

YOUNG FARMERS' AND RANCHERS'
PERCEPTIONS OF
MENTAL HEALTH

By

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Abstract: Mental health is a concerning issue for all, especially farmers and ranchers who are dealing with mental health disorders. However, limited research has been conducted related to mental health in the agricultural field, specifically looking at the perceptions of mental health among young farmers and ranchers. The purpose of this study was to determine mental health perceptions of young farmers and ranchers and to inform strategies to help break the stigma surrounding mental health in agriculture. Almost all literature agrees that farming and ranching are stressful occupations and have very high rates of mental health illness among their producers. This is because of well-documented occupational stressors like finances, time pressures, economic conditions, and hazardous working conditions coupled with demographic effects like isolation from a community and access to mental health care. Mental health for farmers and ranchers has been identified as a growing concern for the research community and is a new topic with a need for continued research and development of preventive measures. This study's theoretical framework followed Bronfenbrenner's ecological theory. The instrument was developed by the researchers with input from industry professionals and was a combination of Semantic Differential questions and 5-point Likert-type scale questions, paired with demographic based questions to achieve the research objectives. Results from this study can only be generalized to the 36 participants. Due to the lack of responses to the questionnaire, this study should be repeated to determine if participant demographics and attitude responses change with more responses. Overall, participants responded with relative cohesiveness. It's agreed that mental health is an issue farmers and ranchers face, and something should be done to eliminate the stigma surrounding the topic. Young farmers and ranchers believe they have access to mental health resources and believe they are prepared to and confident in assisting others with mental health challenges.

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CHAPTER I

INTRODUCTION

Background

The concept of mental health has a long history, starting before the 20th century, and throughout time, perceptions of mental health have changed (Bertolote, 2008). What was once referred to as ‘mental hygiene’ (Bertolote, 2008) now has almost 300 separate disorders under the term ‘mental health’ (Health Direct, 2020). According to the Centers for Disease Control and Prevention

Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make healthy choices. Although the terms are often used interchangeably, poor mental health and mental illness are not the same. A person can experience poor mental health and not be diagnosed with a mental illness. Likewise, a person diagnosed with a mental illness can experience periods of physical, mental, and social well-being (2021, para. 1-2).

Factors that may contribute to mental health problems include biological factors, life experiences, and a family history of mental health problems (U.S. Department of Health & Human Services, 2022). People who live with mental health issues “may struggle to maintain healthy relationships, have difficulty succeeding at work, or otherwise

experience challenges while managing the demands of their daily lives” (Rural Health Information Hub, 2021, para. 6).

Mental Health Worldwide

Globally, one in eight people live with a mental health disorder (World Health Organization, 2022) and this number may be higher as mental health disorders are considered highly under-reported, particularly in lower-income countries (Dattani et al., 2021). A mental disorder is “a clinically significant disruption in an individual’s cognition, emotional regulation, or behavior. It is usually associated with distress or impairment in important areas of functioning” (World Health Organization, 2022, para. 1). Everyone may be at risk to develop a mental disorder and those who are exposed to any adverse circumstances are at a higher risk (World Health Organization, 2022).

Common Mental Health Disorders

Stress can reduce the quality of a person’s life by affecting their mental and physical health, but it is a normal and common feeling most people experience with everyday pressures (American Psychological Association, 2022d). However, it becomes unhealthy when it negatively influences a person’s day-to-day functioning and influences how people feel and behave (American Psychological Association, 2022d). Depression and anxiety are the leading mental health illnesses (World Health Organization, 2022). Those with severe mental health illnesses have a higher risk of dying up to 20 years early compared to those without mental health conditions (World Health Organization, 2023).

Approximately 301 million people worldwide are living with an anxiety disorder including 58 million children and adolescents (World Health Organization, 2022).

Anxiety is excessive fear and worry causing behavioral disturbances with symptoms

severe enough to impair functioning (World Health Organization, 2022). Anxiety can be a feeling of tension, worried thoughts, or physical changes like increased blood pressure, sweating, trembling, dizziness, or a rapid heartbeat (American Psychological Association, 2022b). There are multiple types of anxiety disorders, ranging in severity and type of treatment available (World Health Organization, 2022).

Approximately 280 million people worldwide are living with depression (World Health Organization, 2022). This number includes 23 million children and adolescents (World Health Organization, 2022). Depression is extreme sadness or despair (American Psychological Association, 2022c) causing a loss of pleasure or interest in activities (World Health Organization, 2022). It can interfere with daily life by causing physical symptoms such as pain, weight loss or gain, sleeping pattern disruptions, or lack of energy and mental symptoms like the inability to concentrate, feelings of worthlessness or excessive guilt, or recurrent thoughts of death or suicide (American Psychological Association, 2022c).

Suicide is the act of killing oneself and is the 12th leading cause of death in the United States (American Psychological Association, 2022a). While there are many reasons a person may commit suicide, severe mental health disorders, specifically depression, may lead to the act of suicide (American Psychological Association, 2022a).

Mental Health Care and the COVID-19 Pandemic

One issue many people who are struggling with mental health conditions face is access to effective health care even though effective prevention and treatment options exist (World Health Organization, 2022). Although many people were struggling with mental health conditions before 2020, the COVID-19 pandemic significantly increased

the number of people living with mental health conditions, specifically anxiety and depression (World Health Organization, 2022) because of things like social isolation, job loss, supply chain issues, and economic uncertainty (Primary Care Development Corporation, 2023). Anxiety rose by 26% and depression rose by 28% in 2020 (World Health Organization, 2022). Due to the effects of the pandemic, many establishments shut down and many health care facilities were overworked leading to limited access to care for mental health conditions, declining at a time it needed to increase (American Psychological Association, 2021).

Mental Health in the United States

In the United States, an estimated 26% of adults, or 50 million people, struggle with a mental health condition (John Hopkins Medicine, 2023 & Mental Health America, 2023). This is around one in every four people ages 18 and older (John Hopkins Medicine, 2023). Around 50% of people in the United States will be diagnosed with a mental health condition at some point during their lives (Centers for Disease Control and Prevention, 2021). Additionally, 75% of all lifetime mental illnesses begin by age 24 (National Alliance on Mental Illness, 2022).

Young adults ages 18-25 years old have the highest rate of mental health illness with 33.7% of the population affected (National Institute of Mental Health, 2023). This is compared to adults ages 26-49 years with 28.1% affected by mental health illnesses and ages 50+ with 15.0% affected by mental health illnesses. Around 51.7% of females receive mental health care while only 40% of males do (National Institute of Mental Health, 2023). Around 22.6% of the United States non-Hispanic white adult population has a prevalence of mental illness (National Alliance on Mental Illness, 2022). This

compares 13.9% of the non-Hispanic Asian population with a prevalence of mental illness, 17.3% of the non-Hispanic black or African American population with a prevalence of mental illness, 18.7% of the non-Hispanic American Indian or Alaska Native population with a prevalence of mental illness, 35.8% of the non-Hispanic mixed/multiracial population with a prevalence of mental illness, 16.6% of the non-Hispanic Native Hawaiian or Other Pacific Islander population with a prevalence of mental illness, and 18.4% of the Hispanic or Latino population with a prevalence of mental illness (National Alliance on Mental Illness, 2022).

The mental health infrastructure in the United States is struggling to keep up with the high demands of people access care (American Hospital Association, 2023). Not only does there need to be more access points for care, but there is a shortage of clinicians and inpatient care (American Hospital Association, 2023). Inpatient psychiatric care has declined significantly over the past five decades with many facilities closing up or shifting to outpatient programs (American Hospital Association, 2023). Over 100 million Americans live in areas that have a shortage of mental health care professionals and cases derived from the COVID-19 pandemic have exacerbated these shortages (American Hospital Association, 2023). Additionally, during the pandemic, thousands of inpatient psychiatric beds were converted to serve COVID-19 patients (American Hospital Association, 2023). Even with access to mental health care, many low-income and insurance-less patients cannot access care due to the high cost (American Hospital Association, 2023). Telehealth is helping to improve access to care for those with highspeed broadband and healthcare providers with adequate support to provide these services (American Hospital Association, 2023). While the COVID-19 pandemic

highlighted the broadband and technology access issue in many rural communities, it still takes time, money, and resources to bring these things to the communities that need them (American Hospital Association, 2023). Until this access is secured, many rural Americans will be going without access to mental health care (American Hospital Association, 2023).

Mental Health in Agriculture

Farming and ranching are often painted as a simple and peaceful way of life; however, farming and ranching are stressful occupations (Fraser et al., 2005). Farmers and ranchers in the U.S. have demanding jobs that are often compounded by economic uncertainty, vulnerability to weather events, and isolation. Rural agricultural communities may also have limited access to healthcare and mental health services, which can make it difficult for farm and ranch families to receive support when they are experiencing extreme stress, anxiety, depression, or another mental health crisis. (Rural Health Information Hub, 2021)

Additionally, the economic outlook for farmers and ranchers has been worsening in the last 10 years as farmers and ranchers experience significant economic stressors. This includes falling commodity prices, natural disasters harming crop yields and reducing animal numbers, increasing levels of farm debt, labor shortages, and trade disputes (Rural Health Information Hub, 2021). The year 2023 is being compared to the 1980s Farm Crisis as the agricultural economic outlook deteriorates and agricultural families and communities struggle to make it financially (Rural Health Information Hub, 2021).

Stigma Surrounding Mental Health in Agriculture

There is a stigma surrounding mental health in farming communities that stems from passing down the same business through generations (Torske et al., 2016). The idea of losing a family farm adds to the mental toll farmers may feel (Torske et al., 2016). Farmers, similar to male soldiers, professional athletes, and firefighters, symbolized a strong, traditional form of masculinity and were often depicted as tough, relentless, resilient, resourceful, and stoic people (Roy et. al., 2017). Such qualities would theoretically lead to privilege with their health and well-being; however, these men were more likely to experience high levels of stress, social isolation, psychological distress, and suicide than many other subgroups of men (Roy et. al., 2017).

Roy et. al. found traditional masculinity norms may have had negative effects on male farmers' mental health and their willingness to discuss it and get the help they needed (Roy et. al., 2017). These men tend to favor some negative coping strategies, such as substance abuse, social isolation, and suicide, to deal with the mental health struggles (Roy et. al., 2017). In agriculture, there was a glorification of work and a devaluation of leisure, even though taking breaks had been proven to help with mental health (Roy et. al., 2017). Some farmers who took breaks did so while hiding away from their peers and the public eye, suggesting there is still social pressure to display total dedication to the work (Roy et. al., 2017). It was also noted, "deconstructing this aspect of traditional masculinity norms among farmers will likely help create greater social acceptability of a variety of (hopefully more positive) masculine practices aligned with farmers' health and well-being and their families' as well" (Roy et. al., 2017, p. 1544). Devaluing this 'relentless work ethic' mentality farmers and ranchers have received from generations

before them will allow them to take the steps they need so they can care for themselves and their mental health (Roy et. al., 2017).

Statement of the Problem

Mental health is a concerning issue for all, especially farmers and ranchers who are dealing with mental health disorders (Rudolphi et. al., 2019). However, limited research has been conducted in relation to mental health in the agricultural field, specifically looking at the perceptions of mental health in young farmers and ranchers. This research study will create baseline data on young farmers' and ranchers' perceptions of mental health by surveying those associated with the American Farm Bureau Young Farmers and Ranchers program.

Purpose and Objectives

The purpose of this study was to determine mental health perceptions of young farmers and ranchers and explore the stigma surrounding mental health in agriculture. To accomplish the purpose of this study, the following objectives were addressed:

1. To describe demographic information of young farmers and ranchers.
2. To identify the level of importance of mental health to young farmers and ranchers.
3. To determine the access young farmers and ranchers have to mental health resources.
4. To assess if young farmers and ranchers are prepared to assist others with mental health challenges.
5. To assess if young farmers and ranchers are confident in assisting others with mental health challenges.

Assumptions

The following assumptions were made regarding this study. First, there is a stigma surrounding the topic of mental health in agriculture. Second, participants of this study are associated with or members of the American Farm Bureau Young Farmers and Ranchers program in their state. Third, participants would respond honestly about their perceptions of mental health, the stigma surrounding mental health in agriculture, and their level of agreement related to statements about access to mental health resources and their preparedness and confidence in assisting others with mental health challenges.

Limitations of the Study

The population of this study was difficult to estimate and communicate with. Subjects, along with their contact information, were recruited using the 'snowball effect' approach which made contact with participants reliant on other people. Researchers did not have any control over the contact list used for contacting the population. The instrument was only shared via email adding to the limitation. All of this made the exact population difficult to estimate because there is no way of calculating or estimating the number of people it was sent to.

The population of this study was associated with the American Farm Bureau Young Farmers and Ranchers program meaning they already understand the importance of being a part of an organization and the social support they provide which may add bias to the population. Additionally, because of the method used to gain participants, there is no way of confirming if they are members of the American Farm Bureau Young Farmers and Ranchers program. We only know they are associated with it enough to receive an email during the recruitment process. The results of this study cannot be generalized back

to the greater population of all young farmers and ranchers in the United States. The population sample was not representative of the demographics of young farmers and ranchers across the United States as the majority of participants were women between the ages of 23 and 35.

Another limitation of this study was the interpretation the questions and statements in the instrument. Participants interpreted each question and statement based on their life experiences and history with the topic of mental health. The word “stigma” was also used which by definition has a negative connotation (Merriam Webster, 2023) and could have biased participants' answers.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this review of literature was to gather materials required to conduct research on young farmers' and ranchers' perceptions of mental health. Mental health is a person's emotional, psychological, and social well-being problems (U.S. Department of Health & Human Services, 2022). Although many people have mental health concerns at different times during their lives and many factors contribute to those concerns, "a mental health concern becomes a mental illness when ongoing signs and symptoms cause frequent stress and affect your ability to function" (Mayo Clinic, 2023). The literature reviewed the mental health of young farmers and ranchers, perceptions of mental health, occupational stressors, demographic effects, and farmer and rancher suicide as well as literature to understand the theoretical framework of the study. The objectives of this study were to explain young farmers' and ranchers' perceptions of mental health and to explore the stigma surrounding mental health in agriculture.

Mental Health Resources

The American Farm Bureau created a Farm State of Mind program focused on helping farmers and ranchers deal with stress and mental health by offering resources and education to its members on the topic of mental health (American Farm Bureau, 2023a). They provide access to mental health helplines around the United States, training on

spotting the warning signs of mental health and having conversations on the topic of mental health, education about mental health, and how to help people dealing with mental health struggles (American Farm Bureau, 2023a). They conduct research on farmers' and rural perceptions of mental health with the goal of trying to reduce the stigma surrounding mental health in agriculture (American Farm Bureau, 2023a). Key findings include farmers are seeking treatment to deal with stress; there is less of a stigma surrounding mental health in the agricultural industry, but it is still there; farmers are becoming more comfortable talking to friends, family, and doctors about stress and mental health; farmers are experiencing more stress and mental health challenges compared to past years; barriers to accessing mental health care, including the stigma and availability of treatments, are lessening each year; and financial issues, weather or other factors beyond their control, and the state of the farm economy impact farmers' mental health (American Farm Bureau, 2023a). Specific educational events include topics like coping with stress and anxiety, rural resilience training, and virtual events with members who are farmers with a special interest and experience in mental health advocacy (American Farm Bureau, 2023a).

Mental health resources may be hard for farmers and ranchers to reach, largely due to the rural areas they live in and limited access to broadband and technologies (U.S. Department of Agriculture, 2023). Although this access continues to improve, farmers and ranchers need access to mental health care and resources immediately (U.S. Department of Agriculture, 2023). Extension may be able to bridge this gap and provide mental health resources for producers (National Institute of Food and Agriculture, 2023).

