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Climate Change, Occupational Stress, and Workload Impact on Farmers' Mental Health

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ABSTRACT

Farmers face various psychological challenges due to high work pressure, climate change, economic stress, and limited access to mental health services. These factors result in a decline in farmers' mental well-being and productivity. This study examines the relationship between farmers' workload, stress, and environmental factors, focusing on adaptation efforts and challenges in maintaining mental health. This qualitative literature review analyzed articles published in 2021-2025 from PubMed, ScienceDirect, and Springer databases. The selection process was conducted in stages using keywords in Indonesian and English. From more than 23,000 initial articles, 10 studies were selected based on inclusion criteria relevant to farmers' psychological conditions. Three main themes were found: (1) complex sources of stress such as economic instability, climate uncertainty, and social alienation; (2) coping strategies that are more emotional than problem-solving; and (3) the importance of social support and targeted interventions in maintaining mental health. Young farmers and women were found to be more vulnerable to mental stress. Meanwhile, cultural stigma, especially among older male farmers, was a significant barrier to seeking help. Complex psychological, environmental, and socioeconomic interactions influence farmers' mental health. Strengthening social support, improving mental health literacy, and implementing policies such as stress management training and agricultural insurance are needed to protect farmers' well-being. These findings are important for developing sustainable agricultural practices that address productivity and psychological resilience.

Keywords: Farmer Psychology; Workload; Stress; Climate Change; Hard Work.

Introduction

Agriculture is the comprehensive term referring to the wide range of practices through which humans cultivate plants and raise domestic animals to sustain life by producing food and other resources. Etymologically derived from the Latin ager (field) and colo (to cultivate), agriculture encompasses not only crop cultivation and animal husbandry but also related fields such as horticulture, arboriculture, vegeculture, and livestock systems, including mixed farming, pastoralism, and transhumance (Harris & Fuller, 2020). As a vital sector, agriculture is important in supporting food security and global economic growth (Pawlak & Kołodziejczak, 2020). In addition to being a source of livelihood, this sector also faces various challenges that stem from natural and social factors. Therefore, understanding the dynamics of the

agricultural sector is important, given the complexity of social, psychological, and environmental factors that affect farmers' welfare.

As challenges in the agricultural sector increase, farmers' mental health is increasingly threatened by workload, climate change, and psychosocial stress. Extreme weather uncertainty raises anxiety about crop yields and economic stability, which adds to long-term psychological stress (Dorner et al., 2024). High workloads, especially during the planting and dry seasons, also increase physical and emotional fatigue, which causes prolonged stress (Prokopy, 2021). In addition, the lack of social support from the surrounding environment makes farmers more vulnerable to mental health disorders, even though the existence of a strong social network can be an important protection against this stress (Yazd et al., 2022). This complexity suggests that efforts to maintain farmers' mental health must consider various interrelated and inseparable factors.

The prevalence of mental health disorders and suicide among farmers is a global problem that requires increased awareness of psychological dangers to address this problem. Based on several studies from around the world state that the level of depression, anxiety, and suicide cases increases among farmers compared to the general population. In the United States, it was reported that the suicide rate in men who work as farmers is almost twice that of men in the general population; in a recent study in the Midwest, it was found that as many as 2/3 of farmers experience anxiety disorders and more than ½ experience depression. While in the UK, it was reported that 88% of farmers under the age of 40 consider poor mental health to be the biggest challenge they face (Younker & Radunovich, 2022). According to data from the National Crime Records Bureau, in 2021, 6.6% of farmers committed suicide in India (Saju et al., 2024). This can cause physical responses, such as dizziness, loss of focus, decreased appetite, and decreased worker productivity

Workload is closely correlated and is often associated with workers' fatigue risk (Arman et al., 2022). The high workload on farmers can increase the physical workload and mental stress disorders for farmers; workloads beyond the capacity of farmers cause fatigue, which can potentially result in work accidents (Harishoh et al., 2024). Fatigue is a mechanism in the body to avoid more severe damage; there are physical and mental factors that result in decreased work capacity. Fatigue can cause stress that affects the mind through tension, anxiety, irritability, and despair (Maisel et al., 2021; Asmaningrum et al., 2025).

