JOURNAL OF THE NACAA

ISSN 2158-9459

VOLUME 19, ISSUE 1 – JUNE, 2026

Editor: Bindu Poudel-Ward

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Exploring Coping Strategies Among West Virginia Farmers

Abstract

While farmer stress and mental health have always been important, they are emerging as substantial issues driving Extension programming across the country. Significant research has been conducted in the general population and various subgroups related to productive versus unproductive stress coping. Farmers, however, are often reluctant to participate in educational programming or research when the topic is listed as “stress” or “mental health.” This project aimed to gain insight into farmers coping strategies for service professionals to develop appropriate and effective content to reach the farming population. Responses of 301 farmer surveys were analyzed for primary, secondary, and tertiary coping strategies. Participants were sorted based on gender and age to compare coping scores in each category. While there were differences among various age groups, overall, the most used coping strategies of both males and females were Religion (an emotion focused coping strategy) and Planning (a problem focused coping strategy). Females consistently indicated higher usage of all strategies than males and avoidant coping strategies were utilized the least for both males and females.

The use of active coping strategies increase a farmers perceived sense of control and emotional strategies support relationships and a greater sense of purpose. The degree to which an individual copes by addressing or avoiding perceived stressors depends upon their view of available coping resources as well as their assessment of whether the situation is manageable or uncontrollable (Kavanagh, 1986). Extension professionals and other service providers can support farmers by recognizing the signs of distress, providing helpful resources, and supporting productive coping strategies.

Introduction

Farmers often work long, physically demanding hours and frequently need additional income from supplemental employment (Elliot et al., 2022). They have a higher-than-average risk of exhaustion, burnout, physical injury and even premature death (Ouattara et al., 2022; Yazd et al., 2019). Agricultural workers experience higher rates of mental illness and suicide than those in other occupations (Peterson et al., 2020) yet are less likely to seek treatment for mental illness or physical conditions (Hagen et al., 2022). A farmer's mental health can impact their physical health, interpersonal relationships, farm productivity, and animal health and welfare (Hagen et al., 2019). In response to high stress levels, farmers use a variety of coping methods, some of which are not beneficial or productive. This study focused on stress and utilization of coping strategies among West Virginia farmers evaluated by the Brief-COPE Inventory (Carver, 2024).

Anxiety and stress contribute to 75-90% of chronic illnesses (Liu et al., 2017). Increased stress has been associated with other negative impacts on wellbeing such as less interest in pleasure, decreased concentration, loss of appetite, weight change, tiredness, irritability, problems sleeping, fatigue, and loss of control (Kalmbach et al., 2018; Yadz et al., 2019). Physical ailments and chronic pain are also associated with depression and suicide (Penttinen, 2001). Symptoms such as irritability, tension, headaches and poor sleep are common among farmers (Yadz et al., 2019) and can be attributed to stress (Williams, 2001). If these conditions continue untreated, secondary

problems such as changes in appetite, loss of self-esteem, withdrawal from activities, burnout, exhaustion, fatigue, loss of control loss of temper, and other problems can ensue (Logstein, 2016; Olowogbon et al., 2018).

Individuals use a variety of stress coping methods depending upon biological, physiological, and social or environmental factors such as their history, environment, and perceived social support. Intense or chronic exposure to these events or situations can lead to maladaptive responses if an individual is overwhelmed and doesn't have productive strategies or social support to address the issue (Palamarchuk et al., 2021). Continued use of maladaptive strategies can lead to a decreased capacity for decision making and an increased risk of behavioral or mental disorders.

Research indicates farmers are inclined to suppress emotions and tend to be stoic and self-reliant (Rickwood et al., 2012). Farmers have elevated rates of depression, prescription drug use, excessive alcohol use, and suicide which could be reflective of their coping style (Proctor, and Hopkins, 2023). Rural farm populations are affected by their own social norms, cultural tendencies, the behavior and attitude of family and friends, and community beliefs. These considerations make it difficult to conduct research relating to mental health, substance use, and coping methods in particular (Proctor and Hopkins, 2023). As rural residents, farmers also often have less access for mental health treatment and may experience self-induced stigma related to mental health treatment (Fox et al.,2018).

In a longitudinal study related to common farmer responses to stress, Brew et al. (2016) found that rural farm workers prefer to manage themselves instead of pursuing assistance for physical health needs (reported by 50% of respondents) or mental health needs (reported by 75%). Farmers were also half as likely to visit a general practitioner (GP) or a mental health professional in the last 12 months as compared to non-farm workers regardless of location. Additional studies commonly cite farmers withdrawing from others (Roy et al., 2013) and not prioritizing their own wellbeing (Collins et al., 2009). Conversely, engaging in positive adaptive coping strategies and avoiding

maladaptive ones can reduce overall stress (Holmstrom et al., 2023). Research related to farmer perceptions of mental health and treatment and coping may help develop additional resources to help farmers and combat stigma about seeking treatment (Mattson, 2024).