Extension is a bridge between education and research and the producers who use the information in a practical form (National Institute of Food and Agriculture, 2023). It provides non-formal education by emphasizing taking knowledge gained through research and bringing it directly to the people to create positive change (National Institute of Food and Agriculture, 2023). According to the National Institute of Food and Agriculture (2023), Extension programs bring evidence-based science and modern technologies to farmers, consumers, and families to create openness, accessibility, and service for all. Because of this, Extension could be a great resource for farmers and ranchers to access mental health resources (National Institute of Food and Agriculture, 2023). Mental health resources have to work for producers and the things that work with urban populations typically do not work with agricultural ones (Frybarger et. al., 2019). Local extension offices provide their local producers with the information and resources that pertain to and work best for them, and it would work the same with mental health topics (National Institute of Food and Agriculture, 2023).

Mental Health in the School System

Since 2000, many schools have provided students with access to mental health professionals who can provide education and resources on mental health topics (Sutton, 2021). School psychologists' job is to support the students' mental health and well-being (Sutton, 2021). The field of school psychology goes back to 1896, but the training programs and current job outline for the profession did not form until the 1960s (Sutton, 2021). Since then, the topic of mental health has continually become more important, and students are learning about it from a young age (Sutton, 2021). While all schools and

school experiences are different, some young people may have received knowledge on mental health from school and can bring it into their current profession (Sutton, 2021).

Just like mental health resources are difficult to access for many rural individuals, it can be similar for rural schools (Panchal et. al., 2022). However, schools in rural areas are seen as primary mental health care facilities so the shortage of counselors and inadequate funding affect the mental health care of many individuals (Wilger, 2015; Panchal et. al., 2022). Telehealth may be the solution for mental health care in rural school systems if the schools have adequate access to technology and mental health care service providers (Wilger, 2015).

Barriers to Mental Health Care Access

The topic of mental health continues to be discussed in the media in the last decade (McGinty et al., 2016). In a collection of news story samples covering mental health from 1995-2014, around 55% of the conversation surrounding mental health was about violence committed by those who struggle with mental health disorders and emphasized the violence disproportionately to the actual rates of such violence (McGinty et al., 2016). These stories contributed to the negative social stigma around mental health that still lingers today (McGinty et al., 2016). Media has a direct link to the negative stigma surrounding the topic of mental health and the reason may be many people struggle to discuss their mental health and take action to receive treatment (McGinty et al., 2016).

Rural communities tend to have a social stigma that is compounded because privacy is highly valued by its members, and there is an assumption they will be the subject of community gossip, which is unwanted (Frybarger et. al., 2019). This

population is also highly prideful, independent, and hesitant to talk about problems and seek mental health services (Frybarger et. al., 2019). Strategies used by mental health professionals typically do not work for members of rural communities as they would for urban populations (Frybarger et. al., 2019). Distance, transportation, lack of insurance, and shortage of mental health professionals are also barriers to care for rural individuals (Frybarger et. al., 2019). Chronic stress can contribute to marital tensions, domestic violence, work disruption, depression, anxiety, and suicide (Frybarger et. al., 2019). Women tend to be more willing to discuss their stress and get help dealing with it while men tend to isolate themselves (Frybarger et. al., 2019). Their sense of pride and independence impacts their willingness to receive mental health care (Frybarger et. al., 2019).

Young Farmers' and Ranchers' Demographics

For this study, it was important to define *young farmers and ranchers*. The American Farm Bureau's Young Farmers and Ranchers program age range is 18-35 (American Farm Bureau, 2023b). Because participants were all associated with the American Farm Bureau's Young Farmers and Ranchers program, this age range was used as a general guide; however, the guidelines of the study stated participants only had to be older than 18 years old. The USDA calculated the average age of a beginning farmer to be 46.3 years old, or anyone who has farmed for 10 years or less, which is nine years younger than the average age of all farmers at 57.5 years old (Halvorson, 2021). Of the 908,274 beginning farmers in the United States, 26% were under the age of 35 (Halvorson, 2021). Producers between the ages of 18 and 35 accounted for only 8% of the total U.S. farmers and ranchers (Halvorson, 2021).

Additionally, 64% of the farmers in the United States were male and 36% were female (Census of Agriculture Highlights, 2017). Around half of the farms' full-time employees have a bachelor's degree or higher as the highest educational attainment (DeLay et. al., 2020). Around 9% of these farmers have a post-graduate degree, a master's degree or above, as the highest educational attainment (DeLay et. al., 2020). Forty-two percent of producers reported farming as their primary occupation and 58% reported having another primary occupation (Census of Agriculture Highlights, 2017). 95.5% of farmers were white (Census of Agriculture Highlights, 2017). The most common farm size is 10 to 49 acres with 29% of farms and 50 to 175 28% of farms (Census of Agriculture Highlights, 2017).

Mental health illnesses leading to suicide are the fourth leading cause of death among teens and young adults ages 15-29 (World Health Organization, 2023). As the average age of the farmer and rancher increased, so did the demand for young producers to replace them (Rudolphi et. al., 2019). Young people did not want to join an industry where they know they would struggle both physically and emotionally, putting the agricultural industry in a difficult situation (Rudolphi et. al., 2019).

Mental Health of Young Farmers and Ranchers

There is a need for research on the topic of mental health in the agricultural industry (Hendrickson, 2018). Mental health is a complex issue, and a multi-faceted communication campaign could be used to discuss it and find solutions for producers experiencing mental health struggles (Hendrickson, 2018). The topic of mental health is more complex in the agricultural industry because farmers will do almost anything to maintain the legacy of their farm as their identity is intertwined with their profession

(Hendrickson, 2018). Farmers tend to feel isolated because of the rural areas they live in and the stigma surrounding mental health in rural farming communities is exacerbated (Hendrickson, 2018). Lack of money and the desire for confidentiality deter farmers from accessing mental health care (Hendrickson, 2018).

Rudolphi et. al, found personal finances, time pressures, economic conditions, and employee relations to be the biggest stressors associated with young farmers and ranchers' anxiety and depression (Rudolphi et. al., 2019). Because of the multitude and consistency of stressors, farmers and ranchers never received a break from being stressed, increasing their struggle with mental health conditions (Rudolphi et. al., 2019).

Young farmers and ranchers tended to be at a higher risk of mental health disorders like anxiety and depression compared to older, more experienced farmers and ranchers (Rudolphi et. al., 2019). Chronic stress has been indicated to contribute to the development of mental health disorders in these young producers as they experience these stressors more frequently and repetitively compared to older producers (Rudolphi et. al., 2019). Additionally, mental health disorders, including depression and anxiety, were more prevalent in this population compared to the general population (Rudolphi et. al., 2019). Teens and young adults are struggling with mental health at higher rates compared to older generations for a multitude of different variables including increased use of screens, electronic communications, and digital and social media; not sleeping as much as young people did in the past; having a parent with an undiagnosed or untreated mental health condition; and are more open to admitting they are struggling and receiving treatment (American Psychological Association, 2019; Jurewicz, 2015).

Currin et. al. found older adults have ‘less-positive’ perceptions of mental health compared to younger adults (Currin et. al., 2011). Additionally, women held more positive mental health perceptions than men did (Currin et. al., 2011). The data suggested efforts to reach older men should be given high priority because the majority of the population of farmers and ranchers are men Currin et. al. (2011). Furthermore, because younger adults tend to have a more positive attitude toward the topic of mental health, targeting them to help break the stigma surrounding mental health in agriculture could have a better effect than targeting older adults (Currin et. al., 2011).

Rudolphi and Barnes (2020) noted farmers were “stressed and depressed” and the “stigma” surrounding mental health was deterring producers from getting the help they need (Rudolphi & Barnes, 2020). Agribusiness personnel were hesitant about their organization’s role in mental health promotion because of the lack of training for addressing mental health with producers (Rudolphi & Barnes, 2020). Many producers are struggling with their mental health, and the agricultural community was aware of it as leaders of agribusinesses see the need to help, but do not know how to (Rudolphi & Barnes, 2020). Additional training for members of agribusinesses could go a long way in helping farmers and ranchers with their mental health (Rudolphi & Barnes, 2020).

The Occupational Stress Model

Stressors in the agricultural industry have been well-studied and documented over time (Rudolphi, 2020). The Occupational Stress Model by Cooper and Marshall suggested sources of stress at work are associated with the development of mental health conditions (Rudolphi, 2020). Although eliminating stressors for farmers and ranchers

may not be achievable, practicing stress management and intervention practices may have helped to protect against mental health conditions (Rudolphi, 2020).

Occupational Stressors

Farming is not just an occupation but a lifestyle that values traits like stoicism and self-reliance which are ingrained in farmers' identities (Vayro et. al., 2020). Farmers resist asking for help, especially when it comes to mental health (Vayro et. al., 2020). Farmers do not believe they have extra time in their day, and spending any time seeking mental health care is too time-consuming and would interfere with their work (Vayro et. al., 2020). A similar study by Roy et. al. (2017) found the "farmer and rancher mentality" hurt their mental health and shifting it to be more positive and open to help would allow them to take the steps they need to care for themselves and their mental health (Vayro et. al., 2020).

Agriculture has one of the highest rates of mortality in any industry because farmers and their families are exposed to many physical and mental health risks (Fraser, et. al., 2005). These risks include chronic exposure to pesticides and other chemicals; physically demanding work; long working hours; unpredictable weather conditions; and psychological hazards like high levels of stress, depression, anxiety, and increased rates of suicide (Fraser, et. al., 2005). Farming has always been a high-stress and dangerous occupation; however, recent changes in the industry have compounded the stressors adding to the mental load producers cope with (Fraser, et. al., 2005). Children in farming families can be exposed to a range of risks to their physical and mental health from an early age and they can continue in adulthood (Fraser, et. al., 2005).

People in farming and agricultural businesses have a unique stress put upon them leading to psychological distress for workers including mental health conditions like anxiety and depression (McShane & Qurik, 2009). Additionally, things out of the farmer's control, like climate conditions and geographic isolation were also stressors (McShane & Qurik, 2009). People with highly psychologically-taxing jobs have less time to address family responsibilities and leisure activities leading to less recovery time from work and ultimately emotional exhaustion, all pretenses for mental health illnesses (McShane & Qurik, 2009).

Truchot & Andela (2018) developed the 'farmers stressors inventory' to assess the stressors farmers were facing. They found farmers' health is a public health issue and eight stress factors for this population (Truchot & Andela, 2018). The stressors included a heavy workload, lack of time to handle the physical workload, and lack of time to complete tasks properly; the fragility of the future financial market and general economic conditions; agricultural legislation pressure; physical isolation; present financial concern and worry; conflicts with associates or family members; family farm succession plans; and the unpredictable interference with farm work, like the weather, machinery breakdown, and learning new technologies (Truchot & Andela, 2018).

Understanding farmer psychological disorder risk factors and their impacts was essential for reducing the burden of mental illness for populations in developed and underdeveloped countries (Daghagh et. al., 2019). Pesticide exposure, financial difficulties, climate variabilities and drought, and poor physical health and past injuries were the four most-cited influences on farmers' mental health in underdeveloped countries (Daghagh et. al., 2019; Arora, et. al., 2020). Chemicals, tools, and equipment

were perceived as the greatest health and safety concerns for agricultural workers (Arora, et. al., 2020).

Farming as an occupation had been through more changes in the last 10 years than any other occupation, leading to a variety of added stressors on producers including the physical environment, family structure, farm economy, and bureaucracy (Torske et al., 2016). These changes include climate change and increasing numbers of natural disasters, policy, and legislation, inflated input and land prices, and technology advancements (Torske et al., 2016; Hoppe, 2012). Each is unique to farmers compared to the general public.

Sleep is an important factor in mental health and preventative measures (Hawes, 2019). Sleep length and quality have been found to negatively impact the mental health of farmers if they do not get enough of it (Hawes, 2019). Less than six hours of quality sleep is considered sleep deprivation and can lead to mental health conditions like depression (Hawes, 2019). Farmers deal with a large amount of stress contributing to a decrease in the amount of sleep and the quality of sleep they receive (Hawes, 2019). Not only does sleep help prevent mental health conditions, like depression, but also is a treatment for the condition (Hawes, 2019).

Climate change is providing farmers and ranchers with additional stressors to their already stress-filled occupations (Howard et. al., 2020). Climate change is linked to decreasing crop yields and livestock development, variability in temperatures and precipitation, increased extreme weather conditions like droughts, and the increased frequency and intensity of natural disasters (Howard et. al., 2020). All of these present effects on market prices and the producer's livelihood (Howard et. al., 2020). This added

stress, which a producer has no control over, has negative consequences on producers' mental health (Howard et. al., 2020).

Farm Income Crisis

Although it has been well documented the global agricultural industry experiences higher stress, depression, and suicide rates than the general population and has for many years, it is less documented how the current farm income crisis has impacted farmers' and ranchers' mental health (Henning-Smith et. al., 2022). Since 2017, the U.S. has been experiencing a farm income crisis that has had a significant impact on producers' stress and mental health, especially in the dairy and grain sector (Henning-Smith et. al., 2022). Sudden shifts in trade policy, depressed commodity prices, and major floods in the Midwest region all have played a role in this crisis (Henning-Smith et. al., 2022).

COVID-19 Pandemic

Since 2020, the COVID-19 pandemic has amplified existing issues in the U.S. food and agriculture supply, compounding the stress farmers and farm families are experiencing and adding to the mental health struggles many farmers and ranchers are experiencing (Henning-Smith et. al., 2022). Stressors the COVID-19 pandemic added to include supply chain issues, increasing food costs, and inflation of inputs (Organisation for Economic Co-operation and Development, 2020). Henning-Smith et. al. adds "while COVID-19 is creating an acute need for mental health interventions, it is also crucial to consider the chronic stressors and longer-term mental health challenges faced by farmers above and beyond the current moment" (2022, pg. 22). Developing accessible and attainable mental health care strategies for farmers and ranchers should be a priority for mental health care professions and the research community (Henning-Smith et. al., 2022).

Over 100 million Americans, many of whom are farmers and ranchers living in rural communities, live in areas that have a shortage of mental health care professionals (American Hospital Association, 2023). The mental health care infrastructure in the United States was struggling to keep up with the high demands of people access care before the COVID-19 pandemic and now cases derived from the COVID-19 pandemic have exacerbated these shortages (American Hospital Association, 2023). Telehealth is helping to improve access to care for those with highspeed broadband and healthcare providers with adequate support to provide these services (American Hospital Association, 2023). While the COVID-19 pandemic highlighted the broadband and technology access issue in many rural communities, it still takes time, money, and resources to bring these things to the communities that need them (American Hospital Association, 2023). Until this access is secured, many rural Americans will be going without access to mental health care (American Hospital Association, 2023).

Recessions Effect on Farmers' and Ranchers' Mental Health

Recessions increase the risk for worse mental health conditions and also increase risky behaviors like alcohol and drug use people use to cope with mental health conditions (Forbes & Krueger, 2019). Economic crises tend to have stronger negative effects on the mental health of people with lower income or education and people without secure employment (Forbes & Krueger, 2019). Recession effects highly impacted the mental health of men, younger adults, and single people at a high rate also (Forbes & Krueger, 2019). Farmers and ranchers tend to fit into many of these categories, and those who fit into multiple categories have a higher probability to struggle with mental health conditions during these times (Forbes & Krueger, 2019).

Suicide in Agriculture

Agricultural workers, including farmers and ranchers, were at elevated risk of suicide due to mental health-related illnesses (Bossard et. al., 2016). Farmers worry about money, business problems, legislation, and more, and this worry is associated with high levels of stress, depression, anxiety, and other mental health conditions, all well-known risk factors for suicide (Bossard et. al., 2016). Additionally, farmers and ranchers have easy access to lethal agents and the social isolation they experience at work has been recognized as a possible increased risk factor for mental health illnesses to turn into suicide (Bossard et. al., 2016).

Certain demographic, social, and occupational characteristics of farmers have a higher risk of death by suicide (Bossard et. al., 2016). Farmers' working conditions, which have strong physical constraints, long working hours, strong economic pressure, dependence on public policies, and fluctuations in the environment, lead to mental health illnesses leading the farmers and other agricultural workers to suicide (Bossard et. al., 2016). Although not all farmers and ranchers will commit suicide or even consider it, too many do because of aspects of their occupation that the general population does not experience (Bossard et. al., 2016).

