The Risk Avoidance Behaviors and the Influencing Mechanism: Take Street Vended Food for Example

Dan-Hui MAO¹,a, Jiao LU¹,b, Hui-Min JIA¹,c and Jing-Min CHENG¹,d,*

¹The School of management, Shanxi Medical University, Taiyuan, Shanxi, China
²784581223@qq.com, b lujiao801@163.com, c 463659312@163.com, d chengjingmin@163.com
*Corresponding author

Keywords: Avoidance Behaviors, Street Food, Influencing Mechanism, Social Co-governance.

Abstract. The street vended foods were prevalent in the undeveloped and developing countries around the world for its convenient traits, while it was also the places with high incidence of the food-borne diseases. For the purpose of reducing the damage of the street vended foods brought to the consumers, the situation of consumers’ avoidance behaviors had to be known first. A self-administered questionnaire survey was conducted in Taiyuan, Shanxi provinces, China from 3rd of March, 2018 to 3rd of July, 2018. The collecting rate was 97.8%. And SPSS 22.0 and SPSS AMOS 21.0 were used to describe and analyze the data. The knowledge about the vendors’ behaviors risks was generally low. The highest score of knowledge was about the environment hygiene (3.947±1.087). The lowest score of the knowledge was the vendors’ behaviors about the qualification (2.480±1.134). The avoidance behaviors about the vendors’ behaviors risk were generally low, too. And lowest avoidance frequency of the street-vendors’ unhygienic processing was the posting the registration card and wearing the healthy certificate (1.280±0.450). The effectiveness factors of the behaviors were the knowledge, the attitude, the subjective norm and the perceived behaviors control. The knowledge was better to explain the avoidance behaviors as a parallel variable with the attitude, etc. And in this SEM, the highest effect to the intention was from the attitude (0.37), following by the perceived behaviors control (0.33), the knowledge (0.32) and the subjective norm (0.18). It was still needed to accelerate the consumers’ popularization about the new regulations and laws, and strengthen the intention of some food safety conceptions’ precise connotation. Besides, there was a blank in the popularization education of the street vended foods safety risk and its related behaviors risks by a systemic and scientific way which was considering improving the knowledge level, in the meantime with the consumer initiative to evade attitude, improve the ability of consumers to actively regulate and subjective behaviors of control.

Introduction

According to the World Health Organization [1], the street vended foods safety was becoming a global public health issue. In undeveloped, developing, and some developed countries, there were always several street vended foods stalls around schools and residential areas [2]. Due to its unhygienic environment, lacking of management, and so forth (Ningxia hui autonomous region small workshops small business shop for food production and food stall management regulations), these street vended foods had the potential to be polluted with food-borne diseases microbiology, such as Salmonellosis, Listeriosis, and so on [3]. In China, there were 14.3% of patients suffered from food-borne diseases because of these street vended foods (The 2016 China Statistical Yearbook of Health and Family Planning). The risk assessment results indicated that the street vended foods safety couldn’t be ignoring [4]. The risks’ occurring probability would be increasing when the unhygienic processing occurring. Sharmila (2011) summarized the relationship between the unhygienic processing and the microbial risks in street vended foods, to illustrate, the uncleanness processing of raw material might be polluted the food with Escherichia coil, Salmonella, and so on, the inappropriate storage processing might be polluted the food by Clostridium perfringens and Bacillus cereus, finally the vendors’ personal unhygienic condition might be polluted the food by Staphylococcus, Salmonella and Shigella [5].
For the low levels of education, lack of awareness and money in these vendors, it was difficult to help them to initiate processing the food safely [6]. Moreover, on account of these street vended foods stalls being easy to transfer the places, these vendors might choose to run away from the management and education [7]. It was difficult to improving the street vended foods safety only relying on the supervision to the vendors. In order to enhance the street vended foods safety, there were other ways explored. And the consumers played an important role in the street vended foods real time supervision. For the reason that the consumers were convenient to observe the vendors’ processing when they were going to buy a street vended food, they could leave away from hazards by avoiding the vendors’ unhygienic processing. The real time assessment of the food safety risk like the bacterial condition of the foods weren’t actuality, while the consumers could avoid risks by their own avoidance behaviors.

