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Health belief model: enhancing farmers' awareness of healthy lifestyle practices in the agricultural sector

Health Belief Model: Peningkatan Kesadaran Petani terhadap Gaya Hidup Sehat di Sektor Agrikultural

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ABSTRACT

Background: *Agriculture is one of the primary sectors in Indonesia and is considered highly vulnerable to occupational accidents. Farmers are frequently exposed to various physical and chemical hazards that may lead to occupational injuries and work-related illnesses.*
Objective: *To evaluate the application of the Health Belief Model (HBM) in improving farmers' awareness of the importance of adopting a healthy lifestyle to reduce the risk of occupational accidents in the agricultural sector.*
Methods: *This study used a quantitative approach with a cross-sectional design. A purposive sampling technique was used to recruit farmer groups from the Pandalungan region (Lumajang, Jember, and Probolinggo Regencies). A total of 155 respondents participated in the study. Data were collected using a Likert-scale questionnaire based on the Health Belief Model, which had been tested for validity and reliability (Cronbach's Alpha = 0.789). Descriptive statistical analysis was conducted to describe farmers' awareness of a healthy lifestyle.*
Results: *The results showed that the highest scores were found in the self-efficacy (11.54) and cues to action (11.22) components, indicating that respondents had strong confidence and motivation to adopt healthy behaviors. However, the scores for perceived severity (8.59) and perceived susceptibility (8.85) were relatively lower, suggesting a limited perception of occupational accident risks among farmers.*
Conclusion: *The HBM-based approach in agricultural settings demonstrated improvements in preventive behaviors and healthy lifestyle practices among farmers. Nevertheless, health education interventions emphasizing the perception of occupational accident risks remain necessary to further enhance occupational safety awareness.*

Keywords: *farmers, health belief model, healthy lifestyle*

ABSTRAK

Latar belakang: Sektor pertanian merupakan salah satu sektor utama di Indonesia yang memiliki tingkat kerentanan tinggi terhadap kecelakaan kerja. Petani sering terpapar berbagai bahaya fisik dan kimia, yang berpotensi menyebabkan cedera atau penyakit akibat kerja.
Tujuan: Penelitian ini bertujuan untuk mengevaluasi penerapan *Health Belief Model* (HBM) dalam meningkatkan kesadaran petani mengenai pentingnya gaya hidup sehat untuk mengurangi risiko kecelakaan kerja di sektor pertanian.
Metode: Penelitian ini menggunakan pendekatan kuantitatif dengan desain *cross-sectional.* Teknik sampling menggunakan *purposive sampling* dengan populasi kelompok tani di wilayah Pandalungan (Kabupaten Lumajang, Jember, and Probolinggo). Jumlah responden dalam penelitian ini sebanyak 155 orang. Instrumen penelitian menggunakan kuesioner skala likert *Health Belief Model* yang telah diuji validitas dan reliabilitasnya (Cronbach's Alpha = 0.789). Analisis statistik deskriptif digunakan untuk menggambarkan kesadaran petani terhadap gaya hidup sehat.

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Hasil: Hasil penelitian menunjukkan skor tertinggi pada *komponen self-efficacy* (11.54) dan *cues to action* (11.22), yang menunjukkan bahwa responden memiliki keyakinan dan motivasi yang kuat untuk mengadopsi perilaku sehat. Skor untuk *perceived severity* (8.59) dan *perceived susceptibility* (8.85) tetap rendah, menunjukkan kurangnya persepsi petani terhadap risiko kecelakaan kerja.
Kesimpulan: Pendekatan berbasis HBM di Area Agrikultural menunjukkan peningkatan perilaku preventif dan gaya hidup sehat pada petani, tetapi upaya edukasi yang menekankan pada peningkatan persepsi risiko kecelakaan kerja masih perlu diperkuat untuk meningkatkan kesadaran keselamatan kerja secara optimal.

Kata kunci: gaya hidup sehat, health belief model, petani

INTRODUCTION

Agricultural communities are groups of individuals living in communities with economies primarily dependent on the agricultural sector, the primary food provider, which plays a crucial role in a country's development. However, the health of agricultural communities receives little attention. A healthy lifestyle and occupational safety are crucial for protecting against disease.[1] Occupational safety and health are crucial aspects of all occupations, including the agricultural sector. As a vital economic factor, agriculture involves various activities that carry a high risk of workplace accidents and health problems.[2]

Farmers' high workloads, which involve a great deal of physical exertion, can lead to fatigue. This fatigue can lead to workplace accidents and health problems, which can reduce farmer productivity.[3] Physical fatigue in farmers occurs due to activities such as hoeing, planting, irrigating rice fields, and harvesting.[4]These activities cause musculoskeletal and other disorders, which can lead to suboptimal production processes. Farmer safety is also often overlooked due to negligence in the use of personal protective equipment (PPE).