The life expectancy for Americans decreased between 1999 and 2018 as a direct result of a 35% increase in suicide rates (Bjornestad, et. al., 2021). However, suicide trends were not evenly spread across the general population (Bjornestad, et. al., 2021). Middle-aged, white males, which the average American farmer is, die from suicide more than any other group (Bjornestad, et. al., 2021). Additionally, suicide rates in rural areas are higher than in urban areas with people who work in agriculture at an increased rate of

suicide versus other occupations (Bjornestad, et. al., 2021). In an ‘analysis of suicide risk factor among farmers in the Midwestern United States study by Bjornestad et. al. (2021), 29.3% of producers sampled met the criteria for depression, an alarming rate that resembles the 1980s farm crisis (Bjornestad, et. al., 2021). The study also found 27% of producers sampled met the criteria for an anxiety disorder (Bjornestad, et. al., 2021). This rate is much higher than the estimated 19.1% of the general population but much lower than the 71% of young farmers dealing with an anxiety disorder (Bjornestad, et. al., 2021). The study also noted the need for public health support and programs focusing on mental health literacy and stress management strategies to reduce self-blame among producers for this population (Bjornestad, et. al., 2021).

Farmers and ranchers “represent iconic American values, including hard work, strong morality, family-centered, and purposeful living. However, violent death by suicide or homicide occurs in this population, and it severely impacts the family, the farm business, and the surrounding community” (Ringgenberg et. al., 2014, p. 246). Suicide is the 10th leading cause of all deaths in the United States (Ringgenberg et. al., 2014). There are an estimated 1.2 million farm operators, and 758,000 farm laborers work in the United States (Ringgenberg et. al., 2014). Of that group, suicide accounts for 8%-14% of farm deaths (Ringgenberg et. al., 2014). This rate of suicide is higher among farmers who are owner-operators, especially after economic crises (Ringgenberg et. al., 2014).

Suicide rates for farmers and agricultural workers are higher than for all other occupational services (Ringgenberg et. al., 2014). This is because farmers, ranchers, and other agricultural workers have occupational exposures to several of the risk factors associated with suicide, including financial stress, isolation, and poor access to mental

health services (Ringgenberg et. al., 2014). Farmers are self-employed and typically have only a few employees, or none at all, making them take on significant responsibilities, creating greater personal investment in the farm and its operations (Ringgenberg et. al., 2014). Farmers are exposed to insecticides and other chemicals which have been linked to depression (Ringgenberg et. al., 2014). Farmers typically fit many of the general risk factors for suicide but also may have a history of mental illness, and be susceptible to chronic pain or illness, and alcohol or drug abuse, all leading to a feeling of loss of control over life (Ringgenberg et. al., 2014). Farmers experience occupational factors, like limited access to mental health care, social isolation, and financial stress which may interact with life factors to place farmers and ranchers at a higher risk for suicide compared to other occupations (Ringgenberg et. al., 2014). Additionally, agricultural work tasks are physically and psychologically taxing creating stress for the farmer, resulting in depression (Ringgenberg et. al., 2014). All of these factors can lead to mental health illness and possibly suicide (Ringgenberg et. al., 2014).

Suicide is listed in the top 10 leading causes of premature death in the United States (Miller & Rudolphi, 2022). This data signifies a lack of suicide awareness and prevention efforts for the people who are highly at risk, a population including many young farmers and ranchers (Miller & Rudolphi, 2022). The study also found 33% of farmers and ranchers have physical health problems such as arthritis, musculoskeletal conditions, cardiovascular diseases, skin cancer, hearing loss, and amputations, all of which may result in permanent disability, adding to mental health concerns for this population and pressure to turn to suicide (Miller & Rudolphi, 2022).

Farmer suicide is an international challenge, occurring in both Western and developing countries. Literature suggests male farmer suicide is most common among male farm managers more than 55 years of age (Hogan et. al, 2012). Although farmers' suicide is frequently discussed in literature, studies developed to specifically examine the various factors associated with leading up to farmer suicide, have not been conclusive (Hogan et. al., 2012). Just because a farmer or rancher deals with stress or has a mental health condition, it does not mean they will commit, or even consider committing, suicide (Hogan et. al., 2012). Factors beyond what can be seen add to the decision to commit suicide, these factors often just add to the existing stress and mental health illnesses farmers and ranchers are dealing with (Hogan et. al., 2012).

Social Support as a Proactive Factor

Social support is found to have a direct relationship with mental health well-being as people with high levels of social support experience less stress when in stressful situations and can cope with any stress more successfully compared to those without social support (Letvak, 2002). Social support can come from family, friends, neighbors, church groups, health care providers, or any type of community. It is more important for a person to have quality support versus a large quantity of support (Letvak, 2002). Farmers and ranchers with social support from their family, friends, and community will be better able to handle the large amount of stress they deal with and help protect them from mental health conditions (Letvak, 2002).

Bjornestad, et. al. (2019) found social support to be important from friends and family members for the prevention of depressive symptoms in farmers (Bjornestad et. al.,

2019). The passing of ownership of the farm creates added stress and conflict with family, who are supposed to be their social support (Bjornestad et. al., 2019).

Patrilineal inheritance is a common strategy for keeping the farm within the family. This strategy can be crucial for the economic performance and sustainability of the farm. However, farmers tend to retire at a later age, resulting in the male heirs becoming dependent on their parents for a longer duration than nonfarming peers. When passing ownership of the family farm is delayed, the younger generation often struggles with identity issues due to a desire to be autonomous. The identity issues and role confusion may contribute to conflict and disconnection within the parent-child relationship, possibly resulting in lower levels of perceived social support by either family member (Bjornestad et. al., 2019, p. 113).

The agricultural and farming ‘way of life’ involves a type of pride, physical strength, heavy labor, ruggedness, and self-sacrifice (Bjornestad et. al., 2019). This typical rural masculinity also avoids emotion and vulnerability, deterring farmers from discussing mental health concerns with friends or family members and impeding their ability to receive social support (Bjornestad et. al., 2019).

Theoretical Framework: Bronfenbrenner’s Ecological Theory

This study followed Bronfenbrenner’s ecological theory for the theoretical framework. Bronfenbrenner’s ecological theory appears mainly in public mental health research. A study by Eriksson et al. states, “clearly considering interactions within and between different ecological systems, can come up with the most useful recommendations for public mental health promotion and interventions” (2018). The

ecological model breaks down the assessment of regularly occurring activities and interactions with significant others, objects, and symbols in the developing individual's life (Eriksson et al., 2018). This theory has four elements including the microsystem, mesosystem, exosystem, and macrosystem (Eriksson et al., 2018). The microsystem is the direct environment a person is in including the home, school, and workplace. (Eriksson et al., 2018). The mesosystems are the interactions a person has within those in their microsystem like the relations between home and school or home and peer groups (Eriksson et al., 2018). The exosystem is the environment embracing social structures, which has an indirect effect on an individual's environment (Eriksson et al., 2018). Examples include mass media and public agencies like government and school boards (Eriksson et al., 2018). The macrosystems are like the culture of a society (Eriksson et al., 2018). This includes the laws and regulations but also the unwritten rules and norms (Eriksson et al., 2018). Bronfenbrenner's ecological theory in relation to mental health evaluates how an individual is influenced by the ecological systems surrounding them, as well as interactions with the ecological systems (Eriksson et al., 2018).

Urie Bronfenbrenner started developing his theory in 1977 to help understand human development (Eriksson et al., 2018). Over time, his theory went through significant changes as he constantly revised it until 2005 (Eriksson et al., 2018). Since then, it has been applied to many other fields of research, other than human development, including health and mental health research (Eriksson et al., 2018). This theory has an ecological perspective and "offers a way to simultaneously emphasize both the individual and contextual systems and the interdependent relations between these two systems, and thus offers a variety of conceptual and methodological tools for organizing and

evaluating health-promotion interventions” (Eriksson et al., 2018, p. 416). It is appealing to public mental health research because it encompasses several contexts in a very broad sense rather than focusing on an individual’s specific attributes and behaviors (Eriksson et al., 2018).

Socio-ecological Model

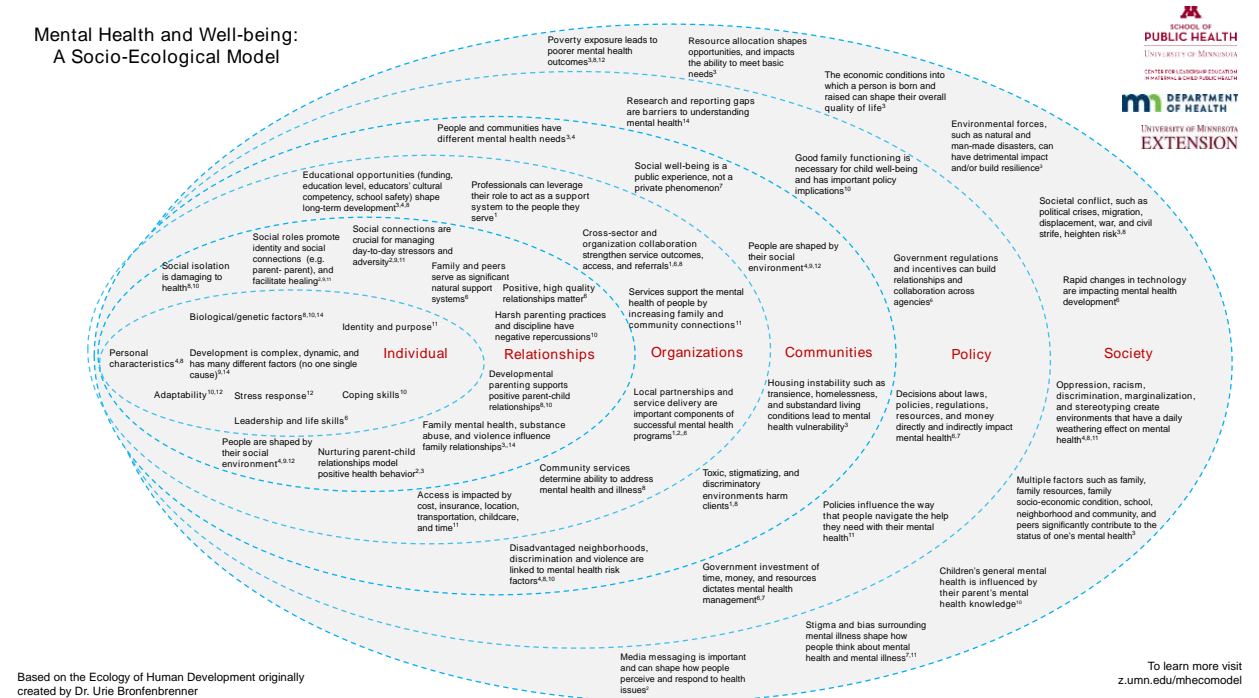
Figure 1 is a socio-ecological model created using Bronfenbrenner’s ecological theory “as a way to visually illustrate individual, family, organization, community, and societal factors that influence individual mental health and well-being” (Michaels, et. al., 2022, para. 1). Each of these factors has each of the four elements, microsystem, mesosystem, exosystem, and macrosystem, Bronfenbrenner’s ecological theory describes (Michaels, et. al., 2022). This model recognizes individuals' affects and is affected by a complex range of social influences and factors that can cross between multiple levels, shown by the dotted lines on the model (Michaels, et. al., 2022). Factors impact people differently based on life experience (Michaels, et. al., 2022). The model uses six levels of influence including individuals, relationships, organizations, communities, policies, and society (Michaels, et. al., 2022).

Individual

The individual level of the Mental Health and Well-being: A Socio-Ecological Model includes everything people are born with including biological and genetic factors, like age, personality, skills, race and ethnicity, sexual orientation, education and knowledge, economic status, and geographic location (Michaels, et. al., 2022). People are also influenced by the world surrounding them and how they respond to stress (Michaels, et. al., 2022). The individual level also includes things like adaptability, coping skills, and

Figure 1

Mental Health and Well-being: A Socio-Ecological Model (Michaels, et. al., 2022)



personal characteristics, all of which can affect how a person is affected by mental health (Michaels, et. al., 2022).

Relationships

The relationship level of the Mental Health and Well-being: A Socio-Ecological Model includes all a person’s formal and informal support systems (Michaels, et. al., 2022). This includes relationships with family, friends, neighbors, teachers, co-workers, and service providers (Michaels, et. al., 2022). The relationship level also includes things like social isolation, family’s mental health, substance abuse, violence, and child development, all of which can affect how a person is affected by mental health (Michaels, et. al., 2022).

Organizations

The organizations level of the Mental Health and Well-being: A Socio-Ecological Model includes a person's relationship between public, private, and non-profit organizations (Michaels, et. al., 2022). This includes schools, workplaces, agencies, businesses, healthcare, childcare, and faith (Michaels, et. al., 2022). The relationship level also includes things like access, or lack thereof, because of cost, insurance, location, transportation, childcare, or time, to community services addressing mental health (Michaels, et. al., 2022).

Communities

The communities level of the Mental Health and Well-being: A Socio-Ecological Model includes the broad social setting in which relationships occur including neighborhoods and cultural groups (Michaels, et. al., 2022). People are shaped by their social environment, and this includes the communities they live in (Michaels, et. al., 2022). The communities level also includes things like housing instability, toxic or stigmatizing environments, and disadvantaged neighborhoods, all of which can affect how a person is affected by mental health (Michaels, et. al., 2022).

Policy

The policy level of the Mental Health and Well-being: A Socio-Ecological Model includes the laws and policies that regulate and support health behaviors on all levels including workplace, local, state, federal, and international (Michaels, et. al., 2022). Decisions made about laws, policies, regulations, resources, and money can all directly and indirectly impact someone's mental health (Michaels, et. al., 2022). This level also includes the government's investment of time, money, and resources in mental health

care and management and the research to help understand mental health (Michaels, et. al., 2022).

Society

The society level of the Mental Health and Well-being: A Socio-Ecological Model includes broad societal factors including culture, beliefs, values, norms, customs, and practices (Michaels, et. al., 2022). Multiple factors such as family, family resources, family's socio-economic condition, school, neighborhood and community, and peers significantly contribute to the status of someone's mental health (Michaels, et. al., 2022). The society level also includes things like poverty, resource allocation, technology, and the stigma or bias surrounding mental health, all of which can affect how a person is affected by mental health (Michaels, et. al., 2022).

The instrument for this study was developed keeping all six levels in mind. The questions participants were asked to answer made them consider all levels in their responses. Because the study was evaluating mental health in a very broad sense, Bronfenbrenner's ecological theory helped to examine both the individual and contextual systems, like the individual, family, organization, community, and societal factors that influence individual mental health, and the interdependent relations between those two systems rather than focusing on an individual's specific attributes and behaviors. The instrument also evaluated the participants' individual perceptions on topics while assessing the contextual systems, like access to mental health resources, and the relationship between the two.

CHAPTER III

METHODOLOGY

This study is designed to determine the perceptions of mental health held by young farmers and ranchers and to explore the stigma surrounding mental health in agriculture. This chapter provides a detailed description of the methods used to collect and analyze data for this study. In addition, this chapter includes information regarding the population and sample, instrument design, validity and reliability, and the research design employed in this study.

Institutional Review Board

Oklahoma State University policy and federal regulations require approval of all research studies related to human subjects before research can begin. The Oklahoma State University Office of University Research Services and the Institutional Review Board (IRB) review research methods to protect the rights and welfare of human subjects involved in biomedical and behavioral research. This study was reviewed and approved on February 24, 2023. The IRB application number assigned to this study was IRB-23-85 (see Appendix A).

