7
How can you prevent food poisoning?			
K33	Make sure foods are thoroughly cooked	1468	95.7
K34	Use the same wiper cloth to wipe dishes and tables	1045	68.1
K35	Use the same cutting board to cut different raw foods	1012	66.0
K36	Wash eggs thoroughly before cooking	1248	81.4
K37	Wash hands with soap every time after using the toilet	1462	95.3
K38	Use liquid soap when washing hands	1111	72.4

No.	Variable	Correct answer	
		N	%
K39	Eat cooked food that is left at room temperature for 12-24 hours	664	43.3
K40	Separate raw food from cooked food	1371	89.4
K41	Avoid the presence of animals and pests such as rats, flies, and cockroaches on food premises	1466	95.6
K42	Practicing good personal hygiene	1460	95.2

Additionally, around 20% of respondents strongly disagree or disagree with all attitudes-related statements. The highest proportion of respondents, about 68%, agree or strongly agree with the statement, “I will make sure the eateries I

visit are clean.” On the other hand, the lowest proportion agreed or strongly agreed with the statement “I would not choose a restaurant where the chef has long nails,” accounting for 45% (Table 3).

Table 3. Attitude related to food poisoning prevention (N = 1,534)

No.	Variables	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)
A1	I would choose a restaurant where food handlers wear gloves when handling food	324 (21.1)	16 (1.0)	225 (14.7)	611 (39.8)	358 (23.3)
A2	I would not choose a restaurant where the chef has long nails	289 (18.8)	136 (8.9)	416 (27.1)	517 (33.7)	176 (11.5)
A3	I will make sure of the cleanliness grade of the premises when choosing eateries	288 (18.8)	39 (2.5)	276 (18.0)	655 (42.7)	276 (18.0)
A4	I will not buy cooked foods that are exposed to room temperature for a long time	298 (19.4)	80 (5.2)	323 (21.1)	590 (38.5)	243 (15.8)
A5	I will make sure the eateries I visit are clean	321 (20.9)	30 (2.0)	133 (8.7)	628 (40.9)	422 (27.5)
A6	I will make sure to always wash my hands with soap before eating	327 (21.3)	28 (1.8)	159 (10.4)	631 (41.1)	389 (25.4)
A7	I will be reporting to the authorities (such as local authorities) in the event of operating activities and the provision of unhygienic foods on food premises	292 (19.0)	37 (2.4)	301 (19.6)	610 (39.8)	294 (19.2)
A8	I will report to the authorities (such as local health authorities) about food poisoning	292 (19.0)	45 (2.9)	268 (17.5)	631 (41.1)	298 (19.4)
A9	I need to see a doctor if I have any signs of food poisoning	312 (20.3)	31 (2.0)	166 (10.8)	656 (42.8)	369 (24.1)
A10	I care if I see food handlers smoking during food preparation and handling	309 (20.1)	58 (3.8)	246 (16.0)	603 (39.3)	318 (20.7)

More than 50% of participants consistently wash their hands before eating, check the hygiene grade of the premises before entering the eatery, see a doctor if there are symptoms of FP, smell the food first to ensure it is not spoiled, and do not

spit around eateries. The percentage of respondents who consistently don't choose or reject a restaurant where food handlers do not wear gloves or head coverings when handling food was very low (table 4).

Table 4. Practices related to food poisoning prevention (N = 1,534)

No.	Variables	Never N (%)	Rarely N (%)	Sometimes N (%)	Always N (%)
P1	I wash my hands until clean before eating	96 (6.3)	24 (1.6)	397 (25.9)	1017 (66.3)
P2	I use liquid soap instead of bar soap when washing my hands	117 (7.6)	160 (10.4)	630 (41.1)	627 (40.9)
P3	I will reject eateries where food handlers smoke when handling food	139 (9.1)	141 (9.2)	487 (31.7)	767 (50.0)
P4	I will check the hygiene grade of the premises before entering the eatery	111 (7.2)	111 (7.2)	446 (29.1)	866 (56.5)
P5	I will see a doctor if there are symptoms of food poisoning	103 (6.7)	65 (4.2)	389 (25.4)	977 (63.7)
P6	I will reject a restaurant where food handlers do not wear gloves when handling food	114 (7.4)	179 (11.7)	633 (41.3)	608 (39.6)
P7	I will not choose a restaurant where food handlers do not wear gloves when handling food	155 (10.1)	154 (10.0)	639 (41.7)	586 (38.2)
P8	I will reject a restaurant where food handlers do not wear head coverings	168 (11.0)	287 (18.7)	602 (39.2)	477 (31.1)
P9	I will smell the food first to make sure it is not spoiled	101 (6.6)	96 (6.3)	439 (28.6)	898 (58.5)
P10	I do not spit around eateries	118 (7.7)	37 (2.4)	201 (13.1)	1178 (76.8)

The proportion of respondents with good knowledge, attitudes, and practices was 28.2%, 44%, and 68%, respectively (Figure 1).