Climate change is also one of the factors that cause severe stress in farmers; climate change refers to significant changes in weather patterns in a specific period. These changes include temperature, rainfall, storms, and heat waves that will impact planting times and disrupt agricultural systems (El Khayat et al., 2022). Climate change is a significant challenge; changes in rainfall patterns or prolonged drought will impact crop failure and indirectly affect the income of farmer households (Mekonnen et al., 2021). This condition forces farmers to adapt to alternative technologies, such as modern

irrigation or climate-resistant seeds, which the majority still consider expensive so that it can cause economic disparities and trigger social conflict and ongoing mental stress.

Increasingly difficult conditions and economic uncertainty exacerbate the stress of farmers who are already under pressure from various things, such as fatigue, bad weather, and price fluctuations. Continued stress will result in a decline in the work system and disrupt the psychological well-being of farmers (Hagen et al., 2021; Astika et al., 2023). This situation creates a cycle of poverty difficult to break, especially for farmers in remote areas who have difficulty accessing information or infrastructure.

Therefore, it is important to examine further how high workloads and ongoing economic pressures contribute to stress levels in farmers so that appropriate strategies can be found to prevent and treat mental health problems in farmers. This article aims to review in depth the results of research that discusses the relationship between farmer psychology and workload, stress, and climate change. Through a literature review approach, this article is expected to provide a clearer picture of the conditions farmers face and be a basis for formulating intervention strategies and policies more responsive to mental health aspects in the agricultural sector.

Methods

The literature search process in this article's literature review uses three databases: PubMed, Scient Direct, and Springer. The search process was carried out with a range of publication years of the literature being 2021-2025. The search used several keywords in English: "Farmer Psychology" AND "Workload" AND "Stress" AND "Climate Change" were used. The article search process begins by identifying the predetermined keywords. At the title identification stage, 23,952 articles match the keywords. The next stage is to filter by selecting the article title and publication year matching the research criteria. At this filtering stage, 16,800 article titles match the research criteria. Afterward, article filtering is carried out, including inclusion and exclusion research criteria. At this stage, 514 articles met the research criteria for inclusion and exclusion. The next stage was to filter the articles through article abstracts to focus the articles on the research criteria. At this stage, 12 articles met the research criteria. Furthermore, re-screening from the 12 selected articles was carried out on language, research design, output, and several other previously determined criteria. Finally, 10 articles were determined to meet the research criteria and could be continued to the analysis and discussion stage.