Theoretical and conceptual framework

The biopsychosocial theory of health features the study of mental and physical health phenomena through a multi-systems lens, incorporating perspective from theories of the Biological, Physiological, and Social Environmental models. This theory was first introduced by George Engel in 1977 and explained an interdisciplinary holistic approach (Bolton, 2023). The theory considers interactions between biological, psychological, and social factors related to cause, manifestation and outcome of wellness and disease. Figure 1 is an adapted model with depictions of factors of influence in each category.

Biological factors include neurological, chemical genetic, and physical factors, including metabolic disorders, genetic variability, and the body's response to stress, which affect development and behavior. Psychological factors such as temperament, attitudes, beliefs, and coping skills. These factors help shape the cognitive process and motivation. Social factors like family circumstances, peer groups, and culture affect the way one is raised and interacts with others. The biopsychosocial theory also guides that effective treatment should include all three types of factors as much as possible.

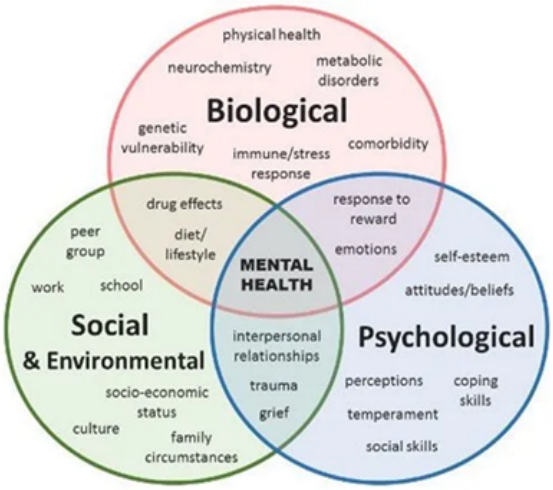

Figure 1: The Biopsychological Model

Note: Model is developed from https://pedchef.eu/topic/topic-4-bio-psycho-social-model

Figure 2 depicts a conceptual model of the interaction of one's influencing factors and positive or negative interventions along the continuum of mental health.

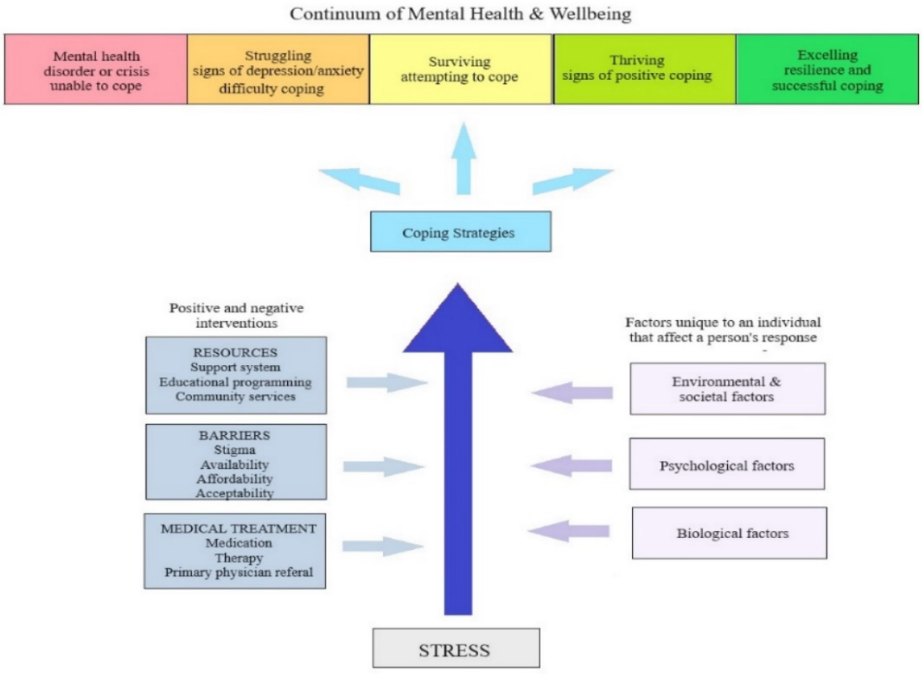

Figure 2 **:** Conceptual Model of Stress, Coping, and Significant Influences Related to Mental Health

The purpose of this study was to explore coping strategies, their utilization, and the perceived influence of mental health among farmers in West Virginia.

