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The Implementation of Hygiene, Sanitation, and Workplace Safety to Enhance the Productivity of MSME Workers

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Abstract

Bumbu Rujak Asli Bali is one of the leading MSMEs in North Denpasar, and it has the advantages of good taste, laboratory testing, and a HALAL certificate. Implementing good hygiene and sanitation is a must that cannot be ignored. Food hygiene supervision starts from the process of selecting food ingredients to the process of serving them. Thus, high-quality food will be safe from damage caused by inappropriate food processes and storage. This activity aims to raise awareness about the importance of hygiene, sanitation, and safety in food processing to improve the quality of food produced. This activity was carried out from September to November 2024 using the Participatory Action Research (PAR) method with the target of workers and owners of Balinese Original Rujak Seasoning UMKM. The evaluation results showed that there was an increase in the knowledge of the participants, as seen from the increase in post-test scores, and the results of scoring the activity evaluation questionnaire found that the average results of the evaluation of activities ranged from a value of 3.7 in the Very Good category. This activity received enthusiasm and positive responses from workers and raised awareness among workers and partners regarding hygiene, sanitation, and workplace safety.

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INTRODUCTION

The Rujak seasoning industry is rapidly growing in Bali. Bumbu Rujak Asli Bali, a small and medium enterprise, is one of the leading small businesses in Tonja Village, North Denpasar. The distinctive feature of Bumbu Rujak Asli Bali products lies in their flavor, which is crafted through extensive experimentation and laboratory testing, and certification HALAL in accordance with Islamic standards, as seen in the product photo in Figure 1.

Since rujak is made from relatively inexpensive and easily accessible ingredients, primarily fruits complemented by various seasonings, it has become a highly popular traditional dish (Suryawan, 2015). However, food produced by household industries often lacks proper attention to safety standards, resulting in numerous cases of foodborne illnesses (Limon, 2021). For instance, the use of non-sterile equipment can contaminate products, leading to food poisoning (Arnisalo, 2006).

Figure 1 Photo product of bumbu rujak asli bali

Food safety is critical as it directly impacts consumer health (Giritlioglu, 2011). Therefore, to ensure that the food produced is safe and of high quality, food handlers must receive proper training (Limon, 2021). In addition to food safety, safe operational practices are essential in the production process (Bindu & Reddy, 2016). The use of equipment during production can pose risks to workers' safety. A lack of understanding regarding workplace safety can lead to accidents, disrupt production, and affect the quality of the products (Adanse, 2017).

A preliminary survey found that the partner business had provided workers with personal protective equipment (PPE), such as caps and gloves, but not all workers adhered to these guidelines. Workers used head coverings that did not meet the standards for food industry hygiene. Interviews with some workers revealed that discomfort was the main reason for not using PPE. Furthermore, the business owner expressed a desire to provide sufficient PPE but cited financial constraints, resulting in only minimal PPE provision. There were also no formal rules from the business owner regarding PPE use, leading many workers to forgo it during production.

The success of producing safe and healthy food relies on the hygiene practices of food industry workers. When handling food, workers must be in good health and show no symptoms of illness. They are also required to adhere to hygienic procedures. Employees must consistently maintain hygiene and wear protective equipment (PPE). Workers must wash their hands with soap before preparing food, handling raw materials, and entering or exiting restrooms. Other PPE includes aprons, head coverings, gloves, and masks.

Workers are prohibited from eating, drinking, smoking, spitting, or sneezing over food and wearing jewelry such as bracelets or rings that could contaminate the food while on duty (BPOM, 2012). Access to safe and high-quality food is a fundamental right for everyone, including food produced by household-scale industries.

Household-scale industries carry out production activities at home using manual or semi-automatic equipment. Denpasar has many thriving household businesses, including *Bumbu Rujak Asli Bali*. While its products are popular, improper processing could pose health risks. The raw materials, food handlers, and equipment used during production can all contaminate rujak seasoning (Kemenkes, 2008).

Based on the partner's issues, the proposed solutions include conducting outreach programs to maintain and practice personal hygiene during production. The goal is to raise awareness about hygiene, sanitation, and workplace safety in food processing to improve food quality.

Other specific objectives include enhancing partners' and workers' knowledge of the importance of washing hands before and after production, conducting workplace safety education, and providing information on preventing and addressing workplace accidents. Additionally, it is proposed that PPE such as head coverings, gloves, and masks be provided during production to support the development of better production processes.