Population and Sample

The population for this study included adults 18 years of age or older, who own or work on a farm or ranch at least part-time, and with at least part of their household

income coming from farming or ranching. The Qualtrics survey link and informed consent information were voluntarily shared with eight states' American Farm Bureau Young Farmers and Ranchers program coordinators to share with their members. Members were encouraged to participate, as well as send it to others who may be interested in participating. The eight states included New York, Nevada, California, Minnesota, Wisconsin, Montana, Delaware, and Ohio. During the duration of the study, 42 individuals participated in the survey. Of those 42 responses, 36 were deemed usable ($n=36$). Six responses were deemed unusable because the participants completed less than 50% of the questions.

Research Design

This exploratory research study used a survey methodology with an instrument developed by the researchers with input from industry professionals. The instrument was a combination of Semantic Differential questions and 5-point Likert-type scale questions, paired with demographic questions to achieve the research objectives (see Appendix B). Quantitative research with a survey methodology was chosen because the study intended to describe trends in a large population of individuals (Creswell, 2015). In this methodology, an instrument is administered to a population sample to identify trends in attitudes, opinions, behaviors, or characteristics of the population (Creswell, 2015).

The instrument was developed on Qualtrics by the researchers. This online platform was chosen because it is a common and simple tool to be able to build surveys. Access to this software was provided free of charge to researchers by Oklahoma State University. The university and agricultural communications department has pre-made templates branded for easy use. Anonymity for participants was ensured by following the

IRB protocol to ensure names and emails provided for the drawing could not be traced back to individual responses. This was done by not recording a timestamp on either instrument, having all questions optional, including a participant information/consent form as the first page of your survey, providing an anonymous link to the instrument to participants, and following all required Qualtrics setting options.

Instrument Design

The instrument was developed based on two different previous studies: *Rural Mental Health Assessment* by Peyton Mallory Thomas (2021), Tarleton State University; and *Fairgoers' Attitudes Toward Youth Livestock Exhibits at the California State Fair* by Krista L. Anderson (2012), Oklahoma State University. The Tarleton State University study provided much of the demographic portion of the survey while the Oklahoma State University study provided an example of the use of semantic differential questions.

The instrument included a combination of 36 Semantic Differential questions and 5-point Likert-type scale questions as well as multiple demographic questions. The 18 demographic questions asked about age, gender, education level, residency, race, marital status, number of children, agricultural occupation, role on operation, operation type, number of coworkers on and off the operation, off-farm occupation, primary income, percentage of income from farming or ranching, and information regarding the participants' operation including acreage, livestock and poultry type, and crops harvested. The 14, 5-point Likert-type scale questions asked participants to rate their level of agreement from strongly agree to strongly disagree. The questions asked about being comfortable and confident in seeking out information and discussing mental health topics, accessing resources, and reducing the stigma of mental health in agriculture. The

two semantic differential questions asked participants to rate a given statement on a 7-point scale between a pair of opposite words. The pairs of words used in these questions came from the suggestions listed in the *Handbook in Research and Evaluation* by Stephen Isaac and William B. Michael (1982).

Semantic Differential Scale Questions

This study used semantic differential scales for two of the questions. Semantic differential questions are considered a reliable way to measure participants' attitudes or beliefs about a topic (Shields, 2006). They apply to any research where people's opinion on a subject is being sought (Shields, 2006). The scale generally includes between five and nine steps between the bipolar-adjective word pairs (Isaac & Michael, 1982). The ideal number is seven, which was used for this study (Isaac & Michael, 1982). According to Isaac & Michael (1982), Osgood discovered and analyzed 76 polar adjective pairs to be used in this type of questioning (Isaac & Michael, 1982). All word pairs fall into one of the following categories: evaluative, potency, or activity (Isaac & Michael, 1982).

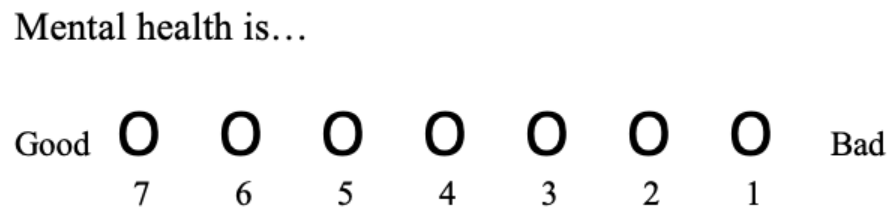
For this study, the researchers selected word pairs according to the purpose of the study (Isaac & Michael, 1982). Not all word pairs were used and only ones which would help reach the intended purpose of the study were chosen. The instrument had two semantic differential questions, and each had its own set of 16 polar adjective word pairs chosen from the list tested and recommended by Isaac & Michael (1982). Figure 2 shows the first question of this study as an example of the semantic differential scale.

Participants selected one of seven undefined steps between the word pair to rate the concept. Each step was later assigned a numerical value based on the direction and degree of their opinion (see Figure 2). The more positive of the two words, as noted by

Isaac & Michael (1982), was on the left with a higher numerical value and the more negative on the right with a lower numerical value. The middle, or number four, indicated a neutral feeling between the words.

Figure 2

Example of Semantic Differential Scale with Numerical Values Assigned to Steps



Likert-type Scale Questions

This study also used a Likert-type scale for 12 questions. Likert-type scale questions provide options where participants rank their agreement through equal intervals (Creswell, 2015). Researchers decided on a 5-point scale to allow participants to be neutral in their agreement and not force an answer they do not agree with if they chose to do so. Participants were instructed to rate their level of agreement for 12 statements from strongly agree to strongly disagree. Figure 3 shows the first statement participants were asked as an example of the Likert-type scale questions. Participants selected one of five levels of agreement for each statement. The scale was coded with strongly agree getting a five, somewhat agree a four, neutral a three, somewhat disagree a two, and strongly disagree at one (see Figure 3).

Figure 3

Example of a 5-point Likert-type Scale with Numerical Values Assigned to Levels

Rate your level of agreement with each of the following statements.

	Strongly agree 5	Somewhat agree 4	Neither agree nor disagree 3	Somewhat disagree 2	Strongly disagree 1
Farmers and ranchers suffer from mental health conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Validity

Validity looks at if the instrument is designed well and has the necessary content to gather the proposed data (Creswell, 2015). It is important to have validity in a study, so participants grasp the intended interpretation to reach the proposed purpose (Creswell, 2015). This instrument required two types of validity: content and face. Content validity examines the instrument's contents to make sure what is being asked is meeting the proposed objectives (Creswell, 2015). Face validity examines the way the instrument looks, is formatted, and if it is user-friendly (Creswell, 2015). The instrument was reviewed for content and face validity by a panel of industry professionals working closely with topics of mental health in the agricultural industry, including three faculty members at Oklahoma State University and two individuals outside the university (see Appendix C). These experts provided feedback and suggestions on both the content and format of the online questionnaire. Specifically, the experts suggested changes regarding the wording of questions to meet the objectives of the survey. The experts also checked for grammar mistakes and made sure each question made sense to participants. Each expert was selected based on his or her background regarding the agricultural industry or interest and experience in mental health topics. Preliminary changes were made to the

instrument, and the questionnaire was returned to panel members for a second review. The study was found valid when the panel of experts agreed the instrument was designed appropriately to seek answers to all objectives of this research project (Creswell, 2015). The researcher and faculty chair made final changes before publishing the questionnaire online and sending it to participants.

Reliability

Reliability of an instrument is found when there is internal consistency of responses to items in the instrument (Creswell, 2015). It is important to have reliability because it means responses from the instrument are stable and consistent (Creswell, 2015). Given the nature of the study and the targeted population, we decided to not conduct a pilot test. This decision was made for two reasons. First, the researchers were concerned with interfering with the final data collection given the small potential population size. We wanted all potential participants to have a chance to be a part of the main study. The second reason we chose not to do a pilot study was access to the population. All contact with participants was reliant on other people and the sharing of the study's procedures. This made it difficult to control this part of the study and posed a problem for trying to use the same process to seek pilot test participants. We chose to run a post-hoc reliability analysis after the main data collection process ended. In particular, we ran a Cronbach's alpha coefficient (Creswell, 2015) on all 5-point Likert-type scale questions. The Cronbach's alpha coefficient was 0.769. After conducting this analysis, the study was deemed reliable as literature confirms any number over 0.7 to be reliable (Taber, 2017). Semantic differential word pairs were selected based on relevance and appropriateness to the topic from a list provided in *Handbook in Research and*

Evaluation by Stephen Issac and William B. Michael (1982), providing reliability for those questions.

Data Collection

This study followed a survey descriptive research method. The population for this study included young farmers and ranchers associated with the American Farm Bureau. The link and informed consent information were voluntarily shared within the organization and to its members. The researchers had no way to identify the participants. Data was collected within Qualtrics, but no potential identifiers were collected.

Procedures for this study were developed based on the guidance found in *Internet, Phone, Mail, and Mixed-Mode Surveys* by Dillman et al. (2014). Dillman et al. (2014) noted the optimum number of times to contact participants via email to participate in the study depends on many different factors including the length of time for data collection. Based on provided examples in the text, the structure of our data collection plan, and the length of data collection, led us to provide four emails in an attempt to reach participants. This process included an initial contact along with three follow-up emails (Dillman et al, 2014). Each email contained the Qualtrics instrument link, informed consent information, and a thank you.

The instrument was open from February 27, 2023, to March 27, 2023. The instrument was sent via email to Ty Higgins of the Ohio Farm Bureau, an industry professional, which included a link to the Qualtrics online platform to complete the survey. From there, the survey was shared with eight states (New York, Nevada, California, Minnesota, Wisconsin, Montana, Delaware, and Ohio) American Farm Bureau Young Farmers and Ranchers program coordinators. The coordinators shared the

emails with their members. Members were encouraged to participate as well as send it to others who may be interested in participating. Four specific IRB-approved emails were provided to Higgins to send out prior to the start date. Each email contained the link to the survey as well as instructions and background information about the study. Each email was sent out on a Monday during a four-week period. These emails were delivered using the same process as outlined for the initial email using the ‘snowball effect’ (see Appendix D) The survey was completely anonymous.

An incentive was used to gain participant interest (Singer & Ye, 2013). The researchers provided six \$50 gift cards from Amazon as an incentive to participate. Participant names and emails were collected immediately after participants finished the instrument. The collection of this identifying information was done in a separate Qualtrics instrument, which participants were automatically sent to after the completion of the main questionnaire. The incentive data was not connected in any way to the first answers to the main instrument. Participants could voluntarily opt out of completing the incentive questionnaire. While the researchers did know who the respondents were if they entered the drawing, they did not know their individual responses. This incentive was used because Amazon gift cards are versatile for a wide variety of participants. IRB protocol was followed to ensure names and emails provided for the drawing could not be traced back to individual responses. This was done by not recording a timestamp on either instrument, having all questions optional, including a participant information/consent form as the first page of the survey, providing an anonymous link to the instrument, and following all required Qualtrics setting options. Gift card winners were drawn in April 2023 and contacted using the email provided.

Data Analysis

Data was analyzed at the completion of the four-week period on March 27, 2023. Data analysis for this study consisted of examining frequencies to describe young farmers' and ranchers' perceptions of mental health. Frequencies were described because responses are only generalizable to the 36 participants and not to the general population. Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS) 28.0 for Mac.

The first research objective inquired about the participants' demographics. Participants' responses were analyzed for frequency. The second objective was to identify the level of importance of mental health to young farmers and ranchers. This objective evaluated the frequencies and means of responses to a set of semantic differential scales for two different prompts. It also identified the level of importance through two questions on a 5-point Likert-type scale where the frequencies were generated to describe the level of importance for each item.

Objective three was to determine the access young farmers and ranchers have to mental health resources. Four questions were asked on a 5-point Likert-type scale and frequencies were generated to describe the level of agreement for each item. Objective four sought to assess if young farmers and ranchers were prepared to assist others with mental health challenges. Two questions were asked on a 5-point Likert-type scale and, similarly, the frequencies were generated to describe the level of agreement for each item. Objective five sought to assess if young farmers and ranchers are confident in assisting others with mental health challenges. Four questions were asked on a 5-point

Likert-type scale and, like the two before, the frequencies were generated to describe the level of agreement for each item.

CHAPTER IV

FINDINGS

This study explored five objectives. The purpose of this chapter is to explore the findings related to each objective. Together, each objective helped discover young farmers' and ranchers' perceptions of mental health and explored the stigma surrounding mental health in agriculture.

Findings Related to Objective 1: Demographic Information

The first objective examined the demographic information of the participants. Thirteen participants (36.1%) were male. Eighteen participants (50%) were female. One participant (2.8%) preferred not to say. Four participants (11.1%) did not respond to the gender question.

The year of birth options provided for participants were years 1922 through 2005, as participants had to be at least 18 years of age or older to fill out the instrument. Table 1 shows the ages of the study's participants by the year they were born and the frequency and percentage of participants who responded with each year. Participants only marked the years 1975, 1985, and 1988-2000. The most common years were 1992 and 1998 with four participants (11.1%) marking each year. No participants were marked after the year 2000, meaning no one under the age of 23 answered this question. Additionally, two

Table 1*Age Ranges of Study's Participants*

Year	Frequency	Percent	Age
2000	1	2.8%	23
1999	2	5.6%	24
1998	4	11.1%	25
1997	1	2.8%	26
1996	3	8.3%	27
1995	3	8.3%	28
1994	3	8.3%	29
1993	2	5.6%	30
1992	4	11.1%	31
1991	2	5.6%	32
1990	1	2.8%	33
1989	2	5.6%	34
1988	2	5.6%	35
1985	1	2.8%	38
1975	1	2.8%	48

participants (5.6%) were older than 35 but were still considered to be associated with the American Farm Bureau's Young Farmers and Ranchers program.

Two participants (5.6%) had a high school diploma or some college education.

Two participants (5.6%) had an associate or vocational degree. Twenty-four participants

(66.7%) had a B.S. or B.A. degree. Four participants (11.1%) had a graduate degree. Four participants (11.1%) did not respond to the education question (see Table 2).

Table 2

Participants' Education Level

Degree	Frequency	Percent
Highschool diploma or some college education	2	5.6%
Associate or vocational degree	2	5.6%
B.S or B.A.	24	66.7%
Graduate degree	4	11.1%
No response	4	11.1%

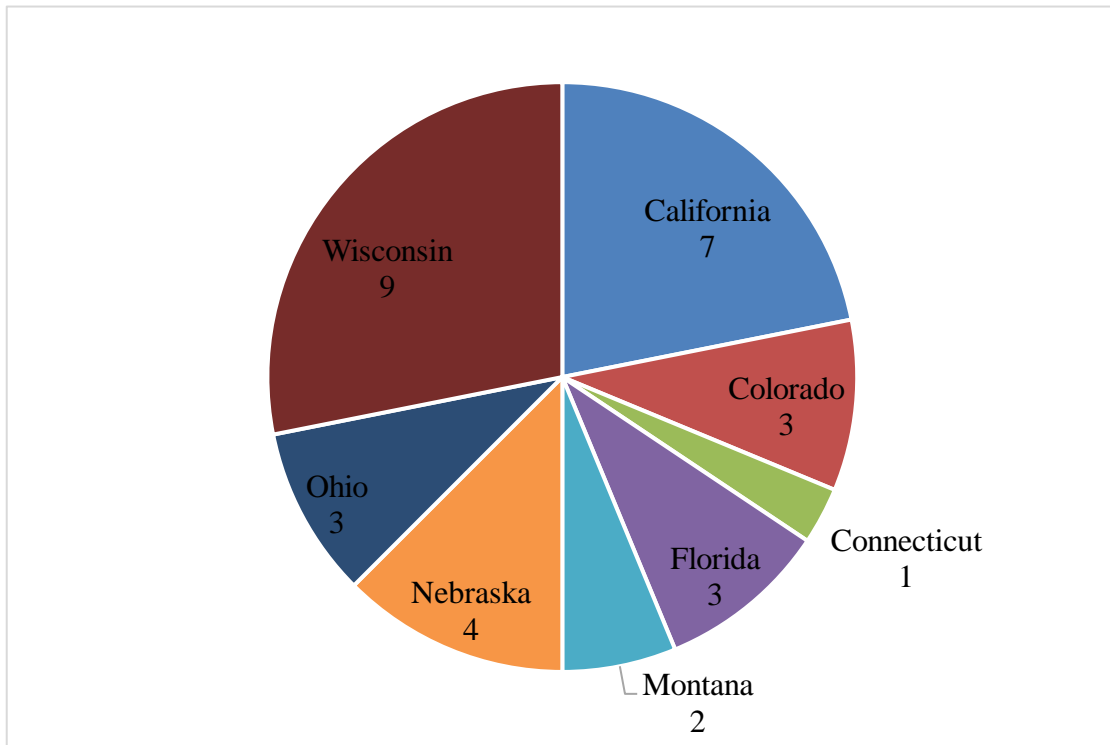
Participants were asked what state they reside in (see Figure 4). Participants from California made up 19.4% of the responses. Participants from Colorado made up 8.3% of the responses. Participants from Connecticut made up 2.8% of the responses. Participants from Florida made up 8.3% of the responses. Participants from Montana made up 5.6% of the responses. Participants from Nebraska made up 11.1% of the responses.

