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Implementing Occupational Health Promotion Strategies to Mitigate Pesticide Exposure Risks among Cocoa Farmers in North Kolaka District: A Comprehensive Approach

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There is still a low effort of cocoa farmers in using pesticides in a safe and healthy manner, as well as unfulfilled improvement of knowledge and skills of health extension officers, and training especially for Pos UKK cadres. Farmers' behaviour is still found to be at risk of acute and chronic diseases and pesticide poisoning. Thus, an occupational health promotion strategy is needed to solve these problems. The purpose of this study was to examine the influence of occupational health promotion strategies from the aspects of health policy, social support, environmental support, individual skills, community empowerment, and to design a model of occupational health promotion strategies in reducing the risk of pesticide use among cocoa farmers in North Kolaka Regency. The type of research used is a survey using quantitative and qualitative methods, the number of samples is 220 respondents, and 6 informants. The results showed that there was an influence of several variables of occupational health promotion strategies in suppressing the risk of pesticide use on cocoa farmers The novelty of this research is the discovery of an occupational health promotion strategy model by testing several simplified theories and then adapting them according to needs and environmental conditions, the strategy uses a Regional Policy approach, Community Participation, Healthy Behavior of Farmers, Empowerment of UKK Post Cadres.

Keywords: Strategy, Occupational Health Promotion, Pesticides, Cocoa Farmers and Mitigate.

INTRODUCTION

Pesticides are natural or chemical compounds used to control various pests. Chemical compounds are used in various sectors such as food, forestry, agriculture, and aquaculture (World Health Organisation. and Food and Agriculture Organisation of the United Nations., 2015). Pesticides play an important role in agricultural development. However, the use of pesticides can cause acute and chronic poisoning in humans, and the adverse effects of pesticides on the environment are still a serious problem, due to exposure due to excessive use .*(Tudi et al., 2022*).

The use of hazardous pesticides can increase the risk of health problems among farmers. Most farmers with low knowledge are at risk of such health problems.(Lamichane *et al.*, 2019). The most exposure to pesticides occurred during spraying in the field 63.7%, mixing pesticides 38.4%, transporting 34.1%.(L.L.JJinky, 2017)

Farmers are not aware of the importance of healthy living, safe behaviour in the use of pesticides. A field survey of 373 farmers, conducted in Mazandaran Province in northern Iran, few farmers showed safe behaviour in using personal protective equipment (PPE) 8.9%. In following correct practices in pesticide use 8.6%, in following hygiene practices after using pesticides 2.7%, and avoiding health risks (2.4%). (Sharifzadeh *et al.*, 2019)

The initial survey conducted by the researcher, to cocoa farmers in Ngapa Subdistrict, North Kolaka Regency, from the results of interviews and observations conducted farmers admitted that they often felt itchy and nauseous, after spraying, but because the symptoms were not so disturbing they did not mind it, besides that the researcher also found farmers who did not use personal protective equipment (PPE), as well as, did not follow the procedures for spraying and mixing pesticides.

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A literature survey was also conducted by researchers related to the relationship between occupational health and safety promotion, with the application of pesticide use on blood *cholinestrase* in Gapoktan. the results showed that there was a relationship between K3 promotion, with the application of pesticide use, on blood *cholinestrase* in Gapoktan members. The strength of the study is to examine the relationship of occupational health promotion to the use of pesticides based on blood *Cholinestrase* examination,(Rosyani.E, 2019). However, the weakness of the study, has not provided a solution, in the form of strategies to reduce / reduce the risk of pesticide use from the aspect of implementing health promotion in the workplace. Researchers also followed up on the results of research conducted by (Geseswew *et al.*, 2016) who suggested that further research be carried out on the development of effective public health strategies to increase farmers' awareness and safe use of (PPE).

Based on the results of a survey conducted by researchers, through an initial survey and literature survey. So, the reason for conducting the research is an effort to reduce or reduce the risk due to the use of pesticides on cocoa farmers in Ngapa District, North Kolaka Regency, with the design of an occupational health promotion strategy model.

The research was conducted with the aim of examining the influence of occupational health promotion strategies from the aspects of health policy, social support, environmental support, individual skills, community empowerment, and designing an occupational health promotion strategy model.