Objectives:

1. Assess coping styles used by farmers.
2. Illustrate how stress, mental health, and physical health affect residents of rural communities in West Virginia.
3. Describe how West Virginia farmers and the agricultural community perceive stress and mental health.

Methods

This study followed a concurrent, mixed methods design. The target population of this study was West Virginia's 25,758 farmers (NASS, 2022). The sample population was defined as individuals involved in agriculture, which included farmers, agricultural service providers, and those otherwise employed in agriculturally related businesses in West Virginia. The study used non-probability convenience sampling (Creswell, 2017), as farmers were surveyed across the state at twelve educational agricultural events sponsored by Extension, the Farm Service Agency, and the Farm Bureau between September 2024 and January 2025. Meeting participants were originally recruited by the sponsoring agencies through direct mail, social media posts, and email newsletters. The survey response rate was 61%, with a usable survey rate of 49.19%. To prevent duplication of participants, a protocol was established including a script read at the meeting before providing the survey, incorporating the wording "if you haven't taken the survey before" to exclude multiple survey completion by individual participants.

Researchers provided both physical and digital access to survey instrument. Principal investigator entered the content from paper surveys into Qualtrics to compile the full data set. Questionnaire collected demographic information from the participants as well as three questions related to their level of perceived stress and questions related to their utilization of specific coping strategies. Demographic questions included gender, age, county of residence, number of years farming, race, and ethnicity.

The questionnaire structure and format were taken directly from the Brief-COPE questionnaire (Carver, 1997) which was designed to measure one's coping mechanisms as they relate to stressful life events. Carver and associates (1989) define coping as efforts to decrease distress from adverse life experiences. Analysis and the three overreaching coping styles were explained by Buchanan as follows (2024):

Problem-Focused Coping includes the facets of active coping, use of informational support, planning, and positive reframing. A high score indicates coping strategies that are aimed at changing stressful situations. High scores are indicative of psychological strength, grit, a practical approach to problem solving and are predictive of positive outcomes.

Emotion-Focused Coping includes the facets of venting, use of emotional support, humor, acceptance, self-blame, and religion. A high score indicates coping strategies that are aiming to regulate emotions associated with stressful situations. High or low scores are not uniformly associated with psychological health or ill health but can be used to inform a wider formulation of the respondent's coping styles.

Avoidant Coping is characterized by the facets of self-distraction, denial, substance use, and behavioral disengagement. A high score indicates physical or cognitive efforts to disengage from the stressor. Low scores are typically indicative of adaptive coping.

The original COPE inventory has sixty questions whereas the abbreviated version, the Brief-COPE Inventory, has twenty-eight, two for each of the fourteen strategies. Coping styles are calculated by a summation of scores for each of the fourteen strategies. Dominant coping style is calculated by summation of each of the strategies within each of the three styles. The inventory was developed to evaluate a broad range of coping responses including both functional and dysfunctional approaches. For each of the

coping questions, participants rated the degree to which they have engaged in that coping strategy on a 4-point scale.

The Brief-COPE version was created to reduce the amount of time required for survey completion and reduce the redundancy in response to participants' frustration with the original instrument (Carver, 2024). Both versions have been evaluated and found to be viable and reliable in numerous studies across a variety of populations (Buchanan, 2024; Carver, 1997). The Brief-COPE inventory has become the most cited scale for measuring coping styles (Kato, 2015; Solberg et al., 2022).

To ensure instrument retained validity and reliability, a pilot test of 132 participants completed the instrument. Pilot confirmed use of BriefCOPE over the full COPE instrument, and distribution in two formats.

The project data was sorted to calculate the quantity and percentage values for each demographic. The coping questions were coded so that the response only contained the numerical value (1, 2, 3, or 4) and could be analyzed for a primary and secondary strategy based on the number score when an algorithm was applied. If two strategies were tied (scored equal values) then they were rated equally, and an additional secondary value did not apply. Descriptive statistics for appropriate scales of measurement including mean, median, mode, range, frequencies, and standard deviations were calculated in Excel. Data was imported into SPSS to generate t-tests, comparing results by gender and ANOVA (analysis of variance) to compare variables such as age where there are more than two categories.