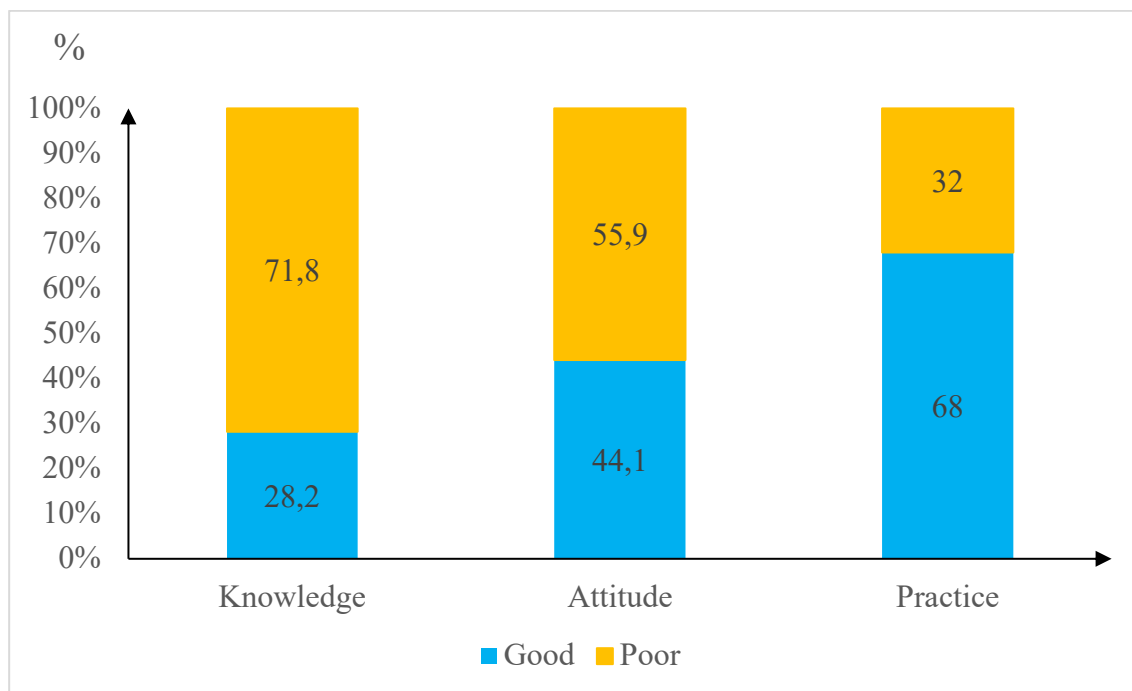


Figure 1. The prevalence of knowledge, attitude, and practices toward food poisoning prevention

Factors such as grade level (Year 3 [AOR = 1.98; 95% CI: 1.31–2.99; $p < 0.01$], Year 4 [AOR = 2.30; 95% CI: 1.53–3.46; $p < 0.001$], Year 5 [AOR = 1.52; 95% CI: 1.01–2.30; $p < 0.05$], Year 6 [AOR = 2.59; 95% CI: 1.80–3.72; $p < 0.001$] compared to Year 1), participation in courses or subjects that mention FP (AOR = 1.66; 95%CI: 1.29–2.14; $p < 0.001$), and heard about an FP outbreak (AOR = 1.67; 95%CI: 1.24–2.24; $p < 0.01$) were found to be statistically significantly related to good knowledge. Factors statistically related

considerably to good attitudes include being female (AOR = 1.28; 95%CI: 1.03–1.59; $p < 0.05$) and participating in courses or subjects where FP was mentioned (AOR = 1.32; 95% CI: 1.04 –1.68; $p < 0.05$). Being female (AOR = 1.63; 95% CI: 1.29–2.06; $p < 0.001$), having a history of FP (AOR = 0.65; 95%CI: 0.52–0.84; $p < 0.01$), and having a good attitude (AOR = 3.64; 95% CI: 2.85–4.64; $p < 0.001$) were found to be statistically significantly related to good practices (Table 5).