METHODS

This community service activity (*Pengabdian Kepada Masyarakat* or PkM) was conducted using the Participatory Action Research (PAR) method, a community service approach that involves studying issues scientifically in collaboration with partners. The PKM team consisted of lecturers and students, working as resource persons and facilitators who engaged directly with the partners to identify their challenges. Simultaneously, the team offered solutions to address these issues. The PKM activities were carried out at the Bumbu Rujak Asli Bali production house at Jalan Pertulaka No. 10A, Denpasar Utara, from September to November 2024. Participants included seven individuals: two business owners and five workers.

The materials used in this community service activity included PPE for workers, such as head coverings, gloves, aprons, sanitary masks, and closed-toe shoes. Supporting production tools included mixers, frying pans, double-burner gas stoves, small jars, ingredient containers, and handwashing soap. The implementation stages of the PKM program consisted of five phases: socialization, training, and evaluation. The socialization phase began with preparing the activities' materials, methods, and time allocation. A detailed schedule was created and shared, including the mechanism for providing technology-based training, particularly information on the technologies to be utilized by the partners. Recommendations, assignment letters, and reports outlining the planned activity schedule were also issued.

The training phase began with demonstrating and practicing proper handwashing with soap, led by students and practiced directly by PKM participants. Subsequent training sessions focused on providing and correctly using PPE during production, including head coverings, gloves, aprons, sanitary masks, and closed-toe shoes. This activity included demonstrations of proper PPE usage and supervised hands-on application by workers. At the end of the activity, a post-test was conducted using the same questions as the pre-test to measure the understanding of partners and workers regarding the material provided. The evaluation aimed to assess the effectiveness of the PKM activities and the extent to which program objectives were achieved. Evaluation tools included questionnaires and observation guidelines. The questionnaire measured participants' knowledge and skills related to personal hygiene, workplace cleanliness, equipment maintenance, PPE usage, and workplace safety. It was administered to partners and employees both before (pre-test) and after (post-test) the activities.

Observations were conducted throughout the activities to evaluate the implementation process and the outcomes. For example, participants were observed during handwashing and PPE usage practices. The observations assessed their participation and skill development during these activities. It is hoped that partners and workers gain a deeper understanding of and better adherence to the material presented, thereby improving their practices in personal hygiene, workplace safety, and production quality.

RESULTS AND DISCUSSION

The activity began with a briefing from the business owner to the workers, encouraging them to participate actively and effectively. The team then delivered the objectives and benefits of this program.

Socialization of Personal Hygiene, Sanitation, and Workplace Accidents

Food hygiene supervision begins from the selection of ingredients to the serving process. This ensures that high-quality food remains safe from damage caused by improper handling and storage. To guarantee the quality of the food produced, it is crucial for food handlers to have adequate knowledge of food processing to create safe and high-quality rujak seasoning products. The activities continued with education on hygiene, sanitation, and workplace safety. The implementation of hygiene, sanitation, and occupational health and safety (OHS) in the workplace is essential as it ensures the safety and health of workers, prevents the spread of infectious diseases, reduces workplace accidents, maintains worker productivity, and improves the well-being of employees and businesses. The socialization conducted by the team is seen in Figure 2.

Figure 2 Socialization conducted by the team

Workplace Accidents in Household Food Industries

Workplace accidents in household food industries can occur due to various reasons, such as injuries while using knives, oil splattering during frying, exposure to sharp or hot objects, lack of caution when lifting ingredients during the heating process, eye irritation from handling chili, and hand irritation during the preparation of rujak seasoning. Business owners must implement Occupational Health and Safety (OHS) measures to prevent such accidents. The primary goal of OHS is to prevent unsafe conditions or actions that could lead to workplace accidents.

The core activity of this PkM program is to raise awareness about maintaining personal hygiene during production and to demonstrate proper handwashing techniques. The second topic focuses on sanitation for equipment and the work environment, emphasizing that equipment must be used hygienically and not mixed between those used for handling raw materials, semi-finished products, and ready-to-eat products. In the third section on workplace safety, partners are educated on preventing and addressing workplace accidents and using PPE such as head coverings, gloves, and masks during production. Figure 3 shows participants enthusiasm.

Figure 3 Participants' enthusiasm during the socialization session

Handwashing with Soap Training

The next activity was a demonstration of proper and effective handwashing techniques. Students led this activity using a handwashing poster, as shown in Figure 4. One of the best ways to prevent infections is handwashing with soap, which involves cleaning hands and fingers using soap and running water. Proper handwashing requires soap, running water, and a clean towel. It has been proven that washing hands with water alone is ineffective.