MATERIALS AND METHODS

This type of research is a survey using quantitative and qualitative methods, with a *cross sectional study* design, *which* is one form of observational study *(non-experiment)*. (Sugiyono, 2007). The population of this study is all cocoa farmers in Ngapa Sub-district, North Kolaka Regency, the sample of this study is 220 respondents, consisting of cocoa farmers and 6 informants consisting of the Head of the Health Office, Head of the Public Health Division, Person in charge of Kesjaor, health workers, UKK Post cadres and cocoa farmers in Ngapa Sub- district, North Kolaka Regency, Data Collection and Analysis Techniques, through library research, field research. Data analysis in the form of text, transcripts for qualitative data processing and SmartPLS models for quantitative data testing (Budihasa S, 2016).

RESULTS

Based on the answers of 220 respondents in the health policy in this study using three dimensions and seven indicators, which include the dimensions of regulation, cost and data personnel for each dimension of the policy support variable, it shows that the respondents' responses are good, this answer can be seen from the respondents' average perception value of 4.07 or has reached a score of "4" as the level of "agree"..

The average of the regulation dimension is proven to get the largest value of 4.07 followed by cost of 8.11%, then labour of 3.96% which is the lowest perspective of respondents. This can also be seen from the answers of respondents who answered scores 4 and 5 of 80.23%. In addition, only a small portion, namely 19.77% who gave neutral, less and unfavourable responses to the risk of using pesticides on cocoa farmers in Ngapa Sub-district, North Kolaka Regency has generally been good.

Table1. Distribution of Respondents by Health Policy among Cocoa Farmersin Ngapa Subdistrict.

Dimensions	Indicators	Frequency (F) and Percentage (%)										Average Mean	Description
		SS(5)		S(4)		N(3)		TS(2)		STS(1)		Dimensions	
		F	%	F	%	F	%	F	%	F	%		
Regulation X1.1	X1.1.1	103	46,8	70	31,8	22	10,0	10	4,5	15	6,8	4,07	Good
	X1.1.2	87	39,5	93	42,3	17	7,7	14	6,4	9	4,1		
X1.2 Cost	X1.2.1	109	49,5	53	24,1	23	10,5	12	5,5	23	10,5	8,11	Good
	X1.2.2	104	47,3	77	35,0	19	8,6	7	3,2	13	5,9		
Power X1.3	X1.3.1	101	45,9	67	30,5	18	8,2	18	8,2	16	7,3	3,96	Good
	X1.3.2	86	39,1	82	37,3	14	6,4	21	9,5	17	7,7		
	X1.3.3	106	48,2	60	27,3	20	9,1	14	6,4	20	9,1		
Total Number Frequency (%)			80,23								19,77		
Average Health Policy (X1)													

Table 2. Distribution of Respondents According to Social Support among Cocoa Farmers in Ngapa Sub-district, North Kolaka Regency, 2022

Dimensions	Indicators	Frequency (F) and Percentage (%)										Average Mean	Description
		SS(5)		S(4)		N(3)		TS(2)		STS(1)			
		F	%	F	%	F	%	F	%	F	%		
Sociali sation X2.1	X2.1.1	110	50,0	80	36,4	14	6,4	11	5,0	5	2,3	4.27	Good
X2.2 Trainin g	X2.2.2	123	55,9	58	26,4	11	5,0	14	6,4	14	6,4	4.19	Good
X2.3 Partner ship	X2.3.1	100	45,5	89	40,5	15	6,8	14	6,4	2	0,9	4.14	Good
	X2.3.2	115	52,3	58	26,4	13	5,9	21	9,5	13	5,9		
	X2.3.3	110	50,0	64	29,1	18	8,2	10	4,5	18	8,2		
	X2.3.4	114	51,8	64	29,1	13	5,9	20	9,1	9	4,1		
Total Number Frequency (%)			181,14						18,86				
Mean Social Support (X2)													

Based on the answers of 220 respondents in social support in this study using three dimensions and six indicators, which

include the dimensions of socialisation, training and partnership, the data on each dimension of the social support variable shows that the respondents' responses are good, this answer can be seen from the respondent's average perception value of 4.27 or has reached a score of "4" as the level of "agree".