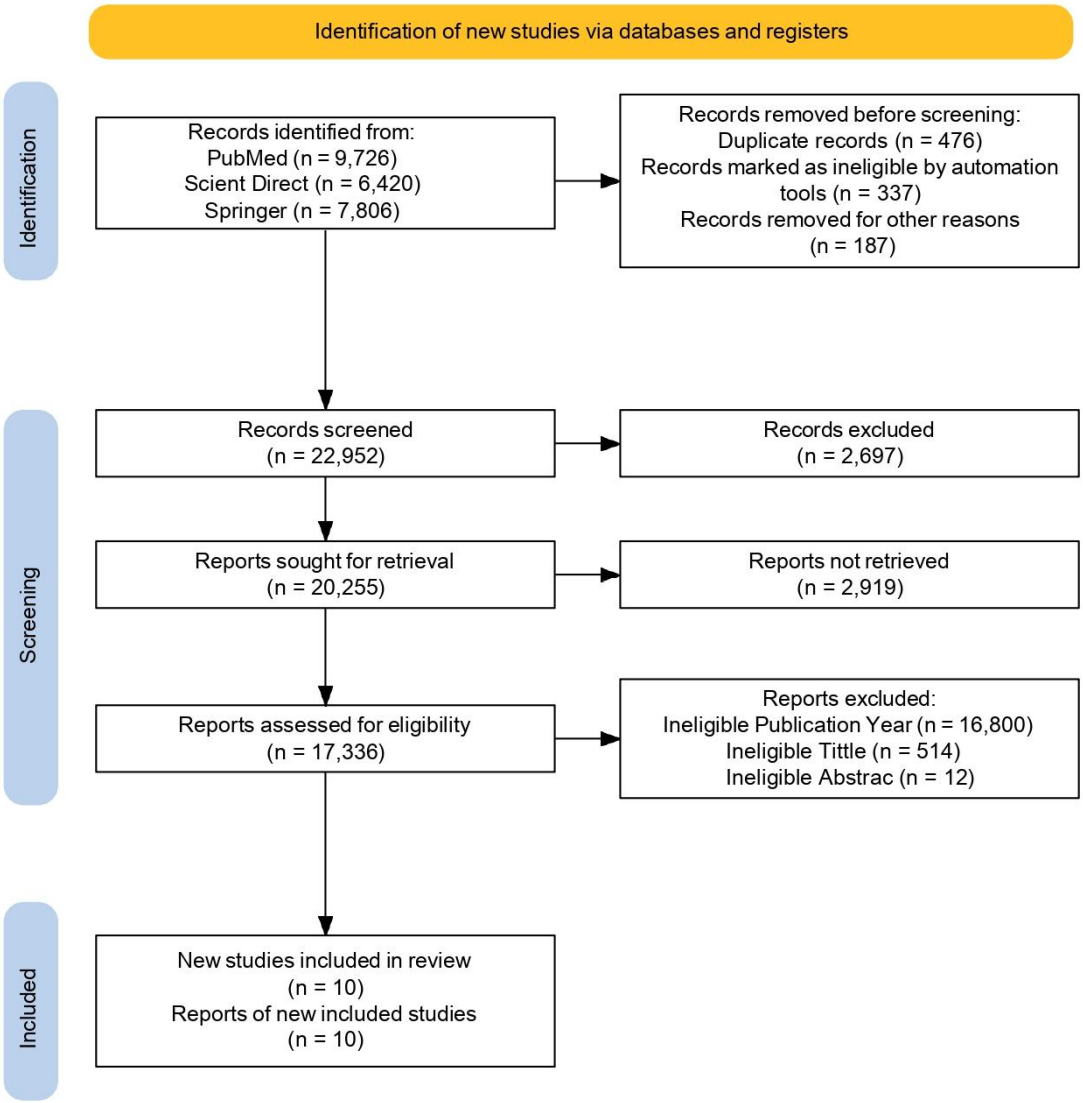

Figure 1. Flow Diagram of Analysis Literature Based on PRISMA (2009)

Result

After researching various studies and articles, it was found that ten studies showed the relationship between workload, stress, and climate change on the psychological conditions of farmers. For more detailed information, see Table 1 for the results of the following literature analysis.

Table 1. Result of Literature Review

No	Author /year	Article Title/Journal Name/Volume	Sample	Method	Result	Limitation
1.	Batterham, P.J., et al./2022	The Farm Well study: Examining relationships between farm environment, financial status, and the mental health and well-being of farmers/ Psychiatry Research Communications/Vol 2(2)	63 farmers residing or working in the Box-gum grassy woodlands ecological region of eastern Australia	Cross-sectional survey	Farmers who experience financial difficulties or are frequently worried about money tend to have poorer mental health. They also report lower levels of life satisfaction and well-being. Younger farmers also tend to have poorer mental health compared to older farmers. Although NRM activities (such as planting trees or maintaining biodiversity) increase vegetation cover and bird diversity, this does not directly affect farmers' mental health or well-being.	Modest sample size (n=63), limiting detailed analysis. Cross-sectional design precludes causal inferences.
2.	Purc-Stephenson, R. J., et al./2024	A multidimensional tool to measure farm stressors: development and initial validation of the farmer stress assessment tool	There was a total of 492 participations, of which Sample 1 (N = 354): Farmers from Alberta,	Cross-Sectional Study	Results showed that stressors in farmers include unexpected work interruptions, farm hazards, financial planning, isolation, and regulatory and public pressure. The subscale accounted for 61.6% of the variance with internal consistency	This study has several limitations, including a cross-sectional design that limits causal inference, possible selection bias as participation tends to be higher in individuals with mental health