Ironically, farmers often take PPE for granted. They believe that using PPE such as long sleeves, hats, masks, and boots will only hinder their work. However, the agricultural work environment is fraught with various potential hazards. This negligence can have fatal consequences, ranging from skin irritation from pesticides to serious injuries from equipment.[5] Workplace accidents among farmers include injuries from shovels, sharp objects during harvesting, and hearing loss. Farmers' knowledge and attitudes regarding occupational safety and PPE use are still limited, and only a few consistently apply safe practices. Therefore, increasing awareness and proper PPE use is essential. The Health Belief Model (HBM) can help explain how individuals adopt healthy behaviors and preventive actions.[6] This can improve lifestyle and reduce the risk of work accidents in the agricultural sector.

HBM in agricultural areas can have a positive impact on lifestyle and reduce the risk of accidents in agricultural communities.[7] The HBM approach helps explain the psychological factors that influence farmers' adoption of a healthy lifestyle and the use of PPE. Farmers with high perceived susceptibility recognize their vulnerability to illness or injury due to pesticide exposure and field working conditions. This awareness is reinforced by perceived severity, which is the understanding that the impact of an accident or occupational disease can reduce productivity and threaten their health. Furthermore, perceived benefits encourage farmers to see the tangible benefits of healthy behaviors, such as wearing PPE or maintaining a healthy diet, while perceived barriers can act as a barrier if farmers find PPE uncomfortable or difficult to access. Cues to action, such as health education, advice from officers, or the experiences of coworkers who have experienced accidents, serve as triggers for farmers to take action. Finally, self-efficacy plays a key role in determining the extent to which farmers feel capable of consistently implementing healthy behaviors.

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Abundant agricultural resources, awareness of a healthy lifestyle, and active participation of the agricultural community are the main foundations for achieving the goal of creating an environment that supports health and well-being.[8] This approach can provide relevant information, monitor lifestyle and occupational accident risks, and provide personalized guidance based on individual health conditions.[9] Involving local resources, building community collaboration, and involving farmers, agricultural extension workers, and local community leaders are crucial aspects in developing this model.[10] The purpose of this study was to determine the description of the application of the HBM-based approach to farmers' awareness of the importance of a healthy lifestyle to reduce the risk of work accidents, especially in the Pandalungan Agricultural Area (Lumajang, Jember, and Probolinggo Regencies), which is the main center of agriculture in East Java with high work risks, a large number of farmers, and unique socio-cultural conditions.

METHODS

Study design

This study used a quantitative approach with a cross-sectional design to evaluate the implementation of the Health Belief Model (HBM) among farmer groups in the Pandalungan Agricultural Area, including Lumajang, Jember, and Probolinggo Regencies. The study was conducted from September 2025 to April 2026.

Data source and sampling procedure

Primary data were collected from farmer group members in the Pandalungan area. The study population consisted of 155 respondents. Samples were selected using purposive sampling. The inclusion criteria were farmers whose main occupation was farming, aged ≥18 years, willing to participate, and involved throughout the research process from counseling to evaluation. The exclusion criteria included farmers who were not members of farmer groups, landowners who did not work directly in farming activities, farmers with hearing impairments, and those aged over 60 years.

Variables of the study

The study examined farmers' awareness regarding healthy lifestyles and occupational accident risks based on the Health Belief Model (HBM) approach.

Measurement and instruments

The instrument used in this study was an HBM-based questionnaire to assess farmers' awareness of healthy lifestyles and occupational accident risks. The questionnaire consisted of 18 items using a Likert scale. The validity and reliability tests indicated that the questionnaire was valid and reliable for consistent data collection.

Data collection

The study began with a preliminary survey to collect primary data. The activities continued with health education, counseling, and demonstrations regarding the importance of healthy lifestyles and the use of personal protective equipment (PPE). The counseling participants consisted of several farmer groups, with each group comprising approximately 50–55 members. The counseling session lasted 120 minutes and was conducted in one meeting. The educational materials and demonstrations included the use of PPE such as face shields, hats, boots, work clothing, and other protective equipment to reduce occupational accident risks, as well as the implementation of healthy work lifestyles in agricultural areas. Evaluation was conducted through observation and by asking respondents to complete the questionnaire.

Ethical considerations

This study received ethical approval with ethical clearance number No. 3796/UN25.8/KEPK/DL/2026.

Data analysis

The research data were analyzed using descriptive statistical analysis to describe

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farmers' awareness of healthy lifestyles. Data analysis was performed using SPSS version 26.

RESULTS

Table 1. Respondent Characteristics

Characteristics	Min ± Max	Mean	Median	Total (n)
Age	31-71	48.3	49	155
Characteristics	Category	Number (n)	Percentage (%)	Total (n)
Gender	Male	122	78.7	155
	Female	33	21.3	
Education	Elementary School	71	45.8	155
	Junior High School	38	24.5	
	Senior High School	34	21.9	
	Bachelor	12	7.8	

Based on the results of the frequency distribution analysis, the average age of respondents was 48.3 years. The majority of respondents were male (78.7%), and had an elementary school education (45.8%).