The average of the socialisation dimension proved to get the largest score of 4.27 followed by training 4.19, then partnership 4.14, which was the lowest perspective of respondents. This is also evident from the 81.14% of respondents who answered scores 4 and 5. In addition, only a small portion, namely 18.86%, who gave neutral, less and unfavourable responses to the risk of pesticide use among cocoa farmers in Ngapa Sub- district, North Kolaka Regency has generally been good.

Table 3. Distribution of Respondents by Individual Skills among Cocoa Farmers in Ngapa Sub-district, North Kolaka Regency in 2022.

Dimensions	Indicators	Frequency (F) and Percentage (%)										Average Mean	Description
		SS (5)		S (4)		N (3)		TS (2)		STS (1)		Dimensions	
		F	%	F	%	F	%	F	%	F	%		
Facilities / infrastructure X4.1	X4.1.1	63	28,6	57	25,9	32	14,5	40	18,2	28	12,7	3,40	Good
	X4.1.2	61	27,7	64	29,1	20	9,1	52	23,6	23	10,5		
Equipment X4.2	X4.2.1	58	26,4	69	31,4	21	9,5	48	21,8	24	10,9	3,42	Good
	X4.2.2	71	32,3	50	22,7	29	13,2	43	19,5	27	12,3		
Total Number Frequency (%)		55,68								44,32			
Mean Environmental Support (X4)													

Based on the answers of 220 respondents in environmental support in this study using two dimensions and four indicators, which include the dimensions of facilities / infrastructure, and data equipment for each dimension of the environmental support variable, it shows that the respondents' responses are good, this answer can be seen from the respondent's average perception value of 3.42% or has reached a score of "4" as the level of "agree".

The average of the equipment dimension proved to get the largest score of 3.42% followed by facilities/infrastructure of 3.40% which was the lowest in the respondents' perspective. This can also be seen from the answers of respondents who answered scores 4 and 5 of 55.68%. In addition, only a small portion, 44.32%, gave neutral, less and unfavourable responses to the risk of pesticide use among cocoa farmers in Ngapa Sub-district, North Kolaka Regency, which is generally good.

Table 4. Distribution of Respondents According to Community Empowerment among Cocoa Farmers in Ngapa Sub-district, North Kolaka Regency in 2022.

Dimensions	Indicators	Frequency (F) and Percentage (%)										Average Mean	Description
		SS (5)		S (4)		N(3)		TS(2)		STS (1)		Dimensions	
		F	%	F	%	F	%	F	%	F	%		
Formation X5.1	X5.1.1	74	33,6	101	45,9	8	3,6	20	9,1	17	7,7	3,89	Good
Implementation X5.2	X5.2.1	123	55,9	58	26,4	20	9,1	7	3,2	12	5,5	8,15	Good
	X5.2.2	90	40	82	37,3	11	5,0	20	9,1	17	7,7		
	X5.2.3	139	63,2	34	15,5	28	12,7	10	4,5	9	4,1		
	X5.2.4	95	43,2	76	34,5	12	5,5	20	9,1	17	7,7		
	X5.2.5	100	45,5	66	30,0	17	7,7	18	8,2	19	8,6		
Total Number Frequency (%)		78,45						21,55					
Average Community Empowerment (X5)													

Based on the answers of 220 respondents in policy support in this study using two dimensions and six indicators, which include the dimensions of the formation and implementation of data on each dimension of the community empowerment variable, it shows that the respondents' responses are good, this answer can be seen from the respondent's average perception value of 3.89% or has reached a score of "4" as the level of "agree".

The average implementation dimension proved to get the largest score of 8.15% followed by the formation of the lowest 3.89% of respondents' perspectives. This can also be seen from the answers of respondents who answered scores 4 and 5 by 78.45%. In addition, only a small portion, namely 21.55% who gave neutral, less and unfavourable responses to the risk of using pesticides on cocoa farmers in Ngapa Sub-district, North Kolaka Regency has generally been good.

Table 5. Distribution of Respondents by Health Promotion Strategy among Cocoa Farmers Cocoa Farmers in Ngapa Sub-district, North Kolaka Regency in 2022.

