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Abby E. Blankenship

University of Texas Health Science Center San Antonio

Erica E. Nason

Texas State University

Olivia Hayes

Texas State University

Sebastian Bliss

University of Texas Health Science Center San Antonio

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Cover Page Footnote

Abby E. Blankenship, Department of Psychiatry, University of Texas Health Science Center at San Antonio; Erica E. Nason and Olivia Hayes, Department of Social Work, Texas State University; Sebastian Bliss, Department of Psychiatry, University of Texas Health Science Center at San Antonio. This research is supported by funding to the investigators (PI: Erica Nason & Co-PI Abby Blankenship) from the United States Department of Agriculture National Institute of Food and Agriculture award 2018-05828.

Correspondence concerning this article should be addressed to Abby Blankenship, University of Texas Health Science Center at San Antonio, Department of Psychiatry and Behavioral Sciences, 7703 Floyd Curl Dr., San Antonio, TX 78229; e-mail: Blankenshipa@uthscsa.edu

Mental Health Advocacy: Building an Interdisciplinary Program for Agriculture Professionals

Abby E. Blankenship
University of Texas Health Science Center at San Antonio

Erica E. Nason
Olivia Hayes
Texas State University

Sebastian Bliss
University of Texas Health Science Center at San Antonio

Abstract. The suicide rate among agriculturalists is 3.5 times higher than the general population. A number of external factors related to the farming and veterinary work put individuals in agricultural populations at risk for poor mental health outcomes, including economic variables (e.g. tariffs, market prices), environmental factors affecting yield (e.g. drought, pests), and exposure to difficult or traumatic life events (e.g., mistreatment of animals, loss of crop). Rural values including self-reliance, work orientation, and individualism combined with logistical and systemic barriers to competent behavioral health care further increase risk. Project GROW (Generating Resilience in Our Workforce) is a multifaceted full semester program designed to train agriculture students in how to be mental health advocates in order to address the mental health and suicide crisis among farmers in the state of Texas.

Keywords: rural mental health, agriculturalists, veterinarians, mental health advocacy

The Problem

In the United States, the suicide rates of farmers and ranchers are 3.5 times higher than the general population (Ringgenberg et al., 2018). States like Texas, which have large rural populations and economies that rely heavily on agriculture, are likely to be inordinately impacted by this mental health crisis. Although research is unavailable regarding the specific rates of suicide among Texas farmers, rural populations in the state have a significantly higher rate of suicide when compared to urban populations (16.9 per 100,000 vs. 11.3 per 100,000; Johnson et al., 2018). Research has identified a variety of factors that contribute to these mental health disparities, including cultural factors, barriers to mental health care, and external agricultural stressors (described in subsequent sections); however, only a limited number of resources specifically targeting the current mental health crisis among farmers have been developed. The current paper describes the development of an interdisciplinary mental health advocacy program for agricultural students in Texas as they transition into professional settings following graduation.

External Agricultural Stressors

A number of external factors related to farming and veterinary work put individuals in agricultural populations at risk for poor mental health outcomes, including economic variables

(e.g. tariffs, market prices), environmental factors affecting yield (e.g. drought, pests), and exposure to difficult or traumatic life events (e.g., mistreatment of animals, loss of crop) (Fraser et al., 2005). Low commodity prices have caused net farm incomes to drop by 48.8% from 2013 to 2018, and farm production expenses continue to grow at a rate of 4.4% from 2017 to 2018 (U.S. Department of Agriculture Economic Research Service, 2019). The median income for farms in the United States during 2018 was -\$1,840 and the U.S. Department of Agriculture estimates over 50% of farmers have negative farm income (U.S. Department of Agriculture Economic Research Service, 2019). These economic struggles increase stress and impact both physical and mental health.

In addition to economic variables, environmental factors such as drought and pests increase stress for farmers. As the effects of climate change become increasingly pronounced, these factors are likely to have a larger impact on agriculture (Keane & Neal, 2018). Drought impacts crop yield and limits feed for livestock (Farm Aid, 2016). Heat stress leads to animal deaths, affects animal fertility, and the production of eggs, milk, and meat (St-Pierre et al., 2003). The livestock industry is estimated to lose between \$1.69 and \$2.36 billion annually from heat stress related problems (St-Pierre et al., 2003). Changes in temperature have led to certain pests and weeds migrating north and making historically used farmland unserviceable (U.S. Department of Agriculture, 2013). Heat stress and drought can also lead to animal suffering and is distressing for farmers and their families, to the extent that some farmers have asked workers or neighbors to assist in euthanizing animals because of concerns about the negative impacts to their mental health (Perceval et al., 2019).