		(FSAT)/BMC Psychology/Vol.12:435	Canada, with an average age of 40.04 years, and Sample 2 (N = 138): Farmers from outside Alberta, Canada, with an average age of 37.20 years.		(Cronbach's alpha) of 0.66-0.75 and subscale correlations below 0.44, indicating discriminant validity. Correlations with four mental health variables supported the criterion validity of the survey.	problems, a small CFA sample size that affects statistical power, and differences in characteristics between Alberta and non-Alberta samples that may affect the generalizability of the results.
3.	King, E., et al./2023	Engaging the agricultural community in the development of mental health interventions: A qualitative research study/BMC Psychiatry/Vol. 3:399	The sample was drawn from individuals from the farming community and individuals in contact with people from the farming community in Scotland, resulting in a final sample size of 21 people.	Qualitative Research Study	Results showed that mental health problems in farmers were triggered by work-life imbalance, isolation, financial pressures, unpredictable nature of work, technological difficulties, lack of human resource management training, and the reluctance of older male farmers to seek help. Interventions need to appropriately engage communities and increase training to recognize and support mental health issues, including in the context of health and safety.	This study has limitations in that the number of participants is relatively small, and the majority are not farmers. COVID-19 restrictions mean that interviews were conducted online, which may affect the accuracy of farmers' perspectives.
4.	Patuh, A., et al./2021	Description of Stress and Coping Mechanism Farmer in Kalisat District Jember Regency, Indonesia/Nursing and Health Sciences Journal/Vol.1(1)	The research sample consisted of 100 farmers in Kalisat District, Jember Regency, Indonesia.	Non-experimental quantitative research with analytical descriptive type (cross-sectional approach)	The study results showed that farmers in Kalisat District tend to experience stress in cognitive responses. Coping mechanisms in farmers in Kalisat District tend to use coping mechanisms that focus on emotions (59.00) compared to coping mechanisms that focus on problems (17.00)	The study only used a cross-sectional design so that it could not see changes in stress and coping mechanisms in the long term. The study did not consider other external factors affecting farmers' stress processing and coping mechanisms.

5.	Riethmuller, M. L., et al./2024	Supporting Mental Health in Farming Communities Where and When it is Needed Most: A Longitudinal Analysis of Risk and Protective Factors/Social Science & Medicine/Vol. 361	The study included 125 participants aged 18 or older who were farmers or family members involved in farming in Western Australia.	longitudinal survey method	This study found that stress levels increased by 16.3% during peak farming seasons, while anxiety and depression remained stable. Dysfunctional coping (↑ 43.4%), family stress (↑ 21.9%), and financial stress (↑ 10.3%) contributed to poor mental health, whereas social support (↓ 7.3%) and a sense of belonging (↓ 12.3%) helped reduce stress and depression. These findings highlight the importance of mental health support for farmers, especially during seeding and harvest.	This study has some limitations. The sample size shrank over time, which may affect the accuracy of the results. It did not consider factors like medication, therapy, exercise, or diet, which could influence mental health. Data was collected during good farming seasons, possibly underestimating stress in tougher years. The participants were younger than average, likely due to recruitment methods. Lastly, the study mainly focused on broadacre farmers, making it less applicable to other types of farming.
6.	Rudolphi, J. M., et al./2024	A Comparison between Farm-Related Stress, Mental Health and Social Support between Men and Women Farmers/ International Journal of Environmental Research and Public Health/ Vol.21(6)	the analysis was limited to 536 eligible respondents	cross-sectional study	Results showed that the prevalence of anxiety and depression among male and female farmers was similar when not considering stressors and social support. Women farmers had a lower proportion of moderate stress than men when associated with interpersonal relationship stress. Women with low social support reported more incidences of depression than men. The incidence of stress and depression due to geographic isolation showed that women farmers with moderate or high levels	This study has several limitations, including a questionnaire about stress that is less specific, lack of reconfirmation regarding respondents' understanding of reporting social support, not measuring the amount of support obtained, having a small sample of women, which limits the ability to detect strata of stress and social support based on gender, and no

					of stress were more likely to be depressed than men. However, women with low levels of stress were less likely to be depressed when compared to men.	instruments that capture gender experiences of different sources of stress.
7.	Noomnual, S., et al/2024	Mental health disorders among Thai farmers: occupational and non-occupational stressors/ Human and Ecological Risk Assessment: An International Journal/Vol.30 (1-2)	270 farmers from Amphoe Payuhakiri, Nakhon Sawan Province, Thailand. Among them, 146 were in the Spray group (pesticide users), while 124 were in the No Spray group (non-pesticide users).	A cross-sectional study using an interview-based survey, adapted and modified from previous peer-reviewed articles and questionnaires. The survey consisted of four sections, including demographic information, pesticide exposure, and assessments of stress, depression, and anxiety levels.	This study found no significant association between occupational pesticide exposure and mental health disorder scores. However, several factors were positively associated with a higher risk of self-reported mental health disorders, including being female, having a second job besides farming, applying pesticides for more than 20 years, and having a higher perception of farm-related stressors. On the other hand, practicing good agricultural methods and proper use of Personal Protective Equipment (PPE) were negatively associated with mental health disorders, indicating a protective effect.	This study has several limitations. Its cross-sectional design prevents causal conclusions from being drawn, making it difficult to establish a direct cause-and-effect relationship between occupational factors and mental health outcomes. Additionally, the reliance on self-reported data may introduce recall bias, as participants might not accurately remember or report their experiences. Furthermore, the study was conducted in a specific region of Thailand, which limits the generalizability of the findings to other farming populations with different socioeconomic and environmental conditions.
8.	Saju, S., et al./2024	Farmer's mental health and well-being: Qualitative	The study included nine eligible	Explorative research design	Three main themes and 15 sub-themes were successfully identified in this study, namely:	The study has some limitations that should be acknowledged.