Participants from Ohio made up 8.3% of the responses. Participants from Wisconsin made up 25.0% of the responses. There were 11.1% of participants who did not respond.

Two participants (5.6%) were Hispanic or Latino, 30 participants (83.3%) were white, and four participants (11.1%) did not respond to the race question. Seventeen participants (47.2%) were single, 14 participants (38.9%) were married, one participant (2.8%) was divorced, and four participants (11.1%) did not respond to the marital status

Figure 4

Participants' State of Residency



question. Twenty-four participants (66.7%) had no children, and eight participants (22.2%) had one to two children, and four participants (11.1%) did not respond to the number of children question (see Table 3).

Participants' roles on the operation varied (see Figure 5). Principle operation owners made up 22.2% of participants. Secondary operation owners made up 8.3% of participants. Children of the operations' owners made up 36.1% of participants. Other parts of the operation made up 22.2% of participants. There were 11.1% of participants who did not respond with their role on the operation.

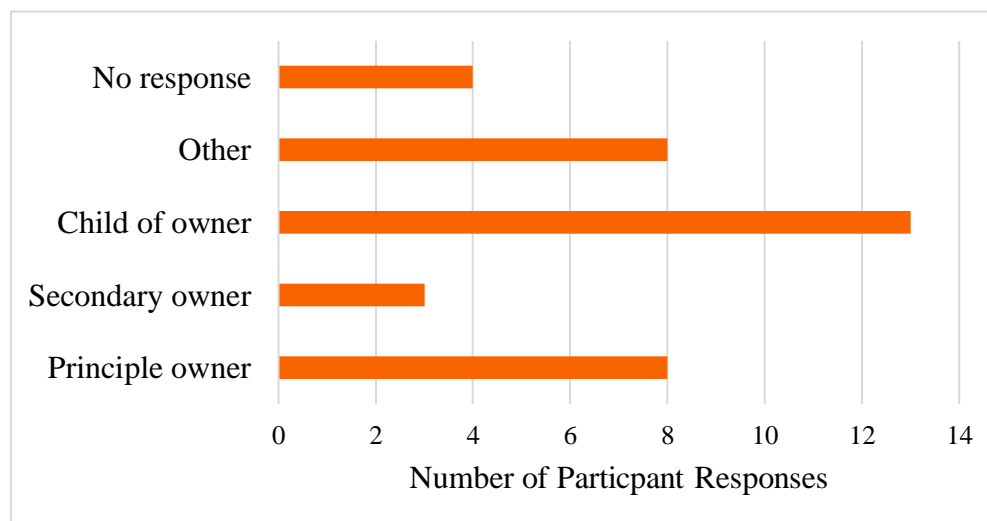
Table 3

Participants' Race, Marital Status, and Number of Children

Race	Frequency	Percent
Hispanic or Latino	2	5.6%
White	30	83.3%
No response	4	11.1%
Marital Status	<i>f</i>	<u>%</u>
Single	17	47.2%
Married	14	38.9%
Divorced	1	2.8%
No response	4	11.1%
Number of Children	<i>f</i>	<u>%</u>
No children	24	66.7%
1-2 children	8	22.2%
No response	4	11.1%

Figure 5

Participants' Role on the Operation



Five participants (13.9%) had an independent operation. Twenty-two participants (61.1%) had a family operation. Five participants (13.9%) had a non-family operation. Four participants (11.1%) did not respond to the operation type question.

Participants were asked about the number of people they work with daily on the operation. Table 4 shows the number of people participants work with daily on the operation by frequency and percentage of participants who responded within each range. No participants responded with 100+ people.

Table 4

Number of Individuals Participants Work with Daily

Number of individuals	Frequency	Percent
0-1	12	33.3%
2-3	10	27.8%
4-5	3	8.3%
6-7	3	8.3%
8-10	3	8.3%
11-19	1	2.8%
20-99	0	0.0%

Nine participants (25%) did not have a separate occupation off-farm. Five participants (13.9%) had a part-time occupation off-farm. Eighteen participants (50%) had a full-time occupation off-farm. Four participants (11.1%) did not respond to the occupation question.

Fourteen participants (38.9%) considered their farm income to be their primary source of income. Seventeen participants (47.2%) considered their farm income to be their secondary source of income. Five participants (13.9%) did not respond to the income question.

Thirteen participants (36.1%) had less than 25% of their annual household coming from farming and ranching occupations. Five participants (13.9%) had 25-49% of their annual household coming from farming and ranching occupations. Four participants (11.1%) had 50-75% of their annual household coming from farming and ranching occupations. One participant (2.8%) had 75-99% of their annual household coming from farming and ranching occupations. Nine participants (25%) had 100% of their annual household income coming from farming and ranching occupations. Four participants (11.1%) did not respond to the annual household income question.

The last three questions asked the participants to describe their operation by number of acres, livestock and poultry species, and crops harvested. Participants were able to select all that applied to their operation(s) from a provided list for the livestock and poultry species (see Table 5) and crops harvested (see Table 6). Three participants chose 'other' to describe their operation for livestock and poultry, describing their operation as 'beef sold direct to consumer,' 'chickens,' and 'nursery products.' Two participants choose 'other' to describe their operation for crops harvested, describing their operation as 'agritourism' and 'blueberries.'

Five participants (13.9%) had 1-9 acres. Three participants (8.3%) had 10-49 acres. Nine participants (25%) had 50-179 acres. Four participants (11.1%) had 180-499

Table 5*Participants' Responses for Description of Operation of Livestock and Poultry*

Species	Frequency	Percent
Beef cows	9	25.0%
Dairy cows	9	25.0%
Cattle and calves	7	19.4%
Goats	4	11.1%
Other	3	8.3%
Sheep and lambs	2	5.6%
Hogs and pigs	1	2.8%
Layers	1	2.8%
Horses	1	2.8%
Broilers	0	0.0%

acres. One participant (2.8%) had 500-999 acres. Ten participants (27.8%) had 1000 or more acres. Four participants (11.1%) did not respond to the acreage question.

Findings Related to Objective 2: Level of Importance of Mental Health to Young Farmers and Ranchers

Objective two was designed to identify the level of importance of mental health to young farmers and ranchers. The instrument used a combination of semantic differential scales and 5-point Likert-type scales to test participants' attitudes. Participants were asked to rate two different concepts on a semantic differential scale. Participants' responses, as well as the chosen word pairs, for each concept are displayed in Table 7 and Table 8. The

Table 6*Participants' Responses for Description of Operation of Crops Harvested*

Crops	Frequency	Percent
Corn	16	44.4%
Hay	12	33.3%
Soybeans	10	27.8%
Vegetables	8	22.2%
Wheat	5	13.9%
Oats	5	13.9%
Sorghum	5	13.9%
Fruits	3	8.3%
Nuts	2	5.6%
Nursey/landscape	2	5.6%
Vineyard	2	5.6%
Other	2	5.6%
Greenhouse	1	2.8%
Barley	0	0.0%
Cotton	0	0.0%
Aquaculture	0	0.0%
Floriculture	0	0.0%

Table 7*Participants' Responses to 'Mental health is...'*

	7		6		5		4		3		2		1		
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	
Good	12	33.3%	10	27.8%	8	22.2%	2	5.6%	1	2.8%	1	2.8%	1	2.8%	Bad
Graceful	2	5.6%	4	11.1%	9	25.0%	8	22.2%	7	19.4%	5	13.9%	1	2.8%	Awkward
Important	27	75.0%	5	13.9%	3	8.3%	0	0.0%	0	0.0%	0	0.0%	1	2.8%	Unimportant
Strong	7	19.4%	10	27.8%	11	30.6%	4	11.1%	1	2.8%	0	0.0%	1	2.8%	Weak
Serious	19	44.4%	9	25.0%	5	13.9%	4	11.1%	1	2.8%	0	0.0%	1	2.8%	Humorous
Masculine	3	8.3%	2	5.6%	3	8.3%	20	55.6%	3	8.3%	5	13.9%	0	0.0%	Feminine
Complex	17	47.2%	10	27.2%	3	8.3%	3	8.3%	1	2.8%	1	2.8%	0	0.0%	Simple
Predictable	0	0.0%	4	11.1%	4	11.1%	5	13.9%	6	16.7%	12	33.3%	5	13.9%	Unpredictable
Understandable	2	5.6%	7	19.4%	8	22.2%	10	27.8%	6	16.7%	3	8.3%	0	0.0%	Mysterious
Familiar	2	5.6%	5	13.9%	5	13.9%	11	30.6%	12	33.3%	1	2.8%	0	0.0%	Strange
Simple	1	2.8%	1	2.8%	0	0.0%	3	8.3%	5	13.9%	16	44.4%	10	27.8%	Complicated
Clear	0	0.0%	3	8.3%	4	11.1%	9	25.0%	5	13.9%	11	30.6%	3	8.3%	Confusing
Traditional	1	2.8%	2	5.6%	3	8.3%	9	25.0%	12	33.3%	7	19.4%	2	5.6%	Progressive
Original	1	2.8%	0	0.0%	5	13.9%	13	36.1%	7	19.4%	5	13.9%	5	13.9%	Stereotyped
Tender	2	5.6%	2	5.6%	5	13.9%	13	36.1%	4	11.1%	8	22.2%	2	5.6%	Tough
Approach	4	11.1%	6	16.7%	7	19.4%	6	16.7%	9	25.0%	1	2.8%	3	8.3%	Avoid

Table 8*Participants' Responses to 'The stigma around mental health is...'*

	7		6		5		4		3		2		1		
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>	
Good	2	5.6%	3	8.3%	2	5.6%	6	16.7%	12	33.3%	4	11.1%	5	13.9%	Bad
Important	10	27.8%	8	22.2%	8	22.2%	4	11.1%	3	8.3%	1	2.8%	0	0.0%	Unimportant
True	4	11.1%	4	11.1%	9	25.0%	12	33.3%	3	8.3%	2	5.6%	0	0.0%	False
Positive	2	5.6%	5	13.9%	5	13.9%	3	8.3%	8	22.2%	7	19.4%	3	8.3%	Negative
Interesting	4	11.1%	8	22.2%	9	25.0%	9	25.0%	3	8.3%	0	0.0%	0	0.0%	Boring
Strong	7	19.4%	9	25.0%	4	11.1%	7	19.4%	6	16.7%	1	2.8%	0	0.0%	Weak
Serious	11	30.6%	7	19.4%	9	25.0%	3	8.3%	3	8.3%	0	0.0%	1	2.8%	Humorous
Masculine	2	5.6%	2	5.6%	2	5.6%	13	36.1%	4	11.1%	8	22.2%	3	8.3%	Feminine
Active	1	2.8%	3	8.3%	14	38.9%	11	30.9%	1	2.8%	3	8.3%	0	0.0%	Passive
Complex	9	25.0%	7	19.4%	7	19.4%	4	11.1%	4	11.1%	1	2.8%	0	0.0%	Simple
Predictable	2	5.6%	4	11.1%	9	25.0%	2	5.6%	6	16.7%	6	16.7%	7	13.9%	Unpredictable
Understandable	1	2.8%	3	8.3%	12	33.3%	8	22.2%	6	16.7%	1	2.8%	3	8.3%	Mysterious
Familiar	3	8.3%	4	11.1%	5	13.9%	10	27.8%	4	11.1%	5	13.9%	3	8.3%	Strange
Simple	1	2.8%	4	11.1%	4	11.1%	4	11.1%	6	16.7%	5	13.9%	9	25.0%	Complicated
Clear	2	5.6%	4	11.1%	1	2.8%	6	16.7%	13	36.1%	5	13.9%	3	8.3%	Confusing
Original	0	0.0%	1	2.8%	3	8.3%	9	25.0%	5	13.9%	4	11.1%	12	33.3%	Stereotyped

most frequent response for each word pair is bolded in both tables for easy identification.

While the tables show the full data set, it can be easier to visualize the attitude or perception participants hold to each statement when the means for each item are displayed graphically, as noted in Isaac and Michael (1982) (see Figure 6 and Figure 7). The statement ‘Mental health is...’ has a neutral with a slightly negative connotation. This is evident from the selection of four neutral word pairs, six negative word pairs, and five positive word pairs. The statement ‘The stigma around mental health is...’ has a more negative connotation than the statement previous. This is evident from the selection of the three neutral word pairs, eight negative word pairs, and five positive word pairs.

Figure 6

Graphical Representation of Mean Responses for ‘Mental health is...’

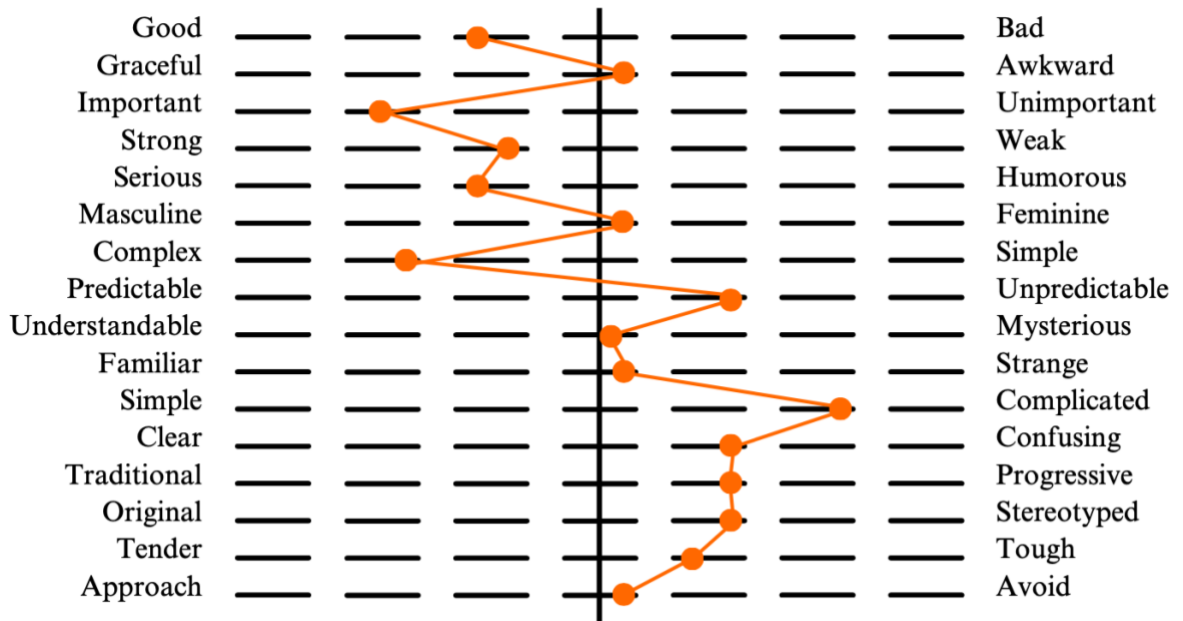
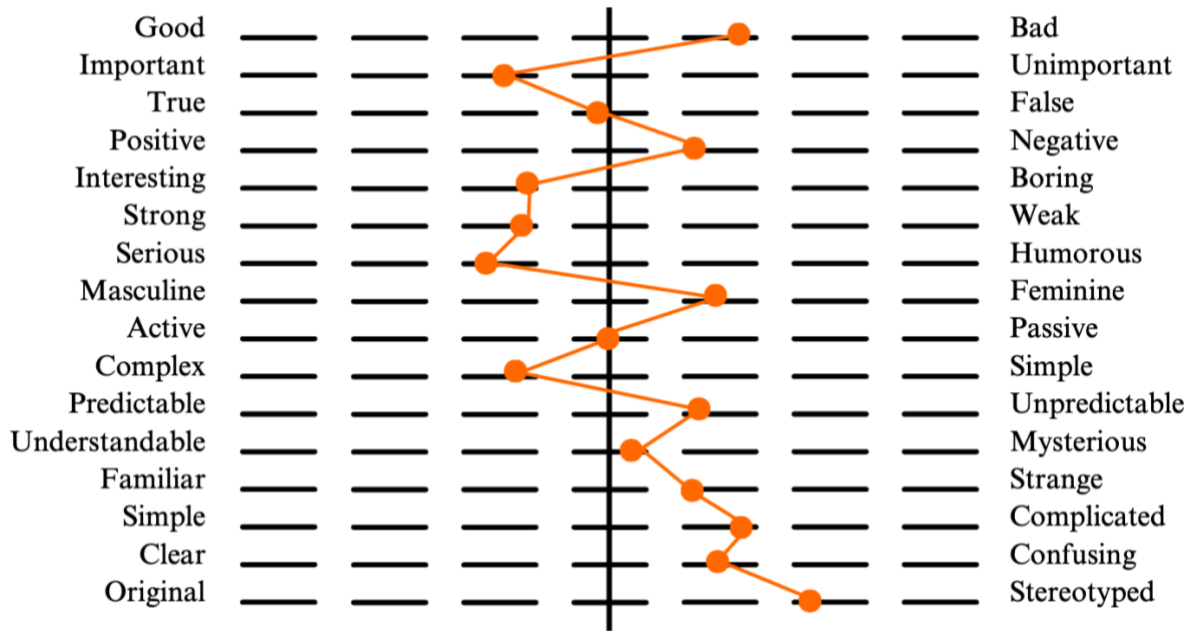


Figure 7

Graphical Representation of Mean Responses for ‘The stigma around mental health is...’



