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Behavioral Health Risk Screening and Interventions for Farmers: Pilot Study in Vermont

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Abstract The Farm First program enables farmers in Vermont experiencing problems to obtain supportive counseling and resources. This study investigated a pilot project to proactively screen farmers for behavioral health problems (i.e., anxiety, depression and substance use) and provide short-term evidence-based interventions from licensed counselors. A sample of 46 clients (35 farmers, 10 farm workers, 1 family member) reported on multiple outcome measures both at the start of use and at three months after final program use. Interventions included informational resources, referrals to local services and individual counseling ($n=16$; for 3.8 sessions of counseling over 11 weeks, on average). Positive changes were obtained for mental health risks (PHQ-4; clinical anxiety risk status was reduced from 30% of the sample at Pre to 9% at Post), alcohol misuse and use of some psychosocial coping techniques (all $p < .05$). A follow-up survey revealed positive user satisfaction and program impact ($n=27$).

Keywords Alcohol, Anxiety, Behavioral health risk screening, Employee Assistance Program, Farmer Mental Health

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1. Introduction

1.1 Rural Health Issues and Psychosocial Risks for Farmers

People living in rural areas of the United States have poorer health outcomes than those in more urban areas (Chiswell, 2023; Garcia et al., 2019; Kozhimannil & Henning-Smidt, 2021). Many reasons for this disparity have been described, including: fewer available healthcare professionals; long travel distances and times to visit healthcare professionals; less reliable transportation; less access to broadband to take advantage of tele-health options; a culture of self-sufficiency that results in less proactive health participation in healthcare; higher rates of uninsured individuals who cannot afford available healthcare; and the prevalence of specific stigma associated with seeking the help of behavioral healthcare professionals (Beecham et al., 2022; Mujuru et al., 2023).

Some of these disparities, especially amongst farming communities in the United States, may be attributable to political economic factors caused by a market system that has largely favored corporate farms at the expense of the larger population of small farmers (Reid, 2019). Many of the farmers most impacted by the psychosocial stresses of farming and whose health is most compromised are small farmers. There is strong historical and empirical evidence that federal legislation in the United States has favored large commercial farms, particularly through the structure and distribution of farm subsidies and support programs (Lichtenberg, 2019; Turvey et al., 2020). Between 1930 and 1992, the number of white farmers fell by 65 percent and black farmers by 98 percent, as farms became larger (Reynolds, 2015). In rural Vermont, the number of small farms continues to decline and the socioeconomic pressures on remaining farms are significant.

Numerous past studies have documented the variety of psychosocial and environmental risks experienced by many farmers and rural families (Hagen et al., 2019; Hagen et al., 2020; Yazd et al., 2019). The most common areas of risks include mental health factors of stress, anxiety, depression, and suicide as well as uncontrollable changes in financial, economic and weather-related aspects central to conducting the business of farming (Garrett-Wright et al., 2023; Howard et al., 2020).

The behavioral health risks mentioned above often underlie or contribute to the increased physical health problems of farmers and rural people. For example, people with a history of depression are more likely to develop a host of physical health issues—and get them at a faster rate—compared to those without depression (Fleetwood et al., 2025). Mental health problems often lead to behaviors that increase the risk of physical illness, such as poor diet, lack of exercise, smoking, substance abuse, and poor self-care (Aarons et al., 2008).

As previously referenced, one area of particular concern is the barriers to seeking professional support from mental health professionals or even from local medical care providers to address psychosocial problems (Ferris-Day et al., 2021; Hagen et al., 2022; Skaczkowski et al., 2024). A consequence of these barriers is the ineffective strategy among many farmers to cope by self-medicating with the use of alcohol and drugs (Hopkins et al., 2023). Understanding what kinds of interventions and support options will be used by farmers and if they are effective are both understudied areas that call for more research attention (Younker & Radunovich, 2021).

Any effective approach to rural healthcare, and especially rural *behavioral* healthcare, must circumvent or reduce the barriers to care. For example, local efforts to set up pop-up healthcare sites can effectively reduce transportation and time barriers. The use of telehealth options can further mitigate such access barriers (Sosin & Carpenter, 2024). This research demonstration project employed such practices to reduce barriers to care.