Values and Culture

Individuals living in rural communities also are less likely to seek mental health services compared to those living in urban settings (Caldwell et al., 2004). Rural values, including self-reliance, conservatism, distrust of outsiders, religiosity, work orientation, emphasis on family, individualism, and fatalism, may negatively impact an individual's willingness to seek mental health care, which can increase risk for attempted or completed suicide (Wagenfeld, 2003). In fact, farmer attitudinal factors, such as negative stigma associated with mental health treatment and a cultural emphasis on self-reliance, have been shown to interfere with treatment seeking behaviors (Hull et al., 2017). In rural communities, embarrassment and lack of knowledge about obtaining mental health services are cited as barriers to seeking mental health services (Wrigley et al., 2005).

Familiarity with firearms is an essential part of the work culture for farmers (Perceval et al., 2019). Access to lethal means is hypothesized to contribute to high rates of suicide among farmers, with firearms being used in over half of suicides in this population (Stallones et al., 2013). Restricting the use of firearms, a common strategy for reducing risk of suicide in other populations, could be challenging because of the crucial role of firearms within agriculture (Perceval et al., 2019). In fact, 63.81% of suicides in rural Texas from 2006 to 2015 were completed through the use of firearms compared to 54.51% of suicides in urban areas (Choi et al., 2019). Among farmers, firearms are used in 78 to 86% of farmer suicides (Browning et al., 2008; Scheyett et al., 2019).

Systemic Barriers to Care

In addition to external stressors and cultural factors impacting help-seeking behaviors, there are notable logistical and systemic barriers that decrease access to competent behavioral health care for rural populations. This is a large problem for southern states, with states along the Gulf Coast having fewer psychologists per capita than the rest of the country (Miller et al., 2014). Sixty percent of mental health care provided in rural communities is delivered by primary care physicians who do not possess specialized expertise in behavioral health (Geller, 1999). This contributes to disparities in the types of mental health services received by individuals in rural areas relative to urban areas, where rural-dwelling individuals are more likely to receive services for medication management and less likely to receive psychotherapy. Moreover, when these individuals do receive psychotherapy, they attend fewer sessions on average (Ziller et al., 2010). In Texas, rural areas are disproportionately burdened by a lack of psychiatrists at a ratio of 30,000-126,000:1, with greater ratios observed in counties along the Texas/Mexico border (Texas Department of State Health Services, 2014). Rural counties in Texas are also less likely to have licensed mental health professionals – 185 of Texas’s 254 counties do not have a single practicing general psychiatrist (Merritt Hawkins, 2015). When including other behavioral health care providers (e.g., psychologists, licensed clinical social workers, marriage and family therapists), 199 Texas counties face critical shortages in the mental health care workforce (Texas Department of State Health Services, 2014). Furthermore, currently available resources are experiencing rapid increases in demand. During 2018, the Farm Aid crisis hotline saw a 109% increase in phone calls and emails with farmers reporting signs of acute stress (Farm Aid, 2019).

A Call for Action

Given the significant impacts of mental health symptoms and suicide in farming communities, key stakeholders have called for research into work that addresses the unique stressors and barriers to mental health care experienced by farmers. In April 2018, Congressman Tom Emmer introduced a bill to fund efforts to address the specific stressors experienced by farmers (Stemming the Tide of Rural Economic Stress and Suicide Act, H.R. 5259, 2018). Similarly, Roger Johnson, the president of the National Farmers Union, has highlighted the importance of additional research and training related to the development and implementation of resources to address these priority areas (National Farmers Union, 2018). These increased calls for addressing mental health outcomes of farmers have also been reflected by both state and national media (e.g. Texas Observer; New York Times, National Public Radio), and have been met with growing multidisciplinary efforts to engage farmers in mental health services (e.g., Hossain et al., 2009; Rudolphi et al., 2019). The current project was developed in response to these calls for action and emphasizes a multidisciplinary approach to engage key stakeholders and disseminate empirically supported tools for increasing psychological resiliency among agriculturalists. The project was designed to be cost effective, utilize resources that are free and accessible in rural communities, engage individuals outside of the mental health professions in advocacy, and use current best practices based on empirical evidence.

