

## Analisis Pemanfaatan *WhatsApp* dalam Perubahan Perilaku Pengolahan Makanan pada Wirausaha

### *Analysis of the Use of WhatsApp in Food Processing Behavior Changes in Entrepreneurs*

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#### ABSTRACT

**Background:** Food and beverage sanitation hygiene really needs to be guaranteed of its safety, including the sanitation hygiene of home-made snacks produced by food entrepreneurs. Poor food sanitation hygiene can cause food poisoning, which is bad for buyers. Especially during the COVID-19 pandemic, food sanitation hygiene in small and medium businesses must be considered to avoid transmission while maintaining an entrepreneurial image in the midst of the pandemic. **Objective:** This study aims to analyze behavior changes including knowledge, attitudes, and entrepreneurial actions in food and beverages processing through mentoring using WhatsApp messenger media. **Methods:** This study used a quasi-experimental approach. The population of this study was small and medium entrepreneurs specializing in food and beverage processing accompanied by an incubator in North Sumatra with as many as 35 entrepreneurs. The samples of this study amounted to 29 food entrepreneurs who were selected using the purposive sampling technique. The time of the study was in July and August 2020. Data were obtained by giving questionnaires before mentoring, two weeks after mentoring, and four weeks after mentoring. The variables consisted of knowledge, attitudes, and actions, as well as assistance to use WhatsApp messenger media. The collected data were then analyzed using the Wilcoxon and Friedman test. **Results:** The results showed that the mentoring using WhatsApp messenger media could increase knowledge ( $P$  value = 0.000), attitudes ( $P$  value = 0.000) respondents' actions ( $P$  value = 0.015). **Conclusion:** The role of health workers was very necessary for the use of WhatsApp messenger based social media, including as assistants who present health promotion content, annul negative content, and make positive efforts to reconcile if there be bad communication in the WhatsApp messenger social media group.

**Keywords:** Food Entrepreneurship, Hygiene, Behavior Change, WhatsApp

#### INTRODUCTION

Food is the most basic need that humans must meet at all times, hence the availability of healthy food is essential. As it can cause diseases in humans, the processing of food that is consumed must not be dangerous. Food poisoning is a result of unhygienic food processing. During the 2019 period, a report from the National Agency of Drug and Food Control or *Badan Pengawasan Obat dan Makanan* (BPOM) stated that there had been 77 reports of Extraordinary Food Poisoning Incidents or *Kejadian Luar Biasa Keracunan Pangan* (KLB-KP), while the number of

people affected due to food poisoning outbreaks in that year was 7,244 cases, of which 3,281 people experienced pain with an attack rate of 45,29 (*Badan Pengawas Obat dan Makanan*, 2019).

The food must be processed properly and correctly to be useful and not harmful to people who eat it. Efforts are needed to make food/beverages healthy, one of which is by optimizing the control of factors that can cause contamination and subsequently affect the growth of disease germs and the increase of additive substances in processed food and beverages, so they will not become a cause of disease transmission and health

problems. Increasing knowledge of food handlers will help reduce the incidence of illness and death that may be caused by food (Zairinayati *et al.*, 2020).

Maintaining the sanitary hygiene of food and beverage processing is conducted through maintaining health in food processing, namely controlling the factors of food, place, people, and equipment used, which may cause health problems. A good food processing is a food processing that follows the principles of hygiene and sanitation, including food processing must meet technical requirements, selection of food ingredients, compounding of ingredients must be hygienic, and cooking utensils and cutlery must be made of materials safe for food and hygienic food handling (Kementrian Kesehatan RI, 2018). Environmental sanitation listed in the guidelines for the good food processing methods consists of the production environment, location, production facilities, buildings, clean water facilities, and sanitation facilities (Badan Pengawas Obat dan Makanan, 2012).

Food comes from various sources. It can be made by the family or purchased from formal and informal vendors. One of the informal sectors that provides food and sells it is the Small and Medium Enterprise (SME) or *Usaha Kecil Menengah* (UKM). SMEs are entrepreneurs in society who produce goods; which in this case, the product of the business is food. One of the biggest in the SME sector is food.

The National Workshop on Food and Nutrition or *Widyakarya Nasional Pangan dan Gizi* (WNPG) IX of 2008 described several problems related to food safety specifically in food SMEs that were not standardized still and needed to be improved; in particular, improvements on the quality of human resources, food additives, and other hazardous chemicals prohibited from being used in food products, as well as technological facilities and capabilities.

In 2011, BPOM carried out tests and obtained results related to food that 2,902 (14.15%) of 20,511 food samples did not meet feasibility and safety. The issue of food hygiene and lack of sustainability became a problem and challenge for SMEs. They often ignored the importance of cleanliness, resulting in factory designs with many mistakes and problems that arose after the factory was built. This shows that the food processing of SME

needed special attention (Hasnan *et al.*, 2014).

