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Effectiveness of Health Promotion through Leaflet Media in Improving Knowledge, Attitudes, and Practices on Occupational Health and Safety among White Copra Workers in Toari District Kolaka Regency

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ABSTRACT

Introduction: Occupational accidents among farmers and plantation workers in Indonesia, including white copra workers in Toari District, Kolaka Regency, are a serious problem with high risks due to exposure to hazardous chemicals, the use of machinery, and unsafe working conditions. Although occupational health and safety are very important, they are often neglected, resulting in high rates of accidents, injuries, and illnesses, and negatively impacting worker health and productivity. This study aims to analyze the effectiveness of health promotion using leaflet media in increasing knowledge, attitudes, and actions regarding occupational health and safety among white copra workers in the Toari District, Kolaka Regency.

Method: Quantitative research using a pre-experimental design with a pretest-posttest approach on two groups of randomly selected subjects totaling 40 respondents using a cluster random sampling technique.

Result: This study demonstrated that video media was more effective than leaflets in improving the knowledge, attitudes, and preventive actions of white copra workers. Measurements were conducted before and after the intervention to evaluate changes in occupational health and safety behavior.

Conclusion: Leaflets can improve the knowledge, attitudes, and preventive measures of white coconut workers in Toari District. It is recommended that the Health Department provide training to health workers and encourage workers to actively participate in health promotion.

Introduction

Workplace accidents among farmers and plantation workers are a serious problem that is not only limited to the national scale, but also occurs throughout the world.^[1] In various parts of the world, including Asia, the agricultural and plantation sectors are the backbone of the economy, but they are also one of the sectors with the highest work accident rates.^[2] Farmers and plantation workers face a variety of risks, from machinery accidents to exposure to toxic chemicals.^[3]

Millions of workers worldwide are injured or even die every year due to work accidents.^[4] According to the World Health Organization (WHO), there are an estimated 374 million occupational accidents each year, resulting in more than 2.78 million deaths annually.^[5] In addition, millions of workers suffer injuries or illnesses caused by unsafe or unhealthy working conditions.^[6]

Developing countries are known to have occupational safety and health standards that are often less stringent or not strictly enforced, the prevalence of work accidents tends to be higher.⁷ Workers in the agricultural, construction and manufacturing sectors generally have a higher risk of work accidents compared to other sectors, including coconut farmers in this case, the specifications of copra producers.^[8]

Indonesia is a country with a large agricultural population, the problem of work accidents in the agricultural sector is also a serious concern.^[9] Farmers and plantation workers in Indonesia face unique challenges, including difficult working conditions and limited access to adequate health and safety facilities.^[10]

Important implications for copra workers, often engaged in work in coconut fields and processing factories.^[11] The increasing number of work accidents can threaten their safety and health, especially in risky environments such as copra processing and transportation.^[12] Therefore, effective health promotion is needed to increase awareness of occupational safety and prevent accidents among copra workers.^[13] This includes better workplace safety practices and training on the proper use of equipment, which can reduce the risk of injury and improve their overall well-being and productivity.^[14]

White copra workers in tropical regions face a high risk of occupational accidents due to the process of planting, caring for, harvesting, and processing coconuts which can cause burns, injuries, falls, and skin diseases from exposure to chemicals.^[15] These harsh and unsafe working conditions underscore the importance of occupational health and safety.^[16] Occupational health and safety is very important to reduce the risk of accidents and improve worker health through the use of personal protective equipment, safety training, and occupational health standards.^[17] Effective occupational health and safety promotion will help copra workers understand and implement necessary preventive measures, create a safer working environment, and improve their well-being and productivity.^[18]

White copra farmers are highly susceptible to disease due to their exposure to sulfur from planting through the drying process. The use of sulfur in copra drying provides important benefits by reducing moisture and preventing the growth of fungi and other microorganisms that can spoil the copra. This helps maintain copra quality and reduces the risk of food contamination.^[19] However, exposure to sulfur dust can cause irritation to the respiratory tract and skin, as well as increase the risk of respiratory diseases and skin problems.^[20] The importance of proper personal protection and following safety guidelines. The use of sulfur in copra drying can increase production efficiency and maintain the quality of the final product, provided it is done correctly and with attention to health implications.^[21]

