

FOOD POISONING PREVENTION EFFORTS THROUGH FOOD SAFETY SOCIALIZATION FOR THE WOMEN'S GROUP OF PKK RW 013 JAKAMULYA, SOUTH BEKASI

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ABSTRACT

Microbiological hazards are associated with cases of food poisoning, with the most recent outbreak reported in 2023 in the Bantar Gebang area of South Bekasi, where two people died. Other food safety hazards include physical and chemical hazards. Food safety is often overlooked by PKK members, even though mothers are typically responsible for managing household food. The selection of food ingredients becomes increasingly difficult with the growing availability of unsafe food products. Additionally, there are issues with food handling and processing. The partner for this Community Service Program (PKM) is the PKK group of RW 013, Jakamulya, South Bekasi. The problem identified among the partners is a gap in their in-depth knowledge of household food safety, despite their role as household food managers. The proposed solution is to conduct a household food safety awareness program. The proposed activities include, first, a situation analysis; second, planning; third, socialization of household food safety; and fourth, evaluation. The results of the awareness program indicate a 42% increase in knowledge. A 0.9% improvement in positive attitudes towards household food safety was also observed. Participants expressed that the activities were beneficial for mothers in their roles as household food managers.

Keywords: awareness program, food safety, microbiology, outbreak, partner

INTRODUCTION

Food safety refers to ensuring that consumed food is free from three main hazards: chemical, microbiological, and physical. The responsibility for food safety lies with both food producers and individuals to prevent food poisoning (WHO, 2015). Mothers play a crucial role in household food safety since they are often responsible for various stages of food preparation, including selection, storage, processing, and serving. Therefore, household food safety is largely determined by mothers who possess adequate knowledge and a positive attitude toward food safety.

Households form the smallest unit of society, and healthy households contribute to a strong and healthy community. Food safety issues are often highlighted in cases of food poisoning. Data indicates that 44% of food poisoning incidents are caused by homemade meals, while the rest are attributed to catering services and street food (Indraswari, 2023). In 2023, food poisoning affected 259 people in Bogor Regency (Adri, 2023). In Bekasi City, an extraordinary event occurred in Bantar Gebang Subdistrict, Ciketik Udik Village, where two people died, and three others were hospitalized at Bekasi City Hospital (Bekasi, 2023). An image of food poisoning victims in the hospital is shown in Figure 1. These incidents indicate the presence of microbiological hazards.



Figure 1. Victims of food poisoning at Bekasi Regional General Hospital (RSUD Bekasi).

The community partner for this Community Service (PKM) activity is the group of PKK mothers in RW. 013, Jakamulya sub-district, South Bekasi district. South Bekasi is an area in West Bekasi that borders DKI Jakarta.

Generally, the outskirts of DKI Jakarta, like the city of Bekasi, have become residential areas for commuters working in Jakarta. Bekasi covers an area of approximately 210.49 km² with a population of 2,543,676 living across 12 districts (BPS, 2021). The economy of Bekasi is closely linked to the cities in the Jabotabek area. The availability of transportation infrastructure in Bekasi has made it one of the key supporting areas for DKI Jakarta. Additionally, the adequate transportation facilities from Bekasi to Jakarta have led to the development of residential areas in Bekasi. West Bekasi borders DKI Jakarta, particularly in the South Bekasi district. South Bekasi is home to several residential complexes, including RW. 013 in Jakamulya sub-district, which was established in 1988. This residential area comprises only one RW. 013 with 14 RTs and a population of about 1,300 people. It is estimated that the majority of household heads work in DKI Jakarta, with some households having both parents working in Jakarta or other nearby areas in Bekasi.

The long commute from work often leads mothers to buy food outside or cook meals that are easy to prepare and delicious. These meals include items like tofu, tempeh, catfish, nuggets, and fried chicken. In this context, the role of cooking oil is indispensable for mothers in all households.