The avoidance behaviors had been studied in the public health and other fields for a period of time [8]. Although the concept was used in the public health for a while, it was still ambiguity in definition. According to the research before, the consumers’ avoidance behaviors in this study were those actions “taken to decrease exposure to risks by removing oneself from or increasing the distance from situations in which the risks were believed to be high” [9]. The high risk points in this part were those which had high relationship with the street vendors’ food unhygienic processing points.

According to the Theory of Planned Behavior (TPB), there were several factors which would influence the avoidance behaviors, respectively were the attitude (AT), the subjective norm (SN), the perceived behavior control (PBC), and the intention (INT) [10]. The inferential ability of AT, SN and PBC were different in different kinds of hygiene behaviors. Meanwhile, the models based on the TPB were devolved into many kinds of modified formats. Some model added the prior factor before AT, SN and PBC [11]. Some model added the factors which were parallel with AT, SN and PBC [12]. And some model added the intermediate factor during the pathway [13]. The researchers found that the education was very important factor which could guide the participants to have better AT, more firm SN, and higher PBC [14]. Meanwhile, as the major outcome of the education, the knowledge was a representative of the education level. The knowledge had been used as a factor which could influence the INT together with AT, SN and PBC in the novel model of the TPB (Fig. 1). In addition, the knowledge had been used as a prior factor which could influence AT, SN and PBC in the novel model of the TPB (Fig. 1).

For now, the hygienic processing of vendors’ had been over studied. There was a limitation on the consumers’ avoidance behaviors to the vendors’ unhygienic processing. The consumers’ avoidance behaviors were explored in the survey, for the purpose of knowing the situation of the consumers’ avoidance behaviors and its influential factors. In addition, the education had been over used in the hygienic behaviors improving items, but the knowledge influence mechanism to the behaviors weren’t expounding enough. There was a limitation on the considering whether the knowledge was a prior factor of AT, SN, and PBC, or the knowledge was a parallel factor with these variables. In this study, there were several structure equation models, for the purpose of exploring the relationship between the knowledge, AT, SN, PBC, INT, and the consumers’ avoidance behaviors.

![Diagram](image_url)

**Figure 1. The Original and Novel Models Base on the TPB.**
Methods

The Survey Design

A self-administered questionnaire survey was conducted in Taiyuan, Shanxi provinces, China from 3rd of March, 2018 to 3rd of July, 2018. A total of 5 (district or county) units which contained more than 200 street-vendors’ stalls were randomly selected in this survey. And the collecting rate was 97.8%. Before the investigation, more than 20 investigators were trained about the meaning of the topic, the main contents of the questionnaire, the investigation techniques and so on. The per-survey was conducted before the formal survey for the revision of the questionnaires.

The questionnaires were designed based on the TBP and the practical situation. The questionnaires were including the demographic characteristic information (7 items), the consumers’ knowledge of the street vended foods safety processing (11 items), the consumers’ avoidance behaviors (14 items), the consumers’ avoidance attitude (3 items), the consumers’ avoidance subjected norm (3 items), the consumers’ avoidance perceived behaviors control (3 items) and the consumers’ avoidance attention (1 item). The consumers’ knowledge of the street vended foods hygienic processing were including several parts, respectively were the environment hygiene, the vendors’ personal hygiene, the food practice hygiene, the food storing hygiene, the cookware hygiene, the packaging hygiene, and the certification. The measurement of variables were used the five-point scales. The knowledge was measured from very clearly to not clearly at all. The behaviors were measured from always to never. AT, SN, PBC and INT were measured from fully conformity to not conformity at all. The reliability of the questionnaires was measured by KMO, and the validity of the questionnaires was measured by Cronbach’s α (Table 1).