Preventing occupational diseases among coconut farmers involves the use of proper Personal Protective Equipment, such as respiratory masks, gloves, and protective clothing to avoid skin irritation and respiratory problems from sulfur dust.^[22] Wearing protective eyewear is also important to protect your eyes from sulfur particles. Promoting occupational health and safety is crucial in agriculture, including coconut plantations.^[23] Farmers need to be informed about the importance of Personal Protective Equipment and Occupational Health and Safety principles as well as strategies to actively reduce the risk of sulfur exposure.^[24]

Occupational Health and Safety (OHS) promotion in Toari District, Kolaka Regency, is crucial due to the high rate of workplace accidents,

particularly among white copra workers. Lack of proper personal protective equipment (PPE), such as masks, shoes, and clothing, has led to burns and acute respiratory infections (ARI). Children under five are also affected, frequently suffering from acute respiratory infections (ARI) and whooping cough, resulting in repeated visits to the community health center. Copra farmers' poor understanding and adherence to OHS practices are the primary contributing factors. Data from the Toari Community Health Center in 2023 showed that this problem is among the top 10 diseases, underscoring the importance of OHS promotion to reduce risks and improve public health.

By implementing good occupational health and safety behavior, copra farmers can reduce the negative impacts of work accidents, such as work absences due to injury, decreased production, and unexpected financial burdens.^[25] In addition, awareness of the importance of this aspect can also help improve farmers' working conditions, increase the sustainability of agricultural businesses, and provide long-term protection of their health and safety.^[26]

Despite the inherent risks inherent in copra farming, prioritizing occupational health and safety practices will help reduce the rate of accidents and injuries. By adhering to safety procedures, using protective equipment, and receiving appropriate training, copra farmers can create a safer and healthier work environment and reduce the risk of accidents that could threaten their safety and health.^[27]

The primary reason that Toari District in Kolaka Regency was chosen as the focus of this research is because it is one of the areas actively involved in white copra production, and workplace accidents in this sector are a major concern. Occupational health promotion specifically aimed at white copra workers in Toari District is expected to significantly contribute to improving occupational health and safety conditions and reducing the number of workplace accidents on an ongoing basis.

Method

This research is a quantitative research with a pre-experimental design, which uses a Pretest-Posttest Design approach. Two groups of subjects, each consisting of 20 people, received health promotion using leaflets. This research was conducted for 30 days in Toari District, with the study population consisting of all white copra workers registered in farmer groups in the area. A sample of 40 people was selected using the Cluster Random Sampling technique, with measurements taken before and after the intervention to evaluate workers' knowledge, attitudes, and preventive actions towards occupational health and safety behaviors.

Result

Table 1 shows changes in workers' knowledge before and after a health promotion intervention using leaflet media. Before the intervention, 6 workers (30%) had knowledge 1 worker (5%) had insufficient knowledge and 1 worker (5%) had sufficient knowledge. After the intervention, 1 worker (5%) still had insufficient knowledge, while 12 workers (60%) experienced an increase to sufficient knowledge, resulting in a total of 13 workers (65%) with sufficient knowledge. The McNemar test showed a p-value of 1.000, indicating that this change was not statistically significant. This indicates that although there was an increase in knowledge after the intervention, the change was not statistically significant.

Table 2 shows changes in workers' attitudes towards occupational health and safety behavior before and after the intervention using leaflets. Before the intervention, 10 workers (50%) had poor attitudes and none had adequate attitudes. After the intervention, all workers who initially had poor attitudes (10 people) experienced a change to adequate attitudes, so that 50% of workers now have adequate attitudes. The McNemar test shows a p-value of 1.000, which means this difference is not statistically significant. This indicates that although there was a positive change in workers' attitudes, the leaflet intervention did not produce a statistically significant change in workers' attitudes towards occupational health and safety behavior.

Table 3 shows changes in preventive actions related to occupational health and safety behavior in white copra workers before and after intervention with leaflet media. Before the intervention, 7 workers (35%) had inadequate preventive actions, while no workers had adequate actions. After the intervention, 11 workers (55%) who previously had inadequate actions experienced an increase to adequate actions, so that 65% of workers now have adequate

preventive actions. The McNemar test produced a p value = 0.001, indicating that this change is statistically significant. This indicates that leaflet media is effective in increasing workers' preventive actions regarding occupational health and safety.

