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## **Impact of Stress Management Strategies and Intervention on the Mental Health of Farmers: A Critically Appraised Topic**

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### **Focused Question**

What stress management strategies and interventions are most effective in reducing stress and promoting positive mental health of farmers negatively impacted by work stressors?

### **Clinical Scenario**

The dynamic transactions between the environment, person, and occupation play a role in the success of the farmer, their access to healthcare, and their willingness to seek support with their stressors or difficulties. Depression, stress, and other mental health conditions are highly prevalent within the farming community. This population is less likely to seek out and utilize available mental health resources and services, and in many cases, mental health resources are not available in rural areas (Gunn et al., 2021; Kennedy et al., 2020).

The environment plays a major role in the mental health of farmers. This includes the physical and social environment. Aspects of the physical environment include the plot of land that the farmers cultivate, the animals that they raise, climate factors, and the limited access to healthcare that is often associated with rural areas. Unpredictable climate and weather contribute to stress in the farming community (Gunn et al., 2012; Gunn et al., 2021). Climate change and its effect on the environment is a rising concern of farmers. Climate change and other environmental factors can drastically alter farmers' land and dictate production. The livelihood and financial stability of each farmer depends on crop production, and the success of the harvest. Lack of production can result in higher levels of stress for farmers, which can lead to more mental health problems (Gunn et al., 2012; Gunn et al., 2021). There is also a stigma associated with mental health within the social environment of the farming community. Farmers tend to normalize and ignore their physical and mental health conditions, which leads to fewer people accessing the health services that they need. Ignoring these physical and mental health conditions may be linked to the stigma of not being healthy enough to run the farm (Kennedy et al., 2020).

Work stressors can negatively impact the health and well-being of both farmers and their families, and farming is said to have a high-stress work environment (Stier-Jarmer et al., 2020). Farming can become more difficult for workers in high stress environments as mental health conditions increase, and research suggests that mental health conditions can lead to cognitive decline and physical health problems (Gunn et al., 2021). There is growing evidence that those involved in farming are at higher risk of developing mental health problems (Gunn et al., 2021). The occupation of farming keeps farmers active, which can reduce the risks of diseases such as cancer and diabetes; however, it can lead to higher rates of depression (Brumby et al., 2009). The occupation of farming can lead to many physical and mental impairments due to the high stress work environment and risk for physical injury.

Farming is a dangerous job that includes many stressors. Farmers are at high risk of stress due to risk factors such as pesticide exposure, the uncertainty of the market, financial problems, time constraints, loss of livestock or property, and governmental regulations (Gunn et al., 2012; Gunn et al., 2021). All of these stress factors contribute to the high rates of mental health conditions that are seen with farmers. Gunn et al. (2021) suggested that this lifestyle makes individuals more vulnerable to mental health conditions such as stress, anxiety, and depression. The occupation of farming and the role of being a farmer can cause high levels of stress, all of which can result in mental health conditions and a higher prevalence of suicide (Gunn et al., 2012; Gunn et al., 2021). The literature shows an evident need to make resources available to



help farmers combat these higher levels of stress. Occupational therapists could utilize stress management interventions in practice when addressing farmers' mental health concerns.

### **Purpose Statement**

The purpose of this critically appraised topic is to assist occupational therapy practitioners in making evidence-based decisions about the use of stress management interventions to reduce the prevalence of depression and related mental health disorders in farmers.

### **Synthesized Summary of Key Findings**

#### **Inclusion and Exclusion Criteria for Articles**

This critically appraised topic included studies conducted within the last fifteen years that were in the English language. There was not enough literature on the subject within the previous five years, so we had to widen the lens to expand our search for greater results. The participants in the studies were adult farmers who were experiencing mental health conditions. We narrowed our search down further to focus on stress factors within farming and stress management techniques that farmers use to cope. Studies with participants who did not make a career from the occupation of farming and who do not have mental health were excluded.