| Name                                                                 | Cronbach’s α | KMO  |
|----------------------------------------------------------------------|--------------|------|
| The consumers’ knowledge of the street vended foods hygienic         | 0.741        | 0.847|
| processing                                                          |              |      |
| The consumers’ avoidance behaviors                                   | 0.752        | 0.809|
| The consumers’ avoidance attitude                                    | 0.765        | 0.687|
| The consumers’ avoidance subjected norm                              | 0.851        | 0.731|
| The consumers’ avoidance perceived behaviors control                  | 0.712        | 0.673|

The Demographic Characteristics of the Participants

Demographic characteristics were gathered. The demographic characteristics which were considered in the survey were age, gender, education, household situation, resident type, occupation status, and family monthly personal income. There were 221 male and 268 female participants. Ten percent of participants aged below 25, 51.5% of participants aged 26-45, 31.7% of participants aged 46-65, and 4.0% of participants aged over 65. Sixty-three point four percent of participants were educated below high school, and 36.6% of participants were educated on and above high school. Meanwhile there were 5.3% of participants whose household situation was alone. Eighty point two percent of participants’ resident type was urban. Sixty point three percent of participants were occupied. Additionally, the family monthly personal incomes of the participants were concentrating on the 501-1500 RMB (28.6%) and 1501-4000 RMB (40.1%). There were over half of the participants who had got food safety education once or more.

The Data Management and Analysis

Pilot was conducted to ensure the quality of data. The data was typed by researchers with Epidata, then it was exported to excel format and cleaned up by two independent members who were not involved in the data entry step. And SPSS 22.0 and SPSS AMOS 21.0 were used to describe and analyze the data. F test and t test were used to test for significance about the mean value and significant difference of the variables. Beside the mean value of avoidance behaviors was measured in Structure Equation Model (SEM). There were three kinds of SEM in the survey. Model I was the basic TPB without knowledge. Model II was based on Model I which was including
knowledge as a paralleled factor with AT, SN and PBC. Model III was based on Model I which was including knowledge as a predisposing factor prior to AT, SN and PBC. The significance of all test were conducted at 5% with 95% confidence interval. The data was used in confidentiality to avoid name and other identifiers.

The Ethics Approval and Consent to Participate

The study was reviewed and approved by the ethics committee of Shanxi medical University. The document number was 2018004.

Results

The Knowledge about the Street Vended Food Safety Risk

The processing about setting away from the garbage and toilet with facilities (these facilities was used to protect the foods away from mouse, flies and cockroaches) was scored the highest (3.947±1.087) (Table 2). The lowest score was the knowledge about posting the registration card and the healthy certificate properly, and the score was 2.480±1.134 (Table 2).

| Table 2. The Participants’ Knowledge about the Unhygienic Processing (N=489). |
|-----------------------------------------------------------|
| Items                                                                 | Knowing noting | Knowing a little | Not sure | Relatively knowing | Completely knowing | Mean | S.D. |
| Posting the registration card and the healthy certificate properly | 15.3%          | 48.7%            | 17.6%    | 9.4%              | 9.0%               | 2.480 | 1.134 |
| Setting away from the garbage and toilet with facilities         | 3.5%           | 7.4%             | 18.8%    | 31.7%             | 38.7%              | 3.947 | 1.087 |
| Centralized treatment of garbage and sewage                       | 11.0%          | 21.5%            | 35.4%    | 24.7              | 7.4%               | 2.959 | 1.095 |
| Wearing gloves and replace them in time                           | 9.6%           | 33.1%            | 23.7%    | 23.5%             | 10.0%              | 2.912 | 1.160 |
| Food heating and preparing properly                               | 11.5%          | 12.3%            | 19.8%    | 26.0%             | 30.5%              | 3.583 | 1.327 |
| Using the food-grade utensils with sufficiently disinfection     | 12.7%          | 30.5%            | 37.4%    | 10.6%             | 8.8%               | 2.724 | 1.340 |
| Using the food-grade packaging materials to package foods         | 10.2%          | 12.9%            | 16.8%    | 11.7%             | 48.5%              | 3.753 | 1.425 |
| When the food was cooling down                                    |               |                  |          |                   |                   |       |      |
| Using the purified water with a capping                           | 10.6%          | 37.6%            | 28.8%    | 15.7%             | 7.2%               | 2.712 | 1.075 |
| Wearing work clothes, hats, masks, etc.                            | 11.9%          | 8.2%             | 21.7%    | 26.4%             | 31.9%              | 3.838 | 1.323 |
| Packaging separately                                             | 12.3%          | 9.0%             | 14.7%    | 27.0%             | 37.0%              | 3.675 | 1.371 |
| Storing less than 2 hours at room temperature, and if it need more time, it must be stored at the refrigerator | 11.5%          | 13.1%            | 21.9%    | 29.4%             | 24.1%              | 3.427 | 1.295 |

