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Coping Strategies in Overcoming Stress in Farmers After Crop Failure

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Abstract

Crop failure often happens to farmers, so they are vulnerable to considerable losses, and farmers experience psychosocial disorders such as stress, sadness, and anxiety due to crop failure. When facing crop failure, it is necessary to have a stress-coping strategy to help farmers control their emotions. The method used was a literature review, with a search using three databases, namely Google Scholar, PubMed, and ScienceDirect, using the keywords psychosocial, farmers, crop failure, and coping mechanisms. The journal articles used for review were 10 journals, with four international and six national journals. Psychosocial pressure on farmers is marked by increased stress in the form of anxiety, disappointment, low self-esteem, antisocial behavior, and loss of motivation to return to farming. Stress coping mechanisms carried out by farmers are perfect for controlling farmers facing crop failure. Besides, farmers have different coping mechanisms; for example, some do their favorite hobbies to distract their minds; on the other hand, some choose relaxation therapy and pray to calm their minds. Stress coping management is effective in helping farmers manage emotions when experiencing crop failure; many farmers can control stress when experiencing crop failure even though they divert it to something positive and some to something negative. In addition to crop failure, stress-coping management strategies can also overcome problems related to farmers' work.

Keywords: psychosocial, farmer, crop failure, coping strategy

Introduction

In various episodes of the farmer's life, they always face various obstacles and bring fate and changes. The weather and the changing seasons determine a farmer's harvest. If the weather is good, the farmer is lucky and can reap abundant profits. When bad things happen, losses are immediately substituted. It is confirmed that climate change related to rainfall patterns will affect farmers' planting patterns, planting time, production, and quality of agricultural products[1,2,3]. It is not only the weather or the seasons; there are many other indicators of the profit and loss opportunities the farmers will experience. Examples of external factors include natural disasters like floods, mountain eruptions, pest intensity, air temperature, and sea level rise. The internal or human factors can be such as the behavior of throwing garbage along the river, which eventually causes flood overflows.[4,5,6]

The combination of factors that can affect the productivity of a farmer's crops means that the potential for farmers to experience crop failure is massive. This is due to global warming occurring and being experienced in every part of the world. A large-scale crop failure is defined as a failure event in one or more barns that threatens food security and is characterized by the loss of crops and an increase in food prices. The probability of crop failure is estimated to be 4.5 times higher by 2030 and up to 25 times higher by 2050 in all food-producing regions of the world. Excluding the impact of CO2 fertilization activities, these estimates are possible.[7,8,9]

Considering the current and future trend of global food stability, the world's food security is becoming increasingly worrisome. Farmers are also more vulnerable and suffer significant losses in various aspects. One is the psychosocial condition of farmers, who are affected and often experience prolonged stress after crop failure. Changes in agriculture, such as industrial restructuring and family dependency, are sources of risk for psychosocial disorders among farmers. Psychosocial disorders are certainly hazardous to the health of an individual. The existence of stressors can adversely affect health and lead to burnout, characterized by emotional exhaustion and a lack of personal accomplishment.[10,11,12] That as evidenced by 11% of farmers experiencing high burnout and 88% experiencing moderate burnout.[13] Fluctuating conditions place farmers in a state of uncertainty that results in high levels of anxiety, lack of self-confidence, feelings of depression, withdrawal, or what is commonly

referred to as antisocial behavior.[14]

In the face of this crisis, key strategies are needed to overcome the challenges of failure that cause an increase in farmers' stressors. The practical application needed by the farmers is a stress management strategy. It is a stable characteristic of people that determines their thoughts and actions for responding or coping with internal and external stressful situations. [15,16,17]

Generally, coping strategies are categorized into four broad categories: problem-focused, emotion-focused, meaning-focused, and coping-focused on seeking support. Many coping mechanisms are useful in specific circumstances, including when farmers experience crop failure. There is also evidence that problem-focused coping is a powerful solution and has many benefits in reducing a person's stress levels. Maladaptive coping styles, on the other hand, are those that require avoidance and are not appropriate within psychotherapy. Thus, the importance of coping strategies, which individual farmers own in dealing with undesirable situations, is evident. The orientation of coping strategies is expected to be the best alternative for farmers in problem-solving or psychotherapy to minimize the psychological pressure the farmer faces. [18, 19,20]