Generating Resilience in Our Workforce (Project GROW)

Taken together, individuals in agricultural and animal science professions may be

impacted by compounding external, cultural, and systemic factors that increase mental health risk and limit help-seeking behavior. This has created an urgent need for culturally informed, accessible prevention or intervention efforts to address the specific needs of this community. Previous research has found that peer-facilitated support programs are effective interventions for reducing mental health symptoms, including depression (Pfeiffer et al., 2011). Similarly, psychoeducational programs, such as Mental Health First Aid, have been shown to reduce stigma related to mental health topics and increase behaviors promoting mental health (Hadlaczky et al., 2014). Using these guidelines, we developed a multi-faceted, culturally responsive, psychoeducational program grounded in empirical strategies for training 300 undergraduate agriculture students to be mental health advocates working to reduce the mental health and suicide crisis among farmers in the state of Texas. This training, titled Project GROW (Generating Resilience in Our Workforce), engages students for 6 months of active learning and is consistent with research that has demonstrated that training models with ongoing opportunities for learning are more effective than one-trial training programs (Dunst & Trivette, 2012). The primary objectives of this program include: 1) increasing knowledge about mental health, 2) changing attitudes about mental health and increasing advocacy, help seeking, and self-care behaviors, and 3) fostering behavior change as evidenced by the application of knowledge to personal and professional environments.

Target Population

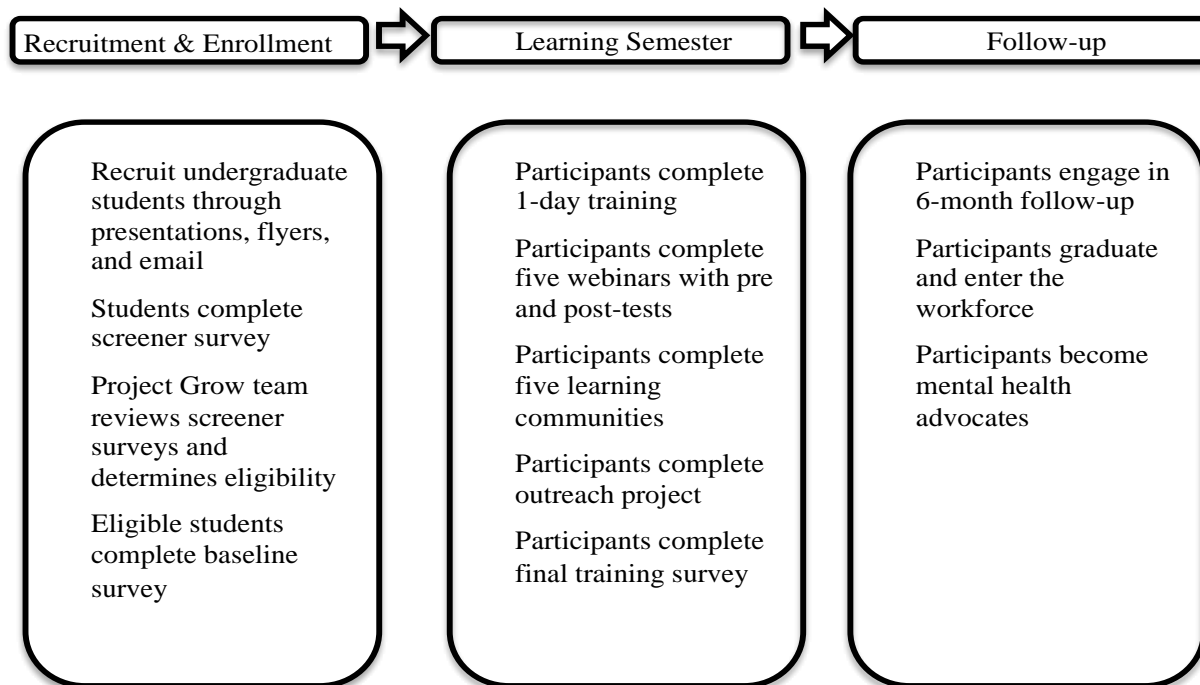
In order to evaluate the effectiveness of this program, 300 undergraduate students are being recruited from departments of agriculture in Texas. Eligible students must be enrolled as an undergraduate agriculture major, in good academic standing, and demonstrate an interest in learning more about supporting farmers who present with mental health problems. All interested participants are screened to evaluate these eligibility criteria (e.g., class standing, concentration, GPA) and are asked to submit a 250-word essay about their perceptions of the mental health needs of individuals in their anticipated profession. Priority is given to applicants who meet all inclusion criteria and who will graduate and enter the workforce within the next calendar year.