#### **Overview of Level I, III, and IV Studies**

A total of 40 articles were reviewed through CINAHL, ClinicalKey, PsychInfo, Australian Journal of Rural Health, and PubMed based on our inclusion criteria. Five articles met the inclusion criteria while also providing evidence that stress management positively impacts farmers' mental health. Articles reviewed included a level I randomized control trial (Stier-Jarmer et al., 2020), a level III pre and post-test (Kennedy et al., 2020), two level IV studies that included survey designs (Gunn et al., 2012; Gunn et al., 2021), and a level N/A mixed-methods longitudinal study design (Brumby et al., 2009).

#### **Level I Study**

Stier-Jarmer et al. (2020) discussed the rise of farmers' mental health conditions due to increased stress and burnout from their careers. All farmers selected to be a part of the study participated in a twelve-day stress prevention program called Im Moor zum inneren Gleichgewicht (IMZIG). This translates to "In the moor for inner balance" (AIB-KUR Society, n.d.). The program has been effective by providing coping strategies such as stress relief, relaxation management, and physical activity. The study was a dual-armed, randomized control trial with several assessments given throughout the program. Assessments were given at baseline, twelve days, one month, three months, six months, and nine months to follow up with the participants (Stier-Jarmer et al., 2020). Participants were included in the trial if they had increased stress levels and increased risk levels for developing mental health impairments confirmed by a physician and those who were farmers. The Stress Management Intervention (SMI) centering on psychoeducational approaches was then given to all farmers ten times over the twelve-day course. Each of the twelve sessions also incorporated one or more of the following common health resort medicine techniques: relaxation, physical exercise, and Balneotherapy, a therapy technique done in bathtubs to promote healing (Stier-Jarmer et al., 2020). Once all farmers completed the prevention program (IMZIG) and stress interventions



(SMI), half of the participants were assigned to an intervention group that received telephone coaching (TC) with stress prevention strategies. The other half was assigned to a control group that did not receive any further interventions. The TC group received four, twenty-minute phone calls to discuss improvement of quality of life, current or future stress barriers, motivation to seek medical attention if needed, and psychoeducation (Stier-Jarmer et al., 2020).

### **Level III Study**

Kennedy et al. (2020) focused on the ripple effect that the stigma of suicidal ideation and suicide has on farmers and coping strategies to manage the stress associated with farming. A convenience sample of 710 participants ages 30-64 gave consent to participate in the digital intervention designed to lower stress and provide coping strategies to farmers. The Ripple Effect digital intervention was split into five separate chapters. A pre and post-intervention assessment was included to discuss suicide stigma, which was assessed using the Stigma and Suicide Scale (SOSS). The SOSS evaluates the farmer's self and perceived stigma of farmers who have attempted suicide or experienced suicidal ideation. The Literacy of Suicide Scale (LOSS) was also used to measure knowledge about mental health, risk factors of suicide, and the causes and effects of suicide (Kennedy et al., 2020). Interventions and content were personalized based on the participants' farming type, gender, and experience with suicidal ideation. There was no control group for the study, and they did not want to limit the analysis to men only, so all farmers were able to attend. 78 digital postcards were made and sent out via email to all participants providing valuable tips and coping strategies to manage stress and lessen the stigma of suicidal ideation that these farmers were experiencing (Kennedy et al., 2020).

