

Exploring Coping Strategies Among West Virginian Farmers

Introduction and Relevant Literature

Farmers are often required to work long, physically demanding hours and frequently need supplemental employment for additional income (Elliot et al., 2022). They are generally at a higher-than-average risk for exhaustion, burnout, physical injury and even premature death (Ouattara et al., 2022; Yazd et al., 2019). Farmers 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, 2021). Mental health has a documented impact on physical health, interpersonal relationships, and specifically to farmers, farm productivity and animal health and welfare (Hagen et al., 2019). Additionally, anxiety and stress have been found to contribute to 75-90% of chronic illnesses (Liu et al., 2017). Increased stress has been directly associated with a variety of other negative impacts on wellbeing (Kalmbach et al., 2018; Yazd et al., 2019; Williams, 2001), including depression and suicide (Penttinen, 2001). If stress conditions continue untreated, secondary problems like changes in appetite, loss of self-esteem, withdrawal from activities, burnout, exhaustion, fatigue, loss of control, loss of temper, and other problems can have been documented to 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 to manage stress. 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, & 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 & 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 farmer's common coping strategies, Brew et al. (2016) found that rural farm workers prefer to manage themselves instead of pursuing assistance for physical or mental health needs. 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

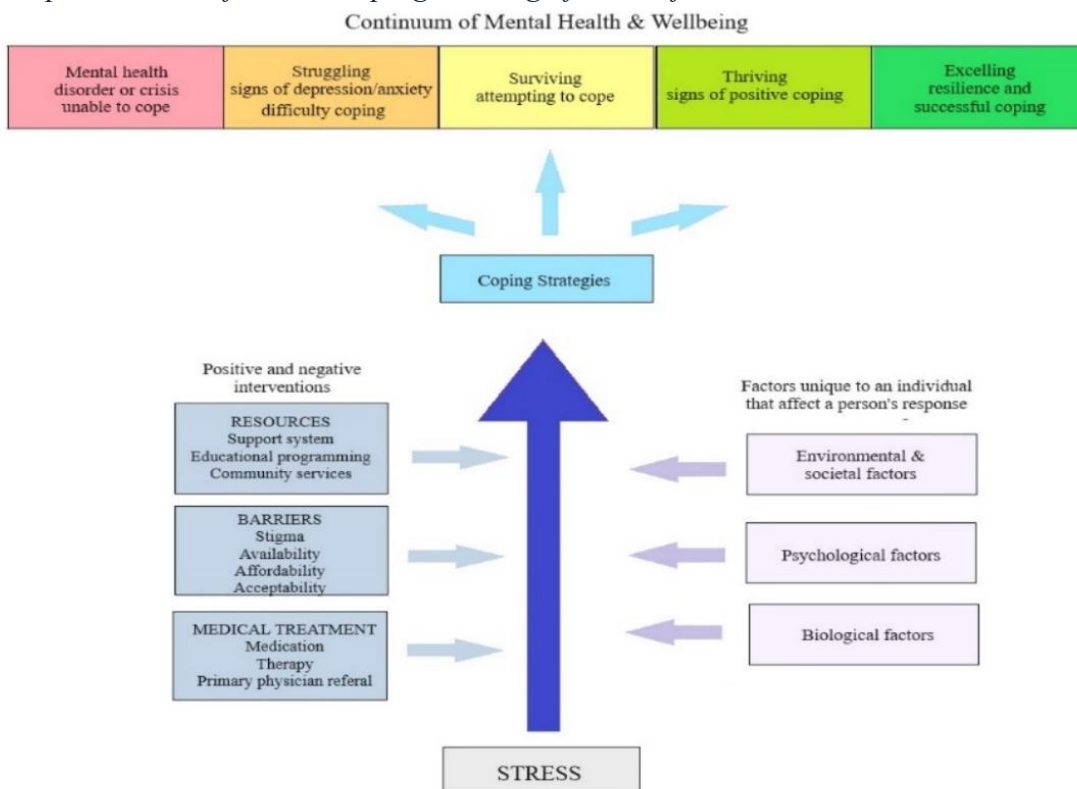
and coping may help develop additional resources to help farmers and combat stigma about seeking treatment (Mattson, 2024).

Theoretical and Conceptual Framework

The biopsychosocial theory of health guided this study. This theory was first introduced by George Engel in 1977 and explained an interdisciplinary holistic approach (Bolton, 2023). As purported, when studying mental and physical health phenomena, researchers should use a multi-systems lens, incorporating perspective from theories of the Biological, Physiological, and Social Environmental models. Biological factors include the body’s responses to stress that affect development and behavior. Psychological factors include cognitive process and motivation. Social factors are those outside the individual and interactions with others. Interactions between biological, psychological, and social factors related to cause, manifestation and outcome of wellness and disease should be considered. The biopsychosocial theory also guides that effective treatment should include all three types of factors as much as possible.