Research on the quality of oil used by street vendors selling pecel lele in Bekasi, conducted in 2017 with 34 samples, revealed that the oil was already degraded after being used once without replacement, with a free fatty acid content of 0.63%, exceeding the standard of 0.3% set by SNI 7709:2012 for palm cooking oil. It is estimated that the oil was reused up to 27 times in a single vending session, with degradation likely occurring after the fifth reuse. Another issue is the presence of formalin-treated tofu being sold in the RW 013 area, despite claims that it is preservative-free. Additionally, other foods suspected of containing formalin, such as salted fish, were found to contain formalin in 33.3% of cases (BPS, 2017), and another study showed that 24% of fish in Pasar Sederhana, Bandung, contained formalin (Noorrela & Munggaran, 2021). The use of unsafe cooking oil and formalin in food represents chemical hazards. Repeated use of degraded cooking oil and the continuous consumption of chemically treated food can lead to cancer.

In addition to microbiological and chemical hazards, there are other risks associated with food. The PKK mothers' group in RW. 013 holds regular monthly activities, such as member meetings, Integrated Service Posts (Posyandu) for toddlers and pregnant women, Integrated Service Posts (Posbindu) for those over 45, group exercises, and religious studies. These activities usually include snacks and cakes, some of which are packaged using plastic with staples, which poses a physical hazard in food safety. The three types of hazards mentioned—physical, chemical, and biological—can be mitigated through increased knowledge of food safety.

Therefore, knowledge of household-level food safety is crucial for the partner group. The implementation of this program stems from the recognition of the importance of establishing quality at the household level through safe food. Households play a central role in shaping better individuals and communities. As a result, household-level food safety education becomes relevant to empower the PKK mothers in RW. 013 in their roles as food managers and household educators.

The problem faced by the partners is the lack of knowledge and inadequate attitudes toward household-level food safety, despite their role as food managers. The solution offered is household-level food safety education. The goal of this solution is to increase knowledge of household-level food safety. This activity is also expected to foster a positive attitude toward household-level food safety, similar to the healthy cooking oil education program conducted in Pondok Surya Mandala, Bekasi (Pujilestari, et al., 2019).

METHOD

The method used is community education on household-level food safety. The stages of the community service activity can be seen in Figure 2.



Figure 2. Stages of Community Service Activities

Figure 2 shows four stages in the community service activities, each of which will be explained as follows:

Situational Analysis:

This phase involves studying the issues within the community, specifically in RW. 013 Jakamulya, Bekasi Selatan. A key issue identified is household food safety. This analysis helps to understand the specific problems and needs related to food safety in the target area.

Planning:

In this stage, partners discuss the scheduling of activities, focusing on the socialization sessions. Discussions with the PKK (Family Welfare Program) leaders include the food safety issues prevalent in the community. This phase also involves planning the time and place for the activities. The final plan is to hold the event at the RW 013 office on June 8, 2024.

Socialization:

The socialization is carried out according to the plan. The target audience is 22 women from the 14 RTs within RW 013. The goal is for these participants to share the knowledge gained with their respective RTs. The agenda for the event includes: 1) Opening; 2) Singing of "Indonesia Raya"; 3) Speeches by the RW Chairperson and PKK Secretary; 4) Speech by the Acting PKK Officer; 5) Pre-test; 6) Socialization on household food safety; and 7) Post-test.

Evaluation:

Evaluation assesses the increase in understanding after the socialization. This is measured by comparing post-test scores to pre-test scores. A higher post-test score indicates successful delivery of the material. Additionally, the participants' attitudes towards household food safety are evaluated to determine if there has been an improvement. Feedback from participants is also collected to gauge the effectiveness of the socialization. Positive responses suggest that the socialization activities were successful.

RESULTS AND DISCUSSION

In this section, the findings should be separated by discussion. Findings or research results are not raw data, but data that has been processed/analyzed by certain methods. The discussion is the result of interpretation of data analysis, if necessary linked to relevant scientific theories/concepts in the literature review. Findings and discussions must answer the formulation of the problem and have the impact of new knowledge. The contents of the findings and discussion can be in the form of interpretation of the results of the discussion.