1.2 Study Context

The Invest EAP Centers for Wellbeing is a public, not-for-profit organization that operates within the Vermont state government. The program includes an employee assistance program (EAP) that serves tens of thousands of employees and their household members, including virtually all public sector employees in the state as well as numerous private sector organizations. The program also runs multiple programs to improve worker health and safety, including: the Farm First program, which provides counseling and resources to reduce the stress of farmers; SECURE, which provides specialty support for first responders; as well as numerous other programs in collaboration with Vermont's Department of Health, Agency of Agriculture, Department of Disabilities, Aging and Independent Living, and Department of Labor. The State of Vermont is geographically located in the northeast region of the United States. It is the sixth smallest state in the country, based on the number of total square miles of land. It has a population of about 640,000 people (which is the second smallest in the country). Vermont's population is mostly of White race (94%),

evenly split by gender, and has a median age of 43 years—which is the second oldest in the country. It is a mostly rural state, with only three cities with more than 10,000 residents.

The Invest EAP Centers for Wellbeing has conducted applied research studies and published about their work in the past. These papers are described below.

Paper 1. In the paper “Reducing Stress to Minimize Injury: the Nation’s First Employee Assistance Program for Dairy Farmers” – published in the *Journal of Agromedicine* (Dickens et al., 2014) – the authors described creating the first in the nation Employee Assistance Program specifically for dairy farmers. The program was born out of a critical need after agricultural service providers began reporting that here-to-fore stoic farmers were breaking down in tears over the financial stress they were under. It delineates how the program worked with Vermont’s Agency of Agriculture to set up an EAP for farmers, providing them with counseling support and access to critical resources.

Paper 2. In the paper “Onsite Screening and Enhanced EAP Counseling Improves Overall Health, Depression, and Work Outcomes: Four-wave Longitudinal Pilot Study at a Community Health Center in Vermont” – published in the *Journal of Workplace Behavioral Health* (Attridge & Dickens, 2021) – we describe a 2-year study employing a Behavioral Screening and Intervention (BSI) program to screen individuals for behavioral health risks, such as anxiety, depression and substance use, and provide short-term evidence-based psychological treatment. The site was a federally funded rural community medical health clinic. Screening and intervention resulted in significant positive improvements in global health (PROMIS-10), depression (PHQ-9) and work presenteeism among 120 participants.

Paper 3. In the paper “Health and Work Outcomes of Brief Counseling from an EAP in Vermont: Follow-Up Survey Results, Client Satisfaction, and Estimated Cost Savings” – published in *Sage Open* (Attridge & Dickens, 2022) – we describe the results of an analysis of follow-up survey data from 830 employees who had used EAP brief counseling services. The results demonstrated significant reductions in the percent of employees at-risk for anxiety (Pre 58% to Post 24%), depression (42% to 14%), and low work productivity (44% to 22%).

1.3 BSI Pilot Study for Farmers

The Farm First program is an innovative program started by the Invest EAP Centers for Wellbeing and the Vermont Agency of Agriculture Food and Markets to provide an EAP-like program to farmers in Vermont. Farmers who are experiencing problems place a call to obtain supportive counseling and resources. However, the program has not previously provided a means to reduce some of the aforementioned barriers to care by proactively screening and offering services to farmers who may be experiencing behavioral health risks but who do not call for help. With support from the Northeast Centers for Occupational Health and Safety, this study set out to investigate the effectiveness of a pilot project to proactively screen farmers who may be experiencing behavioral health problems such as anxiety, depression and substance use and provide them with immediate short-term evidence-based interventions. The study featured a BSI process.

2. Methodology

2.1 Procedures

This was an applied study conducted in rural Vermont. The program was explained to farmers through various public venues, including Vermont Public Radio; *Across the Fence* (Vermont’s decades old television show for farmers); *Front Porch Forum* (a free online Vermont portal that helps neighbors to connect with one another); and at various agricultural workshops and conferences. Farmer peers who have been trained to provide support to fellow farmers reached out to and explained the program to fellow farmers in their local communities. All interested farmers who contacted us were invited to participate. Depending on the case, the first use of the pilot program was between November of 2023 and May of 2024. Participants were initially offered a \$50 VISA gift card for their participation and another card for doing the follow-up survey. Towards the end of the project (with about a month left) the amount of the gift card was doubled to \$100 for both phases of data collection.