		findings on protective factors/Journal of Neurosciences in Rural Practice/Vol. 15(2)	farmers from the Chikkaballapur District in Karnataka. Participants were selected based on specific inclusion criteria, requiring them to have at least five years of farming experience, be between 25 and 60, and speak Kannada.	and used a purposive sampling technique	(1) Individual protection factors, which include feelings of having control over oneself, clear life goals, enthusiasm for work, problem-solving skills, positive mindsets, resilience, mastery of new skills, and spiritual and religious beliefs; (2) Social protection factors, which include support from friends and peer groups, a sense of belonging, the role of family, and involvement in social activities; and (3) Environmental protection factors, which include active and healthy lifestyles, the existence of a rural environment, support from the government or related institutions, and recognition from the community.	First, the small sample size of only nine farmers limits the generalizability of the findings to the broader farming community in India. A larger sample could provide a more comprehensive understanding of the protective factors influencing farmers' mental health. Second, the study did not include female participants due to the unavailability of suitable candidates, resulting in a gender imbalance. This exclusion may overlook female farmers' unique experiences and challenges in maintaining their mental well-being. Future research should address these limitations by incorporating a more diverse and representative sample.
9.	Lamont, K., et al./2024	Improving the Mental Health of Farmers: What types of Remote Support are Acceptable Feasible, and Improved Outcomes?/Discover Mental Health/Vol.4(4)	The study involved 32 participants from the farming community who experienced mental health problems.	Randomized Controlled Trial (CRT)	All interventions improved mental health, but the LLTFF-F intervention showed the most significant impact, decreasing the mean PHQ-9 score by 7.3 points. Meanwhile, the combined intervention reduced the mean score by 6.1, and social/emotional support reduced the mean score by 4.6. The retention	This study has several limitations, including a small sample size, absence of a control group, and short duration of follow-up. In addition, most participants were white men so that the study results may lack generalizability to a broader population.

					rate of participants after three months was 81%	The level of engagement with the intervention also varied, with some participants finding it challenging to make time for the program.
10.	Jones, A. Q., et al./2024	Poor Mental Health Negatively Impacts Farmers Personally, Interpersonally, Cognitively, and Professionally/ FACETS/Vol. 9(8)	This is conducted by 75 farmers and people working closely with Ontario, Canada farmers.	Qualitative Research Study	The results of this study indicate a relationship between stress levels and poor mental health in farmers and their impacts, namely on aspects of personal impacts, interpersonal impacts, and cognitive impacts that result in how production levels, animals, and farming are successful. Personal impacts include loss of drive and motivation, decreased physical health, avoidance of coping behavior, and suicide. Meanwhile, for interpersonal impacts, namely reduced communication with partners and relatives, in cognitive impacts, stress makes it difficult for farmers to make decisions, they have difficulty solving problems, and work is delayed.	Limitations of this study include the English-language interviews representing only one province in Canada and limited representation in terms of gender and ethnicity of participants. The study could not conclude the temporality of associations and participant descriptions. The findings of this study cannot be extrapolated broadly, and long-term potentials were not found in this study.

Discussion

Agronursing plays a key role in addressing the impacts of climate change, occupational stress, and workload that affect farmers' mental health. Climate change causes weather uncertainty, crop failures, and economic losses, triggering anxiety and depression. Agronursing helps through environmental risk monitoring, education on adaptive farming practices (such as climate-resilient crops), and counseling to reduce stress (Maharani et al., 2025). In addition, they advocate for social protection policies, such as agricultural insurance, to reduce financial stress. On the other hand, occupational stress due to price fluctuations, social isolation, and the risk of physical injury are addressed through stress assessments,

stress management training, and collaboration with medical personnel and agricultural extension workers. Agronursing also promotes occupational safety and ergonomics to prevent injuries exacerbating mental stress (Kurniyawan et al., 2024).