The Avoidance Behaviors

The participants’ avoidance behavior about the stale raw materials was the highest (3.679±1.340) (Table 3). The participants’ avoidance behavior about buying foods in the stalls with improperly posting the registration card and the healthy certificate was the lowest (1.280±0.450) (Table 3).

| Table 3. The Participants’ Avoidance Behaviors about the Street-vendors’ Unhygienic Processing. |
|-----------------------------------------------------------|
| Items                                                                 | Always | Often | Occasionally | Sometimes | Never | Mean | S.D. |
| Posting the registration card and the healthy certificate improperly | -      | -     | -            | 28.0%     | 72.0% | 1.280 | 0.450 |
| Nearby the garbage and toilet, establishing the facilities         | 36.0%  | 18.0% | 26.6%        | 10.0%     | 9.4%  | 3.611 | 1.314 |
| Decentralized treatment of garbage and sewage                       | 12.3%  | 26.8% | 33.1%        | 18.8%     | 9.0%  | 3.145 | 1.135 |
| Not wearing gloves and replace them in time                         | 36.2%  | 26.6% | 12.9%        | 15.3%     | 9.0%  | 3.656 | 1.342 |
| Not separating the chopping boards and cleaning enough              | 40.5%  | 16.8% | 21.3%        | 13.1%     | 8.4%  | 3.679 | 1.340 |
| The stale raw materials                                             | 11.5%  | 18.0% | 21.1%        | 30.1%     | 19.4% | 2.720 | 1.281 |
Heating insufficiently
Not using the food-grade utensils with sufficiently disinfection
Not using the food-grade packaging materials and packaging when the food was cooling down
Not using the purified water with a capping
Not wearing work clothes, hats, masks, etc.
Packaging together
Not storing less than 2 hours at room temperature, and if it need more time, it must be stored at the refrigerator

The Differences of the Knowledge and the Avoidance Behaviors

The male’s knowledge and avoidance behaviors were significant lower than the female’s (P<0.05). The higher education level group’s knowledge and avoidance behaviors were significant higher (P<0.05). The alone living group’s avoidance behaviors were significant higher than non-alone living group (P<0.05). The urban group’s avoidance behaviors were significant higher than the rural group (P<0.05). The participants who had food safety education before group’s avoidance behaviors were higher than the participants who didn’t have food safety education before (P<0.05).

