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Factors Associated with Food Hygiene Practices among Home-Based Food Operators in Malaysia: The Role of Demographic Characteristics, Food Safety Awareness, and Moral Responsibility

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ABSTRACT: Home-based food production has become an important component of community food systems. However, inadequate hygiene and environmental sanitation practices may increase the risk of food contamination and foodborne diseases. This study investigates how demographic characteristics influence food hygiene practices, food safety awareness, and moral responsibility among home-based food operators in Malaysia. We defined understanding as the actual cognitive dominion of food hygiene and safety principles; awareness mirrors psychological awareness and attitude towards their importance, and moral value gives the ethical compass that translates into real-life compliance behavior. This was a questionnaire survey of 303 home-based food operators, who formed the study sample. Results show very considerable differences by gender and then by levels of awareness and environmental food hygiene and safety, and variation in age, ethnicity, and educational level across some specific dimensions. The study shed light on the need of FHT, continuous monitoring towards food sanitation and developing hygiene and ethics among home-based food handlers. The findings contribute to environmental health management and sustainable community food safety policies.

1. INTRODUCTION

The funnel from global macro-challenges to localized action underscores how environmental health is the fundamental foundation for community well-being. First, global sustainability challenges immediately impact environmental health. Rising temperatures, deteriorated soils, and polluted water systems provide a breeding ground for hazardous microorganisms. When these environmental guardrails fail, we see an increase in foodborne pathogens, turning a vital resource into a public health problem. In reaction to these supply chain vulnerabilities, many people are growing their own food at home. This is usually in the form of home gardening, small scale agriculture and such. But without industrial quality standards of backyard plots, safety cannot exist in a vacuum, it needs a strong framework of community food safety. Communities may mitigate the risk of food borne illness from the ground up by closing the loop efficiently, and in doing so, create a healthier global ecology. This can be achieved through creating localized norms for shared composting, clean water access and safe food handling.

As the Movement Control Order (MCO) was being enforced across the nation, food and beverage businesses ranging from café and restaurant owners of all sizes and capacities to well-known fast-food chains, manufacturers and retailers continued

to face the brunt of the effect of COVID-19. Despite the fact that most entrepreneurs had struggled to keep their enterprise and their workers afloat amid the MCO, food handlers and delivery services had to turn on a dime to adapt to those realities and take any chance to capitalize (Zulfazlin, 2020). Despite creating economic opportunities, food hygiene and safety are key to ensuring the health of consumers against foodborne diseases (Suhaini, Izham & Samori, 2025). Earlier studies have found a disparity between food safety standards set out by authorities and the current practices adopted by food handlers within the field (Suhaini et al., 2025).

Food safety refers to food that is not harmful or unsuitable for customers when prepared, handled and eaten, including hygiene standards, handling of raw materials, storage and handling in the processing (Home-Based Food Safety Guidelines, 2024). Understanding in this context among food handlers can be defined as the cognitive knowledge of food safety principles, risks, and procedures, while awareness indicates sensitivity and attitude toward the importance of these practices. While moral values are the ethical obligation that drives hygienic behavior in daily life. The theory of planned behavior is frequently used in studies of food behavior to explain intentions and behavior related to food safety through the mediators of knowledge or perception, attitudes, and social norms (Hasyim, 2025).

While these types of businesses are allowed, owners of a home-based business must also adhere to all applicable food safety and quality Regulations enforced by the Food Safety and Quality Division, which include, but are not limited to:

- a) Registration under Domestic FoSIM
- b) Registration to attend food handler training courses conducted at training schools approved by the Ministry of Health Malaysia (MOH)
- c) Obtaining typhoid immunization
- d) Practising good basic food hygiene
- e) Carrying out your own checks and observing good basic food hygiene practices

(Ministry of Malaysia Health, 2020)

These are the particulars that, when complied with, make sure that food served at home and packages ready for delivery and sold to the public is clean, safe, and fit for consumption. Food safety consists of factors related to selection of raw material, storage of raw material, preparation (processing), handling, selling and storage of the final processed product. *Halalan toyyiba* (2016) found The Health Department to provide food safety monitoring functions.