The issue of inadequate handwashing practices is not limited to developing countries but also occurs in developed nations, where many people still neglect to adopt the handwashing habit. This highlights that handwashing is a critical healthy behavior because hands often serve as a source of germs, allowing pathogens to transfer from one person to another through direct or indirect contact (Ramadani, 2020). A demonstration of how to wash hands properly with soap is shown in Figure 4.

Figure 4 Demonstration of proper handwashing with soap by students followed by participants

After explaining the importance of handwashing with soap and its connection to personal hygiene, the implementation team instructed workers to practice handwashing. The activity continued with a training session on proper handwashing techniques, which students demonstrated and participants directly practiced.

PPE and Production Support Tools

PPE provided during production included head covers, gloves, aprons, hygiene sanitary masks, and closed-toe shoes. This activity was accompanied by a demonstration of the proper use of PPE while working, followed by workers practicing PPE usage under the supervision of the implementation team. The production support tools provided included a mixer, frying pan, double-burner gas stove, small jars, and ingredient containers. Distribution of PPE to partners and distribution of production support tools to activity analysis partners are shown in Figure 5.

Figure 5 (a) Distribution of ppe to partners and (b) Distribution of production support equipment to partners activity analysis

Pre-tests, post-tests, and activity evaluation questionnaires were conducted to evaluate the activity and measure the success rate of the Community Service Program. The questionnaires were distributed to partners and workers to be completed twice: before the activity (pre-test) and after the activity (post-test) during the material dissemination session.

The observation aimed to assess the implementation process and the activity's outcomes. The evaluation results showed that participants' knowledge had improved, as indicated by an increase in the average post-test scores, as shown in Figure 6.

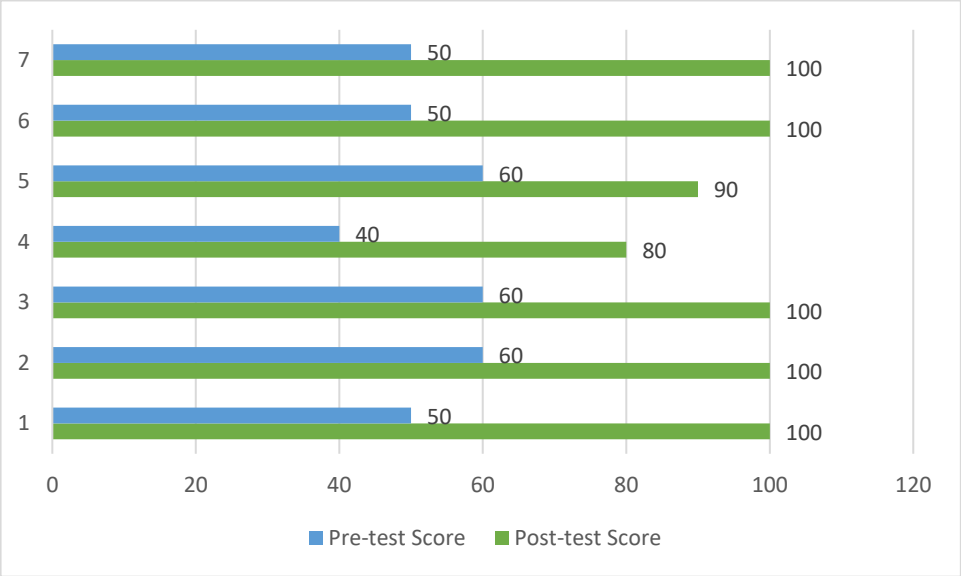

Figure 6 Graph of participants' knowledge improvement based on pre-test and post-test scores

There was an 81% increase in correct answers, and the scoring results of the activity evaluation questionnaire showed that the average evaluation score was 3.7, as depicted in Figure 7, which is categorized as excellent.