The Effectiveness Mechanism of Avoidance Behaviors

According to the SEM, the models’ $\chi^2$ / df were all less than 5 (Table 4). And the GFI, IFI, and TFI were all above 0.9 (Table 4). Beside the RMSEA was lower than 0.08 (Table 4). Meanwhile the AVEs were all above 0.7. It was shown that the models fitted well. The SEM and its standardized path coefficient were shown in Fig. 2. The models explanation ability to the behaviors and intention was relatively well. The model I could explain 72% of the avoidance behaviors, model II could explain 76% of the avoidance behaviors, and model III could explain 75% of the avoidance behaviors (Fig. 2). INT $r^2$ equaled to 0.93 in model I, $r^2$ equaled to 0.98 in model II, and $r^2$ equaled to 1.00 in model III (Fig. 2). It was found that the knowledge was an important factor for AT, SN and PBC in model III (Fig. 2). And its standardized path coefficient was 0.76, 0.44 and 0.69 in model III (Fig. 2). The highest effect to INT was from AT, its standardized path coefficient was 0.57, following by PBC (0.30) and SN (0.30) in model I (Fig. 2). The highest effect to INT was from AT, its standardized path coefficient was 0.37, following by PBC (0.33), the knowledge (0.32) and SN (0.18) in model II (Fig. 2). The highest effect to INT was from AT, its standardized path coefficient was 0.61, following by PBC (0.36) and SN (0.29) in model III (Fig. 2).

| Model | $\chi^2$ | df | $\chi^2$ / df | GFI | IFI | TLI | RMSEA |
|-------|---------|----|--------------|-----|-----|-----|-------|
| Model I | 80.882 | 37 | 2.186 | 0.972 | 0.980 | 0.970 | 0.049 |
| Model II | 369.220 | 198 | 1.865 | 0.934 | 0.952 | 0.943 | 0.042 |
| Model III | 414.033 | 202 | 2.050 | 0.926 | 0.940 | 0.931 | 0.046 |

Table 4. Model Fitting Evaluation.
Discussion

The Participants’ Knowledge of the Street Vended Food Safety Risk

The consumers’ knowledge to the street-vendors’ stalls were similar with to the households. In general, the participants’ knowledge about the street vended food hygienic processing were relatively lower than the household food hygienic processing [15]. This was related to both the vendors’ and the consumers’ general food safety knowledge was really lower in the developing and undeveloped areas than the developed areas [16]. To the street vended foods, the consumers’ general food safety knowledges level was also low, Asiegbu et al. (2015) found that there were 70% of consumers had never heard about the *Listeria, Salmonella, Campylobacter*, and so on [17]. Most of the participants had higher scores on the knowledge of environment hygiene, because of the long period of vigorously carrying out publicity education about the environment hygiene knowledge in China and round the world [18]. Most of the participants had the conception of using the food-grade and cleanness packaging in this study, and it was similar with the study before. While according to the research before, it was shown that the knowledge about the recognition was relatively lower [19]. It was due to
the situation that although the consumer had the knowledge of using the food-grade packaging material, the connotation of the food-grade packaging material was still unclear. This was for the reason of the food safety education was relatively deficient. One of the downside was that some of the specific connotations of food safety concepts were vague. Since the knowledge which was study in the survey was based on some of the laws and regulation, the results also reflected that the publicity of the laws were deficient. And these were similar with other studies in undeveloped and developing areas [20]. And this phenomenon was also appeared in some developed areas [21]. So there was still need to strengthen food safety education to public’s in terms of the details of the the street vended food hygienic processing behaviors knowledge, laws and so on.

The participants’ knowledge about the vendors’ personal hygiene, utensils’ hygiene, the qualifications, and so on were relatively lower. This situation was related to the implementation of the management regulation about street vended foods time was short. Although the regulation had been enforcement since 1st May 2018, the participants were rarely known about the content. It needs to improve the publicity through the network, posters, text messaging and so on. In addition, if there was establishing the street vended foods safety Demonstration Street, it could not only encourage practitioners working in accordance with the law, but also influence the consumers forming the common knowledge about the street vended foods safety. That would be finally mutual promoting and multistage by vendors, consumers, government and media. Then it would get the co-governance of the street vended foods safety.