For example, due to the enforcement of partial lockdown measures and entire lockdown measures during the early period of the pandemic, in reality, it was difficult to control the risks brought by particularly home-based online businesses, mainly in terms of hygiene, as many had failed to follow the standard operating procedures (SOPs) set that then attracted to reports and cases of food poisoning. News, such as the incident in Kuala Terengganu and Marang, where 98 victims suffered vomiting and diarrhoea after consuming “bubble pudding” that they purchased online a day before, became widely dispersed through the media.

As this scenario notes, besides assuring cleanliness and safety in food preparation environment, supervision and enforcement are also evident on guaranteeing the sanitary and healthy performance of food enterprises. Thus, this study was designed to assess the differences in the level of knowledge and awareness regarding food hygiene and safety; personal hygiene; and premises of home-prepared food among home-based food handlers.

Thus, this study takes a theoretical base in health and food safety behavior, which indicates that changes in practices develop from not only knowledge, but also health awareness and personal morality. Here, food hygiene and safety are behavioral outcomes and understanding, awareness, and moral values are used as key psychosocial variables that influence the compliance of food handlers.

Kedah state, due to its mixture of urban and rural populations, varied household socioeconomics, and high home-based food businesses activity post-pandemic, has been selected as the study site. While local contextual factors such as the degree of enforcement and community culture may affect the results, this study has, nonetheless, conceptual transferability to the Malaysian micro food enterprise situation. This is a significant finding and contributes to existing literature on the effect of demographic factors, specifically on food safety practices in micro food businesses.

1.1 Home-Based Food

Home based food is food prepared at home for selling purpose. The guidelines on preparation of home-based food is developed by the Food Safety and Quality Division (BKRM) to promote home-based food operators to prepare food utilising more hygienic and safe practices whilst adhering to existing legislations. This guide can help the home-based food operator to improve the sales performance through the logos on product labels to raise the level of trust throughout the community on the level of safety of the home-based food are produced.

2. LITERATURE REVIEW

Azahari, Munauwar, and Mohd Azril (2016) mentioned that studies on essential home-based business being a part of small business activities are quite rare. In fact, the business idea has been around for some time but is rarely discussed and overlooked by policymakers (Standen, 2018).

But, since the pandemic, home based businesses has gained momentum and are dependent on websites and applications such as WhatsApp, Facebook, Instagram, Twitter and many others to help with the process of buying and selling online. Despite its advantages, such as time and cost-efficiency, online purchases still have some disadvantages especially regarding the quality of the food and hygiene level (Siti Masayu Rosliah & Fatimah, 2020). Zatul Iffah (2020) reported that the Terengganu government for instance will prepare a study on SOPs of food handlers involved in online home-based business to ensure that hygiene compliance is followed strictly. Typhoid vaccination and business licensing will be included in the purview of this study, as is the case with other owners of premises. That is because online businesses, especially home-based businesses, are hard to monitor, especially food hygiene. The study was also conducted after the media reported a patient diagnosed with bubble pudding food poisoning who was a victim to the disease died at Hospital Sultanah Nur Zahirah Intensive Care Unit (ICU) after 10 days battling for his life; and after 98 victims from Kuala Terengganu and Marang experienced vomiting and diarrhea after eating bubble pudding ordered online on 22 May.

Food Safety and Quality Division under Ministry of Health Malaysia has officially allowed the recognized Food Handler Training Schools to conduct the training either in physical or online approach in line with the rapid of technology upgrading. Many participants, particularly housewives who have constraints in physically undergoing training, have welcomed this decision. A spike in food handlers attending training courses because of heavy social media advertising is evidence of this. More home-based food operators now realize the significance of food handler training to guarantee their food or beverage from anything that will contaminate their products as sold.