Dimensions	Indicators	Frequency (f) and Percentage (%)										Average Mean	Description
		SS (3)		S (4)		N(3)		TS (2)		STS(1)		Dimensions	
		F	%	F	%	F	%	F	%	F	%		
Promotion strategy Y1.1	Y1.1.1	98	44,5	74	33,6	10	4,5	15	6,8	23	10,5	4,05	Good
	Y1.1.2	129	58,6	51	23,2	21	9,5	15	6,8	4	1,8		
	Y1.1.3	93	42,3	75	34,1	14	6,4	19	8,6	19	8,6		
	Y1.1.4	111	50,5	64	29,1	4	1,8	18	8,2	23	10,5		
	Y1.1.5	116	52,7	59	26,8	8	3,6	23	10,5	14	6,4		
Total Number Frequency (%)		79,09						20,91					
Average Occupational Health Promotion Strategy (Y1)													

Based on the answers of 220 respondents in policy support in this study using one dimension and five indicators, which include occupational health promotion on the dimensions of the occupational health promotion variable, it shows that the respondents' responses are good, this answer can be seen from the respondent's average perception value of 4.05% or has reached a score of "4" as the level of "agree".

The average dimension of occupational health promotion strategies gets a value of 4.05% This is also evident from the answers of respondents who answered scores 4 and 5 by 79.09%. In addition, only a small portion, namely 20.91% who gave neutral, less and less favourable responses to the risk of pesticide use on cocoa farmers in Ngapa Sub-district, North Kolaka Regency in general has been good

Bivariate Analysis of Variables Research, (PLS SEM analysis results)

Health policy has a positive and significant effect on occupational health promotion strategies as indicated by a p value of 0.000 <0.05, T statistics of 4.189> 1.96 and a positive path coefficient of 0.351. This supports hypothesis 1 in this study so that H1 is ***supported*.**

Social support has a positive and significant effect on occupational health promotion strategies as indicated by a p value of 0.017 <0.05, a T statistic of 2.398 > 1.96 and a positive path coefficient of 0.195. This supports hypothesis 2 in this study so that H2 is ***supported*.**

Individual skills have a positive and significant effect on occupational health promotion strategies as indicated by a p value of 0.012 <0.05, T statistics of 2.527> 1.96 and a positive path coefficient of 0.181. This supports hypothesis 3 in this study so that H3 is ***supported*.**

Environmental support has no effect on occupational health promotion strategies, indicated by a p value of 0.448> 0.1 and a T statistic of 0.759 < 0.025. This supports hypothesis 4 in this study so that H4 is ***not supported*.**

Community empowerment has a positive and significant effect on occupational health promotion strategies as indicated by a p value of 0.012 <0.05, a T statistic of 2.524 > 1.96 and a positive path coefficient of 0.201. This supports hypothesis 5 in this study so that H5 is ***supported***.

***Variable Description of Occupational Health Promotion Strategy Model Design*:** The design of the occupational health promotion strategy model, it was concluded that in general the factors that affect the services of public organisations can be grouped into 4 (Four) main factors that play a role in occupational health promotion strategies, namely; 1. Health Policy 2. Social Support 3. Individual Skills. 4. Community Empowerment.