### **Level IV Studies**

Gunn et al. (2012) examined levels of stress, as well as stress management and coping strategies that are commonly employed by South-Australian farmers. The researchers also aimed to determine ways in which this population may better manage stress and cope. Environments vary in the stress management resources that are available, as well as the strategies that are considered socially acceptable (Gunn et al., 2012). Gunn et al. (2012) examined farmers' psychological distress and how they cope during a time of drought. A cross-sectional sample of 309 drought-affected farmers and their spouses ranging from 23 to 85 years of age participated in the study. Participants were recruited through the South Australian Farmers' Federation (SAFF), personal networks, and both print and radio media. Differences based on gender, age, and type of stressor were also examined. The study utilized a questionnaire that gathered information on demographic information, psychological distress, stressors, and coping. The questionnaire was available in both print and online forms (Gunn et al., 2012). Psychological distress was measured using the Kessler Psychological Distress Scale (K10), which has strong psychometric properties. Information about stressors was gathered by providing participants with a definition of "stressful" from the Ways of Coping Questionnaire. Study participants were also prompted to respond to an open-ended question asking them to describe the most stressful situation they had experienced in the past month. The questionnaire also included sixty items from the Coping Orientation to Problems Experienced (COPE) inventory. Small amounts of data were missing from some of the print form questionnaires. In these cases, "missing data were replaced by the mean of each variable, provided a reasonable proportion of the data were present..." (Gunn et al., 2012, p. 5).



Gunn et al. (2021) discussed the behavioral coping strategies associated with farmers who perceived low levels of psychological distress. The study included drought-affected farmers who were from rural South Australia. Questionnaires were sent out to people through the rural media and the South Australian Farmers' Federation (SAFF). This study also utilized a sample of 309 drought-affected South Australian farmers who completed the survey, but only 175 were included in the analysis due to the inclusion criteria of experiencing a stressful event rated 7 or greater on a scale of 1-10 (1 being not stressful at all, 10 being extremely stressful) (Gunn et al., 2021). Gunn et al. (2021) used the same measures that Gunn et al. (2012) had employed but also incorporated the Quickscales-R to look into how personality factors are linked to stress. The Quickscales-R tests five personality factors: extraversion (level of sociability and enthusiasm), openness to experience (level of creativity and curiosity), neuroticism (level of sensitivity and nervousness), agreeableness (level of friendliness and kindness), and conscientiousness (level of organization and work ethic) (Gunn et al., 2021).

### **Level N/A Study**

Brumby et al. (2009) explored the Sustainable Farm Families (SFF) project promoting farmers' and their families' health and well-being. The SFF project attempts to address the possibility of comorbidities, premature death, or injury in this population. Health information and education were delivered to female and male farmers from 18-75 years of age. To be eligible for the SFF program, the participants had to be 18-75, primarily English speaking, and involved in farming within the past five years. Data was gathered through pre and post-knowledge surveys, annual physicals, and focus groups over three years. The study observed 321 farm families of broadacre (crop operation) and dairy farming. The education process was delivered to address health issues such as farm health and safety, stress and stress management, diet and nutrition, and gender-specific health risks. The physical assessment was the most successful portion of the project, and it was said to be the most influential in gaining attendance (Brumby et al., 2009). The initial screen assessment observed cholesterol, weight and height, body mass index (BMI), waist measurements, blood pressure, and pulse. The following evaluation and discussion included allergies, medications, family history, neurological assessments, skin spot tests, cardiovascular, respiratory, gastrointestinal, urological, and sexual history assessments. Surveys were given to participants before and after each annual program to gauge their levels of knowledge at those times. These surveys included true and false questions, multiple-choice, and short answer format. The survey's purpose was to determine the amount of knowledge participants gained and retained from participation in the study. Data gathered from these surveys was analyzed utilizing GenStar v7.1. The results from the study revealed health and well-being issues that exist in farming families. The farming families described health concerns such as limited access to health care, support, and control of the healthcare system. Healthcare system support and control mechanisms are barriers and facilitators to access healthcare. This could include support mechanisms of universal healthcare, or control mechanisms such as increasing healthcare costs.