Results

A total of 372 responses were received with 301 of them considered "complete" and used for analysis. Responses represented 44 of the 55 West Virginia counties, with 177 males (58.8%), 121 females (40.2%) and 3 that preferred not to indicate gender; 295

were Caucasian/white (86%), 2 American Indian (0.7%), 1 African American/black (0.3%), and 4 preferred not to answer (1.3%). Only one participant indicated Hispanic ethnicity (0.3%). The sample is reasonably representative of the population relative to gender, age, and ethnicity. 2022 Census of Ag indicated 65% of the state's farmers were male, 35% were female, with 49.9% over the age of 55; 41.1% of survey participants were over the age of 55.

Primary, secondary, and tertiary coping strategies were calculated for each participant in Excel as well as the most used strategies for each coping style. Both male and females had Religion (an emotion focused coping style) as the primary strategy and Active Coping (a problem focused coping strategy) as their secondary strategy. Males used Planning (a problem focused coping strategy) as their tertiary strategy while females used Positive Reframing (also a problem focused strategy) as their third most utilized strategy. The most utilized problem focused coping strategies overall in order of frequency were Active Coping, Positive Reframing, and Planning. The most frequently used emotion focused strategies were Religion, Acceptance, and Humor. Self-Distraction. Denial and Behavioral Disengagement were the most common Avoidant Coping strategies. See Figure 3 for coping scores by age and gender.

An independent sample t-test comparison was used for each of the coping styles (Problem Focused, Emotion Focused, and Avoidant) to assess the difference in the utilization of each coping style for two groups, males *(n = 177)* compared to females *(n = 122)*. Results indicated that on average, females used higher levels of problem focused coping (M = 17.76, SE =.53) than males (M = 15.2, SE = .42) This difference (2.56) has a 95% CI and was not significant t =-.3.76, p = .92

The independent sample t-test indicated that on average, females used higher levels of emotion focused coping (M = 24.07, SE = .55) than males (M = 21.40, SE = .65) This difference (2.67) has a 95% CI and was not significant t =-3.35, p = .98; it did present a small effect - .395. A large proportion of males indicated a low level of emotional coping, evidenced by the frequency of male scores on the lower end of the scale.

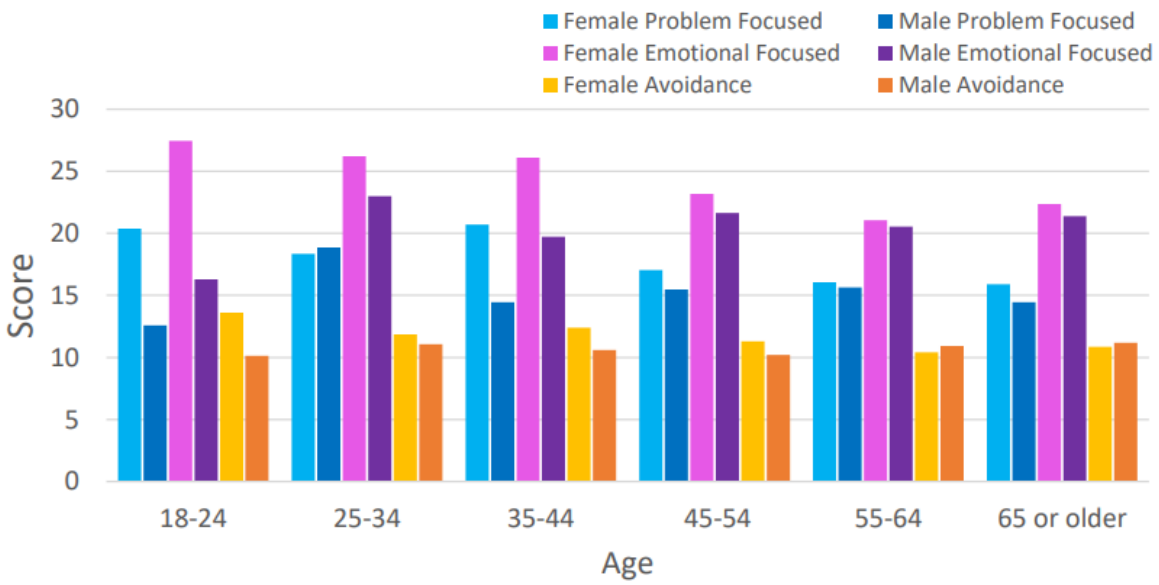

Figure 3: Scores by Age and Gender

Participants were sorted based on gender and age to compare coping scores in each category. Female participants aged 18 to 24 reported the highest usage of each coping strategy except Problem Focused where females 35 to 44 utilized the strategy slightly more than the younger age group. Table 1 displays coping scores in each style compared to age and gender.

Table 1: Coping style by age and gender.