Figure 1 depicts the conceptual model of interactions of one’s influencing factors and positive or negative interventions along the continuum of mental health. As visualized by the model, as factors influence stress levels coping strategies are employed. Based on the influence of strategies, individual’s wellbeing and mental health are impacted.

Figure 1
Conceptual Model of Stress, Coping, and Significant Influences Related to Mental Health



Purpose and Objectives

The purpose of this study was to explore coping strategies and their utilization among farmers in West Virginia (WV). The following objectives guided this study:

1. Describe coping strategies used by farmers.
2. Describe coping styles used by farmers.
3. Compare differences in coping usage by gender and age.

Methods

The target population of this study was WV farmers. The specifics of the sample population are defined as farmers, agricultural service providers and those otherwise employed in agriculturally related businesses in WV. The study used non-probability convenience sampling (Creswell, 2017), as farmers were surveyed across the state at twelve agriculturally related events sponsored by Extension, Farm Service Agency, and Farm Bureau between September 2024 and January 2025. The instrument was administered in person at the events and was guided by a script to ensure non-duplication of respondents.

The quantitative questionnaire was provided as a paper copy or a QR code link to a Qualtrics submission form. Paper surveys were entered by researcher into the Qualtrics system. The 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. The Brief-COPE Inventory has twenty-eight items, two for each of fourteen strategies. The inventory was developed to evaluate a broad range of coping responses including both functional and dysfunctional approaches. For each coping question, participants rated the degree to which they have engaged in that coping strategy using a four-point scale ranging from "I haven't been doing this at all" to "I have been doing this a lot" with higher scores representing more usage. The Brief-COPE has been evaluated and found to be viable and reliable in numerous studies across a variety of populations (Buchanan, 2025; Carver, 1997). The Brief-COPE inventory has become the most cited scale for measuring coping styles (Kato, 2013; Solberg et al., 2021). While Brief-COPE has been found valid and reliable across many audiences, the survey was piloted at the state fair in August of 2024 and recommendations were integrated into the script and distribution process.

Carver and associates (1989) define coping as efforts to decrease distress from adverse life experiences. Analysis and the three overarching coping styles were explained by Buchanan as follows (2024): (a) *Problem-Focused* coping is characterized by strategies that are aimed at changing stressful situations; (b) *Emotion-Focused* coping is characterized by strategies that are aiming to regulate emotions associated with stressful situations; and, (c) *Avoidant* coping is characterized by physical or cognitive efforts to disengage from the stressor.

Data was analyzed in two ways. First, coping strategy utilization was calculated by ranking the self-reported usage of each of the 14 strategies. Primary, secondary and tertiary strategies used were compared between demographics. Each strategy aligns to a style, as described, and comparison of styles usage was conducted after overarching styles scores were computed from summing strategy usage scores into a grand score per style. Descriptive statistics for styles were computed in Excel. Data was imported into SPSS to conduct t-tests for gender differences of coping styles.

Findings/Results

A total of 301 usable responses were collected. Responses represented 44 of the 55 WV counties, with 177 males, 121 females and 3 that preferred not to indicate gender.

Religion (an *Emotion-Focused* coping style) was found to be the primary strategy used the most. *Active Coping* (a *Problem-Focused* coping strategy) was found to be the most used secondary coping strategy. This was found for both males and females. Males used *Planning* (a *Problem-Focused* coping strategy) while females used *Positive Reframing* (also a *Problem-Focused* strategy) as their most utilized tertiary strategy. The most utilized *Problem-Focused* coping strategies regardless of gender 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.

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. On average, females espoused utilizing all styles of coping more than males and those who preferred not to assign gender. Males, aged 18-24 reported the lowest scores of all subcategories for using any coping styles. Table 1 displays coping scores in each style compared to 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 based of gender. While 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) 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.

Recommendations/Discussion/Conclusions/Implications

The frequency of *Religion* as a coping method may reflect its strong influence among the Appalachian and farming community. *Avoidant-Coping* was the least used coping strategy among each demographic category which should be considered positive for the population as

Avoidant-Coping has been found to associate with negative life outcomes (Holmstrom et al., 2023). The low usage of avoidant coping strategies is noteworthy as several studies have concluded that farmers often preferred to ignore problems, especially if they didn't overly interfere with their working ability (Hull et al.2022). It is imperative that service providers working with farmers understand these dynamics in order to develop and deliver effective programming.

The degree to which an individual copes by addressing the perceived stressors or attempts to avoid them depends upon their views of coping resources as well as their assessment of whether the situation is manageable or uncontrollable (Kavanagh, 1986). 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. Low availability of coping resources and feelings of powerlessness can promote dependence of Avoidant-Coping (Smith et al., 2015). Service providers such as Extension should consider their offerings to support the mental health and wellbeing of farmers in their communities. While Extension services are not trained as mental health agents, providing options and reducing stigma could support their farming clientele.