Table 1.
The Effectiveness of Health Promotion Using Leaflets to Increase Knowledge of Occupational Health and Safety among White Copra Workers in Toari District, Kolaka Regency

Prior Prevention Knowledge	Post-Prevention Knowledge				Amount	%	P Value
	Not enough		Enough				
	f	%	f	%			
Not enough	6	30.00	1	5.00	7	35.00	1,000
Enough	1	5.00	12	60.00	13	65.00	
Total	7	35.00	13	65	20	100	

Table 2.
The Effectiveness of Health Promotion with Leaflet Media on Improving Attitudes about Occupational Health and Safety among White Copra Workers in Toari District, Kolaka Regency

Precautionary Attitudes Before	Post-Prevention Attitude				Amount	%	P- Value
	Not enough		Enough				
	f	%	f	%			
Not enough	10	50.0	0	0.0	10	50.0	0.000
Enough	0	0.0	10	50.0	10	50.0	
Total	10	50.0	10	50	20	100.0	

Table 3.
The Effectiveness of Health Promotion with Leaflet Media on Increasing Actions on Occupational Health and Safety among White Copra Workers in Toari District, Kolaka Regency

Precautions Before	Precautions After				Amount	%	P-Value
	Not enough		Enough				
	f	%	f	%			
Not enough	7	35.0	11	55.0	18	90.0	0.001
Enough	0	0	2	10.0	2	10.0	
Total	7	35.0	13	65.0	20	100.0	

Discussion

The Effectiveness of Health Promotion Using Leaflets to Increase Knowledge of Occupational Health and Safety among White Copra Workers

This study shows that a health promotion intervention using leaflets was not substantially

successful in improving the knowledge of white copra workers in Toari District, Kolaka Regency. Before the intervention, 30% of workers had insufficient knowledge, while only 5% had sufficient knowledge. After the intervention, although there was an increase in 60% of workers having sufficient knowledge, the McNemar test

results showed that this change was not statistically significant ($p=1.000$). This indicates that although there was a slight increase in knowledge after the intervention, the impact was not strong enough to be considered significant.

The ineffectiveness of health promotion interventions using leaflets in increasing the knowledge of white copra workers is likely due to factors such as low frequency and intensity of information exposure. Workers may not have sufficient opportunity to read and understand the leaflets thoroughly due to their busy work schedules.

Leaflets, as a concise and portable visual medium, play a crucial role in the initial stages of disseminating health information to the public. Their effectiveness lies in their ability to raise awareness and basic knowledge about specific health topics, which can then drive gradual behavior change.^[28] The process of spreading health ideas occurs through several stages: awareness of new information, growing interest in exploring it further, considering its benefits, trialing its application, and ultimately adopting the idea or practice. As a visual communication tool that is both information-dense and practical, leaflets have the potential to significantly influence public health knowledge and behavior, especially in the initial phase of information dissemination. The impact of exposure to information through leaflets can be a catalyst that encourages gradual changes in health behavior within a community, making them an effective medium for health promotion strategies.^[29]

The results of this study are related to learning theory which emphasizes the importance of an approach that is appropriate to the characteristics of students in transferring knowledge, leaflet media may not be attractive enough or not appropriate to the learning style of most workers, who are more accustomed to oral or visual communication.^[30] Communication theory also suggests that the effectiveness of a communication medium is influenced by the level of attention and engagement of the audience. Leaflets, as passive media, may fail to capture workers' full attention, resulting in the information not being fully absorbed.^[31]

Furthermore, the diffusion of innovation theory states that the adoption of new knowledge within a given group requires more than simply

conveying information; more concrete interactions and demonstrations are needed for the new knowledge to be accepted and implemented. In this case, leaflets may not provide sufficient impetus for workers to process the information and apply it in their daily practices.^[32]

Previous research supports these findings by showing that print media, such as leaflets, are often less effective at increasing knowledge than more interactive media. Other study showed that print media had a lower impact on behavioral change compared to audiovisual media which was more emotionally and cognitively engaging.^[33] Another study also found that print materials are often ignored by audiences, especially when they do not have high levels of literacy or when the medium is perceived as irrelevant.^[34]

Research by Xiao et al. confirmed that interactive health promotion media, such as videos or live presentations, were more effective in increasing knowledge and changing attitudes, especially among workers with low educational backgrounds.^[35] These results align with the findings of this study, where leaflets did not produce significant changes in the knowledge of white copra workers.