The socialization was carried out as planned. The number of participants exceeded the target, with 38 people attending instead of the planned 28. The agenda was followed smoothly, and the event proceeded without issues. The atmosphere of the socialization can be viewed in the video uploaded on the Universitas Sahid Jakarta YouTube channel at the following link: https://www.youtube.com/watch?v=5Lb-RnjVn_E Video of the Event (Figure 3).



Figure 3. Atmosphere of the Socialization Event on Household Food Safety

The socialization of food safety to the partners was carried out according to plan. Before the activity, planning sessions were conducted with the partners. This collaborative planning was successful, leading to the partners recognizing that the lack of knowledge and attitudes towards household food safety was a shared issue that needed resolution. This suggests that the partners will be able to address these issues independently in the future.

Figure 3 shows that the implementation of the activity proceeded smoothly. The agenda began with the singing of the national anthem, Indonesia Raya. Welcome speeches were delivered by the Head of RW 013 and the Secretary of PKK RW. A pre-test was conducted offline before the socialization session, and the pre-test environment was well-managed, with participants encouraged to answer based on their current knowledge and attitudes.

During the food safety socialization, the atmosphere was both serious and relaxed. All participants listened attentively. During the discussion session, participants inquired about practices to enhance food safety in the kitchen. The resource person emphasized the importance of cleaning and replacing kitchen tools after use, including cloths and sponges, which are often forgotten but can harbor bacteria. Participants acknowledged that they frequently forget to replace these items, which is a minor issue with significant implications for food safety. Photo documentation can be viewed in the Figure 3.



Figure 4. Photo documentation of socialization of food safety at household level

Table 1. Pretest and Post-test Results on Participants' Understanding Improvement

| No. | Question | Pre test | Post-test | Increase | % Increase |
|-----|---|-------------|-------------|-------------|-------------|
| 1. | The use of staples on cake packaging for gatherings is considered a physical hazard. | 64,3 | 92,9 | 28,6 | 31,0 |
| 2. | The responsibility for food safety is the government, producers and consumers | 57,1 | 96,4 | 39,3 | 41,0 |
| 3. | Temperature 5 - 600C is the temperature of the dangerous area, the temperature where microorganisms grow | 10,7 | 92,9 | 82,2 | 88,0 |
| 4. | One of the chemical hazards is formaldehyde | 92,9 | 92,9 | 0,0 | 0,0 |
| 5. | Formalin is intended for embalming corpses, but it is often found in food items such as tofu and salted fish. | 82,1 | 96,4 | 14,3 | 15,0 |
| 6. | Dishcloths and sponges are cleaning tools that are often forgotten to be replace | 53,6 | 82,1 | 28,5 | 35,0 |
| 7. | A freezer is a place for storing nuggets. | 96,4 | 100,0 | 3,6 | 3,6 |
| 8. | Warm temperatures should be avoided when serving food | 3,6 | 78,6 | 75 | 95,0 |
| 9. | The internal temperature of meat should be at least 72°C (162°F) or there should be no more red color inside | 0,0 | 82,1 | 82,1 | 100,0 |
| 10. | Eating raw eggs carries a risk of salmonella contamination | 71,4 | 100,0 | 28,6 | 28,0 |
| | | 53,2 | 91,4 | 38,2 | 42,0 |