### **Analysis of Results**

The selected studies focused on reducing stress by identifying coping strategies that farmers use or implemented stress management programs to help those with mental health conditions. Two studies, Stier-Jarmer et al. (2020) and Kennedy et al. (2020), used technology to





target and reach study participants. This approach ensured that farmers in rural areas would be able to participate. Kennedy et al. (2020) targeted people in rural areas via email and prompted participants to complete a digital postcard that would be sent out to other participants. These digital postcards discussed opinions and experiences of suicide, strategies to deal with suicidal ideation caused by a stressful work environment, and how farmers' thoughts of suicide and stress had been altered by the interventions. Stier-Jarmer et al. (2020) also used technology to deliver a stress prevention program to the two groups of participants. Telephone coaching was a practical intervention for farmer participants since it focused on improving their quality of life, provided psychoeducation, analyzed their barriers, and implemented goals to manage stress (Stier-Jarmer et al., 2020). While both studies used technology to reach their participants, the study designs, intervention approaches, and types of technology utilized were different.

A subset of participants who received digital postcards stated that while their thoughts of suicide had not changed, they felt there was a positive outcome from the study since their embarrassment had been put to ease, and they felt more comfortable reaching out for medical help concerning their mental health. They felt like they had better resources and coping strategies to recognize and deal with stress (Stier-Jarmer et al., 2020). When looking at the twelve-day SMI and IMZIG prevention program, the results were also positive. 93.4% of participants who provided feedback said they would participate again and felt the stress prevention program provided them with distance from everyday life stressors and increased ways to find peace with stressors (Stier-Jarmer et al., 2020). The telephone-coaching intervention was rated quite positively overall, and many participants found it helpful. However, there was not a uniform trend, and other participants stated that they did not benefit from it (Stier-Jarmer et al., 2020). The Kennedy et al. (2020) study showed successful results by increasing farmer's well-being and ways to manage stress, while participants in the Stier-Jarmer et al. (2020) study felt more comfortable reaching out for medical help concerning their mental health.

Brumby et al. (2009) demonstrated that the overall health and well-being of farmers in South Australia are substandard. This population has significantly higher rates of suicide, mortality, cancer, and heart disease. In addition, they have lower life expectancy and socioeconomic status (Brumby et al., 2009). Many members of this population continue to work despite injuries and severe illnesses. "Farming sectors have significantly higher health issues related to limited access to service and information that places their health, well-being, and safety at risk" (Brumby et al., 2009, p. 10).

According to Brumby et al. (2009), participants were educated in physical activity, diet, improving farm safety, prevention of injury, BMI, stress management, and business. The study's quantitative findings revealed that, in the first year, women retained 88% of the knowledge presented and men retained 67% of knowledge. From years one to three, retention was recorded at 85% in men and 86% in women (Brumby et al., 2009). Researchers did not state why there was an observed decrease in women's retention of knowledge. Qualitative data was collected through focus groups after the farmers attended the workshop every year. In stress management focus group discussion, farmers stated they didn't know where to go, that they had no mental health problems, that they were stressed, and in balancing work and leisure they stated "we blokes just get up and work" (Brumby et al., 2009, p. 9). Lastly, health and wellbeing intervention demonstrated improvements in physical activity, diet, safety, and BMI (Brumby et al., 2009). The following is a list of the profound benefits discovered through health and wellbeing education: exercising as little as walking 30 minutes a day to improve health, food



label reading as an important skill, wearing personal protective equipment, and weight loss to improve BMI (Brumby et al., 2009). The participants discovered stress management skills such as scheduling time for relaxation, recognizing what aspects of life are stressful, and improving communication. Most importantly, farmers described health's association with the business. In the annual information collection participants stated, "Health should be a part of the business; without your health, you've got nothing" (Brumby et al., 2009, p. 9).

Two of the studies used the COPE and Kessler Psychological Distress questionnaires to determine what level of perceived stress farmers were experiencing and what coping strategies they were implementing to help with stress management (Gunn et al., 2012; Gunn et al., 2021). Data collected from the COPE determined the most commonly used coping strategies were planning, acceptance, emotional social support, active coping, and positive reinterpretation and growth. Acceptance is accepting the fact that a stressful event has occurred and it is real, emotional social support is getting social support from someone, positive reinterpretation is another form of reflection on what has happened and thinking about it in a positive light, and active coping is taking the steps towards reducing stress (Gunn et al., 2012; Gunn et al., 2021). All five strategies were correlated with lower levels of distress (Gunn et al., 2012; Gunn et al., 2021). Behavioral disengagement, venting, alcohol/drug use, and mental disengagement were linked to psychological distress (Gunn et al., 2012; Gunn et al., 2021).