As noted by Bolton et al. (2018), training delivered to home-based food operators does not ensure that handlers are adopting environmental hygiene and safety procedures during food handling. Aligning with the fact that knowledge, understanding and awareness learnt will not be enough and practicing and following the principles in food handling practices is a compulsory.

According to Egan et al. (2017), information sharing based approach has been the foundation of most programmers deliver to food operators. Dissemination of information is presumed to achieve significant behavioral modification regarding the safe handling of food; nevertheless, these efforts have minimal impact among food handlers. Hence, the food handlers are exercised with more self-awareness about their actions in running the business because this type of premise is not just business oriented but also represents the handler as he should be responsible for maintaining health and hygiene within the operating premises.

Recent work has also focused on how psychosocial factors risk perception, hygiene attitudes, and social norms will influence food safety behavior above and beyond the demographic characteristics of food handlers (Young et al., 2019; Suhaini, Izham & Samori, 2025). As a result, food safety understanding needs to transcend common knowledge, because only awareness and ethical motivations can stimulate actual behavior.

Despite existing literature focusing on knowledge, training and food safety awareness, there is still lack of empirical evidence on how demographic factors (such as gender, age, ethnicity, and education level) interact with understanding awareness and moral values to form specific environmental hygienic practices, especially for home-based businesses, and which receive less supervision. Thus, to elucidate differences in food safety practices in home-based food handlers in the state of Kedah, this study specifically examines the relationship between demographic factors and these psychosocial constructs.

2.1 Theoretical Framework

The study follows the Theory of Planned Behaviour (TPB) (Ajzen 1991) which states individual behaviour is influenced by behaviours have three components of attitudes, subjective norms and perceived behavioural control which creates intention and behaviour. Food safety is thus one context in which this framework is apt because it incorporates not just knowledge-based factors in compliance with hygiene practices, but also aspects of attitude, social pressure, and capability to perform the practice consistently.

Knowledge is a cognitive construct conceptualized as the level of information and skills regarding food hygiene and safety, according to TPB. Awareness points to the cognitive assessment related to the significance of food safety initiatives, as indicated, for example, by the propensity to be alert to contamination threats and the duty of care owed to consumers. On the other side, moral values also mean inner ethical commitment to keep one in practice to perform hygiene even without the presence of external control. These three constructs serve as psychosocial factors affecting the likelihood of home-based food handlers practicing safe food handling.

Besides TPB, this study is also based on Bandura (1986) Social Learning Theory, which asserts that human behaviour is developed through the interaction of reciprocal determinism among personal factors, environment and experiences. Hands-on experience handling food, local community norms, and training on food safety in the context of home-based food businesses can shape awareness and food handler hygiene practices. As a result, this theory could provide an explanation for the differences in food safety practices exhibited by handlers with different educational backgrounds or levels of experience.

This study combines both theories to reveal complex interplay between cognitive (knowledge), psychological (awareness), ethical (moral values) and demographic factors to be as reason behind food safety practices. Analysis of demographic factors including gender, age, ethnicity, education levels, as well as psycho-social factors encompassing levels of knowledge and awareness, and moral values are thought to affect the practice of hygiene and food safety among home-based food handlers.

Conceptually, this study proposes that food safety training alone is not enough, and that increasing the awareness and moral values of everyone must also be enhanced. Hence, a multi-faceted approach to mitigate risks is warranted to achieve sustained behavioural change in food handling, especially in the home-based microenterprise sector. This framework is then used to structure the construction of research instruments, demographic variables, and differences set out in this study.