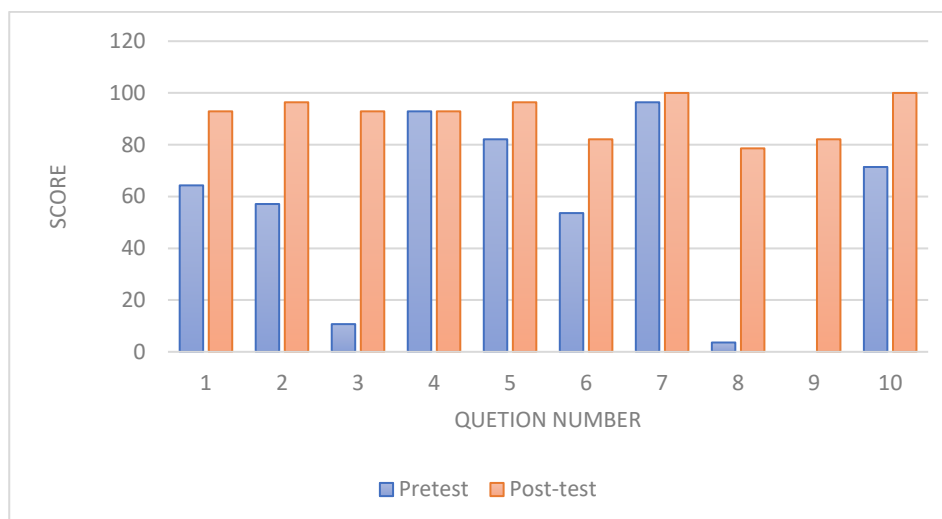


Figure 5. The scores for each knowledge question

Table 1 and Figure 5 shows that the average pretest score was 53.21 and the average post-test score was 91.43. This represents an increase from the pretest to the post-test of 38.22 points (42%). It can be said that the food safety socialization program successfully increased the partners' knowledge by 42%. This increase is likely due to the participants' attentive listening to the material presented. For the increase in individual questions, see Figure 4.

The most significant increase was in question number 3, which dealt with the dangerous temperature range for bacteria, specifically the optimal growth temperature of 5-60°C. The participants' answers increased from 10.7% to 92.9%, showing an improvement of 82.2 points (88%). Similarly, question number 9 saw an increase in knowledge from 0% correct answers to 82.1% in the post-test, representing an increase of 82.1% (82.1%). Additionally, question number 8, which addressed the avoidance of warm temperatures during food presentation, improved from 3.6% to 78.6%, a rise of 75 points (95%).

The questions regarding microbiological hazards included: 1) Responsibility for food safety among the government, producers; 2) The temperature range of 5-60°C is a dangerous zone optimal for microorganism growth; 3) Dishcloths and sponges are often forgotten cleaning tools; 4) The freezer is for storing nuggets; 5) Warm temperatures should be avoided in food presentation; 6) The internal temperature of meat should be at least 72°C or no red color should remain; and 7) Consuming raw eggs poses a risk of salmonella. These seven questions pertain to microbiological hazards and efforts to prevent food poisoning at the household level. These issues could lead to microorganism growth, which has the potential to contaminate food prepared in the kitchen. The results indicate that participants' knowledge about microbiological hazards increased by 64.5%.

The increase in participants' knowledge about microbiological hazards is expected to enhance the positive attitudes and behaviours of the PKK mothers in food safety practices at their homes. This aligns with research showing that knowledge can be improved through interventions such as education or socialization activities (Pujilestari, et al., 2019; Pujilestari et al., 2023; Setyawati et al., 2021). The more extensive the educational information, the greater the knowledge gained (Liliweri, 2013). This indicates that through educational programs, both knowledge and attitudes can be improved simultaneously (Pujilestari & Sabariman, 2023). The evaluation of participants' attitudes can be seen in Table 2.

Table 2 and Figure 5 indicate a slight increase in positive attitudes towards household food safety after the socialization, with a gain of only 0.9%. This suggests that participants already had a strong awareness of food safety practices before the socialization. For instance, the statement that one should wash hands before cooking received unanimous agreement (100%), and all participants also disagreed with the statement that formalin in tofu is acceptable to prevent spoilage (100%). These responses reflect a generally positive attitude towards household food safety. However, ongoing reminders among PKK members and independent socialization initiatives by the PKK RW management could reinforce these attitudes.