Excessive workloads due to long working hours or seasonal labor shortages also impact farmers' mental health. Agronursing evaluates work patterns, provides training on efficient techniques, and advocates for balanced work-hour regulations (Harishoh et al., 2024). They involve families as a support system and use telehealth technology to access mental health services in remote areas. The holistic approach of agronursing includes primary prevention, establishing community support networks, and policy advocacy that supports farmers' economic resilience and well-being. Thus, agronursing improves farmers' quality of life and strengthens global food security in the face of environmental and social challenges (Kurniyawan et al., 2023).

From the literature review that has been conducted, it was found that there is a significant relationship between farmers' mental health and workload, stress, and climate change. Stress is one of the main factors that affects farmers' mental health. Several studies, such as those conducted by Purc-Stephenson et al. (2024), show that stress in farmers often comes from unexpected work disruptions, hazards in the agricultural environment, financial pressure, social isolation, and strict regulations. This finding is reinforced by research by Patuh et al. (2021), which shows that farmers in Jember Regency tend to use emotion-based coping mechanisms compared to problem-solving approaches. This shows that farmers often face difficulties in managing stress effectively, which can worsen their mental health.

Second, a high workload can also trigger stress. Riethmuller et al. (2024) state that farmers' stress levels increase by up to 16.3% during peak agricultural seasons, such as planting and harvesting. This excessive workload is often caused by unpredictable work demands and significant responsibilities, especially in extreme weather or climate change situations. Third, climate change significantly impacts farmers' lives because weather uncertainty can disrupt farming schedules and reduce productivity. Research by Rudolphi et al. (2024) shows that stress due to climate change and geographical conditions can affect farmers' mental health, especially female farmers who are more susceptible to depression.

In addition to these three factors, social support also plays an important role in reducing the

negative impacts of stress and workload. Research by Saju et al. (2024) states that individual, social, and environmental protective factors, such as family support, involvement in social activities, and community recognition, can help improve farmers' mental well-being. This is supported by research by Lamont et al. (2024), which shows that social and emotional support-based interventions can reduce depression levels in farmers. However, many farmers, especially older men, are reluctant to seek help due to stigma or lack of access to mental health services (King et al., 2023).

Financial factors are also a significant trigger for stress in farmers. Batterham et al. (2022) found that farmers who experience financial difficulties or often worry about money tend to have worse mental health conditions. In addition, young farmers are more susceptible to mental health problems than older

farmers. This finding is supported by Noormnual et al. (2024), who identified that bad weather and financial problems, such as inadequate crop market prices,

lack of funds, and debt burden, are two major factors influencing farmers' mental health disorders in Thailand. This suggests that financial stress and uncertainty about the future are additional burdens for the younger farmers.

From the above findings, it can be concluded that farmers' mental health is influenced by a combination of internal factors (such as workload and coping mechanisms) and external factors (such as social support, financial stress, and climate change). Jone et al. (2024) also stated that high stress and mental health disorders have personal, interpersonal, and cognitive impacts on farmers, which can ultimately worsen farming operations. To address these challenges, targeted interventions are needed, including stress management training, increasing access to mental health services, and social support programs involving farming communities.

Conclusion

Farmers' mental health is closely linked to a range of interrelated stressors, including workload, financial pressures, climate change, and social isolation. The reviewed literature highlights that stress is a significant contributor to poor mental health outcomes among farmers, which is exacerbated by high workloads during peak agricultural periods and unpredictable climate impacts. Furthermore, many farmers tend to rely on maladaptive coping mechanisms, indicating a need for effective stress management strategies.

Social support is emerging as an important protective factor that can reduce stress and improve mental health; however, barriers such as stigma and limited access to mental health resources continue to prevent many farmers from seeking the help they need. Financial insecurity, especially among younger farmers, exacerbates these challenges and highlights the urgent need for systemic changes in agricultural policies and support systems.

Comprehensive and targeted interventions are essential to improving farmers' mental health. This includes developing stress management training programs, improving access to mental health services, and encouraging community support initiatives that engage farmers and promote resilience. By addressing the various mental health challenges in agriculture, we can develop a community of farmers who are healthier and better equipped to adapt to the ever-evolving pressures and uncertainties in the agricultural landscape.

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reference for future researchers, policymakers, and health professionals committed to supporting the mental health of farmers around the world.