		Problem Focused				Emotion Focused				Avoidant			
	n	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**
Female	122	8	32	17.76	5.88	12	40	23.87	7.24	8	21	11.54	**3.19**
18-24	13	11	31	20.38	6.79	12	39	27.46	9.47	8	20	13.62	3.48
25-34	14	8	27	18.36	6.25	12	38	26.21	9.26	8	20	11.86	3.16
35-44	20	11	31	20.70	4.91	16	40	26.10	5.82	8	21	12.40	3.72
45-54	23	8	27	17.04	5.09	12	36	23.17	6.19	8	18	11.30	2.49
55-64	20	8	23	16.05	4.80	12	29	21.05	5.44	8	20	10.40	3.02
65 over	27	8	32	15.89	6.38	12	37	22.37	7.08	8	21	10.85	3.08
PNA	4	8	22	17.75	6.65	12	28	20.75	6.70	8	12	11.00	2.00
Male	177	8	28	15.20	5.60	12	42	20.89	7.24	8	24	10.88	**3.24**
18-24	7	8	18	12.57	3.78	12	23	16.29	4.72	8	13	10.14	2.12
25-34	15	8	28	18.87	5.59	12	42	23.00	9.02	8	17	11.07	3.08
35-44	22	8	25	14.45	6.12	12	30	19.73	6.85	8	18	10.59	2.74
45-54	19	8	25	15.47	6.43	12	42	21.63	9.64	8	20	10.21	3.14
55-64	48	8	26	15.65	5.71	12	39	20.54	6.85	8	18	10.92	2.94
65 over	61	8	26	14.46	4.87	12	39	21.39	9.64	8	24	11.18	3.84
PNA	4	8	24	14.75	7.63	12	30	20.50	9.85	8	14	11.25	3.20
PNA	3	12	15	13.67	1.53	14	20	17.67	3.21	8	11	9.67	**1.53**
Total	301	8	32	16.22	5.82	12	42	22.06	7.36	8	24	11.13	**3.22**
SM				4.44				3.68				2.78	

* Note: PNA is Prefer Not to Answer; SM is the mean adjusted/weighted per subscale

Discussion

The frequency of religion as a coping method may reflect its strong influence among the Appalachian and farming community. The most common Avoidant strategies were Self-

Distraction, Denial, and Behavioral Disengagement but avoidant was the least used coping strategy among males and females as well as among all the age groups. The low usage of avoidant coping strategies is noteworthy as previous studies have concluded that farmers often preferred to ignore problems, especially if they did not overly interfere with their working ability (Hull et al.2022). It is imperative that service providers working with farmers understand these dynamics to develop and deliver effective programming.

Assumptions and limitations

The primary assumptions for this study focused on the fact that participants experience significant stressors in their life, they are using some forms of adaptations and coping skills to deal with these stressors and that they have the ability to reflect upon these coping mechanisms, as well as a willingness to truthfully share this information. Limitations of this study include participant's (a) beliefs about experiencing significant stressor, (b) utilization of coping skills to deal with stress, (c) willingness to share information related to this process.

Additional limitations include concerns related to the sampling process and whether it is truly indicative of the populations and whether it lacks generalizability to other farming population. Sampling limitations include the consideration that certain personalities are more likely to participate in agricultural events and are more willing to take the survey and be candid about their experiences. Paper copies of the quantitative survey were provided as an option as reliance solely on an online survey would exclude participants that are not as familiar with the technology. Additionally, one of the statewide events where data was collected was the West Virginia Women in Agriculture conference therefore the sample was expected to include a larger proportion of females versus males, but that expectation did not occur as there were more males than females in the sample.

The sample for the study reflects the demographics such as age, gender, and race/ethnicity of the population, West Virginia famers. While the sampling methods were a concern, the sample should provide reasonable generalizability to that group as well as groups that share similar age, gender, and racial/ethnic proportions and live in rural locations with similar access to mental health treatment. However, the sample may not be reflective of the population in other areas, particularly if there is a higher proportion racial/ethnic minority or mental health treatment is more widely available or accepted.

Conclusions

The degree to which an individual copes by addressing or avoiding perceived stressors depends upon their view of available coping resources as well as their assessment of whether the situation is manageable or uncontrollable (Kavanagh, 1986).
Low availability of coping resources and feelings of powerlessness can promote dependance of avoidant coping (Smith et al., 2015). Confidence in coping resources available and a sense of individual situational control can promote the use of problem focused control strategies and help eliminate the causes of stress.

WVU Extension is currently using this study's findings to train ag service providers and mental health professionals to develop and present mental health curriculum to farmers, particularly in the areas of acknowledging a farmer's coping style, encouraging productive coping strategies, and providing resources to address perceived inadequacies in resource materials.

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