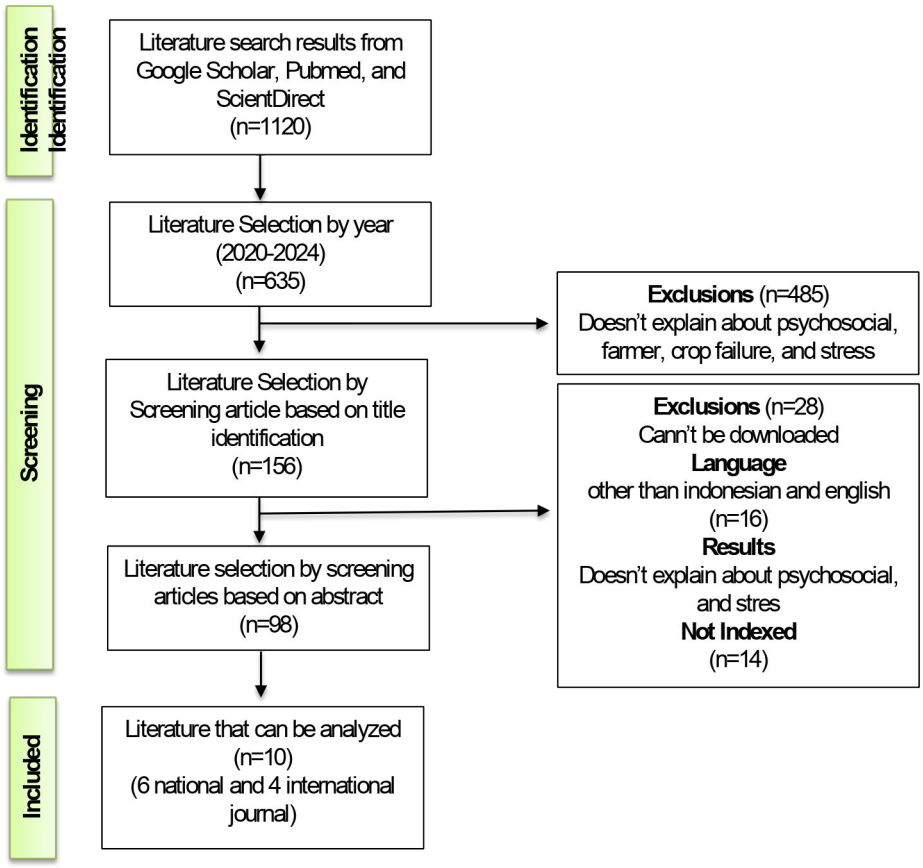
Method

The method used in this research is the literature review method. The literature review was chosen because it produces evidence from previous research on the issue of stress-coping mechanisms in farmers who experience crop failure. The literature search process uses three databases, national and international journals, namely, Google Scholar, ScienceDirect, and PubMed, with a publication range from 2020-2024. The search method used uses several keywords in English. The keywords were ‘Psychosocial’ AND ‘Farmer’ AND ‘Crop failure’ AND ‘Coping Stress Strategy’,

Based on the selection criteria, this literature review was conducted using inclusion and exclusion criteria. The formula for determining inclusion uses PICOS (Population, Intervention, Comparison, Outcomes, and Study Design). Based on the PICOS technique, the inclusion criteria were 1) The study population is farmers and families of farmers 2) Intervention of management coping stress can help the farmer to

manage the mental health 3) Comparison between framers have mechanism coping positive and negative if they crop failure experience 4) The result of the effect of coping stress to reduce the farmer stress can help they to managed the emotional 5) Quantitative research design 6) The year of publication of the article discussed is at least the last 5 years between 2020-2024 7) Using Indonesia and English Language. Meanwhile, the exclusion criteria included topics that did not relate to the discussion of the research problem, the publication year of the articles discussed was less than the range of 2020-2024, and articles using languages other than English and Indonesian were included in the inclusion criteria.

The journal literature search began by identifying the keywords that had been determined. Based on the search through Google Scholar, 564 articles were obtained, PubMed obtained 498 articles, and through ScienceDirect, as many as 76 articles, with a total number of articles obtained as many as 1120. Next, titles, abstracts, and full texts were screened by eliminating some literature that did not match the criteria desired by the researcher. After the elimination stage, the exclusion criteria below 2020-2024 were 485, and 635 literature was obtained that matched the inclusion criteria sought, namely the publication period 2020-2024. Then, filtering was carried out again based on the literature title that matched the inclusion criteria, namely 156 literature, followed by abstract filtering until the results obtained 98 suitable literature and continued to the analysis stage with 10 articles.