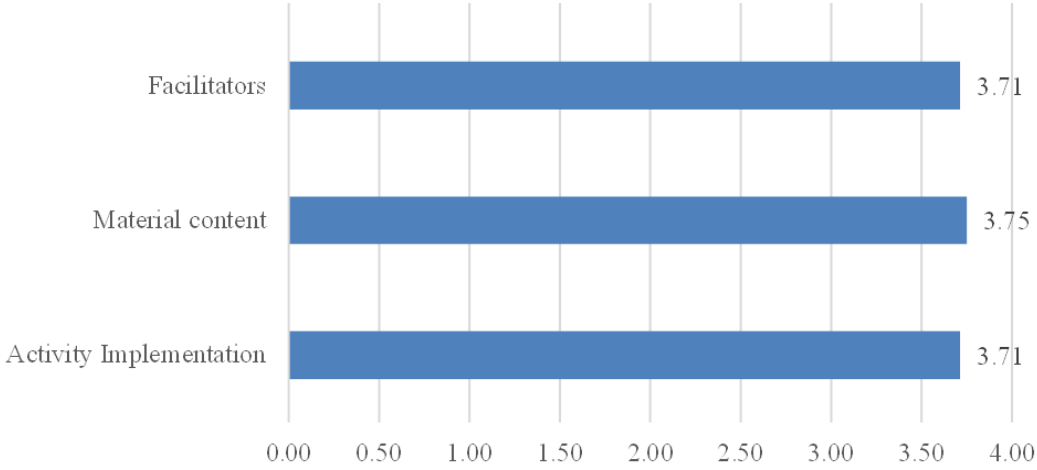

Figure 7 Activity evaluation graph

Community empowerment activities through hygiene and sanitation education for Bali's traditional *Bumbu Rujak* MSMEs were conducted using pre-test and post-test

methods. This activity aimed to enhance workers' and owners' knowledge and understanding of the importance of hygiene and sanitation in preparing *Bumbu Rujak*.

The survey involved seven participants: five workers and two MSME owners. Before the counseling session, participants were provided with an explanation of maintaining cleanliness when preparing *Bumbu Rujak*. The material was then delivered briefly through a counseling session on hygiene and sanitation for workers, accompanied by a hands-on demonstration of proper handwashing techniques. This demonstration followed posters created with references from Indonesia's Ministry of Health (Kemenkes RI).

After the materials on cleanliness and sanitation related to food product quality were delivered, respondents were asked to complete a post-test by filling out the answer sheets again. The post-test results showed a significant improvement in respondents' knowledge about hygiene and sanitation compared to their pre-test scores, as indicated by an 81% average increase in post-test scores (Figure 7).

Clean and safe food supports the development of high-quality human resources. Age, education level, and others can influence food handlers' knowledge of maintaining food hygiene and sanitation. Age affects an individual's cognitive abilities and capacity to process information. However, age is not a definitive factor, as older individuals do not necessarily have better knowledge of food hygiene and sanitation.

Education level also significantly affects a person's knowledge (Sylvia et al., 2023). Individuals with higher education levels tend to have more excellent knowledge than those with lower education levels. Food safety knowledge is essential for identifying hazards and preventing them. One way to achieve this is by expanding knowledge of personal hygiene and food sanitation, which is crucial for preventing bacteria from contaminating prepared food (Suranadi et al., 2023). One way to improve food safety is by implementing hygiene and sanitation practices. A trader's level of knowledge about food presentation, the practical application of that knowledge, and the cleanliness of food handlers can all significantly impact hygiene and sanitation.

Food handlers or workers are responsible for preventing food contamination by washing their hands and maintaining personal cleanliness and health (Suranadi et al., 2023). Food handlers directly interact with food and equipment during preparation, cleaning, processing, transportation, and serving. These responsibilities are governed by applicable regulations and laws on food hygiene and sanitation, specifically Indonesia's Ministry of Health Decree No. 942/MENKES/SK/VII/2003.

Sanitation and hygiene are closely interconnected and cannot be separated. For instance, while the intention to wash hands is commendable, sanitation may be inadequate due to a lack of clean water, resulting in ineffective handwashing (Nildawati et al., 2020). If hands are unclean and come into contact with others, bacteria, and viruses can contaminate food through fecal matter or other sources. Dirt containing bacteria and germs can be removed by washing hands with soap, scrubbing, and rinsing with running water (Ismainar et al., 2022).

Personal hygiene is crucial to preventing foodborne illnesses. Proper handwashing can eliminate more than 80% of germs. This is essential because thousands of naturally occurring and contaminated microorganisms reside on hands and can transfer to food during handling (Ramadani et al., 2016).

Food handlers' attitudes correlate with their knowledge of food safety, and these attitudes influence their food safety practices. One of the most critical factors is food handlers' knowledge of hygiene and sanitation, which is closely tied to their attitudes and behaviors (Fauziah, 2022).