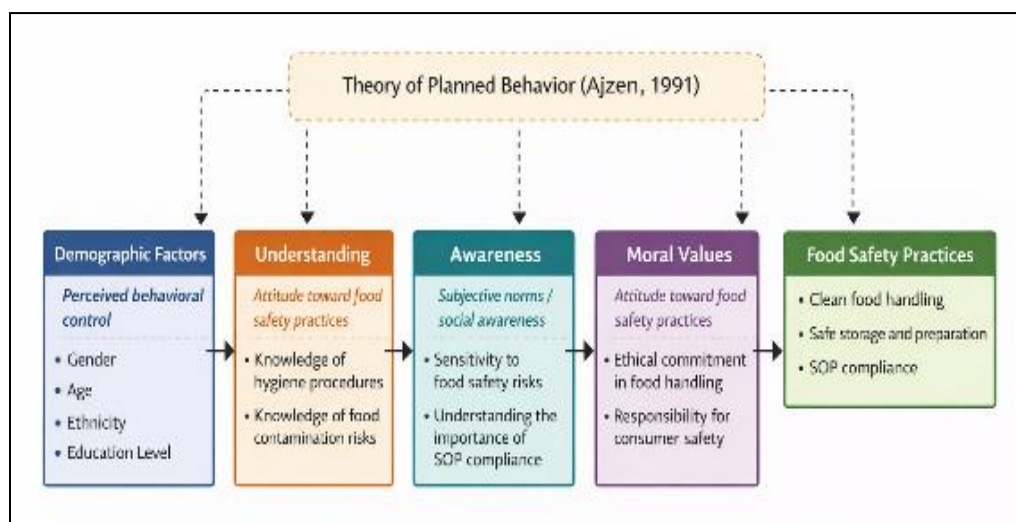


Figure 1: Theoretical Framework of the Study

3. MATERIAL AND METHODS

Methods a cross-sectional survey design this study conducted a cross-sectional survey to analyse the effect of demographic factors on knowledge, awareness and food safety practises among home-based food handlers in different districts of the state

of Kedah. A cross-sectional design was decided upon given that the current study aims to map current behaviours and differences according to demographic factors, though changes in behaviours over time could be examined in future studies (Ajzen, 1991; Egan et al., 2017).

This study was undertaken in the state of Kedah where home-based food production is an important component of local food supply chains. Environmental sanitation, household hygienic conditions and food handling behaviours are major drivers of food safety in the community.

The study population included all viable, operating home-based food handlers (both registrants and non-registrants). In this study, the total number of respondents was 303 who were selected (using stratified sampling) for this study to ensure that the proportion of operators of urban and rural areas might be balanced. For sample validity, the questionnaire contained a series of screening questions, for example, how often the product is prepared, confirmation that the business (if registered) and whether they participated in food handler courses, etc., to ensure the respondent was indeed running a home-based food business.

A specific research instrument used in the study was a structured questionnaire designed with some modifications drawing from the previous studies that focused on home-based operators. The aspects covered in the questionnaire included knowledge, awareness, ethics and food safety practices. The validity of content was assessed through an expert review (3 food safety experts), and it was pilot tested with 30 respondents of different educational backgrounds to ensure linguistic and cultural appropriateness. In the pilot, the questionnaire items were assessed for wording clarity, conceptual clarity, and practicality of the questions.

We tested the reliability of all our instruments with Cronbach's alpha, achieving values above 0.70 for all constructs which attests to an acceptable level of internal consistency (Hair et al., 2021). We collected data both online through social media platforms like WhatsApp, Facebook and Instagram, as well as through physical questionnaires for operators in rural areas with limited internet access. To reduce social desirability bias, participants were informed that their responses were confidential and they were not going to be evaluated or punished by the government and we used structured questions which may reduce subjective interpretation.

We analysed the collected data by SPSS version 23.0. Descriptive analysis was used to explore means, standard deviations, and number of respondents, cross-tabulated by socio-demographic variables; and inferential analysis (independent samples t-tests and one-way ANOVA) was conducted to test differences according to gender, age, ethnicity, and education level.

Tukey's HSD post-hoc tests were performed to locate differences for any demographic categories for which there were significant results. Before inferential tests, normal distribution and homogeneity of variance assumptions were checked with the Whipp- Shapiro and Levene's tests, respectively. To ensure the consistency and reliability of the analysis, incomplete/invalid responses were excluded through listwise deletion.