Different groups of the participants had the different levels of the knowledge about the vendors’ unhygienic processing. The situation was similar with the household food hygienic processing. It was the male lower than the female, and the lower education level group was lower than the higher education level group [22]. Street vended foods safety education classes should be appropriate for different populations, such as different level of education, and for the corresponding adjustment. It would be helpful to choose the most suitable way for propaganda and education, and improve the knowledge of certain consumers.

The Avoidance Behaviors

In short, the participants’ avoidance behaviors about the street vended food hygienic processing were relatively lower. Since the low integral levers of the vendors’ practice in the developing and undeveloped regions, there were reality difficulties in consumers’ avoidance behaviors. The difficulties were focus on the vendors’ qualifications obtained, almost all the vendors’ education before the operation, and the refrigerator and the facilities to protect food away from mouse, flies and cockroaches. Samapundo et al. (2015) found that there were observable files around more than 60% of street vended stalls, and the hand hygiene behaviors and packaging behaviors weren’t probable for keeping the food safety in Haiti [23]. And Samapundo et al. (2016) had also found that more than half of the street vended stalls were outdoor sites without any facilities for keeping away from environment pollution and hand washing facilities in Vietnam [24]. Cortese et al. (2016) found more than 90% of the vendors didn’t wash hands after caching the money and 100% of the street vended stalls didn’t have the water supply facilities [25]. This phenomenon could lead to the difficulty in avoidance the street vended food hygienic processing if the consumer had to buy them for the economy and other reasons. The avoidance situation about the freshness and cleanness of the raw material was the best (There were 40.5% of participants always avoid to buy street vended foods if it cooked by unhygienic raw material, table 3). Please the stalls of repast, Due to the related regulations time was shorter, the situation of posting certificate wasn’t well, which was similarly with the lower level of the consumers’ related knowledge. In addition, the "Using the food-grade utensils with sufficiently disinfection" and "Wearing work clothes, hats, masks, etc.” The circumvention was even poorer. It was because of the lower levels of the knowledge of these two aspects. It needed to strengthen consumers’ food safety education in these aspects, to promote consumers avoidance behaviors to these unhygienic processing. Meanwhile it could promote the vendors by forming the competition in the market about the food hygienic processing controlling in these aspects.
Different groups of the participants had the different levels of the avoidance behaviors about the vendors’ unhygienic processing. The male was lower than the female, the living alone group was lower than the living not-alone group, the urban migrant workers was lower than the urban resident, and the lower education level group was lower than the higher education level group. This was similar with the food-borne disease unhygienic processing [26]. That is similar with Quinlan (2013) proposed in China should strengthen for the low level of education, male, rural population and other people's food safety education [26]. Therefore it needed to through the means such as food safety education, improve consumers’ active avoidance about the street vended foods safety unhygienic processing, and improve consumer food safety management participation, thereby affecting the vendors to take the initiative in the improvement of street vended foods safety stands.

The Effectiveness Factors of Avoidance Behaviors

The SEM in the study was shown that the participants’ intention played an important role in their avoidance behaviors. The improvement of the participants’ avoid intention would be helpful in the promoting of the avoidance of the consumers, and to promote the vendors’ for their own to take initiative to control the food hygienic processing on market competition and elimination, and eventually promoting the safety management in the society. The influence of the participants’ INT came from their SN, PBC and AT. And AT was the most valuable variable in the SEM. So it needed to cooperate with social co-governance. Therefore, it needed other subjects for the spread of food safety information, to enhance consumer’s popularity, the influence consumer initiative to evade AT, improve the ability of consumers to actively regulate and subjective behaviors of control.