Some farmers participated in the program directly at farm events. For example, private space was provided at the Northeast Organic Farmers Association annual meeting where farmers could meet with a counselor to take the screening and to engage in initial treatment. Many took advantage of that opportunity. Others contacted the program after learning about it at a farm event, scheduling a time to take the screening assessment and to meet with a counselor. Some farmers indicated that they’ve been meaning to schedule a time to meet with a counselor already and that learning about the program prompted them to take the next step. Others indicated that they were motivated to sign up

after learning about wellness and farm stress at one of these events. Still others indicated that the gift card helped nudge them to take the next step and sign up.

Obviously, the potential of selection bias exists in a design such as this. Those who volunteered to participate may have been the farmers most motivated to make positive lifestyle changes. Other farmers, not so motivated, may continue to have unaddressed behavioral health risks.

2.2 Sample

The longitudinal study sample relevant to the research outcomes analysis had 46 clients with self-report data collected on the same outcome measures at both the start of use and again later approximately three months after final contact with the program. The final sample included 35 farmer owners (76%), 10 farmworkers (22%) and 1 family member (4%). The sample ranged in age from 22 to 80 years old (average 44 years; range 22 to 80) and was 75% female and 24% male. Approximately 41% of farmers are female; the higher percentage of female farmers in our study is likely due to females having less stigma associated with seeking mental health support compared to males (Üzümcü, 2025).

2.3 Intervention

The BSI procedures started with the participant completing a self-report behavioral health risk screening questionnaire. All participants met with a licensed counselor from the Farm First program. This was followed by both the provision of resource and referral information and evidence-based short-term counseling, as appropriate. On average, 3.8 sessions of psychological counseling were used per case, but this ranged from 2 to 7 sessions per case. The duration of the clinical treatment episode averaged 79 days but ranged widely for different cases from 16 days to 191 days from the date of the first to the date of the last session. The typical counseling case had about three weeks between each of four total sessions of support.

2.4 Outcome Measures

2.4.1 Mental Health

The mental health disorders of anxiety and depression severity were measured using the Patient Health Questionnaire 4-item brief scale (PHQ-4) (Löwe et al., 2010): This scale combines two items from the Generalized Anxiety Disorder full 7-item scale (GAD-7) and two items from the full Patient Health Questionnaire 9-item scale for depression (PHQ-9). These measures have been used in thousands of research studies and more generally are used every day in EAP (Attridge & Pawlowski, 2024) and healthcare service delivery clinic settings. The instructions state: "Over the last 2 weeks, how often have you been bothered by any of the following problems?" Each item has the same four response options of: (0) *Not at all*; (1) *Several days*; (2) *More than half the days*; and (3) *Nearly every day*.

Anxiety. The two anxiety questions were: "Feeling nervous, anxious or on edge" and "Not being able to stop or control worrying." This scale ranges from 0 to 6. Higher scores on this measure indicate greater anxiety. Clinical risk status for anxiety was categorized as scores of 3 or higher. This scale had acceptable reliability ($\alpha = .68$ Pre; $.80$ Post) and test-retest stability from Pre to Post ($r_{\text{paired}} = .66$).

Depression. The two depression questions were: "Little interest or pleasure in doing things" and "Feeling down, depressed, or hopeless." The two anxiety questions were: "Feeling nervous, anxious or on edge" and "Not being able to stop or control worrying." This scale ranges from 0 to 6. Higher scores on this measure indicate greater depression. Clinical risk status for depression was categorized as scores of 3 or higher. This scale had acceptable reliability ($\alpha = .75$ Pre; $.58$ Post) and acceptable test-retest stability from Pre to Post ($r_{\text{paired}} = .50$).

Total Mental Health. As the anxiety and depression measures were positively correlated ($r = .48$ Pre; $.36$ Post), the two subscales were also combined into a 4-item scale. This scale ranges from 0 to 12. Higher scores on this measure indicate greater mental distress. Clinical risk status for was categorized as scores of 5 or higher. This scale had acceptable internal consistency ($\alpha = .70$ Pre; $.75$ Post) and test-retest stability from Pre to Post ($r_{\text{paired}} = .68$).