Picture 1. Diagram of analysis based on PRISMA (2009)

Results

Table 1. The Results Literature Review

ID Number	Author and Journal Identify	Journal Title	Objective	Population and Sample	Method	Summary of Results
A1	Authors : Thompson R, Hagen BNM, Jones-Bitton A Journal Identity: *Sustainability,* Vol. 15, No. 11	Tractors, Talk, Mindset, Mantras, Detachment, and Distraction: A Mixed-Methods Investigation of Coping Strategies Used by	This study aims to determine (1) The ways farmers and industry in Ontario, Canada, cope with daily farming stressors, (2) Farming-	The population and samples used were 75 participants in Ontario, and they were accompanied by farmers and industry professionals, as	The sampling method used a mixed-methods study design to combine the strengths of rich, in-depth qualitative data and a	The results of this research are : (1) Positive coping strategies used by Canadian farmers, which focus on emotions rather than problem-solving, include doing something fun, such as taking a holiday and enjoying a non-farming hobby, such as fishing, horse riding, exercising, and playing with pets. Female

ID Number	Author and Journal Identify	Journal Title	Objective	Population and Sample	Method	Summary of Results
	2023	Farmers in Canada[21]	specific coping strategies within the farming context, (3) The adaptation of positive coping strategies and for effective avenues to reduces stress within the farming context.	recommended by farmers. The samples were recruited via a farmer working group's email and social media.	wide breadth of quantitative data to explore farmer strategies for coping with occupational stressors.	farmers mostly used the coping strategies reported; (2) Some positive coping techniques have been adapted for farming, including tractor therapy used by Canadian male farmers; (3) There is also a positive, problem-solving coping strategy: talking to industry professionals to offer some agricultural solutions, (4) Negative coping strategies were also found in the study and were widely adopted by the male farmers, such as the use of drugs, the drinking of beer, and social isolation.
A2	Authors: Kohlbeck, S., K. Quinn, T. Deroon-Cassini, S. Hargarten, D. Nelson, Dan L. Cassidy Journal Identity: *SSM-Qualitative Research In Health*. 3:100248. 2023	A Social-Ecological Analysis Of Farmer Stresses And Supports In Wisconsin[22]	This study aims to describe the factors that trigger stress in farmers and its impact on their lives, describe the resources and strategies that farmers use to cope with stress and identify resources or strategies that may be lacking in suicide prevention efforts among farmers.	16 farmers in Wisconsin counties with an equal distribution of men and women.	This research utilizes a cross-sectional study based on interviews using a self-interview protocol, which asked participants about the stressors and supports they encountered while farming in Wisconsin, informed by the Adult Resiliency Measure-Revised. While farming in Wisconsin, I was informed by the Adult Resiliency Measure-Revised.	The results show that many farmers in the Wisconsin region face multiple stressors, such as crop failure, lack of support from family and government, and rising prices of agricultural raw materials. This has resulted in an increase in suicide rates in the region. These stressors involve different levels of farmer experiences and interactions, which are also influenced by policies and systems at the local, state, and national levels. In addition, the interview data showed that the pressure and support felt by farmers are personal or interpersonal and influenced by broader factors such as policies, systems, and the social environment. In the face of various stressors farmers face, it was found that the ability to get continuous family support and assistance can improve farmers' quality of life. Family continuously can improve the quality of life of farmers not to commit suicide.
A3	Author: Behere, P.	Psychosocial Aspect of	This study aims to	The population and	The method used in this	The result of the study is that in India, farmers and the