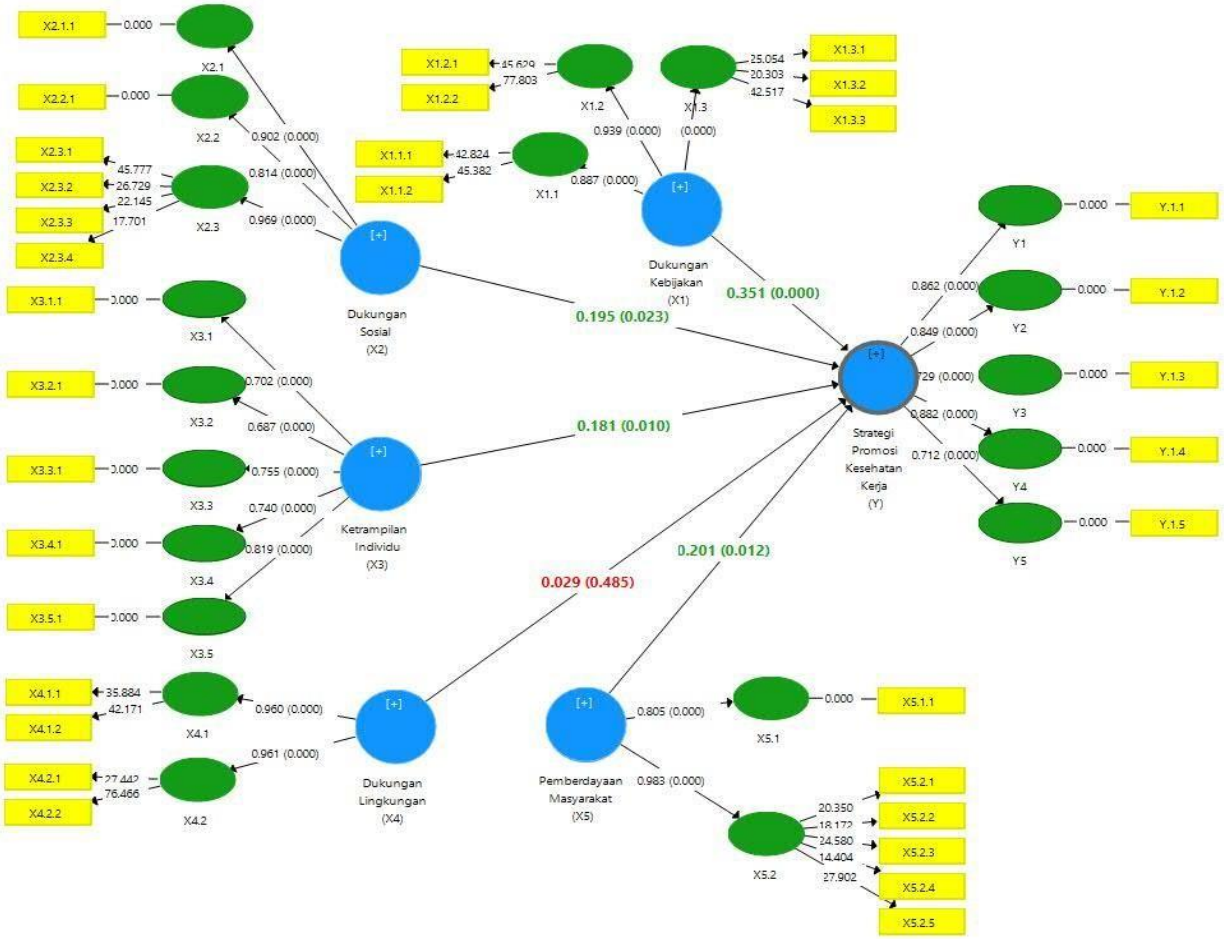

Figure 1. Bootstrapping model estimation results

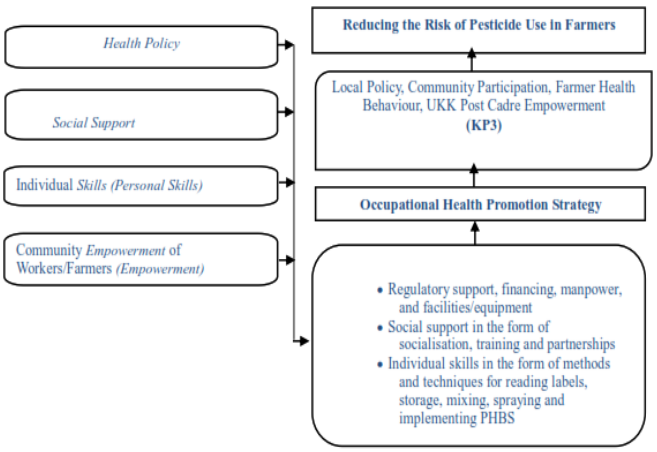

Figure 2. Occupational Health Promotion Strategy Model Design

DISCUSSION

***The Effect of Health Policies on Performance Occupational Health Promotion Strategies*:** Health policies are basically decisions, plans and actions taken to achieve certain health goals in a society. From the results of the study it was found that health policy has a positive effect on occupational health promotion strategies,

These results are clarified by the answer from the *indepth interview of* a head of the field that there is no regional regulation / regional regulation (PERDA) that is guided by farmers to use safe and healthy pesticides, they use pesticides according to their knowledge, experience from other sources of information of farmers, who are accustomed to using pesticides to eradicate plant pests.