Table 2. Results of the Likert Scale Validity Test

Correlations			
	R Count	R table	Information
P1	.611**	0.157	Valid
P2	.645**	0.157	Valid
P3	.700**	0.157	Valid
P4	.672**	0.157	Valid
P5	.677**	0.157	Valid
P6	.743**	0.157	Valid
P7	.705**	0.157	Valid
P8	.701**	0.157	Valid
P9	.714**	0.157	Valid
P10	.355**	0.157	Valid
P11	.306**	0.157	Valid
P12	.304**	0.157	Valid
P13	0.114	0.157	Invalid
P14	.241**	0.157	Valid
P15	.263**	0.157	Valid
P16	0.122	0.157	Invalid
P17	.200*	0.157	Valid
P18	0.016	0.157	Invalid

Based on the validity test results, most of the items were declared valid because their correlation values exceeded the R table of 0.157. Of the 18 items tested, 15 were declared valid and 3 were invalid. Overall, this instrument is good, but there are several items that need to be improved or removed.

Table 3. Results of Likert Scale Reliability Test

Likert Scale Reliability	
Cronbach's Alpha	N of Items
0.789	18

Based on the reliability test results, a Cronbach's Alpha value of 0.789 was obtained, far exceeding the minimum limit of 0.60. Therefore, it can be concluded that the research instrument is reliable and suitable for consistent data collection.

The research results found that the perceived severity (8.59) and perceived susceptibility (8.85) aspects showed lower scores. The low scores for perceived severity

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and perceived susceptibility reflect that farmers have a relatively low perception of the level of danger and vulnerability they face in their daily work.

Table 4. Descriptive Statistical Test Results

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Standard Deviation
Perceived Susceptibility	155	3	15	8.85	2,481
Perceived Severity	155	4	15	8.59	2,481
Perceived Benefits	155	3	15	9.39	2,781
Perceived Barriers	155	6	15	9.43	2,586
Cues to Action	155	6	15	11.22	2,118
Self-Efficacy	155	6	15	11.54	1,596
Valid N (listwise)	155				

DISCUSSION

The study found that scores for perceived severity and perceived susceptibility were lower. The low scores for perceived severity and perceived susceptibility reflect farmers' relatively low perception of the level of danger and vulnerability they face in their daily work. Most respondents were not fully aware of the risks of workplace accidents or illnesses caused by exposure to pesticides and agricultural environmental factors. This could be due to various factors, including culture, habits, lack of education, and others.[11]

The results of descriptive statistics show that the highest average scores are in the aspects of self-efficacy and cues to action. *Self-efficacy,* or self-efficacy, is one of the main components in the HBM model, which plays a big role in influencing a person's behavior.[12] In this study, high self-efficacy reflects respondents' confidence in adopting healthy lifestyle behaviors after receiving sufficient information and knowledge. Health education and counseling play an important role in increasing this confidence by helping respondents understand the actions, methods, and benefits of healthy behaviors. This finding is consistent with studies showing that education influences farmers' behavior change.[13]

Furthermore, cues to action also play a significant role in shaping respondents' readiness to initiate change. Cues to action are impulses or stimuli that motivate someone to take action. In this study, health education can be considered a primary form of cues to action. When someone receives information about health or even real-life examples from others, it can act as a powerful trigger to take action.[14] These findings indicate that respondents felt confident in their ability to adopt healthy lifestyle behaviors and were motivated to take immediate positive action. The high self-efficacy and cues to action scores demonstrate that the education-based HBM approach has successfully delivered positive impacts on both cognitive (knowledge and understanding) and affective (beliefs and motivation to change) aspects. This reinforces the importance of educational interventions in health promotion efforts, particularly among communities that are not yet fully aware of the importance of healthy lifestyle behaviors. [15]

This study used the proven Health Belief Model framework and targeted a group of farmers at high risk of occupational accidents. Overall, all variables had similar score ranges (minimum 3–6 and maximum 15) with moderate variation in standard deviations. This indicates that respondents had relatively balanced perceptions, suggesting that this HBM-based approach remains relevant for real-life interventions and can contribute to designing occupational health programs for farmers.[16] The research results strengthen the evidence that the Health Belief Model can be used as a conceptual framework in understanding healthy living behavior in the agricultural sector.

CONCLUSION

This study shows that a Health Belief Model (HBM)-based approach increases farmers' self-efficacy and cues to action in implementing healthy lifestyles to reduce the

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risk of occupational accidents in the agricultural sector. However, perceived susceptibility and perceived severity of occupational risks remain low among some farmers. This suggests that a systematic HBM-based approach can be effective in promoting occupational health in agricultural areas, while simultaneously supporting increased safety and productivity for farmers. Further research can examine external factors such as work environment conditions, family support, and the availability of health facilities because they have the potential to influence farmers' healthy lifestyle behavior.

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