Table 5. Factors associated with good knowledge, attitude, and practices toward preventive food poisoning: Multivariate Logistic Regression Analysis

Variables	Knowledge AOR (95%CI)	Attitude AOR (95%CI)	Practice AOR (95%CI)
Gender			
Male	1	1	1
Female	1.07 (0.84 - 1.36)	1.28* (1.03 - 1.59)	1.63*** (1.29 - 2.06)
Grade level			
Year 1	1	1	1
Year 2	1.20 (0.85 - 1.88)	0.83 (0.59 - 1.15)	1.32 (0.91 - 1.91)
Year 3	1.98** (1.31 - 2.99)	1.05 (0.73 - 1.50)	1.25 (0.83 - 1.88)

Variables	Knowledge AOR (95%CI)	Attitude AOR (95%CI)	Practice AOR (95%CI)
Year 4	2.30*** (1.53 - 3.46)	1.0 (0.70 - 1.43)	0.98 (0.66 - 1.46)
Year 5	1.52* (1.01 - 2.30)	0.97 (0.68 - 1.37)	1.20 (0.81 - 1.77)
Year 6	2.59*** (1.80 - 3.72)	0.91 (0.66 - 1.25)	1.03 (0.72 - 1.47)
Used to participate in the courses/subjects mentioned food poisoning			
No	1	1	1
Yes	1.66*** (1.29 - 2.14)	1.32* (1.04 - 1.68)	1.22 (0.93 - 1.60)
Have you ever heard about a food poisoning outbreak?			
No	1	1	1
Yes	1.67** (1.24 - 2.24)	1.22 (0.95 - 1.56)	1.23 (0.94 - 1.61)
Previous history of food poisoning illness			
No	1	1	1
Yes	0.79 (0.61 - 1.02)	0.79 (0.63 - 1.0)	0.66** (0.52 - 0.84)
Knowledge			
Poor	Not included	1	1
Good	Not included	1.11 (0.88 - 1.40)	1.29 (0.99 - 1.69)
Attitude			
Negative	1	Not included	1
Positive	1.11 (0.88 - 1.40)	Not included	3.64*** (2.85 - 4.64)

Abbreviation: OR: Odds Ratio; AOR: Adjusted Odds Ratio; CI: Confidence Interval

Notes: Bolded numbers are significant at $p < 0.05$ (* <0.05 , ** <0.01 , *** <0.001)

DISCUSSION

This cross-sectional study evaluated the KAP level in FP prevention among medical students at a medical university in northern Vietnam. As aforementioned, until we conducted this study, no research evaluated KAP on FP prevention among medical students in Vietnam. Our research results show that the KAP level in FP prevention among students was relatively low, especially regarding knowledge and attitude. Moreover, we discovered that factors such as gender, grade level, whether participants had taken courses or subjects related to FP, awareness of FP outbreaks, and personal history of FP were statistically significantly associated with one of the aspects of KAP in FP prevention.

Knowledge about preventive food poisoning and its associated factors

The proportion of participants with good knowledge about FP prevention was deficient, at approximately 30%. This percentage is higher than similar studies conducted in Malaysia²⁰ but lower than the

research findings reported in Bangladesh²¹ and Ethiopia.²² Additionally, the knowledge level was significantly lower than the research on veterinary students at Trakia University, Bulgaria.²³ The observed differences in knowledge levels could be attributed to the varied research subjects and assessment tools. Our study found that most respondents were aware of typical symptoms of FP, such as digestive disorders like diarrhea, vomiting, stomachache, and dehydration. They also demonstrated knowledge regarding ways to detect spoiled food and preventive measures for FP. However, most respondents had poor knowledge regarding FP caused by viruses, certain high-risk foods, and the consequences of FP, such as yellow eyes (jaundice) and muscle pain. Conversely, many participants had incorrect orientation, believing it is safe to consume cooked food left at room temperature for 12–24 hours. These knowledge gaps highlight the need to emphasize and address these areas in future student training programs.

After analyzing the factors related to good knowledge about FP prevention,

we found a statistically significant relationship between grade level and knowledge. Specifically, third-year or older participants demonstrated better knowledge than first-year participants. Third-year or older students may have had more exposure to hospital settings, where they may have encountered cases related to FP, which has allowed them to observe and learn from actual cases and gain a deeper understanding of FP symptoms, causes, and preventive measures. This finding aligns with the research conducted on college students in Ethiopia.²² Our study also identified a statistically significant association between subjects who had participated in courses or subjects that mentioned FP and their knowledge. This finding is also consistent with research conducted in Türkiye²⁴ and Bangladesh.²¹ Respondents who had heard of FP outbreaks had better knowledge, similar to relevant research results in Malaysia.¹⁹ In summary, these results suggest that FP-related topics should be included in the training curriculum to improve students' knowledge of FP.