In order to maximize opportunities for skill development, 12 cohorts of 15 to 20 students are being recruited to participate in the Project GROW Program. Each cohort will create a learning community that will complete all components of Project GROW (described below) together over a six-month period, called a learning semester. In order to support students' participation, all students will receive stipends upon completion of tasks at four time points: baseline assessment, one-day training, program completion, and 12-month follow-up (Figure 1). At the time of this publication, Project GROW has recruited four learning communities and is actively recruiting for our fifth cohort. The following sections will present an overview of the training curriculum, program strengths, and lessons from implementation.

One Day Training

The one-day training is an 8-hour multimodal training developed by the first and second authors. The curriculum begins with content related to understanding risk and resilience factors affecting mental health and suicidality with a specific focus on rural and agricultural

Figure 1

Project GROW Program Phases

communities. The majority of the content emphasizes skills and resources that participants can use in their personal and professional lives to engage in mental health advocacy that increases psychological resiliency. This content includes engagement with mental health resources that are easily accessible and are available for a variety of mental health symptoms, such as mobile applications. Additionally, the second half of the training focuses on skills that will help participants to be mental health advocates. Skills, such as asking questions to understand an individual's stressors or offering to provide information about a resource, are modeled by the trainers and role-play activities are used to provide participants with additional opportunities to practice. Skills for engaging individuals who are experiencing distress are taught using the acronym GROW: **Get to know the problem**, **Review your options**, **Outreach**, and **Work together**. While some of the one-day training is lecture-based, an emphasis is placed on critical thinking activities, large and small group discussion, audiovisual components, and role-plays in order to solidify learning.

Prior to Project GROW, many of the training team's educational and mentorship interactions were with undergraduate, graduate, and postdoctoral trainees in behavioral health fields. Although the one-day training materials were intentionally designed to engage individuals without a professional background in mental health, it was clear after the first cohort completed their one-day training that the training materials needed to be further adapted to fit the knowledge, skills, and strengths of food and agriculture science students. First, while the one-day training was designed to be multimodal, the initial materials not interactive enough for our participants. As such, we reduced didactic components and incorporated more critical thinking activities, group discussion, and audiovisual materials. For example, instead of showing a video

about how to use a mobile-base application for reducing suicidal ideation and behavior, we asked all participants to download the application on their phone prior to the training and provided time during the training to experiment with the application. Similarly, we initially facilitated a series of role plays, which is a common practice in the behavioral health field and an important aspect of providing a superior training experience when one goal is to increase the application of knowledge (Dunst & Trivette, 2012). However, this type of activity is not common in agriculture training, and we quickly learned that we would need to modify our approach to role-plays for the one-day training. As such, we moved to a stepped approach challenging participants to use the material while engaging in interactions approximating a real-life situation, beginning with the role-plays that gradually increased in difficulty and built upon the skills they previously practiced. For example, as a way to demonstrate how to use active listening and genuine curiosity to understand a problem, we modified an exercise designed to gather information from having participants role-play in pairs to having one of the facilitators act as a distressed friend and the group worked together to ask questions. Not only did this reduce individual performance anxiety, but it also helped participants see the skills modeled by others.

Webinars

All Project GROW participants are required to complete at least five webinars during their learning semester following the one-day training. The first and second authors contracted with experts in the field of behavioral health to develop webinars in their specific areas of competency. All content was vetted through a series of quality assurance meetings in order to ensure that content was appropriate for the developmental level and professional background of participants and consistent with the goals of Project GROW. Webinars are available via a web-based platform and can be viewed at any time in order to increase accessibility to participants. Webinar topics were selected because of their direct relevance to the mental health of rural and farming communities and from participant feedback about topics that they would find beneficial. Available topics include suicide and non-suicidal self-injury, substance use, LGBTQ+ populations, domestic violence, sleep problems and insomnia, chronic pain, trauma and posttraumatic stress disorder, culture and diversity, and building trusting relationships. As the project continues to enroll participants, webinars on additional topics will continue to be added to our catalog.