Table 1
Coping Style Utilization by Gender and Age

	<i>n</i>	Problem Focused				Emotion Focused				Avoidant			
		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	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	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

References

- Bolton D. (2023). A revitalized biopsychosocial model: core theory, research paradigms, and clinical implications. *Psychological medicine*, 53(16), 7504–7511. <https://doi.org/10.1017/S0033291723002660>
- Brew, B., Inder, K., Allen, J., Thomas, M., & Kelly, B. (2016). The health and wellbeing of Australian farmers: a longitudinal cohort study. *BMC public health*, 16, 988. <https://doi.org/10.1186/s12889-016-3664-y>
- Buchanan, B. (2024). Coping orientation to problems experienced inventory (Brief-COPE). *NovoPsych*. <https://novopsych.com.au/assessments/formulation>
- Carver C. S. (1997). You want to measure coping but your protocol's too long: consider the Brief COPE. *International journal of behavioral medicine*, 4(1), 92–100. https://doi.org/10.1207/s15327558ijbm0401_6
- Carver C. S. (1997). You want to measure coping but your protocol's too long: consider the Brief COPE. *International journal of behavioral medicine*, 4(1), 92–100. https://doi.org/10.1207/s15327558ijbm0401_6
- Carver, C. S., Scheier, M.F., & Weintraub, J. K.(1989) Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267–283. <https://doi.org/10.1037/0022-3514.56.2.267>
- Collins, J. E., Winefield, H., Ward, L., & Turnbull, D. (2009). Understanding help seeking for mental health in rural South Australia: thematic analytical study. *Australian Journal of Primary Health*, 15(2), 159. <https://doi.org/10.1071/py09019>
- Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications
- Denckla, C. A., Cicchetti, D., Kubzansky, L. D., Seedat, S., Teicher, M. H., Williams, D. R., & Koenen, K. C. (2020). Psychological resilience: an update on definitions, a critical appraisal, and research recommendations. *European journal of psychotraumatology*, 11(1), 1822064. <https://doi.org/10.1080/20008198.2020.1822064>
- Elliott, K. C., Lincoln, J. M., Flynn, M. A., Levin, J. L., Smidt, M., Dzigan, J., & Ramos, A. K. (2022). Working hours, sleep, and fatigue in the agriculture, forestry, and fishing sector: A scoping review. *American journal of industrial medicine*, 65(11), 898–912. <https://doi.org/10.1002/ajim.23418>
- Fox, A. B., Earnshaw, V. A., Taverna, E. C., & Vogt, D. (2018). Conceptualizing and Measuring Mental Illness Stigma: The Mental Illness Stigma Framework and Critical Review of Measures. *Stigma and health*, 3(4), 348–376. <https://doi.org/10.1037/sah0000104>

- Hagen, B. N. M., Albright, A., Sargeant, J., Winder, C. B., Harper, S. L., O'Sullivan, T. L., & Jones-Bitton, A. (2019). Research trends in farmers' mental health: A scoping review of mental health outcomes and interventions among farming populations worldwide. *PLoS one*, *14*(12), e0225661. <https://doi.org/10.1371/journal.pone.0225661>
- Hagen, B. N. M., Sawatzky, A., Harper, S. L., O'Sullivan, T. L., & Jones-Bitton, A. (2022). "Farmers Aren't into the Emotions and Things, Right?": A Qualitative Exploration of Motivations and Barriers for Mental Health Help-Seeking among Canadian Farmers. *Journal of agromedicine*, *27*(2), 113–123. <https://doi.org/10.1080/1059924X.2021.1893884>
- Holmstrom, A. J., Jong In Lim, Zhang, Y., & Shelle, G. (2023). Factors Influencing Farmers' Use of Adaptive and Maladaptive Coping Strategies. *Journal of Agromedicine*, *28*(4), 903–914. <https://doi.org/10.1080/1059924x.2023.2242835>
- Hull, M.J., Gunn, K. M., Smith, A.E., Jones, M., & Dollman, J. M.. (2022). "We're Lucky to Have Doctors at All"; A Qualitative Exploration of Australian Farmers' Barriers and Facilitators to Health-Related Help-Seeking. *International journal of environmental research and public health*, *19*(17), 11075. <https://doi.org/10.3390/ijerph191711075>
- Kalmbach, D. A., Anderson, J. R., & Drake, C. L. (2018). The impact of stress on sleep: Pathogenic sleep reactivity as a vulnerability to insomnia and circadian disorders. *Journal of sleep research*, *27*(6), e12710. <https://doi.org/10.1111/jsr.12710>
- Kato T. Frequently used coping scales: a meta-analysis. *Stress Health*. 2015;*31*(4):315-323. <https://doi.org/10.1002/smi.2557>
- Kavanagh, D. J. (1986). *Stress, Appraisal and Coping*. New York: Springer, 1984, pp. 444, \$31.95. *Behavioral and Cognitive Psychotherapy*, *14*(4), 345 <https://doi.org/10.1017/s0141347300015019>
- Logstein B. (2016). Farm-Related Concerns and Mental Health Status Among Norwegian Farmers. *Journal of agromedicine*, *21*(4), 316–326. <https://doi.org/10.1080/1059924X.2016.1211055>
- Mattson, A. (2024, February 20). Farmers in crisis, long overlooked, are finally getting mental health support. *Scientific American*. <https://www.scientificamerican.com/article/farmers-in-crisis-long-overlooked-are-finally-getting-mental-health-support/>
- Olowogbon, T.S., Yoder, A.M., Fakayode, S.B., & Falola, A. (2018). Agricultural stressors: identification, causes and perceived effects among Nigerian crop farmers. *Journal of Agromedicine*, *24*, 46 - 55. <https://www.tandfonline.com/doi/full/10.1080/1059924X.2018.1538915>