References

Arman, Z., Nikooy, M., Tsioras, P., Heidari, M., & Majnounian, B. (2022). Mental Workload, Occupational Fatigue and Musculoskeletal Disorders of Forestry Professionals: The Case of a Loblolly Plantation in Northern Iran. Croatian Journal of Forest Engineering, 43(2), 403–424. https://doi.org/10.5552/crojfe.2022.1639

Asmaningrum, Nurfika, Angelina Paramitha Astuti Dos Santos, Dodi Wijaya, Retno Purwandari, and Kholid Rosyidi Muhammad Nur. (2025). Exploring the Levels of Work Fatigue Among Rice Farmers: A Cross-Sectional Study in an Agricultural Area. Nursing and Health Sciences Journal (NHSJ) 5 (1):67-76. https://doi.org/10.53713/nhsj.v5i1.493

Astika, Devi, Dini Kurniawati, Iis Rahmawati, and Lantin Sulistyorini. 2023. "Overview of Psychological Distress Among Female Workers at PT. Jatisari Tobacco Raya, Jember, Indonesia". Nursing and Health Sciences Journal (NHSJ) 3 (2):165-74. https://doi.org/10.53713/nhsj.v3i2.187

Batterham, P.J., Brown, K., Calear, A.L., Lindenmayer, D., Hingee, K., Poyser, C. (2022). The FarmWell study: Examining relationships between farm environment, financial status and the mental health and well-being of farmers. Psychiatry Research Communications. 2(2) 1-6. https://doi.org/10.1016/j.psycom.2022.100036

Demangan Ponorogo. Medical Technology and Public Health Journal, 5(2), 171–181. https://doi.org/10.33086/mtphj.v5i2.2851

Dorner, Z., Knook, J., Ratub, T. R., & Stahlmann-Brown, P. (2024). Climate worry reduces farmer well-being. New Zealand Economic Papers, 58(2), 197–202. https://doi.org/10.1080/00779954.2024.2333796

El Khayat, M., Halwani, D. A., Hneiny, L., Alameddine, I., Haidar, M. A., & Habib, R. R. (2022). Impacts of Climate Change and Heat Stress on Farmworkers' Health: A Scoping Review. Frontiers in Public Health, 10(February), 1–19. https://doi.org/10.3389/fpubh.2022.782811

Hagen, B. N. M., Sawatzky, A., Harper, S. L., O'sullivan, T. L., & Jones-Bitton, A. (2021). What impacts perceived stress among canadian farmers? A mixed-methods analysis. International Journal of Environmental Research and Public Health, 18(14). https://doi.org/10.3390/ijerph18147366

Harishoh, L. W., Modest, B. M. L., Liandini, S. A., Kurniyawan, E. H., Nur, K. R. M., Afandi, A. T., & Kurniawan, D. E. (2024). Family Social Support Can Reduce Work Stress In Farmers. Health Access Journal, 1(3), 78. https://doi.org/10.31290/haj.v1i3.4888

Harris, D.R., Fuller, D.Q. (2020). Agriculture: Definition and Overview. In: Smith, C. (eds) Encyclopedia of Global Archaeology. Springer, Cham. https://doi.org/10.1007/978-3-030-30018-0_64

Jones, A. Q., Sawatzky, A., Thompson, R., & Hagen , B. N. (2024). Poor mental health negatively impacts farmers personally, interpersonally, cognitively, and profesionally. FACETS, 1-16. https://doi.org/10.1139/facets-2023-0230

King, E., Lamont, K., Wendelboe-Nelson, C., Williams, C., Stark, C., van Woerden, H. C., & Maxwell, M. (2023). Engaging the agricultural community in the development of mental health interventions: a qualitative research study. BMC psychiatry, 23(1), 399.

https://doi.org/10.1186/s12888-023-04806-9

Kurniyawan, E. H., Balqis, M., Irfan Aditya Pratama, M., Putri Permata Hati, H., Ega Isfadillah, O., Tri Afandi, A., & Rosyidi Muhammad Nur, K. (2023). Farm Family Support in Increasing Health Awareness. Health and Technology Journal (HTechJ), 1(6), 616–627. https://doi.org/10.53713/htechj.v1i6.122