4. RESULTS

Results of independent samples t-test analysis showed that males and females differed significantly on all the variables tested (environmental hygiene and safety, awareness, and moral values). Mean scores for males were also greater than the mean scores for females on all three variables of environmental hygiene and safety (Male: $M = 2.77$, Female: $M = 2.65$, $p < .001$, Cohen's $d = .25$), than expectation (Males $M = 1.92$, Females $M = 1.79$, $p = .04$, Cohen's $d = .22$) and distinct moral values (Male: $M = 2.80$, Female: $M = 2.68$, $p < .001$, Cohen's $d = .26$). These results show that gender has a small to medium influence on respondents' views about environmental hygiene, safety, awareness and values at a moral level.

Table 1: Gender Differences in Food Hygiene & Safety, Awareness, and Moral Values

Variable	Gender	N	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
Environmental Hygiene & Safety	Male	82	2.77	0.22	3.626	301	.001	0.25
	Female	221	2.65	0.26				

Awareness	Male	82	2.44	0.23	2.063	301	.040	0.22
	Female	221	2.38	0.22				
Moral Values	Male	82	2.80	0.25	3.709	301	.001	0.26
	Female	221	2.68	0.26				

Results of the ANOVA showed significant differences in awareness $F = 5.828, p = .001$ and ethical principles ($F = 3.680, p = .013$) in the food hygiene and safety ($F = 1.371, p = .252$). Non-linear variation by age was evident with respondents aged 18–30 years having the highest awareness score ($M = 2.48$) and respondents aged 61 years and older and low scores for 31–60 years ($M = 2.49$).

Table 2: Age Differences in Food Hygiene & Safety, Awareness, and Moral Values

Variable	Age Group	N	Mean	SD	<i>F</i>	<i>df</i>	<i>p</i>
Environmental Hygiene & Safety	18 - 30	50	2.74	0.14	1.371	3,299	.252
	31 - 40	150	2.69	0.24			
	41 - 60	92	2.65	0.31			
	≥ 61	11	2.64	0.20			
Awareness	18 - 30	50	2.48	0.11	5.828	3,299	.001
	31 - 40	150	2.35	0.22			
	41 - 60	92	2.42	0.25			
	≥ 61	11	2.49	0.26			
Moral Values	18 - 30	50	2.72	0.23	3.680	3,299	.013
	31 - 40	150	2.75	0.27			
	41 - 60	92	2.68	0.25			
	≥ 61	11	2.50	0.22			

Results from the ANOVA analysis indicated significant differences in food hygiene and safety across ethnicity ($F = 3.845, p = .010$), and Malay respondents having the highest ($M = 2.71$). In the mean while, awareness ($F = 2.170, p = .092$), and moral values ($F = 0.662, p = .576$), indicating that there is no significant impact of ethnicity on the two variables (Table 3).

Table 3: Ethnic Differences in Food Hygiene & Safety, Awareness, and Moral Values

Variable	Ethnicity	N	Mean	SD	<i>F</i>	<i>df</i>	<i>p</i>
Environmental Hygiene & Safety	Malay	249	2.71	0.25	3.845	3,299	.010
	Chinese	17	2.60	0.30			
	Indian	23	2.55	0.21			
	Others	14	2.63	0.26			

Awareness	Malay	249	2.41	0.22	2.170	3.299	.092
	Chinese	17	2.37	0.27			
	Indian	23	2.30	0.22			
	Others	14	2.36	0.23			
Moral Values	Malay	249	2.72	0.26	0.662	3.299	.576
	Chinese	17	2.66	0.28			
	Indian	23	2.70	0.28			
	Others	14	2.65	0.24			

Statistical analysis ANOVA were used in order to examine the influence of educational level on food hygiene and safety ($F = 2.955$, $p = .020$), and awareness ($F = 6.339$, $p < .05$), $F = 0.867$, $p = .484$). The mean for cleanliness and safety was highest among people with an SPM-level

education ($M = 2.74$), as was the mean for awareness overall for SPM respondents ($M = 2.49$) (Table 4).