Table 2. Increase in Attitude Scores After Post-Test

| No. | Question | Pre test | Post-test | Increase | % Increase |
|-----|--|----------|-----------|----------|------------|
| 1. | Before cooking, you must wash your hands first | 10,0 | 10,0 | 0,0 | 0,0 |
| 2. | Cooking without contaminated water | 9,3 | 9,6 | 33,2 | 3,4 |
| 3. | Formalin is common and it doesn't matter if it is found in tofu, so that the tofu does not spoil quickly | 10,0 | 10,0 | 0,0 | 0,0 |
| 4. | Dishwashing sponges should be changed frequently | 9,3 | 9,6 | 33,2 | 3,4 |
| 5. | The use of staples in food plastics is still allowed for practicality | 6,4 | 6,3 | -12,8 | -2,0 |
| | | 9 | 9,1 | 10,7 | 0,9 |

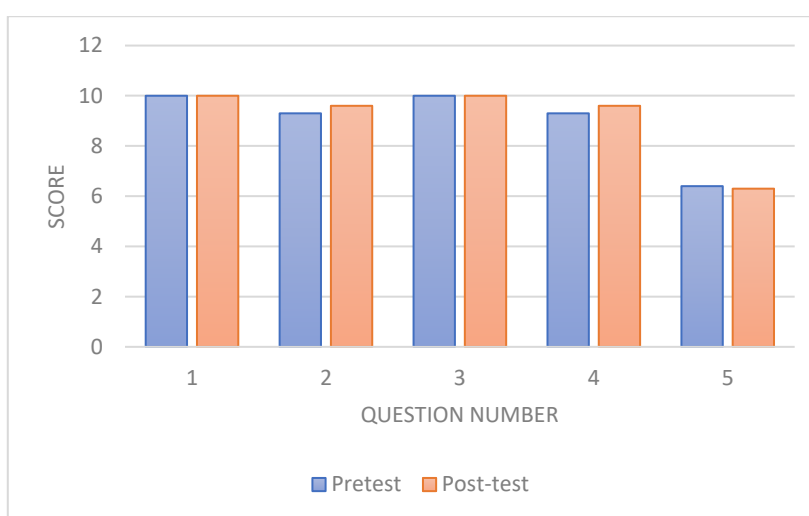


Figure 6. The scores for each attitude question

There was a minor decline in attitude, specifically a 2% drop, regarding the use of staples on food packaging for convenience. This likely indicates that participants still find it challenging to avoid using staples when packaging snacks for events like arisan gatherings, despite the physical hazard posed by accidentally ingesting staples. Positive attitude shifts were observed regarding cooking with contaminated water and frequently replacing dishwashing sponges, with increases of 33.2 (3.4%) each. Although modest, these improvements are crucial in preventing food poisoning. Participants acknowledged that the material covered, though related to common everyday practices, was essential for reinforcing good habits. They also felt that the socialization was beneficial. Research has shown that increased knowledge can lead to improved attitudes and behaviors, indicating a relationship between knowledge, attitude, and behavior (Calvert et al., 2021);(Pujilestari, et al., 2019);(Septiyani et al., 2021).

CONCLUSION

The household food safety socialization is a community service activity conducted in partnership with the PKK group of RW 013, Jakamulya Village, South Bekasi. The attendance of participants exceeded the target, increasing from 28 to 38 people. This activity successfully enhanced household food safety knowledge by 42%. Specifically, knowledge regarding microbiological hazards increased by 64.5%. Positive attitudes towards household food safety improved by 0.9%, with a more significant increase of 3.4% in positive attitudes toward microbiological hazards. Participants expressed positive impressions of the household food safety socialization activity.