A study conducted by (E.Amilia, B.Joy and S.Sunardi, 2016) about the importance of regulation, that the optimisation of pesticide handling strictly in accordance with regulations, needs to be implemented, so that the population's concerns about pesticide residues in food and drinking water, can reduce the side effects of pesticides on human health and the environment. the consequence of enforcing the regulation is that a budget is needed to finance a research to improve environmentally friendly agricultural programs. Related research, conducted by (Shammi *et al.*, 2020). That financial support should be provided for research on alternative techniques such as organic farming, integrated pest management strategies, and good agricultural practices, to promote sustainable agriculture.

Likewise, in terms of operational financing, it was found from the results of the *indepth interview* that farmers have not received assistance in purchasing personal protective equipment (PPE), which can protect them from the risks of pesticide use. Health costs play a positive role in increasing farmers' protection in the process of using pesticides. Likewise, increasing the capacity of human resources / or assistants / extension workers to farmers, from the results of an *in-depth interview* with a health worker that there needs to be attention from the government so that health policies support health improvement programmes for workers / farmers can be more optimal.

In line with some of the following research results related to the role of assistants / extension workers can affect knowledge of health risks from using pesticides, research conducted by (Gyawali.K., 2018). It was found that ignorance of pesticide application has increased the risk, exposure to farming families and consumption of pesticides by consumers, becoming a major health threat. research (Lwin *et al.*, 2017). Health workers need to educate agricultural workers on pesticide use and also improve their knowledge. This is because the way of disseminating knowledge about safety measures through the media is less effective, especially regarding the use of protective clothing or aprons. Later research (Mehmood *et al.*, 2021) found that vegetable farming communities in Pakistan lacked understanding of safe pesticide handling practices, resulting in higher protection and health costs due to exposure to a number of pollutants.

Similarly, the results of research conducted by (Matowo *et al.*, 2020). That farmers have at least a basic level of education and are familiar with pesticides by their trade names, they lack knowledge about pest control or proper use of pesticides. Most farmers 54.4%, relied on instructions from pesticide traders. Overall, 93.7% of farmers mix pesticides on their farms, often near water sources. A third of farmers throw away their leftover pesticides 30.0% and most farmers throw empty pesticide containers into nearby rivers or bushes 55.7%.

From the discussion above, we can conclude that the influence of health policy on occupational health promotion strategies is closely related to the availability of regulations, financing, and resources, which can reduce the risk of the impact of pesticide use on cocoa farmers in North Kolaka Regency.

***The Effect of Social Support on Occupational Health Promotion Strategy Performance*:** Social support is basically the acceptance of a programme from community leaders, as a mediator to bridge to the community so that the programme can be accepted. The results of the study found that social support has a positive effect on occupational health promotion strategies.

Based on the results of *indepth interviews* by farmers related to social support on the use of pesticides, it was found that the community had received related health programmes provided by the Health Office, in the form of training. In line with some of the results of research conducted related to social support describes the importance of giving influence, by (Kadek and Nengah, 2017)That community social support shows that, there is an influence by several factors including interactions between people in the family, the socio-economic class of the

community and the level of community knowledge. likewise the results of research conducted by (Geseswew *et al.*, 2016)that the development of effective public health strategies is needed to increase farmers' awareness and safe use of PPE.

In addition, research conducted(M. Ricco, L. Vezossi and G. Gualerzi, 2018) (M. Ricco, Vezossi and G. Gualerzi, 2018), related to health and safety, farmers neglect the use of (PPE), and also because they avoid hygiene procedures. This requires social support from community leaders. In addition, research conducted by (Moradhesely, Sadighim and Ataei, 2017).). That the direct relationship between agricultural extension and education with farmers required training measures can be implemented through joint collaboration between the relevant agencies and agricultural extension and education with respect to the safe and correct use of pesticides and the introduction of various types of pesticide protective devices and their applications. Not only with agricultural extension activities and education, research conducted by (Aniah *et al.*, 2021) also illustrates that the social practice approach to pesticide use by farmers is strongly influenced by state-run actors, supply systems, individual lifestyle characteristics, and daily circumstances when pesticides are purchased and used.