- Ouattara, B. S., Beseler, C. L., & Rautiainen, R. H. (2022). Agricultural Injuries: Risk Factors and Severity by Affected Body Part among US (Midwest) Farmers. *Journal of Agromedicine*, 28(2), 214–223. <https://doi.org/10.1080/1059924X.2022.2089421>
- Peterson, C., Stone, D. M., Marsh, S. M., Schumacher, P. K., Tiesman, H. M., McIntosh, W. L., Lokey, C. N., Trudeau, A. T., Bartholow, B., & Luo, F. (2018). Suicide Rates by Major Occupational Group - 17 States, 2012 and 2015. *MMWR. Morbidity and mortality weekly report*, 67(45), 1253–1260. <https://doi.org/10.15585/mmwr.mm6745a1>
- Penttinen, J. (2001). Risk of Suicide and Accidental Death among Subjects Visiting a Doctor because of Mental Disorder: A Matched Case-Control Study in Finnish Farmers, *Journal of Occupational Health*, 43(3), 107-110. <https://doi.org/10.1539/joh.43.107>
- Palamarchuk, I. S., & Vaillancourt, T. (2021). Mental Resilience and Coping With Stress: A Comprehensive, Multi-level Model of Cognitive Processing, Decision Making, and Behavior. *Frontiers in behavioral neuroscience*, 15, 719674. <https://doi.org/10.3389/fnbeh.2021.719674>
- Proctor, C., & Hopkins, N. (2023). Stressors and Coping Strategies in Rural Farmers: A Qualitative Study. *Journal of Agromedicine*, 28(3), 415–424. <https://doi.org/10.1080/1059924X.2023.2173691>
- Rickwood, D., Thomas, K., & Bradford, S. (2012). Help-seeking measures in mental health: a rapid review. *Sax Inst*, 1, 35. https://www.saxinstitute.org.au/wp-content/uploads/02_Help-seeking-measures-in-mental-health.pdf
- Roy, P., Tremblay, G., Oliffe, J. L., Jbilou, J., & Robertson, S. (2013). Male farmers with mental health disorders: a scoping review. *The Australian journal of rural health*, 21(1), 3–7. <https://doi.org/10.1111/ajr.12008>
- Scholl, L., Seth, P., Kariisa, M., Wilson, N., & Baldwin, G. (2018). Drug and Opioid-Involved Overdose Deaths - United States, 2013-2017. *MMWR. Morbidity and mortality weekly report*, 67(5152), 1419–1427. <https://doi.org/10.15585/mmwr.mm675152e1>
- Smith, M. M., Saklofske, D. H., Keefer, K. V., & Tremblay, P. F. (2015). Coping Strategies and Psychological Outcomes: The Moderating Effects of Personal Resiliency. *The Journal of Psychology*, 150(3), 318–332. <https://doi.org/10.1080/00223980.2015.1036828>
- Solberg, M. A., Gridley, M. K., Peters, R. M. The Factor Structure of the Brief Cope: A Systematic Review. *Western Journal of Nursing Research*. 2022;44(6):612-627. <https://journals.sagepub.com/doi/10.1177/01939459211012044>
- Williams, R. (2001). The ongoing farm crisis: Health, mental health and safety issues in Wisconsin. *Rural Mental Health* 26, 15–17.

Yazd, D., Wheeler, S., & Zuo, A. (2019). Key Risk Factors Affecting Farmers' Mental Health: A Systematic Review. *International journal of environmental research and public health*, 16(23), 4849. <https://doi.org/10.3390/ijerph16234849>