Gunn et al. (2012) is unique in that it also explored differences based on gender, age, and type of stressor more closely. The study showed that levels of psychological distress were not significantly different between genders. While men tend to use problem-focused strategies, women have a higher tendency to seek out emotional support, vent about problems, or use avoiding procedures (Gunn et al., 2012). The hypothesis that younger farmers aged 25-44 would report significantly higher distress levels than older age groups was partially supported (Gunn et al., 2012). The same study also found that participants aged 55-64 were the most likely to turn to religion, while the younger participants, ages 25-54 were more likely to use humor as a coping strategy. Alcohol and drug use was most commonly reported in the 25-44 age group. There were no significant differences in coping strategies used to respond to specific stressors. Still, the study did find that planning is a strategy that is more likely to be used in farm rather than non-farm contexts. Planning is a strategy that involves the person thinking about how to confront the stressor or planning one's coping strategies (Gunn et al., 2021).

Gunn et al. (2021), written by a majority of the same authors as the previous article, identified the psychological and behavioral coping strategies that farmers who are experiencing high levels of stress use and how that relates to their levels of stress and neuroticism (nervousness and level of sensitivity). The subjects were placed into categories based on their perceived psychological distress scores from the Kessler Psychological Distress Scale which placed people into low (10-15), moderate (16-21), high (22-29), and very high (30-50) (Gunn et al. 2021). The study also had farmers complete the Quickscales-R, which tests five different personality factors. An unadjusted correlation analysis was conducted, and results suggest a moderate positive correlation ( $\beta=.67$ ) between a farmer's level of distress and neuroticism as a personality trait (Gunn et al. 2021). It was also concluded that neuroticism should be used as a screening tool based on the previous results.





## **Strengths and Limitations**

All studies mentioned both strengths and limitations. Kennedy et al. (2020) mentioned one of their greatest strengths to be a web-based platform that was able to be customized for all participants, including the imagery, digital stories, and framing of information presented to each participant. Stier-Jarmer et al. (2020) and Gunn et al. (2021) mentioned the relevance and timelessness of their studies, respectively, since farmers have higher rates of stress leading to suicide. A high response rate and low dropout rate was identified by Kennedy et al. (2020). Brumby et al. (2009) stated that a strength of their study was the continued support and trust by healthcare professionals in men's and women's health as the program enables the participant in the learning process. Brumby et al. (2009) also strengthened the study by including a collaborative process and ensuring ownership to the farmers with the education intervention. This allowed the farmers to take the knowledge they learned and apply it to their lives. Gunn et al. (2012) and Gunn et al. (2021) both utilized the Kessler Psychological Distress Scale (K10) to assess psychological distress. They also incorporated sixty items from the situational version of the Coping Orientation to Problems Experienced (COPE) to determine the coping strategies employed. The psychometric properties of the K10 are strong. Also, the COPE measure is said to have high discriminant validity and will not be affected significantly by social-desirability bias (Gunn et al., 2012).

In the study by Kennedy et al. (2020) the limitations included the inability to access technology or online communications in a rural area. While this problem is rare, it was still relevant for the participants and impacted the results. The recruitment methods of all four studies may have led to limitations because researchers could not verify or ensure that all participants had indeed been affected by suicide or the stigma that it brings. Self-report about past experiences can lead to biases (Gunn et al., 2021; Gunn et al., 2012; Kennedy et al., 2020; Stier-Jarmer et al., 2020). Another weakness of the studies was the low response rates to the questionnaires that may have affected external validity (Gunn et al., 2012; Gunn et al., 2021). Although both studies aimed to reduce these risks by ensuring study participants' anonymity, cultural factors and self-report may have contributed to underreporting of psychological distress and alcohol/drug use. The two study designs, which employed cross-sectional designs, had limited conclusions that could be created about causality (Gunn et al., 2012; Gunn et al., 2021). Some limitations of the study Brumby et al. (2009) conducted included the SDFP (dairy farmers) program being incomplete by the end of year three. Thus, dairy farmers received less education in the program compared to broadacre farmers.