Kurniyawan, E. H., Nurfatekha, E. D., Aisyah, R. D., Putri, C. A., Nur, K. R. M., Kurniawan, D. E., & Afandi, A. T. (2024). Stress Coping Strategies In Farmers As An Effort To Overcome Psychosocial Problems. International Journal of Midwifery and Health Sciences, 2(2), 176–186. https://doi.org/10.61777/ijmhs.v2i2.74

Lamont, K., van Woerden, H. C., King, E., Wendelboe-Nelson, C., Humphry, R. W., Stark, C., Williams, C., & Maxwell, M. (2024). Improving the mental health of farmers: what types of remote support are acceptable, feasible, and improve outcomes? A feasibility RCT. Discover mental health, 4(1), 4. https://doi.org/10.1007/s44192-023-00054-1

Maharani, Nadirotul Umami, Ulfi Yuliyani, Kurniyawan, E. H., Rosyidi Muhammad Nur, K., Endrian Kurniawan, D., & Tri Afandi, A. (2025). Psychosocial Problems among Farmers in Agricultural Areas. Health and Technology Journal (HTechJ), 3(1), 120–130. https://doi.org/10.53713/htechj.v3i1.318

Maisel, P., Baum, E., & Donner-Banzhoff, N. (2021). Fatigue as the chief complaint— Epidemiology, causes, diagnosis, and treatment. Deutsches Arzteblatt International, 118(33), 566–576. https://doi.org/10.3238/arztebl.m2021.0192

Mekonnen, A., Tessema, A., Ganewo, Z., & Haile, A. (2021). Climate change impacts on household food security and farmers adaptation strategies. Journal of Agriculture and Food Research, 6, 100197. https://doi.org/10.1016/j.jafr.2021.100197

Noomnual, S., Konthonbut, P., Kongtip, P., & Woskie, S. R. (2024). Mental health disorders among Thai farmers: occupational and non-occupational stressors. Human and Ecological Risk Assessment: An International Journal, 30(1–2), 180–200. https://doi.org/10.1080/10807039.2024.2310810

Patuh, A., Wuri Wuryaningsih, E., & Tri Afandi, A. (2021). Description of Stress and Coping Mechanism Farmer in Kalisat District Jember City. Nursing and Health Sciences Journal (NHSJ), 1(1), 54–56. https://doi.org/10.53713/nhs.v1i1.17

Pawlak, K., & Kołodziejczak, M. (2020). The role of agriculture in ensuring food security in developing countries: Considerations in the context of the problem of sustainable food production. Sustainability (Switzerland), 12(13). https://doi.org/10.3390/su12135488

Prokopy, L. S., Morton, L. W., Arbuckle, J. G., Mase, A. S., & Wilke, A. K. (2021). The association between drought conditions and increased occupational psychosocial stress among U.S. farmers: An occupational cohort study. Science of The Total Environment, 798, 149245. https://doi.org/10.1016/j.scitotenv.2021.149245

Purc-Stephenson, R. J., Dedrick, S., & Hood, D. (2024). A multidimensional tool to measure farm stressors: development and initial validation of the farmer stress assessment tool psychology, 12(1), (FSAT). BMC 435. https://doi.org/10.1186/s40359-024-01929-w

Riethmuller, M. L., Newnham, E. A., & McEvoy, P. M. (2024). Supporting mental health in farming communities where and when it is needed most: A longitudinal analysis of risk and protective

factors. Social Science & Medicine, 361, 117381. https://doi.org/10.1016/j.socscimed.2024.117381

Rudolphi, J. M., Cuthbertson, C., Kaur, A., & Sarol, J. (2024). A Comparison between Farm-Related Stress, Mental Health, and Social Support between Men and Women Farmers. International journal of environmental research and public health, 21(6), 684. https://doi.org/10.3390/ijerph21060684

Saju, S., Reddy, S. K., Bijjal, S., & Annapally, S. R. (2024). Farmer's mental health and well-being: Qualitative findings on protective factors. Journal of Neurosciences in Rural Practice, 15(2), 307–312. https://doi.org/10.25259/JNRP_403_2023

Yazd, S. D., Wheeler, S. A., & Zuo, A. (2022). Supporting mental health in farming communities where and when it is needed most: A longitudinal analysis of risk and protective factors. Social Science & Medicine, 361, 117381. https://doi.org/10.1016/j.socscimed.2024.117381

Younker, T., & Radunovich, H. L. (2022). Farmer mental health interventions: A systematic review. International Journal of Environmental Research and Public Health, 19(1). https://doi.org/10.3390/ijerph19010244