Small and Medium Enterprises are the sector that needs special attention in food processing, so the government has made various efforts, one of which is assistance by business incubators. The incubator is expected to increase the capacity of SMEs, including the quality of their products. Based on this, an effective action is needed to improve personal hygiene behavior in food processing. According to Bloom *et al.*, (1956), behavior is the integration of cognitive, affective, and psychomotor aspects.

WhatsApp was able to be used as an effective educational media as part of a health education program about diabetes, especially type 2 (Ekadinata and Widyandana, 2017). In addition, it has been proven that WhatsApp media was effective in helping to improve health behavior, which in this case, youth health behavior in the prevention of HIV/AIDS and drugs in Deli Serdang (Roni Gunawan, Mucti Yuda Pratama, Sulaiman, Anggriani, 2018). WhatsApp group media in women for the purpose of health education seemed to be a good alternative in breast cancer control strategies as there would be an exchange of experiences in it. In particular, intervention by sending picture messages had a higher degree of influence than text messaging (Pereira *et al.*, 2020). Hence, this study aims to analyze behavioral changes including knowledge, attitudes, and entrepreneurial practice in food and beverages processing through mentoring using the WhatsApp messenger media.

## METHODS

This study used a quantitative approach with a quasi-experimental one-group pretest-posttest design. According to Sugiyono (2014), the quasi-experimental design has a control group but is unable to work completely to control the outside variables affecting the experiment (Sugiyono, 2014). The quasi-experimental design offers practical options for conducting impact evaluations in real-world settings. By using pre-existing or self-selected groups such as individuals who have already participated in studies, this method can also prevent researchers from ethical problems associated with

random assignments (White and Sabarwal, 2014).

This study provided action or intervention in the form of assistance through WhatsApp messenger messages. The quasi-experimental design was chosen since typically this type of study does not fully control one time or the location of the entire sample that becomes the object of the study. It was only conducted in one group and measured the conditions before and after the intervention. The intervention given was the provision of information related to proper and correct food processing using pictures, narration, and also videos through WhatsApp groups.

The population in this study was all food processing entrepreneurs accompanied by the Business Technology Innovation and Incubation Institute of Universitas Sumatera Utara (USU) in 2019, which amounted to 35. The samples of this study were all entrepreneurs specifically in the food processing sector, amounted to 29 SMEs (Small and Medium Enterprises). The respondents were SMEs that processed food, such as chips, crackers, onion sticks, and frozen food. The time of the study was in July-August 2020.

This study used a quasi-experimental approach thus there were interventions carried out in the group that was the study object. The data were collected three times from the same study object, namely before the intervention, during the intervention, and after the intervention. The data collection was done using questionnaires that have been tested in other studies specifically for food managers. The questionnaires were filled out online by the respondents and a data cleaning was carried out if there was an unclear answer from the respondents.

The Wilcoxon test was used in this study to analyze the difference between two paired variables, resulting in data of the ordinal data type; and an alternative test was used, which was the Friedman test as the measurements were conducted more than 2 times. Ethical approval has been acquired with the ethics clearance number of 002/VII/KEPK-SIHA/VII/2020.

## RESULTS AND DISCUSSION

A bivariate data analysis used the Wilcoxon test to measure paired data in 2 groups of data that were not normally distributed on the knowledge, attitude,

and practice variable. The results of the Wilcoxon test data analysis are shown in Table 1. Based on Table 1, from the calculation of the Wilcoxon Signed Rank Test, the first comparison between initial knowledge measurement and measurement after 2 weeks was obtained. The conclusion of the hypothesis was to accept H1, or it can be interpreted that there was a difference between the initial group measurement and the 2-week post-measurement. In the second comparison between the initial knowledge measurement and measurement after 4 weeks, the hypothesis decision accepted H1, which means that the initial group measurement and measurement after 4 weeks of intervention were different.

In the third comparison between knowledge measurement after 2 weeks with measurement after 4 weeks, the hypothesis decision accepted H1, which means that there was a difference between the measurement group at 2 weeks and at 4 weeks. Based on the measurement results of the knowledge variable above, it was known that a big change occurred in the third comparison of the measurement after 2 weeks with the measurement after 4 weeks of mentoring.