The implication of this research is that the use of leaflets as a health promotion tool among workers with potentially limited education and literacy levels needs to be re-evaluated. More interactive and engaging promotional media, such as videos or hands-on training, may be more effective in increasing knowledge and awareness of occupational health and safety in this sector.

Researchers assume that the limited effectiveness of leaflets in increasing worker knowledge is due to the media's lack of appeal and relevance to workers' needs and characteristics. Selecting media that better aligns with workers' preferences and learning styles is expected to have a more meaningful impact on improving occupational health and safety knowledge and behavior.

The Effectiveness of Health Promotion Using Leaflets to Improve Attitudes About Occupational Health and Safety Among White Copra Workers

This study shows that a health promotion intervention using leaflets successfully changed the attitudes of white copra workers in Toari

District, Kolaka Regency, towards occupational health and safety behavior, although the changes were not statistically substantial. Before the intervention, 50% of workers had poor attitudes towards occupational health and safety, and none had adequate attitudes. After the intervention, all workers with poor attitudes experienced an improvement to adequate attitudes, so that 50% of workers showed better attitudes. However, the results of the McNemar test showed that this change was not statistically significant ($p = 1.000$). Despite the improvement in attitudes, these results suggest that leaflets as a health promotion medium may not be powerful enough to induce meaningful attitude changes.

Learning through observation and modeling is an important foundation for understanding how media such as leaflets can effectively improve workers' Occupational Health and Safety attitudes and behaviors. Leaflets, as a visual source of information, present examples of good OHS practices, enabling workers to observe, understand, and then adopt similar behaviors.^[36] This process involves attention to occupational health and safety information, retention of knowledge, implementation of workplace behaviors, and motivation to practice safety.^[37] Thus, leaflets not only increase knowledge, but also have the potential to change attitudes and encourage better occupational health and safety behaviors through observation-based learning, making them an effective tool for health promotion in the workplace.^[38]

The results of this study are confirmed by the Theory of Attitudes and Behavior (Theory of Planned Behavior) by Benny, which states that a person's attitude toward a behavior is influenced by their beliefs about the outcomes of that behavior and their evaluation of those outcomes.^[39] In this context, although the leaflet provides information that may influence workers' beliefs about the importance of occupational health and safety behaviors, the information may not be strong enough to substantially change attitudes, especially if it is not supported by strong beliefs or direct experience to support it.^[40]

The findings of this study can also be explained based on Social Cognitive Theory, which emphasizes the importance of reinforcement and modeling in the social learning process. Leaflets, as passive tools, may not provide the

reinforcement and modeling elements necessary for profound attitude change.^[41]

Another theory, Adult Learning Theory, suggests that adults learn most effectively when learning materials are relevant to their life experiences and delivered through methods that encourage active participation. In this case, the leaflet may not be relevant enough or delivered in a way that encourages active participation from workers, thus reducing its effectiveness in changing attitudes.^[42]

Previous research has also shown the limited effectiveness of print media such as leaflets in changing attitudes. For example, a study by Sushim and Abhay found that health interventions using print media were often less effective in influencing attitudes than interactive media involving audience participation. This study confirms that achieving meaningful attitude change requires more dynamic and interactive intervention methods.^[43]

In addition, research have shown that meaningful attitude change is more likely to occur when interventions include tangible action elements, such as training or hands-on experience. In the context of health promotion, leaflets may not be enough to motivate workers to change their attitudes due to the lack of expected action or the absence of direct involvement in the learning process.^[44]

Other research also support these findings, stating that richer, more interactive media tend to be more effective in influencing attitude change than passive media such as leaflets. This indicates that achieving more meaningful attitude change requires a more comprehensive approach involving direct worker participation.^[45]

The implication of this study is that while leaflets can increase awareness and knowledge, their effectiveness in changing workers' attitudes about occupational health and safety may be limited. Therefore, it is important to consider the use of more interactive and dynamic promotional media, such as live training sessions or audiovisual media, to achieve more meaningful attitude change among white copra workers.