‘Mental health is...’

The first concept participants were asked to rate is ‘Mental health is...’ For the word pair good/bad, thirty participants (83.3%) selected a point to the left of the midpoint of the scale, closest to good. Three participants (8.4%) selected a point to the right of the midpoint of the scale, closest to bad. Two participants (5.6%) selected the neutral point. The mean for this word pair was 5.6.

For the word pair graceful/awkward, 15 participants (47.1%) selected a point to the left of the midpoint of the scale, closest to graceful. Thirteen participants (36.1%) selected a point to the right of the midpoint of the scale, closest to awkward. Eight participants (22.2%) selected the neutral point. The mean for this word pair was 4.1.

For the word pair important/unimportant, 35 participants (97.2%) selected a point to the left of the midpoint of the scale, closest to important. One participant (2.8%) selected a point to the right of the midpoint of the scale, closest to unimportant. No participants selected the neutral point. The mean for this word pair was 6.5.

For the word pair strong/weak, 28 participants (77.8%) selected a point to the left of the midpoint of the scale, closest to strong. Two participants (5.6%) selected a point to the right of the midpoint of the scale, closest to weak. Four participants (11.1%) selected the neutral point. The mean for this word pair was 5.4.

For the word pair serious/humorous, 30 participants (83.3%) selected a point to the left of the midpoint of the scale, closest to serious. Two participants (5.6%) selected a point to the right of the midpoint of the scale, closest to humorous. Four participants (11.1%) selected the neutral point. The mean for this word pair was 5.9.

For the word pair masculine/feminine, eight participants (22.2%) selected a point to the left of the midpoint of the scale, closest to masculine. Eight participants (22.2%) selected a point to the right of the midpoint of the scale, closest to feminine. Twenty participants (55.6%) selected the neutral point. The mean for this word pair was 4.1.

For the word pair complex/simple, 30 participants (83.3%) selected a point to the left of the midpoint of the scale, closest to complex. Two participants (5.6%) selected a point to the right of the midpoint of the scale, closest to simple. Three participants (8.3%) selected the neutral point. The mean for this word pair was 6.0.

For the word pair predictable/unpredictable, nine participants (22.2%) selected a point to the left of the midpoint of the scale, closest to predictable. Twenty-three participants (63.9%) selected a point to the right of the midpoint of the scale, closest to

unpredictable. Five participants (13.9%) selected the neutral point. The mean for this word pair was 3.1.

For the word pair understandable/mysterious, 17 participants (47.2%) selected a point to the left of the midpoint of the scale, closest to understandable. Nine participants (25%) selected a point to the right of the midpoint of the scale, closest to mysterious. Ten participants (27.8%) selected the neutral point. The mean for this word pair was 4.4.

For the word pair familiar/strange, 12 participants (33.4%) selected a point to the left of the midpoint of the scale, closest to familiar. Thirteen participants (36.1%) selected a point to the right of the midpoint of the scale, closest to strange. Eleven participants (30.6%) selected the neutral point. The mean for this word pair was 4.2.

For the word pair simple/complicated, two participants (5.6%) selected a point to the left of the midpoint of the scale, closest to simple. Thirty-one participants (86.1%) selected a point to the right of the midpoint of the scale, closest to complicated. Three participants (8.3%) selected the neutral point. The mean for this word pair was 2.3.

For the word pair clear/confusing, seven participants (19.3%) selected a point to the left of the midpoint of the scale, closest to clear. Nineteen participants (52.8%) selected a point to the right of the midpoint of the scale, closest to confusing. Nine participants (25%) selected the neutral point. The mean for this word pair was 3.2.

For the word pair traditional/progressive, six participants (16.7%) selected a point to the left of the midpoint of the scale, closest to traditional. Twenty-one participants (58.3%) selected a point to the right of the midpoint of the scale, closest to progressive. Nine participants (25%) selected the neutral point. The mean for this word pair was 3.4.

For the word pair original/stereotyped, six participants (16.7%) selected a point to the left of the midpoint of the scale, closest to original. Seventeen participants (47.2%) selected a point to the right of the midpoint of the scale, closest to stereotyped. Thirteen participants (36.1%) selected the neutral point. The mean for this word pair was 3.3.

For the word pair tender/tough, nine participants (25.1%) selected a point to the left of the midpoint of the scale, closest to tender. Fourteen participants (38.9%) selected a point to the right of the midpoint of the scale, closest to tough. Thirteen participants (36.1%) selected the neutral point. The mean for this word pair was 3.6.

For the word pair approach/avoid, 17 participants (47.2%) selected a point to the left of the midpoint of the scale, closest to approach. Thirteen participants (36.1%) selected a point to the right of the midpoint of the scale, closest to avoid. Six participants (16.7%) selected the neutral point. The mean for this word pair was 4.3.

‘The stigma around mental health is...’

The second concept participants were asked to rate is ‘The stigma around mental health is...’ For the word pair good/bad, seven participants (19.5%) selected a point to the left of the midpoint of the scale, closest to good. Twenty-one participants (58.3%) selected a point to the right of the midpoint of the scale, closest to bad. Six participants (16.7%) selected the neutral point. The mean for this word pair was 3.4.

For the word pair important/unimportant, 26 participants (72.2%) selected a point to the left of the midpoint of the scale, closest to important. Four participants (11.1%) selected a point to the right of the midpoint of the scale, closest to unimportant. Four participants (11.1%) selected the neutral point. The mean for this word pair was 5.4.

For the word pair true/false, 17 participants (47.2%) selected a point to the left of the midpoint of the scale, closest to true. Five participants (13.9%) selected a point to the right of the midpoint of the scale, closest to false. Twelve participants (33.3%) selected the neutral point. The mean for this word pair was 4.6.

For the word pair positive/negative, 12 participants (33.4%) selected a point to the left of the midpoint of the scale, closest to positive. Eighteen participants (49.9%) selected a point to the right of the midpoint of the scale, closest to negative. Three participants (8.3%) selected the neutral point. The mean for this word pair was 3.7.

For the word pair interesting/boring, 21 participants (58.3%) selected a point to the left of the midpoint of the scale, closest to interesting. Three participants (8.3%) selected a point to the right of the midpoint of the scale, closest to boring. Nine participants (25%) selected the neutral point. The mean for this word pair was 5.0.

For the word pair strong/weak, 20 participants (19.5%) selected a point to the left of the midpoint of the scale, closest to strong. Seven participants (19.5%) selected a point to the right of the midpoint of the scale, closest to weak. Seven participants (55.5%) selected the neutral point. The mean for this word pair was 5.0.

For the word pair serious/humorous, 27 participants (75%) selected a point to the left of the midpoint of the scale, closest to serious. Four participants (11.1%) selected a point to the right of the midpoint of the scale, closest to humorous. Three participants (8.3%) selected the neutral point. The mean for this word pair was 5.5.

For the word pair masculine/feminine, six participants (16.8%) selected a point to the left of the midpoint of the scale, closest to masculine. Fifteen participants (41.6%)

selected a point to the right of the midpoint of the scale, closest to feminine. Thirteen participants (36.1%) selected the neutral point. The mean for this word pair was 3.5.

For the word pair active/passive, 18 participants (50%) selected a point to the left of the midpoint of the scale, closest to good. Four participants (11.1%) selected a point to the right of the midpoint of the scale, closest to bad. Eleven participants (30.6%) selected the neutral point. The mean for this word pair was 4.5.

For the word pair complex/simple, 23 participants (63.8%) selected a point to the left of the midpoint of the scale, closest to complex. Five participants (13.9%) selected a point to the right of the midpoint of the scale, closest to simple. Four participants (11.1%) selected the neutral point. The mean for this word pair was 5.3.

For the word pair predictable/unpredictable, 15 participants (41.7%) selected a point to the left of the midpoint of the scale, closest to predictable. Seventeen participants (47.3%) selected a point to the right of the midpoint of the scale, closest to unpredictable. Two participants (5.6%) selected the neutral point. The mean for this word pair was 3.7.

For the word pair understandable/mysterious, 16 participants (44.4%) selected a point to the left of the midpoint of the scale, closest to understandable. Ten participants (27.8%) selected a point to the right of the midpoint of the scale, closest to mysterious. Eight participants (22.2%) selected the neutral point. The mean for this word pair was 4.1.

For the word pair familiar/strange, 12 participants (33.3%) selected a point to the left of the midpoint of the scale, closest to familiar. Twelve participants (33.3%) selected a point to the right of the midpoint of the scale, closest to strange. Ten participants (27.8%) selected the neutral point. The mean for this word pair was 4.0.

For the word pair simple/complicated, nine participants (25%) selected a point to the left of the midpoint of the scale, closest to simple. Twenty participants (55.6%) selected a point to the right of the midpoint of the scale, closest to complicated. Four participants (11.1%) selected the neutral point. The mean for this word pair was 3.1.

For the word pair clear/confusing, seven participants (19.5%) selected a point to the left of the midpoint of the scale, closest to clear. Twenty-one participants (58.3%) selected a point to the right of the midpoint of the scale, closest to confusing. Six participants (16.7%) selected the neutral point. The mean for this word pair was 3.5.

For the word pair original/stereotyped, four participants (11.1%) selected a point to the left of the midpoint of the scale, closest to original. Twenty-one participants (58.3%) selected a point to the right of the midpoint of the scale, closest to stereotyped. Nine participants (25%) selected the neutral point. 2.7.

Likert-type Scale

In addition to the semantic differential scales, two statements were used to identify the level of importance of mental health to young farmers and ranchers. Participants were instructed to rate their level of agreement for both statements on a 5-point Likert-type scale from strongly agree to strongly disagree. The scale was reverse coded with strongly agree at five and strongly disagree at one. For the statement 'Farmers and ranchers suffer from mental health conditions,' 88.9% of participants agreed (see Figure 8). For the statement 'It is important to reduce the mental health stigma in agriculture,' 88.9% of participants agreed (see Figure 9).

Figure 8

Participants' Level of Agreement to 'Farmers and ranchers suffer from mental health conditions.'

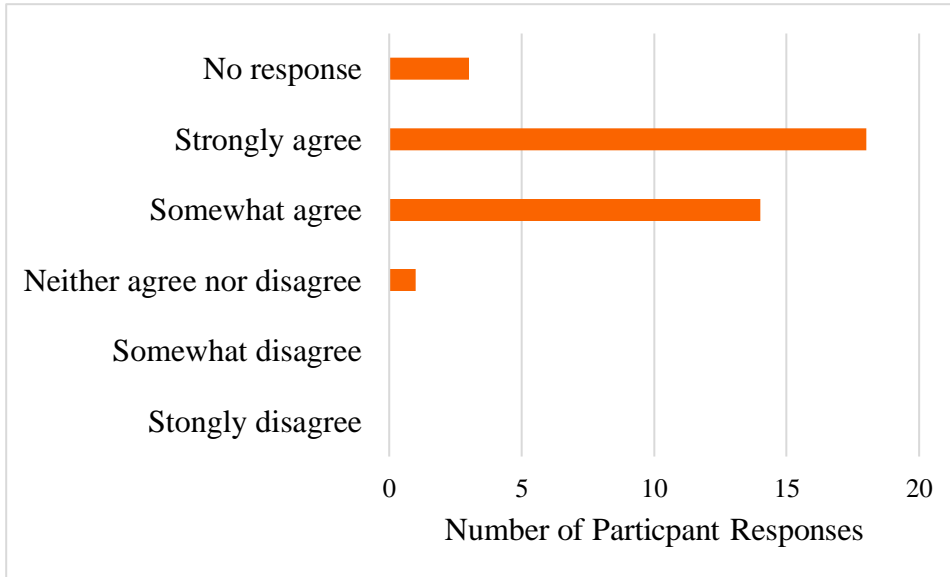
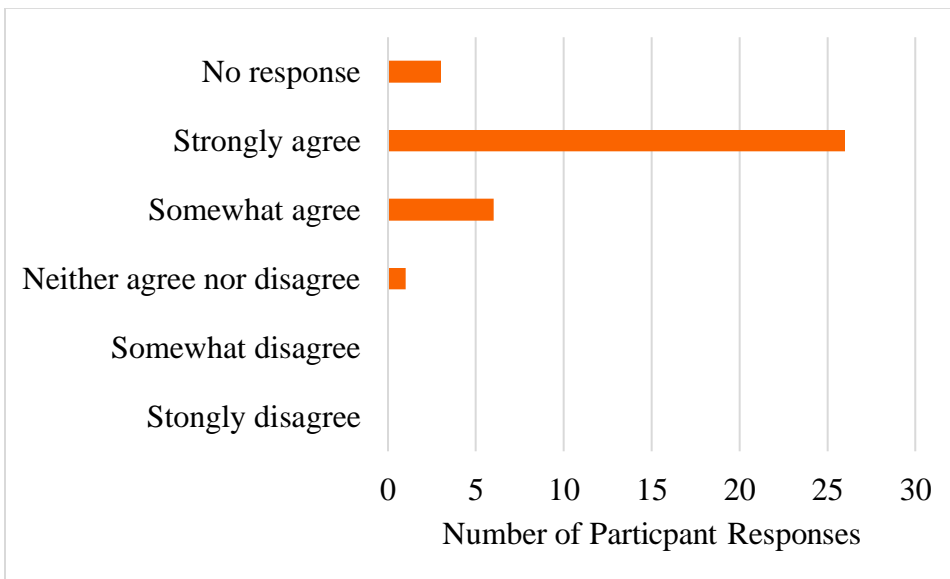


Figure 9

Participants' Level of Agreement to 'It is important to reduce the mental health stigma in agriculture.'