2.4.2 Alcohol Misuse

Developed by the World Health Organization (WHO), the Alcohol Use Disorders Identification Test is a 10-item scale (AUDIT-10) (Babor et al., 2001; Higgins-Biddle et al., 2018). It also has a brief 3-item version called the AUDIT-C, which features only the first three items of the full scale that emphasize consumption levels (Bush et al., 1998). This study adapted the first two items from a reporting time frame of the past year to the past month. A standard drink was defined by showing the participant a colored picture that visually displayed four types of drinks: 1) a can a beer with “12 fl. oz. of regular beer at about 5% alcohol”; 2) a glass of beer with “8-9 fl. oz. of malt liquor beer at about 7% alcohol”; 3) a glass of red wine with “5 fl. oz. of table wine at about 12% alcohol”; 4) a shot glass and small cocktail glass with “1.5 fl. oz. shot of 80-proof spirits (whiskey, gin, rum, vodka, tequila, etc.) at about 40% alcohol.”

Alcohol Use Frequency: “How often did you have a standard drink in the past month?” with options of: (1) never; (2) once; (3) 2 to 4 times per month; (4) 2-3 time per week; or (5) 4 or more times per week.

Alcohol Use Intensity: “How many drinks did you have on a typical day when you were drinking in the past month?” with options of: (1) 0 drinks; (2) 1-2 drinks; (3) 3-4 drinks; (4) 5-6 drinks; (5) 7-9 drinks; or (6) 10 or more drinks.

Use of single item measures to assess these core aspects of alcohol use has been done in past research (Smith et al., 2009). Three scores were created from the responses to these two questions. An estimated number of days of drinking activity per month was coded as follows: Never drink = 0 days; once = 1 day; 2 to 4 times per month = 3 days; 2 to 3 times per week = 10 days; 4 or more times per week = 20 days. An estimated number of total standard drinks consumed per drinking episode was coded as follows: none = 0; 1 or 2 drinks = 1.5; 3 or 4 drinks = 3.5; 5 or 6 drinks = 5.5 [note: no respondents used the two highest ratings]. An estimated number of total drinks consumed per month was calculated from the number of days of drinking per month multiplied by the estimated number of total standard drinks per drinking episode.

2.4.3 Other Outcome Measures

Items from past research projects at the Invest EAP Centers for Wellbeing were adapted for this study from a variety of resources on aspects of healthy lifestyle behaviors. These included: smoking (Brown, 2016), drug use (Smith et al., 2010), diet (Moore & Thompson, 2015), exercise (Paltzer et al., 2017), level of personal concerns (Attridge, 2000), and the use of positive coping strategies (created by the authors). The measures for smoking, diet and exercise were only asked at the first contact. The other measures were asked both at the start and at the follow-up.

Smoking. Item: *Have you smoked a cigarette, even one or two puffs, within the last three months.* Response options of Yes or No.

Nutritious Diet. Item: *How many days a week do you usually eat four 8-ounce cups of fruits and vegetables or more?* Response options: a) 0 or 1 day; b) 2 or 3 days; c) 4 or 5 days; d) 6 or 7 days.

Frequency of Moderate Exercise: Item: *In a typical week, how much moderate exercise (example: brisk walking) do you get?* Response options: a) < 30 minutes; b) 30 to 59 minutes; c) 1 to 2.5 hours; and d) 2.5 hours or more.

Frequency of Vigorous Exercise: Item: *In a typical week, how much vigorous exercise (example: running) do you get?* Response options: a) < 30 minutes; b) 30 to 59 minutes; c) 1 to 2.5 hours; and d) 2.5 hours or more.

Personal Concerns: A list of six areas were rated: *in the past 4 weeks, how concerned were you about:* a) family, relationships or friendships; b) legal issues; c) money or financial issues; d) housing or transportation; e) caring for aging relatives; and f) childcare concerns. Response options: 1 = not concerned; 2 = somewhat concerned; 3 = moderately concerned; and 4 = very concerned.

Positive Coping Strategies. A list of eight strategies were presented: *In the past month have you used any of the following to cope with physical or emotional pain or feel better? (check all that apply).* The strategies included: a) heat/ice; b) connection with peers/friends; c) exercise; d) meditation/mindfulness; e) stretching/yoga; f) rest; g) nutrition; and h) spirituality.