Table 4: Educational Level Differences in Food Hygiene & Safety, Awareness, and Moral Values

Variable	Educational Level	N	Mean	SD	<i>F</i>	<i>df</i>	<i>p</i>
Environmental Hygiene & Safety	PMR	15	2.61	0.19	2.955	4, 298	.020
	SPM	79	2.74	0.25			
	Diploma/Certificate	111	2.69	0.23			
	Degree	73	2.67	0.26			
	Master/PhD	25	2.56	0.30			
Awareness	PMR	15	2.37	0.19	6.339	4, 298	.001
	SPM	79	2.49	0.22			
	Diploma/Certificate	111	2.40	0.21			
	Degree	73	2.35	0.21			
	Master/PhD	25	2.28	0.28			
Moral Values	PMR	15	2.70	0.19	0.867	4, 298	.484
	SPM	79	2.74	0.19			
	Diploma/Certificate	111	2.73	0.29			
	Degree	73	2.68	0.28			
	Master/PhD	25	2.67	0.29			

Gender, age, ethnicity and educational level all influenced individual-level perceptions of food hygiene, safety, awareness and moral values, though the relative force of each of the variables varied considerably across demographic segments. In contrast to ethnicity and educational level, gender and age were more consistently related to all variables

5. DISCUSSION

The results of this study show that significant demographic differences indicate varying levels of food hygiene practices among home-based food operators in Kedah. Gender and age impacted all of the variables most consistently, while ethnicity and education level impacted various practical aspects of food hygiene and safety.

There were large gender differences, with males outperforming females. Conversely, this is consistent with the work of Bolton et al. (2018) who stated that food safety practice does not depend solely on professional that has been accepted or training that has been carried out but also because of motivation believed and moral beliefs. Hence, The Theory of Planned Behavior (TPB) (Ajz, 1991) emphasizes the influence of moral values and subjective norm in shaping positive and negative attitudes and beliefs that govern food handling behavior.

The non-linear change with age in knowledge and ethical behavior indicates that experience and real-world exposure is important. This means that the younger age group (18–30 years) may have greater awareness and knowledge owing to formal and digital education while the ≥ 61 years respondents may have in depth knowledge and moral from long life experience in food preparation (Egan et al., 2017; Nguyen et al., 2022). This finding is also supported by other literatures suggesting that the importance of practice in food handling is an integral component to ensure safe food practices at home (Azahari et al., 2016; Standen, 2018).

Differences according to ethnicity, where cleanliness and safety scored highest among Malay respondents, are attributable to cultural norms and traditions focused on cleanliness during food preparation. While education level was a significant determinant on food hygiene, safety and awareness with SPM respondents highest. This means that academic education will improve knowledge, while application is only dependent on desire and practice (Siti Masayu & Fatimah, 2020; Zatul Iffah, 2020).

These findings can all be explained in the context of the TPB. One may argue that for attitudes toward behavior, knowledge and moral values relate to awareness, and for subjective norms, demographic variables act as perceived behavioral control. According to the TPB, behavior is a function of the interplay between attitudes, norms, and controls, and such an interplay of these factors explains actual food handling practices (Ajzen, 1991; Fishbein & Ajzen, 2010).

Additionally, this study reiterates that even though home-based operators have attended food handler training courses; formal or online, conducting information only sessions does not change the behavior consistently. Kitchen behaviors are the performances of awareness, knowledge and moral values (Bolton et al., 2018; Nguyen et al., 2022). Consequently, intervention approaches need to prioritize practical training, regular inspections and implementation of food safety regulations over classroom education.