Findings Related to Objective 3: Assess Young Farmers and Ranchers have to Mental Health Resources

Objective three determined the access young farmers and ranchers had to mental health resources. Participants were instructed to rate their level of agreement for four statements on a 5-point Likert-type scale from strongly agree to strongly disagree. The scale was reverse coded with strongly agree at five and strongly disagree at one. For the statement ‘I have access to mental health resources,’ 55.6% of participants agreed (see Figure 10). For the statement ‘I know how to manage my mental health,’ 63.9% of participants agreed (see Figure 11). For the statement ‘I would be more willing to seek counseling for my mental health if the counselor had a background in or understanding of agriculture,’ 66.7% of participants agreed (see Figure 12). For the statement ‘I have a support system to help me with any mental health issues I might face,’ 69.4% of participants agreed (see Figure 13).

Figure 10

Participants' Level of Agreement to ‘I have access to mental health resources.’

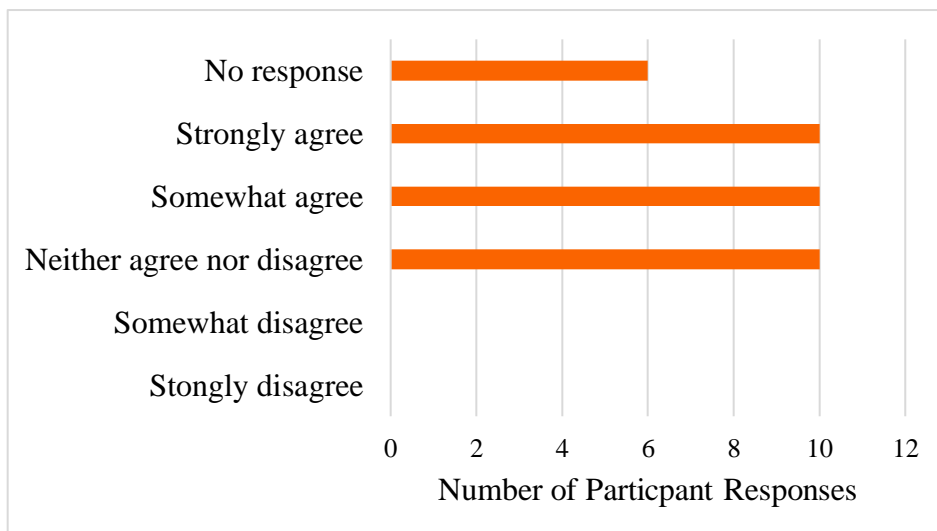


Figure 11

Participants' Level of Agreement to 'I know how to manage my mental health.'

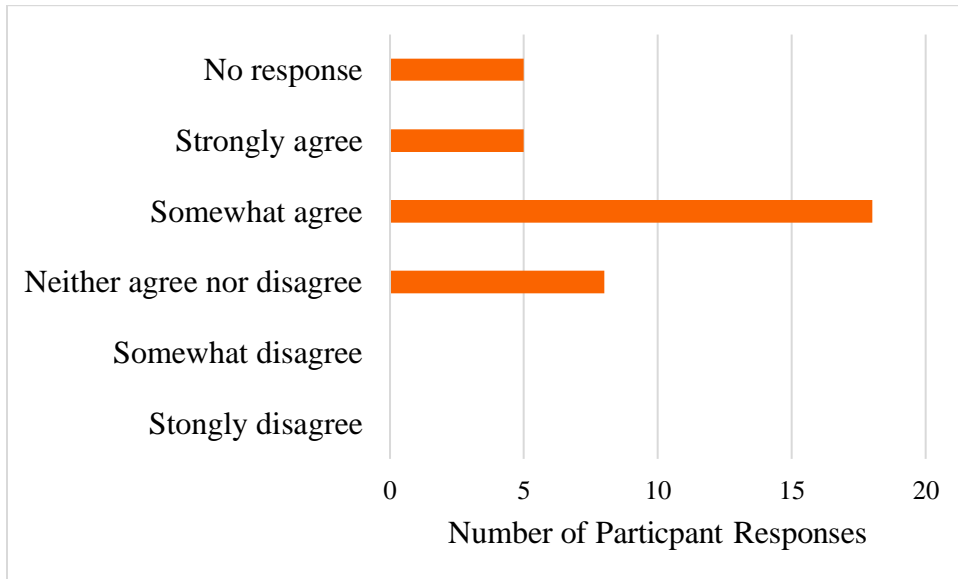


Figure 12

Participants' Level of Agreement to 'I would be more willing to seek counseling for my mental health if the counselor had a background in or understanding of agriculture.'

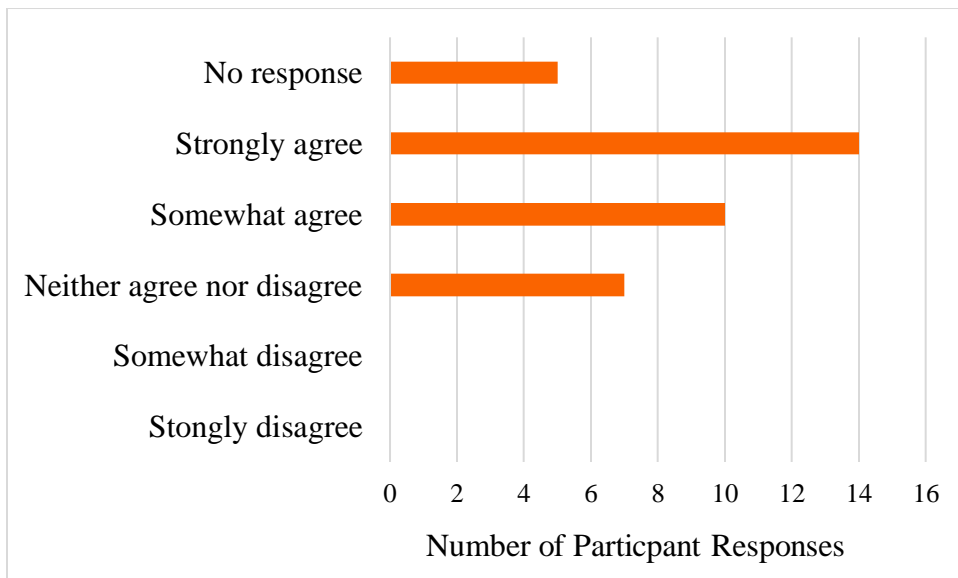
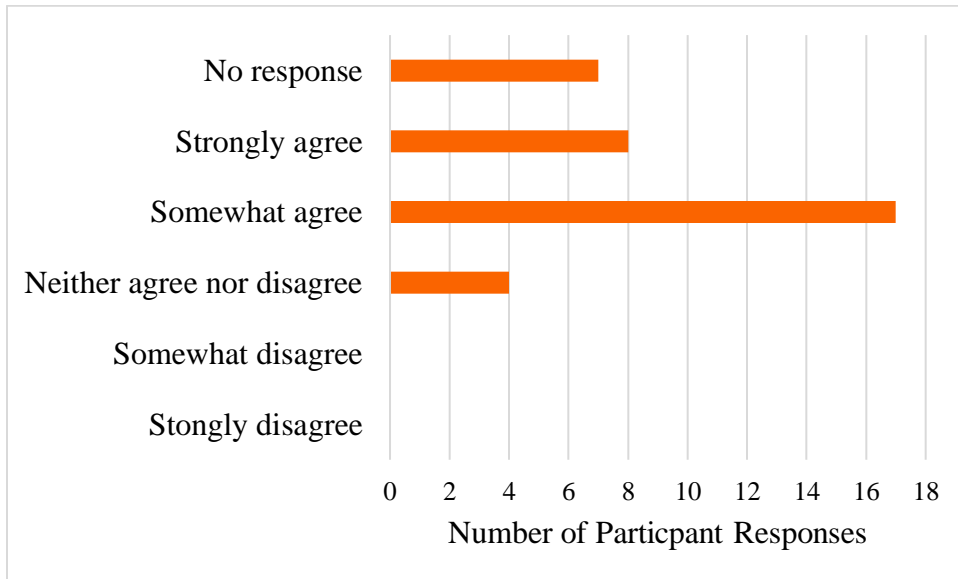


Figure 13

Participants' Level of Agreement to 'I have a support system to help me with any mental health issues I might face.'



Findings Related to Objective 4: Preparedness of Young Farmers and Ranchers to Assist Others with Mental Health Challenges

Objective four assessed if young farmers and ranchers were prepared to assist others with mental health challenges. Participants were instructed to rate their level of agreement for two statements on a 5-point Likert-type scale from strongly agree to strongly disagree. The scale was reverse coded with strongly agree at five and strongly disagree at one. For the statement 'I am confident accessing mental health resources,' 52.8% of participants agreed (see Figure 14). For the statement 'I am confident in aiding others in their mental health,' 52.8% of participants agreed (see Figure 15).

Figure 14

Participants' Level of Agreement to 'I am confident accessing mental health resources.'

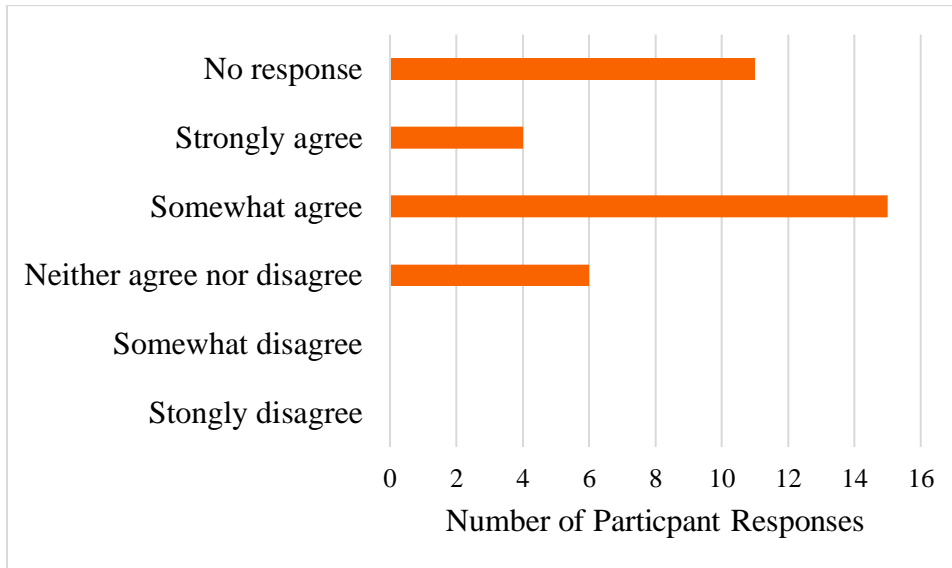
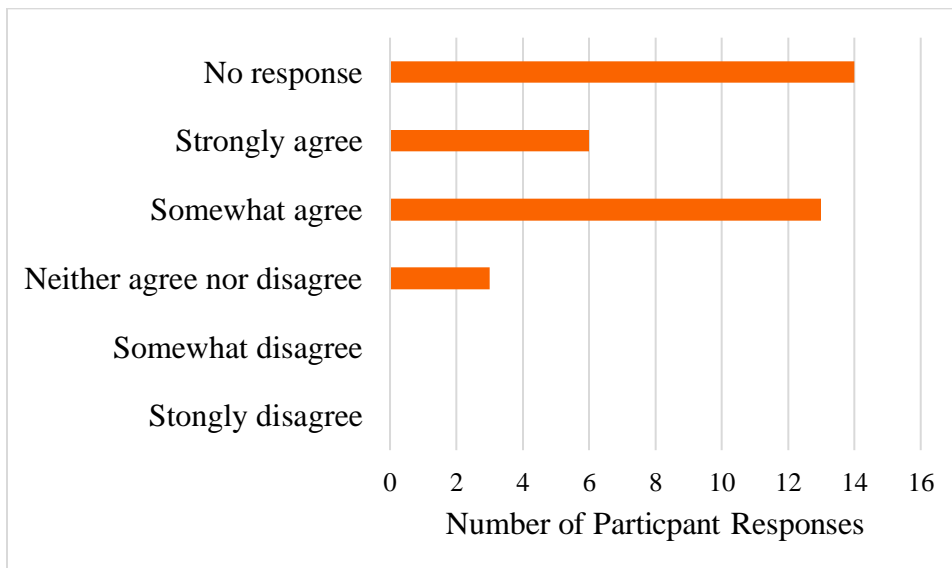


Figure 15

Participants' Level of Agreement to 'I am confident in aiding others in their mental health.'



Findings Related to Objective 5: Confidence of Young Farmers and Ranchers to Assist Others with Mental Health Challenges

Objective five assessed if young farmers and ranchers were confident to assist others with mental health challenges. Participants were instructed to rate their level of agreement for four statements on a 5-point Likert-type scale from strongly agree to strongly disagree. The scale was reverse coded with strongly agree at five and strongly disagree at one. For the statement ‘I am confident discussing mental health,’ 55.6% of participants agreed (see Figure 16). For the statement ‘I am confident discussing my own mental health,’ 52.8% of participants agreed (see Figure 17). For the statement ‘I am confident in asking my family members about their mental health,’ 27.7% of participants agreed (see Figure 18). For the statement ‘I am confident in spotting warning signs of mental health conditions,’ 50.0% of participants agreed (see Figure 19).

Figure 16

Participants' Level of Agreement to ‘I am confident discussing mental health.’

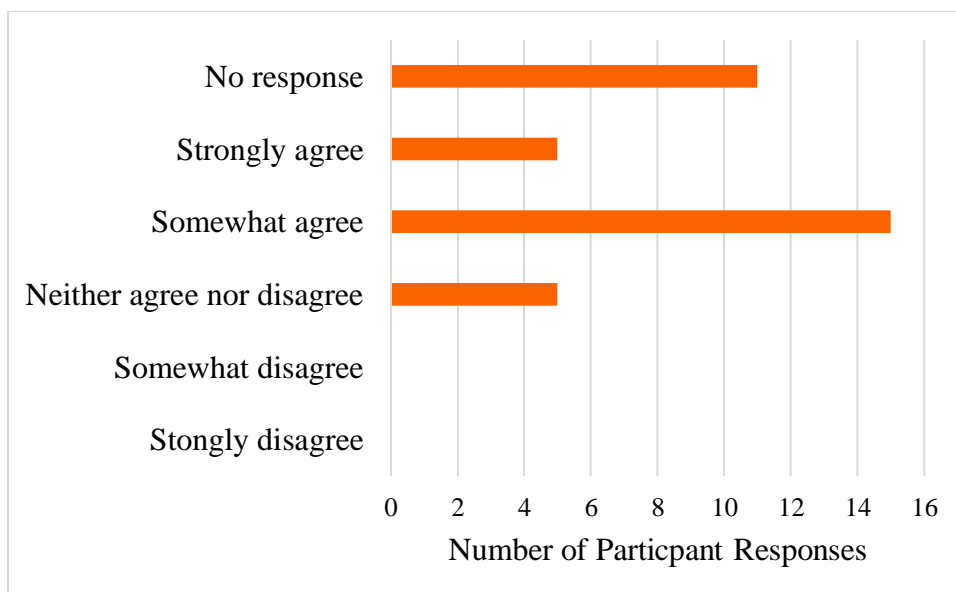


Figure 17

Participants' Level of Agreement to 'I am confident discussing my own mental health.'