Attitude about preventive food poisoning and its associated factors

Only about 44% of the respondents were found to have a good attitude about FP prevention. Contrarily, our research indicates that approximately 20% of respondents strongly disagreed or disagreed with 10 statements regarding attitudes about FP prevention. The proportion of respondents with good attitudes is lower than the results of research conducted at Universiti Putra Malaysia¹⁹ and a survey of students in Bangladesh,²¹ and this result is higher than the study conducted in Ethiopia.²² These differences may be due to variations in research subjects and assessment tools.

Multivariable logistic regression analysis revealed FP prevention attitudes

were related to gender factors. Females tend to have a better attitude than males, as is reflected in a study about postgraduate students in a public university in Selangor, Malaysia,¹⁹ and research conducted among parents in the Bench-Sheko region, Southwestern Ethiopia.²⁵ Meanwhile, research results on students at Majmaah University show no such relationship.¹⁸ Our research also revealed that respondents who had engaged in courses or subjects covering FP demonstrated better attitudes, aligning with findings from a study conducted on students in Bangladesh.²¹ Females and individuals who have participated in courses or subjects related to FP have a better attitude due to increased education, awareness, empowerment, cultural influences, and personal interest in food safety. However, further research is needed to fully understand the underlying reasons behind these observed differences.

Practices about preventive food poisoning and its associated factors

Compared to knowledge and attitudes, the percentage of participants demonstrating good food safety practices to prevent FP is significantly higher. Only approximately one-third of the participants had poor prevention practices. This result is higher than the research findings reported from Malaysia,¹⁹ Bangladesh,²¹ Lebanon,²⁶ and Ethiopia.²² The study participants' differences can explain this, as our research focused on medical students, while other studies examined students from different disciplines. Medical students may have received training in FP prevention measures. Furthermore, they could encounter real-life cases of food poisoning during their hospital studies. Awareness of the harmful effects of FP contributes to developing practical skills for preventing such incidents.

Similar to the research results on veterinary students at Trakia University,

Bulgaria,²³ our study shows that females are more likely to have good FP prevention practices than males, supporting the findings of studies conducted in Palestine,⁸ Bangladesh,²¹ and Southwestern Ethiopia.²⁵ This can be attributed to females' often food-processing activities and preparing and providing meals for their families. Consequently, they may have a stronger motivation to prevent FP.²⁷ We also found that respondents with a FP history had lower good FP prevention practices than those without such a history. No previous similar or discordant studies were found. However, this may be because most people with FP often have mild symptoms, and the disease usually resolves without treatment²⁸; therefore, these individuals may have a subjective perception of the disease. Another statistically significant association was also observed, where subjects with good attitudes toward FP prevention exhibited better practices in preventing FP, which aligns with research conducted on postgraduate students at Universiti Putra Malaysia.¹⁹ This implies that attitudes are critical, motivating people to take measures to reduce FP.²⁹

STRENGTH AND LIMITATION

The main strength of this study is that it is the first to evaluate the knowledge, attitudes, and practices of medical students in Vietnam regarding FP prevention. Our study has some limitations. Firstly, data were collected through an online survey, which may not accurately reflect participants' FP prevention practices. It is difficult to verify whether participants truly follow the reported practices. Additionally, the questionnaire used to assess KAP on FP prevention has not been standardized in Vietnam, making it challenging to evaluate its validity and reliability in the Vietnamese context. Lastly, the cross-sectional study design makes it impossible to establish a

cause-and-effect relationship between KAP of FP prevention and the associated factors.

CONCLUSION

Medical students' knowledge, attitude, and practice regarding food poisoning prevention are still low. More than two-thirds of the participants demonstrated good practices in preventing FP, while only one-fifth and two-fifths had good knowledge and attitudes about preventing FP, respectively. The study also identified statistically significant factors associated with knowledge, attitude, and practices. After graduating, medical students, in addition to medical examination and treatment, also play an essential role in communication and health education for the people. Therefore, emphasis should be placed on filling the gaps by applying the necessary interventions. Future studies should combine qualitative and quantitative methods to identify gaps and associated factors more efficiently.

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