In designing the webinars, it was a priority to allow participants to choose from a menu of topics based on their personal interests. Initial feedback regarding our webinars has been very positive. Qualitatively, participants reported using the information to inform their practice as behavioral health advocates and to improve their own self-care or mental health. For example, a participant who endorsed problems with sleep and/or insomnia reported that they had incorporated strategies presented during the webinar into her nightly routine and downloaded a free mobile application designed to improve sleep. Similarly, participants noted they were using webinar materials to strengthen personal relationships (e.g. reporting more empathy towards a family member who identifies as a member of the LGBTQ+ community). Finally, participants were most enthusiastic about webinars that provided them with language or concrete direction on how to address the specific behavioral health topic. Not surprisingly, participants reported more questions and/or concerns about webinars when these elements were not present. As such, we have revised current webinars, and added the requirement for all of our behavioral health experts

to provide language or concrete direction on how one may talk with a friend, family member, or colleague about a particular mental health topic. Many of the webinars now include case examples that offer the opportunity to think about strategies that could be used in similar, real-world contexts.

Mentorship Calls

Participants are required to attend a minimum of five mentorship calls during their learning semester. These calls are facilitated by a member of the study team and take place over a videoconferencing platform, which allows students the flexibility to attend calls from any location. The mentorship calls are intended to support three objectives: 1) increase knowledge, 2) change attitudes and beliefs about mental health and suicide, and 3) help participants apply knowledge learned during Project GROW to real world interactions. Mentorship calls are led by a PhD or master's level behavioral health professional with expertise in mentorship, supervision, and consultation with undergraduate and graduate students. Mentors are trained on the material covered in the one-day workshop and webinars and are provided with reading material in order to ensure cultural competence. Mentorship calls include a semi-structured discussion about progress through the Project GROW milestones, questions or feedback about the webinars, and general discussion about mental health advocacy. During calls, students are encouraged to workshop any situations in which they've encountered challenges related to being a mental health advocate (e.g. a conversation with a co-worker about how to manage stress, offering resources to a friend who has been struggling with anxiety). The learning community also offers participants with an opportunity to continuing networking with and building collegial relationships with their peers.

A significant discovery during our mentorship calls is that our participants felt safe to not only share the ways in which they were using their skills to be a mental health advocate, but also how they were implementing some of these skills to improve their own self-care and mental health. Further, during these calls we learned that our participants were beginning to change their thoughts and behaviors regarding their own mental health stigma. Our participants reported conversations with family members and friends that were intended to reduce mental health stigma. We believe that this culture was established during the one-day training during which a safe, non-judgmental environment and confidentiality were emphasized. We also reinforced these values as we transitioned participants into the learning communities. Instances of self-disclosure by participants, whether related to challenges while being an advocate or regarding their own mental health, have resulted in conversations during which group members offer support and implement skills initially learned during the one-day training. Although we initially conceptualized these calls to be more content focused, these process-oriented dialogues have offered a unique opportunity for participants to practice advocacy within a semi-structured, supportive environment.

One challenge that we encountered was low mentorship call attendance during our first series of learning community calls. For example, early in our implementation, there were some calls with only one participant, which made creating a cohesive learning community difficult. This required us to rearrange the call schedule to include evening and weekend options. We also increased the emphasis on planning to engage in the learning semester. At the end of our one-day

training for our second cohort we provided a worksheet to help participants develop individualized training plans, including which webinars they were most interested in completing and identifying the dates to attend five learning community calls. Since implementing the individualized training plans call and identifying times during evenings and weekends, attendance has significantly improved and the average number of participants on the mentorship call has increased from 14.3% of cohort members to 31.25% of cohort members per call. However, despite the low attendance on the mentorship calls for our first cohort, initial qualitative data indicate that participants found the mentorship calls to be one of the most important parts of Project GROW. This is reflected in the response of one participant during the post-learning community follow-up assessment who stated:

“Many days I looked forward to the meetings. I was going through a tough time when I first started. In my teenage years, I struggled with depression and suicidal thoughts... This project helped me dust off the coping skills that I once used every day. Over time I forgot some of those skills and it’s so easy to get overwhelmed with life... I really enjoyed the live meetings. Spending a few hours every week in person allows me to focus on the actual ideas and how to implement them into my life”.

Outreach Opportunities

In order to create opportunities to pursue advocacy while enrolled in the program, all participants are required to complete an outreach project about mental health to their community. This project is considered to be the “capstone” of the Project GROW program and allows participants to receive support from peers and facilitators while participating in activities that benefit the mental health of their professional and personal communities. Participants are given very little initial guidance on the development of the project, as we are interested in allowing each participant to select a topic that appeals to them. We also encourage participants to be creative and develop an ideographic project for the specific community that they wish to influence the most. During the mentorship calls, participants are given an opportunity to brainstorm about their project, hear others’ project ideas, and receive feedback about their project prior to creating and disseminating the final product.