Food safety education, as the main mode of food safety information dissemination, had been widely used in food handlers and public health education of primary and secondary school students [27]. The research was shown that education was very important in food safety promoting and the food hygienic processing control [28]. But the reason wasn’t clearly enough. In this study the effectiveness from the knowledge to AT, SN and PBC and from the knowledge, AT, SN and PBC were comparably calculated in the whole path of the avoidance behaviors. And the SEM was shown that the latter was better than the former in the behaviors explanation. That was bringing into correspondence with the studies before that the knowledge was more likely as a parallel factors not a antecedent factors in the SEM which was based on the theory of planned behavior. It was still necessary to strengthen food safety education for consumers and vendors in the food safety society in a systematic way. In addition, it still needed to speed up the open, transparent, safe and convenient street vended foods safety risk information communication platform, to enhance the consumers’ the street vended food hygienic processing identification and selection ability, and improve the enthusiasm of the active participation of consumer food stall social co-governance.

Summary

The consumers’ knowledge of the street vended foods hygienic processing were generally low. Although the laws and regulations had been establishment for a period, the residents were still not clearly about them. In these years some basic conceptions of food safety were already widely known by the public’s such as the food should be packaged by food-grade material, while these kinds of knowledge weren’t enough. It was still needed to improve the consumers’ knowledge in the new regulations, laws and the intension of some food safety conceptions. Besides, there was a blank in the popularization of the street vended foods safety risks and its related behaviors information. Along with the poor knowing of the knowledge, the situation of consumers’ avoidance behaviors about the unhygienic processing were relatively low, for some realities of the street vended foods stalls conditions. The effectiveness factors for the consumers’ avoidance were the knowledge to the attitude; the subjective norm and the perceived behaviors control which was affect the behaviors by affecting the intention. And the order of influence from the maximum to the minimum was the attitude, the perceived behavior control, the knowledge, and the subjective norm.
Acknowledgement

This research was financially supported by the Humanities and Social Sciences Planning: Study on Coordinated Management Measures for Information Dissemination of Food Safety Crisis (18YJA630015).

References

[1] Information on http://www.who.int/foodsafety/fs_management/No_03_StreetFoodJun10_en.pdf.
[2] Z. Liu, G. Zhang, X. Zhang, Urban street foods in Shijiazhuang city, China: current status, safety practices and risk mitigating strategies[J]. Food Control, 2014, 41(1), 212-218.
[3] C. V. Asiegbu, S. L. Lebelo, F. T. Tabit, The food safety knowledge and microbial hazards awareness of consumers of ready-to-eat street-vended food[J]. Food Control, 2015, 60, 422-429.
[4] F. Tafesse, G. Desse, K. Bacha, H. Alemayehu, Microbiological quality and safety of street vended raw meat in Jijiga town of Somali regional state, southeast, Ethiopia[J]. African Journal of Microbiology Research, 2014, 8, 3867-6874.
[5] R. Sharmila, Street vended food in developing world: hazard analyses[J]. Indian Journal of Microbiology, 2011, 51(1), 100-106.
[6] D. S. Dajaan, H. O. Addo, O. Luke, A. Eugenia, Food Hygiene Awareness and Environmental Practices among Food Vendors in Basic Schools at Kintampo Township, Ghana[J]. Food and Public Health, 2018, 8(1), 13-20.
[7] P. W. Okojie, E. C. Isah, Sanitary conditions of food vending sites and food handling practices of street food vendors in benign city, Nigeria: implication for food hygiene and safety[J]. Journal of Environmental & Public Health, 2014, (4), 701316.
[8] C. Bem, Social governance: a necessary third pillar of healthcare governance[J]. Journal of the Royal Society of Medicine, 2010, 103(12), 475-7.
[9] B. W. Reys, Cyberbullying victimization and adaptive avoidance behaviors at school[J]. Victims & Offenders, 2014, 9(3), 255-275.
[10] I. Ajzen, The theory of planned behavior, organizational behavior and human decision processes[J]. Journal of Leisure Research, 1991, 50(2), 176-211.
[11] B. Ranjarian, M. Rehman, A. Lari, Attitude toward SMS advertising and derived behavioral intension, an empirical study using TPB (SEM method) [J]. Social-Economic Debates, 2014, 3 (1), 47-59.
[12] G. Liobikienė, J. Mandravickaitė, J. Bernatonienė, Theory of planned behavior approach to understand the green purchasing behavior in the EU: a cross-cultural study[J]. Ecological Economics, 2016, 125, 38-46.
[13] H. Song, L. Xingyang, Y. Jiang, C. T. Academy, The effects of characteristics of tourists on chinese outbound tourism destination choice behavior: an empirical study based on TPB model[J]. Journal of Tourism Tribune, 2016, 31 (2), 33-43. (in Chinese)
[14] M. Markl, Effectiveness of road safety educational program for pre-drivers about dui: practical implication of the tpb in developing new preventive program in slovenia [J]. Transportation Research Procedia, 2015, 14, 3829-3838.
[15] H. A. Kim, H. Y. Jung, A study of consumer perceptions of food safety and food buying behavior [J]. Culinary Science & Hospitality Research, 2018, 24.
[16] D. A. Agüeria, C. Terni, V. M. Baldovino, D. Civit, Food safety knowledge, practices and attitudes of fishery workers in Mar del Plata, Argentina[J]. Food Control, 2018, 91.