From the discussion above, we can conclude that social support for occupational health promotion strategies, related training, and partnerships that can reduce the risk of the impact of pesticide use on cocoa farmers in North Kolaka Regency.

***The Effect of Individual Skills on Occupational Health Promotion Strategy Performance*:** Individual skills are basically the ability of an individual to improve and maintain their health, which is practised in their daily lives. From the results of the study it was found that individual skills have a positive effect on occupational health promotion strategies.

Based on the results of an *in-depth interview* by a farmer, it was found that the knowledge and skills to read labels on pesticide type packaging were obtained from experience and habit before use, as well as on mixing and spraying procedures, they also obtained from the instructions on the pesticide product packaging label. In line with some of the results of research conducted by (Piet *et al.*, 2017) that the behaviour of storing pesticides in the house and the behaviour of not checking equipment before spraying pesticides, increases the risk of obstructive pulmonary function disorders.

In addition to saving behaviour research conducted by (Apeh 2018) That most farmers in the study (65%), reported that they could not read the instructions for the use of agrochemicals (92%), Farmers were exposed to agrochemicals during their application, and most farmers (73%), reported falling ill after exposure to agrochemicals.

From the results of research conducted by previous researchers, researchers support individual capacity building activities by workers/farmers, using pesticides by following the instructions for use stated on the product packaging. Importantly, (PPE), this has an impact on health.

The recommended use (APPD) is also clarified from the results of research conducted by(Lwin *et al.*, 2017) it is strongly recommended to educate the public on how to use (PPE), to reduce the risk problems of pesticide use.

Pesticide management practices such as the use of personal protective equipment (PPE) and reading the manufacturer's instructions before applying pesticides were practised by only about 26% to 38% of respondents respectively. Coughing, shortness of breath, itching, dizziness and sneezing, were the major pesticide-related illnesses reported by cocoa farmers in Nigeria (Eta *et al.*, 2023). So the practice of pesticide management is indeed unsafe also based on research (Akter *et al.*, 2018), that in Tanzania, more than 50% of farmers mix pesticides using bare hands due to lack of knowledge and low level of education.

From the discussion above, we can conclude that individual skills towards occupational health promotion strategies, related to reading packaging labels, mixing techniques, spraying and behaviour (PHBS) can reduce the risk of the impact of pesticide use on cocoa farmers in North Kolaka Regency.

***The Effect of Environmental Support on Occupational Health Promotion Strategy Performance*:** Environmental support is basically the availability of infrastructure or facilities that support the creation of healthy behaviour for the community, especially in the environment of workers/farmers. The results of the study found that environmental support did not have a positive effect on occupational health promotion strategies.

Based on the results of an *in-depth interview* by a farmer, it was found that facilities/infrastructure and equipment were not yet available in the farmer's work environment, so that the respondents' perceptions were more dominant in assuming the availability of facilities/infrastructure was not yet available and the equipment owned was obtained from independent procurement or purchased by themselves. In line with several studies conducted related to environmental support that can affect occupational health promotion strategies, research conducted by (Rahmi Yuningsih, 2019). That it is necessary to socialise clean and healthy living habits and the provision of proper sanitation facilities both at the household and community levels is very necessary.

Eco-friendly management strategies include several bioremediation approaches and servers to solve pesticide problems or develop alternative eco-friendly solutions. Bioremediation strategies such as phytoremediation, microalgal bioremediation, miko remediation, and microbial degradation are also cost-effective and environmentally friendly methods. (Pathak *et al.*, 2022)

Research conducted by (Miyittah *et al.*, 2020)showed that farmers are aware of the impact of pesticide use on the

environment and health. However, their knowledge of the risks associated with pesticides did not translate into real practices to avoid pesticide exposure. The reported health risks are symptoms of headache, burning sensation, fever, watery eyes, chest pain, and others.