**Table 1.** Wilcoxon Test Results on Knowledge, Attitude, and Practise

Variable	Mean	Z	Sig.
<b>Knowledge</b>			
Value of Knowledge Before Mentoring	5,9	-4,710	0,000
Value of Knowledge After Mentoring for 2 Weeks	7,9		
Value of Knowledge Before Mentoring	5,9	-4,706	0,000
Value of Knowledge After Mentoring for 4 Weeks	9,3		
Value of Knowledge After Mentoring for 2 Weeks	7,9	-4,712	0,000
Value of Knowledge After Mentoring for 4 Weeks	9,3		
<b>Attitude</b>			
Value of Attitudes Before Mentoring	42,90	-3,542	0,000
Value of Attitudes After Mentoring for 2 Weeks	44,72		
Value of Attitudes Before Mentoring	42,90	-4,117	0,000
Value of Attitudes After Mentoring for 4 Weeks	46,38		
Value of Attitudes After Mentoring for 2 Weeks	44,72	-3,862	0,000
Value of Attitudes After Mentoring for 4 Weeks	46,38		
<b>Practice</b>			
Value of Practise Before Mentoring	31,24	-3,542	0,000
Value of Practise After Mentoring for 2 Weeks	34,14		
Value of Practise Before Mentoring	31,24	-4,117	0,000
Value of Practise After Mentoring for 4 Weeks	36,69		
Value of Practise After Mentoring for 2 Weeks	34,14	-3,862	0,000
Value of Practise After Mentoring for 4 Weeks	36,69		

In a multivariate manner, this study used the Friedman test; a test to analyze the effectiveness of a treatment with more than two measurements (in this case, three measurements) where the variables are not normally distributed in paired data. The results of the analysis can be seen in the following Table 1.

Based on Table 1, from the calculation of the Wilcoxon Signed Rank Test in the first comparison between the initial attitude measurement and the measurement after 2 weeks, the hypothesis decision was to accept  $H_1$  indicating that there was a significant difference between the first measurement group and the measurement after 2 weeks. In the second comparison between the initial attitude measurement and measurement after 4 weeks, the hypothesis decision was to accept  $H_1$  indicating that there was a significant difference between the first group measurement and the measurement after 4 weeks.

In the third comparison between the attitude measurement after 2 weeks and the measurement after 4 weeks, the Z value was obtained, so the hypothesis decision was to accept  $H_1$  indicating there was a significant difference between the group measurement after 2 weeks and the measurement after 4 weeks. Based on the measurement results of the attitude

variable above, it is known that a big change occurred in the second comparison of the initial measurement with the measurement of after 4 weeks of mentoring.

Based on Table 1, from the calculation of the Wilcoxon Signed Rank Test, in the first comparison between the initial action measurement and the measurement after 2 weeks, there was a significant difference between the first group measurement and the measurement after 2 weeks. In the second comparison between the initial attitude measurement and measurement after 4 weeks, the hypothesis decision was therefore meaningful between the first group measurement and measurement after 4 weeks.

In the third comparison between the attitude measurement after 2 weeks and measurement after 4 weeks, it can be interpreted that there was a difference between the group measurement after 2 weeks and measurement after 4 weeks. Based on the measurement results of the action variable above, it is known that a big change occurred in the second comparison of the initial measurement with the measurement after 4 weeks of mentoring. The results of the analysis using the Friedman test on 3 variables are shown in Table 2.

**Table 2.** Friedman Test Results on Knowledge, Attitude, and Practice Variable

Variabel	Mean Rank	Chi square	Significance
<b>Knowledge</b>			
Value of Knowledge Before Mentoring	1,16		
Value of Knowledge After Mentoring (Post Test 1)	1,93	51,235	0,000
Value of Knowledge After Mentoring (Post Test 1)	2,91		
<b>Attitude</b>			
Value of Attitudes Before Mentoring	1,07		
Value of Attitudes After Mentoring (Post Test 1)	1,97	39,671	0,000
Value of Attitudes After Mentoring (Post Test 1)	2,97		
<b>Practice</b>			
Value of Practise Before Mentoring	1,84		
Value of Practise After Mentoring (Post Test 1)	2,05	55,055	0,000
Value of Practise s After Mentoring (Post Test 1)	2,10		

Based on Table 2, it is known that the conclusion of the hypothesis was to reject  $H_0$  or in other words there was an increase in the respondent's knowledge on 3 different measurements. Thus, it can be concluded that assistance using WhatsApp messenger media could really increase one's knowledge.

Social media had a positive contribution in helping to improve health promotion, although some weaknesses should be improved namely the outreach to the audience, reduction of false information, and continuation to use by health professionals (Leonita and Jalinus, 2018). This study sought to cover up the weaknesses that occurred in WhatsApp-based mentoring. The media could control the circulating information in group members, the interaction between members was very close and exchanging opinions, passive members would be stimulated by professionals to provide responses, in addition to the information disseminated was guaranteed to be correct, as it was part of the intervention. Assistance through the WhatsApp messenger group covered the weaknesses of other media, especially if accompanied with integrative interventions, for example through pictures of health messages related to food management. Images could provide a value for health communication activities, and public health images could be easily shared on social media (Leonita and Jalinus, 2018)).