ID Number	Author and Journal Identify	Journal Title	Objective	Population and Sample	Method	Summary of Results
	B., Chowdhury, D., Behere, A. P., & Yadav, R Journal Identity: Industrial Psychiatry Journal Vol. 30, No. 1, Page 10-14, 2021	Suicide in the Largest Industry of Farmers in the Vidarbha Region of Maharashtra[23]	determine the psychosocial problems of farmer suicide in the agricultural sector in Maharashtra Vidarbha District due to poor coping mechanisms.	sample used were 98 People as family members of farmer suicide victims in Wardha District, Vidharbha Region	study is to collect the results of the autopsy report of the family of farmers who committed suicide, then analyze the age, matched occupation controls from the the same same village were included.	agriculture industry form the financial backbone of the gross domestic product (GDP). However, farmers face many work-related problems resulting in psychosocial distress that makes them feel weak and helpless. Thus, farmers feel stressed due to unsuitable yields, causing farmers to commit suicide, hence the need for mental support for farmers to prevent suicide.
A4	Author: Woolford, D. D., Smout, M. F. Turnbull, D. & Gunn, K. M. Journal Identity: International Journal of Environmental Research and Public Health (2022)	Male Farmers' Perspectives on Psychological Well-being Self-Management Strategies That Work for Them and How Barriers to Seeking Professional Mental Health Assistance Could Be Overcome[24]	This study aims to explore self-management in the context of coping strategies that Australian male farmers use to improve or maintain their psychological well-being and their views on what would assist them in overcoming barriers to seeking professional mental health assistance.	The population and samples used were 15 male farmers who participated, averaging thirty-nine years of age (23–74 years) with twenty years of farming experience (5–57 years).	The sampling method used interviewing techniques by an experienced qualitative researcher (KMG), and data were analyzed using thematic analysis.	The results of this research are : (1) Farmers used self-management strategies such as spending time with friends/family support, physical activity, and hobbies to maintain their well-being; (2) Farmers choose to look at the situation positively when going through difficult times such as drought and financial hardship; (3) The collective coping strategies used by the farmers involved have been shown to prevent them from developing high levels of distress and have helped to reduce their increased risk of suicide.
A5	Authors: Ningrum, Dewi, & Kurniyawan Jurnal Identity: e-Journal Pustaka Kesehatan,	Correlation between Job Stress and Work Fatigue of Rubber Farmers at PTPN X11 Renteng Plantation-Ajung, Jember[25]	The study aimed to analyze the relationship between job stress and work fatigue of rubber farmers	78 rubber farmers	The study design used observational analytics with a cross-sectional approach and simple random sampling techniques.	There is a significant relationship between work stress and work fatigue. The more often farmers experience work stress, the more they will experience work fatigue. So, there is a need for education about relaxation therapy and progressive muscle therapy to reduce the stress

ID Number	Author and Journal Identify	Journal Title	Objective	Population and Sample	Method	Summary of Results
	vol. 10 (no.2) Mei 2022					experienced by rubber farmers.
A6	Authors: Fitria, D. A., & Riyadi, M. I. Jurnal Identity: ROSYADA: Islamic Guidance and Counseling, Vol 3. No 1. Page 51-60. 2022	Stress Coping Strategies for PostHarvest Melon Farmers in Maguwan Village, Sambit District, Ponorogo Regency[26]	This study aims to determine (1) The psychological conditions that occur in farmers after crop failure, (2) The form of application of stress coping strategies in melon farmers after crop failure, (3) The results of the application of stress coping strategies in melon farmers after crop failure.	The population and samples used were three informants who experienced stress after melon crop failure in Maguwan Village, Sambit District, Ponorogo Regency.	The sampling method uses a descriptive qualitative approach. It uses the Miles and Huberman data analysis model, which is carried out during and after data collection within a certain period.	The results of this research are: (1) the psychological condition of melon farmers after crop failure experienced anxiety, trauma, depression, disappointment, and pessimism. (2) The application of stress-coping strategies to overcome the psychological condition of farmers after crop failure has a very positive impact because coping material aims to control emotions and manage stress well. (3) The forms of coping strategies applied are problem-focused coping strategies and emotion-focused coping strategies.
A7	Authors: Sunarti Jurnal Identity: *Jurnal Sosialisasi*. Vol 8, No. 2. Page 54–60. 2021	Adaptation of Sugarcane Farmers in the Period of Harvest Failure (Case Study: Kedungmakan Village, Jatirogo Subdistrict Tuban Regency)[27]	To identify how sugarcane farmers carry out psychosocial adaptations when they are experiencing failures due to crop failure on their sugarcane crops.	3 sugarcane farmers who experienced harvest failure in Kedungmakan Village, Jatirogo Subdistrict, Tuban	The sampling method used qualitative methods and a phenomenological approach that is focused on awareness of the actions and experiences of the actors.	The results showed that only a few sugarcane farmers experienced crop failure and no excessive stress. They prefer to be able to prepare again, such as fertilizers, weather predictions, improving the quality of sugarcane plants, pest management, and hiring farm laborers to help rather than experiencing prolonged stress.
A8	Author : Putra, M. A. R., Dewi, E. I., & Kurniyawan, E. H. Journal Identity : *E-Journal*	Relation of Resilience with Burnout on Rice Farmers in Ampel Village, Wuluhan District[13]	The study aims to determine the relationship between resilience and burnout among Ampel Village, Wuluhan District	The population and sample used were 80 respondents as rice farmers	The method in the study used a cross-sectional design with sampling techniques using cluster random samples. Data	This research indicates that resistance experienced by rice farmers is high, while burnout is obtained, which is 55% low and 45% high. Bivariate analysis with the Pearson correlation obtained a P-Value =0,003, which means a relationship exists between resilience and burnout among rice farmers