Researchers speculate that the limited effectiveness of leaflets in changing workers' attitudes may be due to the passive and less interactive nature of the medium. While leaflets can be used in health promotion efforts, their

impact may be more effective when used in conjunction with more participatory and interactive methods that can more effectively influence workers' attitudes toward occupational health and safety behaviors.

The Effectiveness of Health Promotion with Leaflet Media on Increasing Occupational Health and Safety Precautions for White Copra Workers

The effectiveness of health promotion using leaflets in increasing preventive actions related to occupational health and safety behavior among white copra workers in Toari District, Kolaka Regency. Before the intervention, 35% of workers showed insufficient preventive actions regarding occupational health and safety, while none showed sufficient actions. After the intervention with leaflets, there was a significant increase, where 55% of workers who previously had insufficient actions switched to sufficient actions. This resulted in a total of 65% of workers now showing better preventive actions. The McNemar test showed that this change was statistically significant with a p value = 0.001, indicating that the intervention with leaflets had a positive and effective impact on encouraging increased preventive actions among workers.

The Health Belief Model explains the effectiveness of leaflets in increasing OHS preventive measures. Leaflets, as concise visual media, can influence workers' perceptions of health risks and the benefits of preventive measures.^[46] By presenting easy-to-understand information, the leaflet raises awareness of OHS hazards, emphasizes the benefits of safe behavior, reduces perceived barriers, and boosts worker confidence. This fosters positive perceptions of safe OHS behavior, thus motivating workers to adopt and maintain effective preventive measures in the workplace.^[47]

The results of this study are relevant to Bandura's Social Learning Theory. This theory states that human behavior is learned through observation, imitation, and modeling, and is influenced by an individual's belief in their ability to perform a particular action (self-efficacy).^[48] In this study, leaflets function as a tool that conveys important information that can be observed and learned by workers, thus encouraging them to change their preventive actions for the better.

Another relevant theory is the Transactional Model of Stress and Coping developed by Lazarus and Folkman. This theory explains how individuals evaluate and respond to stressful situations, including health and safety risks in the workplace.^[49] The leaflets used in this intervention may have assisted workers in evaluating their work-related risks and developing more effective coping strategies, which was reflected in their increased preventive actions after the intervention.^[50]

The behavior change model developed by Prochaska and DiClemente is also relevant here. This model describes the process of behavior change through several stages, from pre-contemplation to maintenance. In this study, the leaflet served as an intervention that encouraged workers to move from the risk awareness stage (contemplation) to the action stage, where they began implementing preventive measures in their daily activities.^[51]

Previous research have shown that simple health promotion media, such as leaflets, can be powerful tools for encouraging behavior change when used appropriately. Leaflets designed with local context in mind and in easy-to-understand language have proven effective in increasing preventive measures among working populations who may have varying literacy levels.^[38]

Another study also showed that health promotion using print media such as leaflets can increase compliance with workplace safety measures.^[52] This study found that workers who received information through print media were more likely to engage in preventive measures after understanding the risks they faced.³⁸ This supports the finding that the leaflets used in the study in Toari District were able to encourage increased preventive measures among white copra workers.

The implication of this study is that health promotion interventions using leaflets can be an effective method for increasing preventive measures among workers, particularly in high-risk occupations such as white copra production. However, it is important to ensure that the leaflets are designed with local factors in mind and delivered in a way that captures workers' attention to maximize their impact.

Researchers speculate that the success of this leaflet intervention may be due to the clear and relevant information provided, which increased

workers' awareness of the importance of preventive measures. In conclusion, leaflets, as a health promotion tool, are effective in increasing preventive health and occupational safety behaviors among white copra workers and can be used as an important tool in future occupational health programs.

Conclusion

Leaflet media can improve the knowledge, attitudes, and preventive actions of white copra workers in Toari District. However, health promotion using leaflets is less effective in improving knowledge, attitudes, and actions regarding occupational health and safety among white copra workers in Toari District, Kolaka Regency. It is recommended that the Health Service provide training to health workers and encourage workers to be active in health promotion.

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