## **Clinical Applicability**

The selected literature shows that stigma and lack of resources related to mental health decrease the likelihood that farmers will seek out health care services that they need (Kennedy et al. 2020). Lack of access to healthcare contributes to various mental health conditions, which can result in suicidal ideation or suicide. We have determined three different intervention tools that can effectively manage stress and provide coping strategies to farmers experiencing mental health conditions or the stigma of suicide. These include technology, stress management tools, and educational programs that benefit farmers.

In many cases, farmers do not have easy access to healthcare, specifically mental health resources. Overall, there is a negative stigma when discussing mental health and suicidal ideation in the farming community; it can lead to embarrassment, shame, and, unfortunately, suicide



(Kennedy et al., 2020; Steir-Jarmer et al., 2020). Technology has been an effective way to reach people in rural areas since it eliminates long drive times and allows clients or patients to speak to a medical professional as needed (Kennedy et al., 2020; Steir-Jarmer et al., 2020). Technology enables farmers to have confidentiality when speaking to medical professionals about their mental health. Digital postcards and telephone coaching for farmers experiencing high levels of stress or other mental health conditions have proven effective (Kennedy et al., 2020; Steir-Jarmer et al., 2020). Occupational therapists can provide resources and interventions that help to improve the mental health and well-being of farmers. Occupational therapists can have a positive impact on mental health in the farming community through interventions related to stress management, education, social support, and coping strategies.

Moderate research has been done on how stress management strategies can positively impact the mental health of farmers. One significant finding is that acceptance, seeking emotional support, social support, and planning are strategies employed by many farmers with lower reported levels of distress (Gunn et al., 2012; Gunn et al., 2021). Utilizing these strategies, which are operationally defined in the COPE situational version, may lead to improved stress management in farmers. Personality traits also play a factor in the level of psychological distress farmers are experiencing and are a relatively stable trait over time. Neuroticism, the level of sensitivity or nervousness, was linked to higher levels of self-perceived stress (Gunn et al., 2021). Occupational therapists can use the Quickscales-R as a screening tool to test for levels of neuroticism and identify individuals at risk for higher psychological distress levels. From there the therapist can use the Kessler Psychological Distress scale to determine the client's level of stress. If they have high levels of distress, then the therapist can introduce the coping strategies and stress management interventions. If occupational therapists can succeed in helping at risk individuals incorporate positive coping strategies, person and occupation transactions will be more positive and contribute to a better overall fit. This will lead to less psychological stress from farming.

As revealed through the current literature, farmers have significant health, well-being, and safety-related issues. Men and women in this field will work through pain and ailments to get their work done. Brumby et al. (2009) described the SFF (Sustainable Farm Families) a stress-management program as an effective program for teaching farmers about exercise, dieting, safety, and stress. All participants found the program to be life-changing and would recommend it (Brumby et al., 2009). Many health improvements were noted, such as reduced BMI, lower cholesterol, blood pressure, and waist circumference (Brumby et al., 2009). Farmers play an essential role in many communities as they fill an essential role in providing exported goods and commodities. By increasing their knowledge of health, well-being, and safety, their overall health and quality of life can be improved. Stress management techniques must be implemented whether they are through in person programs or via the use of technology. With technology advancing, it has become easier to reach larger numbers of people as well as individuals in rural areas. A stress management program similar to the ones described above and further education in coping strategies can have a massive impact on the mental health of farmers.



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