ID Number	Author and Journal Identify	Journal Title	Objective	Population and Sample	Method	Summary of Results
	Pustaka Kesehatan Vol. 9, No. 3. Page 195-200 . 2021		farmers.		Retrieval was done using the Resilience Scale 14 questionnaire with an MBI-GS questionnaire .	in Ampel Village, Wuluhan district. The research results can be used as an evaluation, especially for health services that care more for rice farmers and improve their health.
A9	Author : Devianton y, Fitrio Journal Identity : Jurnal Ilmiah Medis Husada Vol. 9, No. 2, Page 50-59, 2020	Phenomenolog ical Study: Resilience Experiences Of Farmers After Flood And Landslide in Klungkung Village[28]	This study explores the experiences of farmers who experienced floods and landslides that led to crop failure.	The research sample is five respondents who will be interviewed to obtain information data and explore respondents' feelings, perceptions, and thoughts when dealing with floods and landslides in Klungkung Village.	The research design method used is a qualitative study using an interpretative phenomenolo gical approach; interviews are also conducted to add the information data needed by researchers.	The result of research in six topics, among others: Human-caused disasters that cause damage to agricultural land. 2. Farmers have a good stress coping mechanism and are sincere about their damaged farmland. 3. Asking God for guidance regarding their work. 4. farmers are committed to working as farmers again after their land is not flooded. 5. Farmers will improve their economy by returning to fieldwork. 6. Protect the surrounding nature so that floods and landslides do not occur.
A10	Author : Feryanto, Harianto, & Rosiana Jurnal Identity: Sustainabil ity Science and Resources, Vol. 5:3, 2023, pp. 33 - 49	What are Farmer Household Coping Strategies for Facing Crop Loss: Evidence from Indonesia[29]	This study aimed to analyze the coping strategies used by farm households to deal with crop failures.	The sample data contained in the IFLS represents 83 percent of the population of Indonesia	The analytical method used in this study uses a fixed effects approach at the household and rural levels to avoid potential bias from endogeneity and heterogeneity problems.	Average livestock assets decreased over the same period, most likely due to farmers selling them as a form of savings. The frequency of borrowing among farming households also increased, indicating strategies to overcome shocks, such as crop failure, which suggests an increased likelihood of climate change impacts such as El Nino and La Nina. In addition, there has been a shift in the main cultivated crop from rice to other commodities, which the negative impact of climate change on rice yields may cause.

Discussion

Agronursing is a nursing field that focuses on the health and well-being of farmers by considering the physical, mental, and environmental challenges of agriculture. In the face of various pressures, such as climate change, crop failure, or fluctuations in agricultural prices, farmers develop various coping strategies to deal with stress[30,31,32]. Common adaptive coping strategies include seeking social support from family and community, implementing agricultural technologies that are more resilient to weather changes, and engaging in relaxation activities such as worship or exercise. On the other hand, some farmers may use maladaptive coping, such as withdrawing from social interactions or experiencing excessive anxiety. Through an agronursing approach, health workers can provide education and interventions that help farmers choose healthier coping strategies to increase their mental resilience and productivity in farming[33,34,35].

The Impact of Harvest Failure on Coping Mechanisms in Farmers

Based on research conducted by Fitria & Riyadi (2022) showed results related to the psychological condition of melon farmers after crop failure who experienced anxiety, trauma, depression, disappointment, and pessimism[26]. Both studies align with research conducted by Behere et al. (2021), which shows a problem in the form of psychosocial pressure that makes farmers feel stressed due to mismatching crop yields[23]. In addition, other studies that support some of the results of the above studies, such as research conducted by Ningrum et al. (2022) on rubber farmers after crop failure, where there is a significant relationship between stress and fatigue due to failure to fulfill production, causing excessive stress[25].