As we hoped, the content and delivery modalities of outreach projects across participants have been diverse. Some participants’ outreach projects have occurred in the context of formal academic or professional presentations. For example, one participant developed a speech for a public speaking class about the importance of understanding mental health symptoms and suicide risk among agriculturalists and rural communities. Another participant, who was working in a veterinarian clinic, observed that his co-workers could benefit from regular self-care activities in order to reduce stress associated with job demands. As such, he created a PowerPoint presentation about self-care that he presented to his co-workers during a staff meeting. Finally, some of our participants created a project that would help inform the community that they anticipate working closely with following graduation. For example, one participant, who will be entering the farming distribution field, decided to create a pamphlet that she could distribute to her clients about local mental health resources. In contrast, a number of outreach projects have used less traditional mechanisms. For example, one participant harnessed the power of social

media to create and disseminate an infographic about preventing domestic violence, and another participant created a special event on a popular, community-focused videogame with information about mental health resources.

Assessment

In order to evaluate the effectiveness of the Project GROW curriculum, participants complete assessment batteries at five time points: baseline, prior to and immediately after the one-day training, after completion of the learning semester, and six months after completing all curriculum (see Table 1 for a description of assessments at each time point). The assessments evaluate changes in content knowledge (e.g. a knowledge test prior to and following webinar completion), attitudes about mental health (e.g. measures of mental health stigma), mental health functioning (e.g. depression and anxiety symptoms), and behavior change (e.g. self-care behaviors). Assessments include both quantitative and qualitative measures.

Discussion

Project GROW is a multi-faceted, culturally responsive psychoeducation program grounded in empirical strategies for training, improving skill retention, and behavioral change with the goal of reducing the mental health and suicide crisis in the state of Texas. The program is designed to test the effectiveness of a training program for agriculture professionals to become mental health advocates. Initial results indicate that the program is a feasible and acceptable mechanism for changing the knowledge, attitudes, and behaviors of participants. Early lessons learned include: 1) ensuring that content and learning exercises match the backgrounds and existing skill sets of an audience of undergraduate students majoring in food and agricultural science, 2) incorporating formal and informal feedback to improving training components, 3) recognizing that participants are eager to apply training content to improve both their own mental health and the mental health of their peers, family members, friends, and colleagues, and 4) identifying the importance of the group processes in practicing skills.

With regard to limitations and future directions, there are a number of variables that should be considered. First, during the first year of implementation, the COVID-19 global pandemic provided an interesting and unanticipated context to engage with participants. Many participants noted additional stressors and worsening mental health symptoms during this period, which may have increased both motivation for participation and relevance of the content. Second, at present, Project GROW only reaches a subset of students in Texas. As such, if our program is found to be effective in increasing knowledge about mental health, changing attitudes and behaviors, and fostering the application of knowledge to personal and professional environments in order to improve the mental health and suicide crisis in the state of Texas, then a broader dissemination of this program may be indicated. This dissemination could include non-student populations, such as through USDA extension offices. Finally, we believe that it is possible that identifying and training trusted individuals in agriculture communities may help in disseminating such a training on a local level.

Table 1

Timing of Assessments During the Project GROW Training Program

Measure	1	2	3	4	5
Demographics	X				
Qualitative Interview		X		X	X
Training Satisfaction Rating Scale (Tello et al, 2006)			X	X	X
Knowledge Assessments			X	X	X
Endorsed and Anticipated Stigma Inventory (Vogt, et al., 2014)		X	X	X	X
World Health Organization Quality of Life Scale- BREF (World Health Organization, 1998)		X	X	X	X
Alcohol Use Disorders Identification Test (Babor et al., 2001)		X		X	X
Generalized Anxiety Disorder (Spitzer et al., 2006)		X		X	X
Patient Health Questionnaire (Kroenke et al., 2001)		X		X	X
Exercise of Self-Care Agency Scale (Kearney & Fleischer, 1979)		X	X	X	X
Maslach Burnout Inventory-General Scale (Schaufeli et al., 1996)		X			X

Note. 1 = screener; 2 = baseline; 3 = post-one-day training;
4 = post-program completion; 5 = 12- month follow up

References

Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The Alcohol Use Disorders Identification Test: Guidelines for use in primary care*, 2nd Edition. Geneva, Switzerland: World Health Organization.