CONCLUSION

Both the implementation team and the partners experienced several positive outcomes through this Community Service Program. These included support from the owners and workers for the program, enthusiastic and positive responses from the workers, and the partners' cooperative attitude during the PkM program's implementation. There was also a noticeable increase in participants' knowledge, as evidenced by an 81% improvement in post-test scores compared to pre-test scores. The results of the activity evaluation questionnaire showed an average score of 3.7, categorized as excellent.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS STATEMENT

Conceptualization, D.P.R.V.A. and I.G.A.H; methodology, I.G.A.H.; formal analysis, N.P.W.; investigation, D.P.R.V.A.; writing—preparation of the original draft, N.P.W.; writing—review and editing, D.P.R.V.A.; visualization, A.S.L.W.; supervision, A.S.L.W.

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REFERENCES

Arnisalo, K., Tallavaara, K., Wirtanen, G., Maijala, R., & Raaska, L. (2006). The hygienic working practices of maintenance personnel and equipment hygiene in the Finnish food industry. *Food Control, 17*(12), 1001–1011. https://doi.org/10.1016/j.foodcont.2005.07.006

Adanse, A., Atinga, A., & Yamga, Y. (2017). Investigating the health and safety measures in the kitchen: a study of some selected second cycle institutions in bolgatanga municipality of ghana. *Journal of Tourism and Hospitality Management*, *5*(2), 45–55. https://doi.org/10.15640/jthm.v5n2a5

Bindu, E. S. H., & Reddy M V. (2016). Occupational hazards among cooks in commercial kitchens. *International Journal of Science and Research (IJSR), 5*(6), 970–974. https://doi.org/10.21275/v5i6.nov164321

BPOM RI. (2012). Peraturan kepala BPOM RI tentang cara produksi pangan yang baik untuk industri rumah tangga. pp 1–22.

Fauziah, R. (2022). Penerapan hygiene sanitasi pengelolaan makanan. *Jambura Health and Sprot Journal, 4*(1), 11–18.

Giritlioglu, I., Batman, O., & Tetik, N. (2011). The knowledge and practice of food safety and hygiene of cookery students in Turkey. *Food Control, 22*(6), 838–842. https://doi.org/10.1016/j.foodcont.2010.09.016

Ismainar, H., Harnani, Y., Sari, N.P., Zaman, K., Hayana, H. & Hasmaini, H. (2022). Hygiene dan sanitasi pada pedagang makanan jajanan murid sekolah dasar di kota pekanbaru, riau. *Jurnal Kesehatan Lingkungan Indonesia, 21*(1), 27–33.

Kementerian Kesehatan RI. (2018). Lebih dari 200 penyakit dapat menular melalui makanan, keamanan pangan harus diperhatikan. [Internet][Cited 2024 March 28]. Available from: https://www.kemkes.go.id/article/view/18092700003/lebih-dari-200-penyakitdapat-menular-melalui-makanan-keamanan-pangan-harus-diperhatikan.html

Limon, M R. (2021). Food safety practices of food handlers at home engaged in online food businesses during COVID-19 pandemic in the Philippines. *Current Research in Food Science, 4*, 63–73. https://doi.org/10.1016/j.crfs.2021.01.001

Menteri Kesehatan Republik Indonesia. (2003). Keputusan Menteri Kesehatan Republik Indonesia Nomor 942/MENKES/ SK/VII/ 2003. Tentang Pedoman Persyaratan Hygiene Sanitasi Makanan Jajanan.

Nildawati, N., Ibrahim, H., Mallapiang, F., Afifah M, K. & Bujawati, E. (2020). Penerapan personal hygiene pada penjamah makanan di pondok pesantren kecamatan biring kanaya kota makassar. *Jurnal Kesehatan Lingkungan*, *10*(2), 68–75.

Ramadani, E. R., Nirmala G., F., & Mersatika, H. A. (2017). Higiene dan sanitasi makanan jajanan di kantin sekolah dasar di kecamatan buke kabupaten konawe selatan tahun 2016. *Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat*, *2*(6).

Ramadani, A., Suryanto, B., Riesta, R., & Yuni, E. (2020). Penyuluhan cuci tangan dengan baik dan benar guna mencegah penularan virus corona di desa pandan geneng. Laporan Pengabdian Kepada Masyarakat

Suranadi., L., Gita, G., Amni, P. L., Darawati, M., Chandradewi, C., & Wahyuningsih, R. (2023). Pengaruh *Edukasi Personal hygiene Dan Sanitasi Makanan Terhadap Perilaku Pedagang Sate Bulayak*, *6*(1), 346-350

Suryawan, I. K. D., Setia, B. I. K, & Suradarma, I. B. (2015). IbM bumbu rujak denpasar. *Majalah Aplikasi Ipteks NGAYAH*, *6* (2), 144-149.

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