3. Results

3.1 Health Status at Start

The study sample was generally in good physical health at the start of participation. Almost 9 out of 10 were non-smokers (only 5 of 46 smoked), two-thirds (66%) ate a healthy diet on 4 or more days per week, 85% got an hour or more of moderate exercise weekly and almost half (48%) got an hour or more of vigorous exercise each week. The users of resources only group and the users of both resources and counseling group had similar profiles.

3.2 Reasons for Seeking Support

Examination of the clinical case notes from the intervention discovered a variety of reasons why these farmers were interested in counseling. More than one issue per case was possible. The most popular reason was how to more effectively balance farm work with family life (61% of sample). Almost half of the clients (46%) discussed a mental health issue. Financial issues and general stress were both topics discussed by 39% of clients. Only 26% focused on farming work management issues. Just 9% discussed substance use issues. On the follow-up survey, when asked to identify the primary issue, anxiety was the most common response (50%), followed by depression (15%) and alcohol (4%). Thus, behavioral health issues affected 70% of the sample. Another 30% of clients had a range of other specific topics.

3.3 Change in Behavioral Health Risks

3.3.1 Mental Health

Results of the longitudinal tests found the intervention was successful on multiple mental health outcomes. Each of these findings were statistically significant beyond chance at the $p < .01$ level. The average participant reduced the severity of their symptoms of mental health distress by about 30% (including anxiety, depression or both). The number of participants with a clinical level of anxiety (i.e., moderate or higher severity on the GAD-2) was reduced from 41% of all cases at Pre to 22% at Post. Thus, almost half of the participants at-risk for clinical anxiety had recovered at the follow-up to no longer be at-risk. Although less common, the percentage of participants who were at-risk for clinical depression (i.e., moderate or higher severity on the PHQ-2) was reduced from 15% of all cases at Pre to 7% at Post. This result indicated that about half these at-risk cases recovered to no longer be depressed. See Table 1 for details.

Table 1. Pre to post intervention changes in mental health outcomes.

Outcome	Pre	Post		
Mental Health Symptom Severity for Average Client				
	<i>M</i> (SD)	<i>M</i> (SD)	Change	Test result
Mental Health	4.37 (2.35)	3.07 (1.79)	-30%	$F = 26.33, p < .001, \eta_p^2 = .38$ large
Anxiety	2.65 (1.42)	1.85 (1.25)	-30%	$F = 24.24, p < .001, \eta_p^2 = .35$ large
Depression	1.70 (1.31)	1.22 (0.92)	-28%	$F = 7.70, p = .008, \eta_p^2 = .15$ large
Percentage of Clients At-risk for Mental Health Disorder				
	%	%	Change from at-risk to no risk	
Mental Health	30 ($n=14$)	9 ($n=4$)	10 of 14 clients recovered = 71%	
Anxiety	41 ($n=19$)	22 ($n=10$)	9 of 19 clients recovered = 47%	
Depression	15 ($n=7$)	7 ($n=3$)	4 of 7 clients recovered = 57%	

Note: $N=46$. Mean (M) scores compared over time in repeated measures ANOVA F tests. Change in PHQ severity score outcomes was not moderated by intervention type (resources or therapy), client gender, or total number of sessions used (if therapy). η_p^2 = statistical effect size is partial eta squared (see Richardson, 2011).

3.3.2 Alcohol Misuse

Alcohol was used by 85% of the participants (39 of the 46). Although alcohol was not a focus of the counseling for most cases (only 9%), the total number of alcoholic beverages consumed per month per case who was a drinker, on average, was reduced from 20 drinks at Pre to 13 drinks at Post. Also, the total number of drinking days per month per case who was a drinker, on average, was reduced from 9.5 days at Pre to 7.1 days at Post. Both findings were statistically significant beyond chance at the $p < .01$ level. See Table 2 for details.

Table 2. Pre to post intervention changes in alcohol misuse outcomes.