5.1 Implications of The Study

These findings have important implications not only from a practical but also educational and social point of view. In practice, greater government focus in terms of monitoring and enforcement of food hygiene and safety is needed at home-based food operators. This study has several practical, educational, social, and policy implications, especially for home-based food entrepreneurs in Kedah and, in general, in the Malaysian context. The results suggest that home-based food handlers have different levels of knowledge, awareness, and moral values as you go up through the gender, age, ethnicity, and education levels. For example, males and those with education until SPM scored higher for knowledge and hygiene practices, and the non-linear pattern of awareness scores by age suggested that exposure to practice and personal motivation both appear to contribute heavily. Such a phenomenon fits perfectly to the Theory of Planned Behavior (TPB) that states that attitudes, subjective norms, and perceived behavioral control affect both intentions and actual behavior (Ajzen, 1991; Nguyen et al., 2022).

At a practical level these findings indicate that there is a need for improvement in the supervision and enforcement of food hygiene and safety practices. Although food handlers have undergone courses on food handling through the Malaysian Food Safety and Quality Division the practice in the kitchen still rely on personal awareness and knowledge of an individual as well as moral values. Hence, targeted surveillance, self-assessment checklists and accredited training modules are imperative to ensure the food sold is safe, clean and of quality (Bolton et al., 2018; Zatul Iffah, 2020). In addition, the contention that certain demographic characteristics (age and education) call for training methods designed with specific participant categories in mind, enabling interventions to improve food safety practices, supports the argument for more homogeneous training.

From an educational point of view, this work reinforces the idea that food handling requires consistent behavioural change that is not guaranteed by formal training. Training needs to be supplemented through practical components, spaced learning, coaching, and ongoing feedback (Egan et al., 2017). Online courses and digital platforms also come handy for busy handlers, especially homemakers. On the other hand, and consistent with TPB, the information and knowledge acquirement needs to be transformed into the performed kitchen behaviours, since strong intentions do not necessarily guarantee implementation in the absence of perceived likelihood to enact the behaviour (Ajzen, 1991).

From a social and economic perspective, the study suggests that this high level of awareness on hygiene, safety, and moral values can improve the consumers' confidence towards home-based products, thus giving opportunities to the entrepreneurs to earn money while still being in a safer and moralise way of living. The moral values and social responsibility of food handlers is not only related to food safety but also plays an important role in maintaining business reputation and building customer trust. With online food-purchasing on the rise post-COVID-19, food handlers need to be continually reminded that compliance to SOPs and ethical work practices is perhaps more important than formal training.

Taken together, the implications of this study highlight that the success of home-based food businesses is not only hinged on profit but also the knowledge, awareness, and ethics of the handlers. Education that highlights personal responsibility and work ethics should be complemented by training, monitoring and enforcement mechanisms that ensure food produced in HBE is not only safe for consumption (healthy) but also helps to instil consumer confidence in food safety standards in HBE (acceptable).

6. CONCLUSION

This study highlighted that the knowledge and awareness level of home-based food handler in Kedah was affected by demographic factors such as gender, age, ethnicity and education level. The results show that males and those with SPM-level education had higher knowledge and hygiene scores, and the observed non-linear variation by age suggests that practical exposure and self-motivation were the likely drivers for food safety adoption. This could be explained with the Theory of Planned Behavior (TPB), in which attitudes, subjective norms and perceived behavioral control predict individuals' intentions and actual behaviors. While food handlers attended formal training & courses by food safety & quality division (BKMM), experiences & moral values are still being implemented on individual basis. This emphasizes that formal training by itself does not guarantee sustained change of behavior; it needs to be accompanied by practical modules, periodic learning, mentoring, and a nudging mechanism. According to the study, utilizing a specific training approach to match demographic categories of respondents such as age level or education level may augment the effectiveness of interventions. This is in line with theoretical underpinnings from the TPB, in which greater perceived behavioral control and greater endorsement of social norms are both associated with more engagement in safe practices. In practice, the findings emphasize the importance of a combined training, monitoring and enforcement approach and the role of the food handler in ensuring home-based food is clean and safe and improves the confidence of the public in food safety standards. These results will help authorities, food handlers and future researchers implement practices in home-based businesses with improved food safety in the context of the COVID-19 pandemic.

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