[17] C. V. Asiegbu, S. L. Lebelo, F. T. Tabit, The food safety knowledge and microbial hazards awareness of consumers of ready-to-eat street-vended food[J]. Food Control, 2015, 60, 422-429.

[18] H. Lozier, O. Baeza, Evaluation of public health education with reference to maternal and environmental hygiene[J]. Boletin De La Oficina Sanitaria Panamericana Pan American Sanitary Bureau, 1951, 31(6), 565.

[19] Z. Y. Yang, W. U. Pei-Cong, Y. E. Wei-Yun, Safe utilization of food packaging material and its influence factors among consumers in Guangzhou city[J]. Chinese Journal of Public Health, 2017, 33(11), 1650-1653. (in Chinese)

[20] Y. W. Pei, K. L. Thong, J. M. Behnke, J. W. Lewis, S. N. M. Zain, Evaluation of basic knowledge on food safety and food handling practices amongst migrant food handlers in peninsular Malaysia[J]. Food Control, 2016, 70, 64-73.

[21] N. A. Moreb, A. Priyadarshini, A. K. Jaiswal, Knowledge of food safety and food handling practices amongst food handlers in the republic of Ireland[J]. Food Control, 2017, 80, 341-349.

[22] A. Alsakkaf, Domestic food preparation practices: a review of the reasons for poor home hygiene practices[J]. Health Promotion International, 2013, 30(3), 427-37.

[23] S. Samapundo, R. Climat, R. Xhaferi, F. Devlieghere, Food safety knowledge, attitudes and practices of street food vendors and consumers in port-au-prince, Haiti[J]. Food Control, 2015, 50(3), 457-466.

[24] S. Samapundo, T. N. C. Thanh, R. Xhaferi, F. Devlieghere, Food safety knowledge, attitudes and practices of street food vendors and consumers in Ho Chi Minh City, Vietnam[J]. Food Control, 2016, 70, 79-89.

[25] R. D. M. Cortese, M. B. Veiros, C. Feldman, S. B. Cavalli, Food safety and hygiene practices of vendors during the chain of street food production in Florianopolis, brazil: a cross-sectional study[J]. Food Control, 2016, 62, 178-186.

[26] J. J. Quinlan, Foodborne illness incidence rates and food safety risks for populations of low socioeconomic status and minority race/ethnicity: a review of the literature[J]. International Journal of Environmental Research & Public Health, 2013, 10(8), 3634-3652.

[27] E. Han, J. Kim, Y. Choi, Using education on irradiated foods to change behavior of korean elementary, middle, and high school students[J]. Nutrition Research & Practice, 2014, 8(5), 595-601.

[28] A. Mirzaei, H. Nourmoradi, M. S. A. Zavareh, et al., Food safety knowledge and practices of male adolescents in west of Iran[J]. Open Access Macedonian Journal of Medical Sciences, 2018, 6(5), 908-912.