Outcome	Pre	Post	Change	Test result
Distribution of frequency of drinking days per month in total sample				
Days drank alcohol in past month:	% (<i>n</i> cases)	% (<i>n</i> cases)		
Never drink	17 (8)	28 (13)	Shift to less frequent drinking	
Once	11 (5)	15 (7)		
2 to 4 times a month	17 (8)	22 (10)		
2 to 3 times a week	38 (16)	17 (8)		
4 or more times a week	20 (9)	17 (8)		
Average drinking days per person - if drinker status				
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
Alcohol drinking days in past month	9.46 (6.86)	7.10 (7.49)	-2.36 days = 24% fewer	<i>F</i> = 7.86, <i>p</i> = .01, η_p^2 = .17 large
No. standard drinks of alcohol consumed per one typical episode	1.77 (0.90)	1.47 (0.99)	-0.30 drinks 17% fewer	<i>F</i> = 6.33, <i>p</i> = .07, η_p^2 = .14 large
No. standard drinks of alcohol consumed in total in month	19.93 (21.68)	12.68 (19.29)	-7.25 drinks 36% fewer	<i>F</i> = 14.49, <i>p</i> < .001, η_p^2 = .28 large

Note: $N=46$ total sample; $n=39$ for drinker subsample if drank any amount of alcohol at Pre and/or at Post. Mean scores were compared over time in repeated measures ANOVA F tests. η_p^2 = statistical effect size is partial eta squared.

3.3.3 Drug Use

The average client had used drugs (any kind) for 5.2 days per month ($SD = 9.61$) at Pre and for 4.2 days per month at Post ($SD = 9.53$). This difference of one less day of drug use per month was in the right direction but not significant. Of the different drugs, marijuana was used by about 1 in 3 cases (31% of the sample). In contrast, drug use involving stimulants, downers and other illicit drugs was very low ($< 2\%$). As drug use was not the primary focus of treatment for any of the cases, it was not a surprise that the rates of drug use did not change much during the study (all ns): Marijuana use 30% Pre vs. 26% Post; stimulant drug use 2% Pre vs. 2% Post; downer drug use 0% Pre vs. 2% Post; and other illicit drug use 2% Pre vs. 2% Post.

3.4 Change in Personal Life Concerns

Five of the six areas of personal life concerns had small improvements from before to after use of the interventions – but only one of these changes was statistically significant. The percentage of clients who were at-risk (defined as moderately concerned or very concerned) about financial issues was reduced from 63% at Pre to 50% at Post. The percentage of clients who were at-risk on close relationships was reduced from 37% to 30%. The percentage of clients who were at-risk about housing and transportation issues was significantly reduced from 24% to 11% ($p < .05$). The percentage of clients who were at-risk for caring for aging relatives was reduced from 17% to 13%. The percentage of

clients who at-risk for childcare was reduced from 9% to 7%. The percentage of clients who were moderately or very concerned about legal issues was increased slightly from 7% to 13%.

3.5 Change in Use of Self-Care Coping Strategies

The improvements found in the behavioral health clinical risk factors for farmers were perhaps influenced by the increased use of self-care techniques after the interventions. Educating farmers about self-care strategies is a common component of interventions. The typical participant had increased their total number of positive coping strategies used. Of the 8 different self-care activities measured in the study, the average participant was using 4.0 (SD = 2.3) strategies at start which increased significantly after using the program to 4.7 (SD = 2.0); $F[1,45] = 10.21$, $p = .003$, η_p^2 effect = .19 large. The specific strategies with the largest increase over time included the psychology-oriented techniques of “connection with peers and friends” (72% of all cases at Pre vs. 85% at Post), “meditation and mindfulness” (30% at Pre vs. 43% at Post) and “spirituality” (26% at Pre vs. 35% at Post). In contrast, the physical-oriented kinds of techniques all had less improvement from Pre to Post: getting rest = 76% vs. 80%; engaging in physical exercise = 63% vs. 67%; nutritious eating = 50% vs. 63%; use of stretching or yoga = 48% vs. 52%; and use of heat or ice treatment = 33% vs. 39%.

3.6 User Evaluation of Intervention

Follow-up survey evaluation data was collected in late August of 2024. This sample included 27 of the 46 clients (59% response rate). The item “Overall, the resources and referral information proved helpful” was answered by 48% with strongly agree and by 52% with agree (none of the 27 were neutral or disagree). The next item asked: “Overall, the counseling provided proved helpful” was answered by 50% with strongly agree, 42% with agree and only 4% with neutral (none of the 26 chose “disagree”). Thus, almost all of study participants agreed that both intervention components were helpful (100% for the informational resources and 92% for the counseling).