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REFERENCES

- Adri, A. (2023). Tiga Kasus Keracunan Makanan Akibatkan 259 Korban di Bogor. *Kompas.Id*. <https://www.kompas.id/baca/metro/2023/03/20/tiga-kasus-keracunan-makanan-akibatkan-259-korban>
- Bekasi. (2023). *Kejadian Luar Biasa (KLB)---Keracunan di Kota Bekasi, Jawa-Barat*. Pusat Krisis Kesehatan Departemen Kesehatan RI. [https://pusatkrisis.kemkes.go.id/Kejadian-Luar-Biasa-\(KLB\)---Keracunan--di-KOTA-BEKASI-JAWA-BARAT-12-01-2023-82](https://pusatkrisis.kemkes.go.id/Kejadian-Luar-Biasa-(KLB)---Keracunan--di-KOTA-BEKASI-JAWA-BARAT-12-01-2023-82)
- BPS. (2017). *Bekasi dalam Angka 2016*. BPS Kota Bekasi.
- BPS. (2021). *Jumlah Penduduk Hasil SP2020*. Badan Pusat Statistik Kota Bekasi. <https://bekasikota.bps.go.id/indicator/12/56/1/jumlah-penduduk-hasil-sp2020.html>
- Calvert, A., Vandrevale, T., Parsons, R., Barber, V., Book, A., Book, G., Carrington, D., Greening, V., Griffiths, P., & Hake, D. (2021). Changing knowledge, attitudes and behaviours towards cytomegalovirus in pregnancy through film-based antenatal education: a feasibility randomised controlled trial of a digital educational intervention. *BMC Pregnancy and Childbirth*, 21, 1–13.
- Indraswari, D. L. (2023). Menjaga Keamanan Pangan dari Lingkup Rumah Tangga. *Kompas.Id*. <https://www.kompas.id/baca/riset/2023/02/28/menjaga-keamanan-pangan-dari-lingkup-rumah-tangga>
- Liliweri, A. (2013). *Dasar-dasar Kesehatan Komunikasi*. Yogyakarta: Pustaka Pelajar.
- Pujilestari, S., Giyatmi, G., Basriman, I., & Batubara, S. C. (2019). Dampak Intervensi Terhadap Aspek Keamanan Pangan serta Diversifikasi Produk Olahan di Sentra Usaha Tempe. *Jurnal Teknologi Pangan Dan Kesehatan (The Journal of Food Technology and Health)*, 1(2), 122–131.
- Pujilestari, S., Liana, C., & Setyawati, E. (2023). *Peningkatan Pengetahuan Kelompok Anak Jalanan Stasiun Kereta Bekasi tentang Penjualan Cilok melalui Digital Marketing pada Era Covid-19*. 5(1), 609–615.
- Pujilestari, S., & Sabariman, M. (2023). El-Mujtama : Jurnal Pengabdian Masyarakat El-Mujtama : Jurnal Pengabdian Masyarakat. *El-Mujtama: Jurnal Pengabdian Masyarakat*, 4(2), 486–493. <https://doi.org/10.47467/elmujtama.v4i2.6212>
- Pujilestari, S., Sabariman, M., & Ratnasari, K. (2019). Socialization of Healthy Oil Use in the Pkk Group in Bekasi. *Iccd*, 2(1), 310–316. <https://doi.org/10.33068/iccd.vol2.iss1.205>
- Septiyani, D., Suryani, D., & Yulianto, A. (2021). Hubungan Pengetahuan, Sikap, Tingkat Pendidikan dan Usia dengan Perilaku Keamanan Pangan Ibu Rumah Tangga di Kecamatan Pasaleman, Cirebon. *Gorontalo Journal of Public Health*, 4(1), 45–54.
- Setyawati, E., Pujilestari, S., & Farida, F. (2021). Socialization Of Standard Food Packaging In The Women Packaging Of Street Food Vendor Community Around Kranji Market, Bekasi City. *Iccd*, 3(1), 359–363.
- WHO. (2015). *WHO's first ever global estimates of foodborne diseases find children under 5 account for almost one third of deaths*. World HEALD ORGANIZATION. <https://www.who.int/news/item/03-12-2015-who-s-first-ever-global-estimates-of-foodborne-diseases-find-children-under-5-account-for-almost-one-third-of-deaths>