However, there is one difference in the research results on the impact that occurs due to post-harvest failure on sugarcane farmers, which is in research conducted by Sunarti (2021) showing that only a few farmers experience stress after crop failure. They prefer to be able to focus on future-readiness rather than dragging on in a state of prolonged stress[27]. The results of the discussion in the five researches have similarities in the discussion of the impacts that arise due to crop failure on farmers. The five research journals use more qualitative and approach methods through cross-sectional, phenomenological, Miles and Huberman data analysis, and proportional random

sampling. A more significant percentage of the impacts that arise in farmers who experience crop failure include stress, sadness, and disappointment. Moreover, only a few farmers do not feel the impact and prefer to focus on their agricultural readiness the next time.

The Use of Positive Stress Coping Strategies in Farmers after Harvest Failure

Farmers who experience crop failure will feel sad and disappointed, which can cause stress. Farmers have different stress coping mechanisms; from the results of research conducted by Fitria & Riyadi (2022), the psychological impact that occurs in farmers with crop failure is good for farmers' mental health because farmers can control stress and focus on solving their problems[26]. In the research results by Patuh et al. (2021), farmers' coping mechanisms show that most farmers focus more on their emotions than their problems, so they still cannot solve problems such as crop failure. Meanwhile, research conducted by Woolford et al. (2022) showed that farmers use when experiencing crop failure to spend time with friends/family; besides that, farmers also think about continuing their work as farmers in the future[24].

One of the farmers' stress coping mechanisms when facing difficulties such as crop failure is to divert their minds with hobbies or activities that can divert the minds farmers as in the results of research conducted by Thompson et al (2023), farmers will go on holiday and do their favorite hobbies, these results relate to research conducted by Deviantony (2020) which shows that farmers will do things they like besides that farmers also have a spiritual relationship with their God so that when there is crop failure they surrender to their god[21,28]. In addition, the results of research by Ningrum and Kurniyawan (2022) show the need for relaxation therapy to reduce stress in farmers so they can clear their minds[25].

In conclusion, from the five research results that researchers have conducted, there are positive coping mechanisms that farmers, such as stress management, have carried out; besides that, farmers also divert their thoughts about crop failure to valuable activities such as doing their favorite hobbies.

The Use of Negative Stress Coping Strategies in Farmers After Harvest Failure

Farmers will experience stress, so they need coping mechanisms to overcome the stress experienced by farmers, such as the results of research conducted by Putra et al. (2021) showed that there is no coping mechanism for farmers to feel tired faster

besides that study conducted by Behere et al. (2021) showed that if you do not have a suitable coping mechanism, it can result in suicade[13,23]. This research is in line with Kohlbeck et al. (2023), with the results of the study indicating that farmers in the Wisconsin region always face work pressure due to crop failure; besides that, the absence of support from the family is a heavy pressure received by farmers. Farmers who have this pressure cause stress, resulting in suicide[22]. In addition, in a study conducted by Thompson et al. (2023), stress-coping mechanisms carried out by farmers, such as consuming alcoholic beverages and illegal drugs, resulted in adverse effects. [21]

The conclusion is that four journal articles produce poor results, such as no good stress coping mechanisms, and support from family or loved ones will result in prolonged stress that causes thoughts of ending his life; besides negative stress coping mechanisms, such as drinking alcohol, are also not appropriate for farmers.

Conclusion

Agricultural crop failure among farmers, caused by external and internal factors, causes severe losses and threats in various aspects of life, especially for individual farmers. There is a high potential for psychosocial disorders among farmers with crop failure. Farming distress is characterized by increased stress in terms of anxiety, restlessness, disappointment, low self-esteem, antisocial conduct, and loss of motivation to return to agriculture. Farmers can overcome various stress problems through stress-coping management strategies. The term "coping strategies" refers to an individual's beliefs about responding to and managing stress. Building positive stress management strategies like positive expectations, increasing spirituality, sharing stories with family to release all emotions and thoughts, group support, assessment of previous strategies, reorganizing field trips, and playing with animals have been proven beneficial in reducing farm stress. On the other hand, when stress coping strategies are weak and negative, farmers' psychological state becomes worrisome and disrupts daily activities.

Ethical Considerations

This literature study has received approval from the Faculty of Nursing, Jember

University.

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Conflict of Interest

None

Author contribution

all authors contributed to completing this article

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