4. Discussion

4.1 Summary

This pilot study was effective in using empirical data to examine the prevalence of common behavioral health and lifestyle risk factors among small family farmers and their farm workers. The high level of interest in receiving both educational and professional counseling support options is a positive finding for possible expansion of similar outreach programs. Positive changes after use were also obtained for mental health risks (particularly for anxiety) and use of some psychosocial coping techniques were increased. The resources and individual counseling both were also positively evaluated by program users.

4.2 Limitations

The study has a small sample size which limited the amount of statistical power in tests to detect findings as significant beyond chance levels. Also, the study was conducted in only one state in the USA. Thus, the results and implications for other farming communities may not apply directly without further study.

4.3 Implications

This project demonstrates the feasibility and potential effectiveness of proactively screening and employing short-term evidence-based interventions to treat farmers with behavioral health risks. Identifying such risks early, even prior to a farmer recognizing that he or she has a problem that requires help, potentially prevents such risks evolving into more serious diagnosable mental health disorders or chronic physical illnesses known to be exacerbated by stress.

This approach reduced some of the barriers to care that otherwise would have prevented farmers from gaining access to such screening or treatment. Interacting with farmers at existing farm events; including educational sessions about farm stress at those events; reaching out to farmers through trained farmer peers and promoting the service in local forums and newsletters were all effective ways to engage and involve farmers in this program.

Although farmers tend to be a stoic lot, the success of these outreach efforts demonstrates the potential efficacy of offering such a behavioral risk prevention service in farm communities elsewhere. The specific outreach and

engagement modalities would need to be adapted to the on-the-ground realities of each local community, but it is clear from our study that farmers will take advantage of such a service when offered.

This pilot study was conducted in the United States. But it may have implications for other countries that have similar kinds of EAP and public mental health service providers who could build similar outreach programs for farmers. Indeed, examples of psychosocial risks among farmers have recently been published concerning rural communities located in the United States (Rudolphi et al., 2020; Rudolphi & Berg, 2023; Howard et al., 2020; Henning-Smith et al., 2022), Australia (Riethmuller et al., 2024), Canada (Jones et al., 2024; Jones-Bitton et al., 2020), Mexico (Keeney et al., 2023), Norway (Torske et al., 2016), the United Kingdom (Wheeler & Loble, 2023) and in many other countries.

More generally, these findings replicate past research on the effectiveness of EAP and short-term evidence-based counseling services for reducing behavioral health risks and improving work outcomes (Attridge, 2023b; Attridge & Pawlowski, 2024; Chen et al., 2021; Csiernik et al., 2021; Long & Cook, 2023). It also replicates past studies using a BSI approach in community settings (Attridge & Dickens, 2021; Dickens et al., 2014) and broadens the scope of typical EAP services to recommend adding the BSI program and outreach component (Attridge, 2023a; Mogorosi, 2014).

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Conflicts of Interest: SD is employed by the Invest EAP Centers for Wellbeing which received the grant funding, provided the counselors, and managed the applied research study. MA is a paid external research consultant for the study at Invest EAP and has collaborated with SD on past projects.

Ethical Approval: The project methodology procedures and informational clinical interventions were approved for ethical practices by the funding agency, the Northeast Center for Occupational Health and Safety in Agriculture, Forestry, and Fishing. All participant private background information was maintained as confidential through the normal ethical course of business of the EAP service and the use of licensed professional counselors as providers of the interventions. All participants signed informed consent materials as part of the research project.

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Steven P. Dickens, is a Licensed Psychologist-Master who has led research and implementation projects in the occupational and environmental health fields for over thirty years. He directed an employee assistance program for the State of Vermont for more than two decades and directed an environmental health program for a national non-profit organization for many years. He has held an appointment as a Visiting Scholar at the T. H. Chan Harvard School of Public Health for much of that time. In recent years he has overseen projects to develop and provide prevention-oriented services in the workplace to address both individual behavioral health risks, and to promote psychologically safe workplaces.

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