- Browning, S. R., Westneat, S. C., & McKnight, R. H. (2008). Suicides among farmers in three southeastern states, 1990-1998. *Journal of Agricultural Safety and Health*, 14(4), 461-472. doi: 10.13031/2013.25282
- Caldwell, T. M., Jorm, A. F., & Dear, K. B. G. (2004). Suicide and mental health in rural, remote and metropolitan areas in Australia. *Medical Journal of Australia*, 181(S7), 10-14.
- Choi, N. G., DiNitto, D. M., & Marti, C. N. (2019). Differences in firearm suicides by residential location in Texas, 2006-2015. *Archives of Suicide Research*, 23(3), 491–506. doi: 10.1080/13811118.2018.1468290
- Dunst, C. J., & Trivette, C. M. (2012). Moderators of the effectiveness of adult learning method practices. *Journal of Social Sciences*, 8(2), 143-148. doi: 10.3844/jssp.2012.143.148
- Farm Aid. (2016). Climate change and family farmers. <https://www.farmaid.org/blog/fact-sheet/climate-change-farmers/#16>
- Farm Aid. (2019). Understanding the economic crisis family farms are facing. <https://www.farmaid.org/blog/fact-sheet/understanding-economic-crisis-family-farms-are-facing/#2>
- Fraser, C. E., Smith, K. B., Judd, F., Humphreys, J. S., Fragar, L. J., & Henderson, A. (2005). Farming and mental health problems and mental illness. *International Journal of Social Psychiatry*, 51(4), 340-349. doi: 10.1177/0020764005060844
- Geller, J. M. (1999). Rural primary care providers' perceptions of their roles in the provision of mental health services: Voices from the plains. *Journal of Rural Health*, 15(3), 326–334. doi: 10.1111/j.1748-0361.1999.tb00754.x
- Hadlaczky, G., Hökby, S., Mkrtchian, A., Carli, V., & Wasserman, D. (2014). Mental Health First Aid is an effective public health intervention for improving knowledge, attitudes, and behaviour: A meta-analysis. *International Review of Psychiatry*, 2(4)6, 467-475. doi: 10.3109/09540261.2014.924910
- Hossain, D., Gorman, D., & Eley, R. (2009). Enhancing the knowledge and skills of Advisory and Extension Agents in mental health issues of farmers. *Australasian psychiatry: Bulletin of Royal Australian and New Zealand College of Psychiatrists*, 17(Suppl. 1), S116–S120. doi:10.1080/10398560902948365
- Hull, M. J., Fennell, K. M., Vallury, K., Jones, M., & Dollman, J. (2017). A comparison of barriers to mental health support-seeking among farming and non-farming adults in rural South Australia. *Australian Journal of Rural Health* 25(6), 347-353. doi: 10.1111/ajr.12352
- Johnson, C., Gong, G., Curti, D., & Philips, B. U. (2018). The benchmark of rural health: The top 10 leading causes of death in rural Texas. *Texas Public Health Journal*, 70, 18–23.

- Keane, M. P., & Neal, T. (2018). The impact of climate change on us agriculture: The roles of adaptation techniques and emissions reductions. *UNSW Business School Research Paper*, (2018-08). Retrieved from <http://research.economics.unsw.edu.au/RePEc/papers/2018-08.pdf>
- Kearney, B. Y., & Fleischer, B. J. (1979). Development of an instrument to measure exercise of self-care agency. *Research in Nursing & Health*, 2(1), 25-34. doi:10.1002/nur.4770020105
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606-613. doi: 10.1046/j.1525-1497.2001.016009606.x
- Merritt Hawkins. (2015). The Physician Workforce in Texas: An Examination of Physician Distribution, Access, Demographics, Affiliations, and Practice Patterns in Texas' 254 Counties [Survey]. Retrieved from <https://dfwhcfoundation.org/wp-content/uploads/2015/04/mhaNTREC2015studyfinal.pdf>
- Miller, B. F., Petterson, S., Levey, S. M. B., Payne-Murphy, J. C., Moore, M., & Bazemore, A. (2014). Primary care, behavioral health, provider colocation, and rurality. *The Journal of the American Board of Family Medicine*, 27(3), 367-374. doi: 10.3122/jabfm.2014.03.130260
- National Farmers Union. (2018, May 15). *Farmers Union Urges USDA to Proactively Address Farm Suicide Crisis* [Press release]. Retrieved from <https://nfu.org/2018/05/15/farmers-union-urges-usda-to-proactively-address-farm-suicide-crisis/>
- Perceval, M., Kolves, K., Ross, V., Reddy, P., & De Leo, D. (2019). Environmental factors and suicide in Australian farmers: A qualitative study. *Archives of Environmental & Occupational Health*, 74(5), 279–286. doi: 10.1080/19338244.2018.1453774
- Pfeiffer, P. N., Heisler, M., Piette, J. D., Rogers, M. A., & Valenstein, M. (2011). Efficacy of peer support interventions for depression: a meta-analysis. *General Hospital Psychiatry*, 33(1), 29-36. doi: 10.1016/j.genhosppsych.2010.10.002
- Ringgenberg, W., Peek-Asa, C., Donham, K., & Ramirez, M. (2018). Trends and characteristics of occupational suicide and homicide in farmers and agriculture workers, 1992-2010. *The Journal of Rural Health*, 34(3), 246–253. doi: 10.1111/jrh.12245
- Rudolphi, J. M., Berg, R., & Marlenga, B. (2019). Who and how: Exploring the preferred senders and channels of mental health information for Wisconsin farmers. *International Journal of Environmental Research and Public Health*, 16(20). doi: 10.3390/ijerph16203836

- Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). MBI-General Survey. In C. Maslach, S. E. Jackson, & M. P. Leiter (Eds.), *Maslach Burnout Inventory manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Scheyett, A., Bayakly, R., & Whitaker, M. (2019). Characteristics and contextual stressors in farmer and agricultural worker suicides in Georgia from 2008–2015. *Journal of Rural Mental Health, 43*(2-3). doi: 10.1037/rmh0000114
- Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine, 166*(10), 1092-1097. doi: 10.1001/archinte.166.10.1092
- Stallones, L., Doenges, T., Dik, B. J., & Valley, M. A. (2013). Occupation and suicide: Colorado, 2004–2006. *American Journal of Industrial Medicine, 56*(11), 1290-1295. doi: 10.1002/ajim.22228
- St-Pierre, N. R., Cobanov, B., & Schnitkey, G. (2003). Economic losses from heat stress by US livestock industries. *Journal of Dairy Science, 86*(Supplement), E52-E57.
- Tello, F. P. H., Moscoso, S. C., García, I. B., & Chaves, S. S. (2006). Training Satisfaction Rating Scale: Development of a measurement model using polychoric correlations. *European Journal of Psychological Assessment, 22*(4), 268. doi: 10.1027/1015-5759.22.4.268
- Texas Department of State Health Services. (2014). The mental health workforce shortage in Texas. Retrieved from <https://www.dshs.texas.gov/legislative/2014/Attachment1-HB1023-MH-Workforce-Report-HHSC.pdf>
- U.S. Department of Agriculture. (2013) *Climate change and agriculture in the United States: Effects and adaptation*. Washington, D.C. USDA.
- U.S. Department of Agriculture Economic Research Service. (2019). 2019 Farm sector income forecast. Retrieved from <https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast/>
- Vogt, D., Di Leone, B. A., Wang, J. M., Sayer, N. A., Pineles, S. L., & Litz, B. T. (2014). Endorsed and Anticipated Stigma Inventory (EASI): A tool for assessing beliefs about mental illness and mental health treatment among military personnel and veterans. *Psychological Services, 11*(1), 105. doi: 10.1037/a0032780
- WHOQOL Group. (1998). Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological Medicine, 28*(3), 551-558. doi: 10.1017/S0033291798006667

- Wrigley, S., Jackson, H., Judd, F., & Komiti, A. (2005). Role of stigma and attitudes toward help-seeking from a general practitioner for mental health problems in a rural town. *Australian and New Zealand Journal of Psychiatry*, 39(6), 514-521. doi: 10.1080/j.1440-1614.2005.01612.x
- Wagenfeld, M. O. (2003). A snapshot of rural and frontier America. In B. H. Stamm (Ed.), *Rural behavioral health care: An interdisciplinary guide* (pp. 33-40). Washington, D.C.: American Psychological Association.
- Ziller, E. C., Anderson, N. J., & Coburn, A. F. (2010). Access to rural mental health services: Service use and out-of-pocket costs. *The Journal of Rural Health*, 26(3), 214-224. doi: 10.1111/j.1748-0361.2010.00291.x