Image messaging interventions had a higher significance than interventions through text messages (Ekadinata and Widyandana, 2017). WhatsApp social media messenger allowed members of the social media group to interact with each other, so that there was a mutual support experience as long as it was maintained by

health professionals that managed the group. Social media provided good exposure intensity, communicative feedback, engagement, and information exchange. Social media also created big changes in the change of understanding (Garcia, 2011), as many as 80% of cancer patients used social media to connect with peers which could improve communication between members (Braun *et al.*, 2019).

Social media acts as a double-edged knife. It can be very dangerous and can injure oneself. Its speed in reaching the target applied equally to information disseminated by pro or contra parties (Agung Dwi Laksono, 2015). Negative information can also develop quickly. The dissemination of information on social media is more of a chain reaction similar to the pattern of spreading viruses. The use of social media as a promotional media must indeed be used and arranged optimally and accompanied with its use by health workers, so that the dissemination and discussion in it can be in accordance with the interests of improving the health behavior of the members.

Based on the comparison of the test results, it shows that the assistance carried out took a long time so that a good discussion was built between the WhatsApp group members. The discussion could open the opportunity for everyone to share ideas and experiences in the discussion with a big contribution in improving the cognition of SMEs in it. Discussions that built up on WhatsApp features had a great opportunity to help increase the interest of its users, especially in knowledge improvement programs, using WhatsApp opened up opportunities for better communication and management to increase discussion and share information (Alsaggaf, 20218 (Kamel Boulos, Giustini and Wheeler, 2016)



Based on Table 4, it is known that there was a difference in the average increase in respondents' attitudes on 3 different measurements. Thus, it can be concluded that mentoring using WhatsApp messenger media could also improve a person's attitude. There was a change in respondent's attitude between before the pandemic and during the pandemic. The attitude change that occurred was even more positive, whereas before the pandemic the majority of respondents' attitudes were moderate, then during the pandemic it changed for the better that the majority had more positive personal hygiene attitudes (Gunawan, Maya and Siregar, 2020).

This change in attitude originated from respondents' perceptions of COVID-19 disease. Respondents viewed that the current COVID-19 was quite threatening thus it affected their attitude. The concept of the health belief model is in line with this phenomenon and individuals who feel that a given health problem is serious are more likely to behave in accordance with the prevention of the problem (or reducing its severity). Perceived seriousness includes beliefs about the disease itself (Purwodihardjo, 2020).

Based on Table 6, it is known that the Asymp. Sig. amounted to 0.000 < 0.015, then  $H_0$  was rejected and  $H_1$  was accepted. In other words, there was a difference in the average increase in respondent's actions on 3 different measurements. Thus it can be concluded that assistance using WhatsApp messenger media could improve one's actions.

Based on the comparison of the three variables above using the Friedman test, it is known that the action variable was the variable with the greatest change rate between the knowledge and attitude variables. WhatsApp messenger media was very effective in increasing the action of SMEs to process food hygienically.

The results showed that mentoring through WhatsApp messenger had an effect on improving overall behavior among respondents. There were no significant differences in each week, but overall it showed good results in improving behavior. This is in line with previous research in 2015 that increasing social support and sharing support with other parties enabled people to independently spread positive experiences about

healthier behavior change (Cutrona *et al.*, 2015). With information support through social media, people could receive or provide information content related to their health problems. They might read the experiences of others who were diagnosed with the same health problem, then share information about treatments and other supportive diagnoses (Naslund *et al.*, 2016).

Social media was considered capable of being a medium to share information and practical experiences as a stimulus for other members in it. The results of the study proved that WhatsApp was useful as a health care tool for HIV sufferers, and a potential media to dispel doubts in this regard, as well as to promote treatment adherence (Lima *et al.*, 2018).

Small and medium enterprises fostered by the incubator were accompanied by professionals who not only focused on business development, but also on product improvement by providing training related to proper and correct food processing to strengthen the behavior of SMEs in managing food hygiene. Public health practitioners and organizations might use the summary as a starting point to explore the application of social media in their daily practice of healthcare (Chen and Wang, 2021). The use of social media was a good and preferred opportunity to send health education messages to a wider target (Alshammari and Alshammari, 2017).

## CONCLUSION

Assistance using WhatsApp messenger media could increase one's knowledge, attitude, and actions. Based on the analysis of the existing variables, it is known that assistance using WhatsApp messenger media had the greatest increase in action so it can be concluded that this media was effective to increase the actions of SMEs in processing food hygienically.

The role of health workers was very necessary in the use of WhatsApp messenger as a companion in presenting promotional content, annulling negative content, and making positive efforts to reconcile if there was bad communication in the WhatsApp messenger group. Health workers could combine messages with images so that the messages conveyed would be easier to work with, easier to

understand, and would not cause boredom. The relevant agencies should include good food processing materials in every SME training involving SMEs of the food processing sector.

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