The discussion above, the researcher can draw the conclusion that environmental support for occupational health promotion strategies, related to facilities and infrastructure has no effect on reducing the risk of the impact of pesticide use. However, the results of research conducted by several researchers actually show the importance of environmental support, although its utilization requires socialisation activities, real practice and the discovery of bioremediation technology, can reduce the risk of the impact of pesticide use on cocoa farmers in North Kolaka Regency.

***The Effect of Community Empowerment on the Performance of Occupational Health Promotion Strategies*:** Community empowerment is basically a development process both physical and non-physical in which the community takes the initiative to start the process of social activities to improve their own situation and conditions. From the results of the study, it was found that community empowerment has a positive effect on occupational health promotion strategies**.**

Based on the results of an *in-depth interview* with a Pos UKK cadre, it was found that farmers have formed Pos UKK cadre groups, in each village, and have recruited Pos UKK cadres, although respondents answered that the implementation of Pos UKK activities has not yet begun. However, the effort to form a group aims to improve the health status of the farming community. In line with some of the results of research conducted by (Rosanti, 2022) That the establishment of Pos UKK can improve the skills and competence of Pos UKK cadres in the implementation of basic occupational health services on an ongoing basis, managing and developing basic occupational health service facilities and Personal Protective Equipment, establishing partnerships with other related agencies in the context of developing Pos UKK. In line with several studies that empower cadre groups through the establishment of Pos UKK. Research conducted by (Maddah *et al.*, 2020). That the educational interventions carried out, succeeded in increasing farmers' KAP regarding the safe use of pesticides.

Research was also conducted by (R.Kumar, A.Senggupta and A.K.singh, 2010), Community-oriented health promotion programmes include more farm members, similar to farm safety programmes in other parts of the world, for example on farms in Ontario, Canada, the Farm Safety Association. From the results of research by (D.D.Kumari, A.J.Sebastian and S.John, 2021)also found that only 24% of respondents had formal training in pesticide spraying. In addition, the length of work and mixing technique were significantly associated with the incidence of acute pesticide poisoning. This study shows the importance of safety training and awareness programmes on the hazards of pesticide handling and application.

In addition, the results of research conducted by (Pathak Siriwong and Robson, 2023).. Revealed that most pesticides are not approved by the authorities for cocoa production, yet farmers still use them. Overall, 42.7% of farmers showed unsafe behaviour, 49.1% showed moderate behaviour, and only 8.2% reported safe behaviour in pesticide use.

The importance of community development-based activities, from research conducted by (Mahyuni *et al.*, 2021). That efforts to prevent pesticide poisoning in the community movement are formulated in eight actions that meet the primary, secondary, and tertiary levels of prevention, namely GEMPAR. It can be by increasing farmers' awareness about the importance of toxicity prevention, creating a healthy farmer community, using pesticides according to procedures, creating independence, and strengthening farmer networks.

The discussion above, the researcher can draw the conclusion that the empowerment of cadres towards occupational health promotion strategies, related to the establishment of UKBM, as well as its implementation has an effect on reducing the risk of the impact of pesticide use on cocoa farmers in North Kolaka Regency.

***Occupational Health Promotion Strategy Model Design*:** Models are tools for simplifying and analysing complex situations or systems. So, with a model, a complex situation or system can be simplified without eliminating essential things with the aim of facilitating understanding.

The creation and use of models can provide a framework for health promotion strategies. The concept of health promotion strategy itself is a process that requires an appropriate model. The concept does not shift the concept that was originally without calculation to a concept that is full of calculations. From the results of the model design by researchers, it can be formulated as follows, namely *(Strategic Approaches to Occupational Health Promotion)***.** In detail, the strategic steps of occupational health promotion through *Health Policy Approaches, Social Support, Individual Skills, Farmer Community Empowerment.* The concept of occupational health promotion strategies is simplified and adapted from concepts sourced from WHO theory, 1984. Ottawa Caharter, 1994, and Meyli, 2016. (Notoadmojo. S, 2012)

***Conclusion*:** Health policy, social support, individual skills, community empowerment have a positive and significant effect on occupational health promotion strategies. While Environmental Support has no effect on occupational health promotion. Novelty (Novelty) model designed to be used as an occupational health promotion strategy is the Health Policy Approach, Social Support, Individual Skills, and Community Empowerment of Workers / Farmers.

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