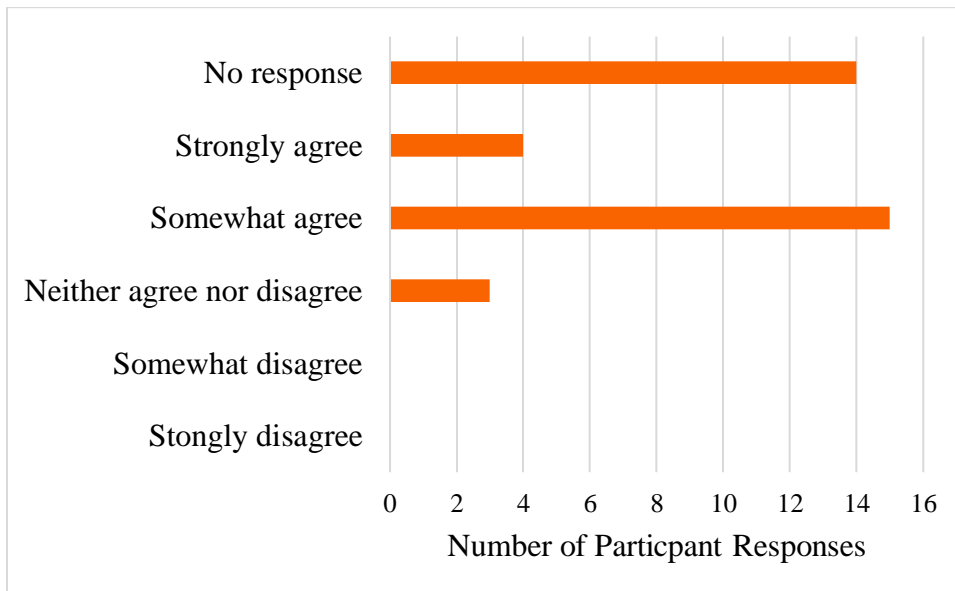


Figure 18

Participants' Level of Agreement to 'I am confident in asking my family members about their mental health.'

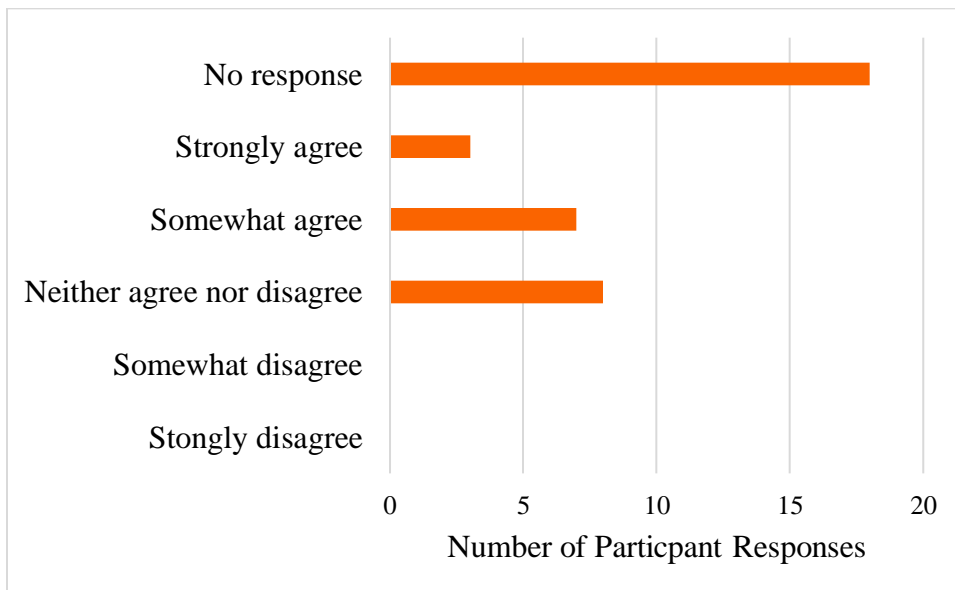
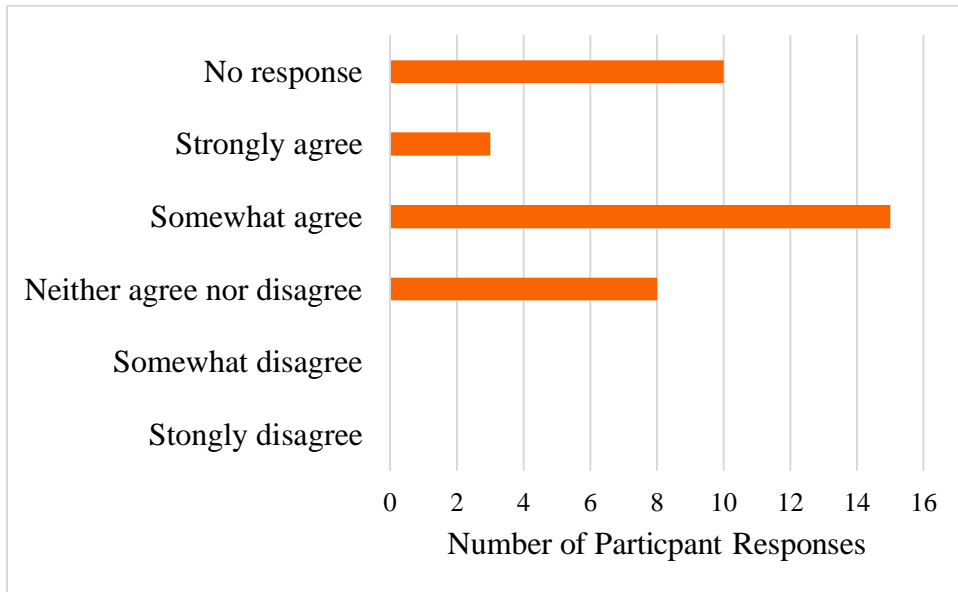


Figure 19

Participants' Level of Agreement to 'I am confident in spotting warning signs of mental health conditions.'



CHAPTER V

DISCUSSION AND RECOMMENDATIONS

This study was designed to determine young farmers' and ranchers' perceptions of mental health and explore the stigma surrounding mental health in agriculture. The purpose of this chapter is to explore the conclusions, recommendations, and implications related to each objective. This chapter also explores recommendations for future research, instrument reconstruction, and agricultural communicators and Extension personnel.

Conclusions Related to Objective 1: To Describe Demographic Information of Young Farmers and Ranchers

The first objective guiding this study sought to describe demographic information of young farmers and ranchers. The typical respondent was a white female, ages 23 to 35 with a B.S. or B.A degree, living in Wisconsin or California with a farm or ranch-related occupation. She was single with no kids. She was the child of the operation's owner, had a family operation, and had a full-time off-farm job as well. She worked with 0-3 people daily on the operation. Her farm income is considered her secondary income with less than 25% of her annual household income coming from farming and ranching occupations. The operation most likely has beef cows, dairy cows, or cattle and calves; grows corn, soybean, or hay; and is made up of 50-179 acres or 1000 or more acres.

The general demographic makeup of participants with regard to age, occupation, and operation description is fairly consistent with the American Farm Bureau Federation Young Farmers and Ranchers program (American Farm Bureau, 2023b). The program is open to all types of U.S. producers between the ages of 18 and 35 (American Farm Bureau, 2023b). However, the general demographic makeup of participants is not similar to much of the previous literature. Past studies typically focused on the “average farmer” who is a male, lived in the Midwest, and was the average age of all farmers at 57.5 years old (Halvorson, 2021), or the studies were from other countries, where the makeup of farmers, specifically with regards to age, is similar.

Additionally, 64% of the farmers in the United States were male and 36% were female (Census of Agriculture Highlights, 2017) which is very different from this study where the majority of participants were female. Around half of the farms’ full-time employees have a bachelor’s degree or higher as the highest educational attainment and 9% of farmers have a post-graduate degree (DeLay et. al., 2020). This is similar to the present study where the majority of the participants have similar education levels. Forty-two percent of producers reported farming as their primary occupation and 58% reported having another primary occupation (Census of Agriculture Highlights, 2017) and this is slightly different as the majority of participants had a part or full-time off-the-farm job beyond farming or ranching. According to the Census of Agriculture Highlights (2017), 95.5% of farmers were white as were the majority of participants.

Recommendations and Implications Related to Objective 1

Results from this study can only be generalized to the 36 participants. Due to the lack of responses to the questionnaire, it is recommended for this study to be repeated to

determine if participant demographics and attitude responses change with more responses. Additionally, it is recommended the study be replicated within different organizations and age ranges of people to allow for a much larger and deeper picture of young farmers' and ranchers' perceptions of mental health.

Conclusions Related to Objective 2: To Identify the Level of Importance of Mental Health to Young Farmers and Ranchers

The second objective guiding this study sought to identify the level of importance of mental health to young farmers and ranchers. For the semantic differential scale-based statements, overall, respondents' attitudes about mental health and its stigma were slightly negative. For the Likert-type scale-based statements respondents' attitudes about the level of importance of mental health are relatively strong.

These findings correspond to that of Rudolphi & Barnes (2020) who found that farmers were "stressed and depressed" and agreed there is a stigma surrounding mental health in agriculture. Frybarger, et. al. (2019) found there is a social stigma of mental health in rural communities because privacy among the population is highly valued and there is an assumption that seeking help will diminish their privacy. Media adds to the stigma surrounding mental health as most stories about mental health are of violence and negativity (McGinty et al., 2016). Farming and agricultural business structures have a unique stress put upon them (McShane & Qurik, 2009) because of occupational and demographic stressors. Farming is not just an occupation but a whole lifestyle for farmers and ranchers (Vayro et. al., 2020), leading agriculture to have one of the highest rates of mortality of any industry (Fraser, et. al., 2005).

Recommendations and Implications Related to Objective 2

This objective's findings correspond with Currin et. al. (2011) who found older adults have 'less-positive' perceptions of mental health compared to younger adults. Additionally, women tend to hold more positive mental health perceptions than men do (Currin et. al., 2011). Because this study's participants are primarily female, the results could be skewed more positively than if participants were equal among genders. Currin et. al. (2011) found because younger adults tend to have a more positive attitude toward the topic of mental health, targeting them to help break the stigma surrounding mental health in agriculture could have a better effect than targeting older adults. Using this instrument for additional research with populations of older generations of farmers and ranchers would confirm or deny the consistency of the findings.

Young farmers' and ranchers' mental health is affected by many things, agreeing to Bronfenbrenner's Ecological Theory (Eriksson et al., 2018). However, mental health is also important to these producers, as well as ending the stigma surrounding it. Efforts being made to normalize mental health in agriculture are successful with this younger generation and continued efforts from agricultural communicators to take recent research and share it with this population will help with trend continue. Supporting young farmers' and ranchers' mental health should be the goal.

Conclusions Related to Objective 3: To Determine the Access Young Farmers and Ranchers have to Mental Health Resources

The third objective guiding this study sought to assess if young farmers and ranchers have access to mental health resources. Overall, respondents' attitudes about having access to mental health resources are relatively strong. Respondents may have prior experience or knowledge about mental health resources and accessing them.

Contradictory to much of the research saying farmers and ranchers who live in rural communities do not have access to mental health care because of a limited number of care professionals and facilities, broadband, technology, and telehealth (U.S. Department of Agriculture, 2023; Wilger, 2015; American Hospital Association, 2023), participants believe they do have access to mental health care and resources.

Recommendations and Implications Related to Objective 3

Having access to mental health professionals with specific agricultural experience or background looks to be more enticing to this group of individuals and may encourage more people to seek professional care when needed. This recommendation corresponds with Frybarger, et. al. (2019) who noted, “mental health professionals lack competency in working in rural communities” (Frybarger, et. al., 2019, p. 1) because approaches used for urban populations are assumed to work for rural populations. Since most, if not all, farmers and ranchers live in rural areas, they would respond better to mental health care if the professional understood their occupation and way of life. As the mental health infrastructure continues to improve in rural communities, whether it is care facilities or telehealth, professionals with a background or experience in agriculture may be what entices young farmers and ranchers, older generations of producers, and rural families to seek the help they need when it comes to their mental health.

Conclusions Related to Objective 4: To Assess if Young Farmers and Ranchers are Prepared to Assist Others with Mental Health Challenges

The fourth objective guiding this study sought to assess if young farmers and ranchers are prepared to assist others with mental health challenges. Overall, respondents felt prepared to assist others with mental health. These findings fit with Bronfenbrenner’s

ecological theory on the socio-ecological model for the relationship level. People are shaped by their social environment and social connections are crucial for managing day-to-day stressors (Michaels, et. al., 2022). Family, friends, and other peers can provide a natural support system for someone dealing with mental health struggles. These young farmers and ranchers can be other producers' informal support systems when dealing with mental health struggles.

Recommendations and Implications Related to Objective 4

Schools in rural areas are seen as primary mental health care facilities for many individuals who live in areas where mental health resources are difficult to access (Wilger, 2015; Panchal et. al., 2022). While there is a shortage of counselors and inadequate funding for these schools, it may be where young people access mental health care and support. It may also be where they access education and resources on mental health topics, which the participants can now use to be prepared to assist others with mental health challenges (Sutton, 2021). Providing adequate care professionals and funding for rural schools will allow more young people to receive the mental health care they need as well as the education and resources they can use to be prepared to assist others with mental health challenges. Additionally, creating mental health care facilities in rural areas or providing better access to telehealth for these populations will take some strain off of the school for providing primary mental health care.

Conclusions Related to Objective 5: To assess if Young Farmers and Ranchers are Confident in Assisting Others with Mental Health Challenges

The fifth objective guiding this study sought to assess if young farmers and ranchers were confident in assisting others with mental health challenges. Overall,

respondents were confident in assisting others with mental health challenges. However, respondents were not confident speaking to family members about their mental health. This conclusion is very different from the rest of the findings indicating young farmers' and ranchers' willingness to help other producers with their mental health struggles.

Recommendations and Implications Related to Objective 5

Although there is not much literature about agricultural community members helping others with their mental health challenges, Bjornestad, et. al. (2019) and Letvak (2002) both found social support to have a direct relationship with mental health well-being and to act as a protective factor in the development of depressive symptoms (Bjornestad et. al., 2019). When people have high levels of social support, they experience less stress when in stressful situations and can cope with any stress more successfully compared to those without social support (Letvak, 2002). Social support can come from family, friends, neighbors, church groups, a community, health care providers, etc. It is more important for a person to have quality support versus a large quantity of support (Letvak, 2002). Farmers and ranchers with social support from their family, friends, and community will be better able to handle the large amount of stress they deal with and help protect from mental health conditions (Letvak, 2002).

Social support can come from each level of the socio-ecological model based on Bronfenbrenner's ecological theory, including individuals, relationships, organizations, communities, policies, and society (Michaels, et. al., 2022). If, as participants indicated, people are prepared and confident in providing others with assistance with mental health challenges, social support may help improve perceptions of mental health and be part of a strategy to help break the stigma surrounding mental health in agriculture.

Only 27.7% of participants agreed with the statement ‘I am confident in asking my family members about their mental health.’ This is very different from the over 50% of agreement for all other statements ranked on the Likert-type scale. One of the biggest recommendations coming from this study is for the development of resources when it comes to the discussion of mental health with family members. With additional research in this area and the help of agricultural communications and Extension personnel, this information and educational content can reach the producers and families that need it the most.

Final Conclusions, Recommendations, and Implications Related to the Study as a Whole

One very interesting finding of this study was the participants’ agreement with the statements ranked on the Likert-type scale. For all statements, zero participants disagreed at any level. However, there was also a high non-response rate for some of the more personal statements. The conclusion to this is participants were more willing to not answer the question rather than mark they disagree with the statement because of the sensitive nature of the study. Participants may also want to keep their privacy related to the subject and would rather not answer for fear of judgment. Additionally, among most of these statements, there was a very high agreement concluding that young farmers and ranchers understand the importance of mental health in agriculture. They see the stigma surrounding the topic of mental health and still are accessing resources and helping others with their mental health struggles.

These conclusions indicate there should be a shift in research for this population. Rather than trying to evaluate if young farmers and ranchers experience mental health

struggles, research should focus on the resources these producers need to deal with their mental health and help others with theirs. In combination with researchers, Extension personnel and agricultural communicators can all work together to bridge the gap between mental health education and practical uses for producers. Literature agrees with this by noting mental health is more complex in the agricultural industry because farmers will do almost anything to maintain the legacy of their farm as their identity is intertwined with their profession and because mental health is a complex issue, multi-faceted communication campaigns could be used to discuss it and find solutions for producers experiencing mental health struggles (Hendrickson, 2018).

The Study in Relation to Bronfenbrenner's Ecological Theory

This study's findings relate to Bronfenbrenner's Ecological Theory as the study evaluated mental health in a very broad sense, and the theory helped to examine both the individual and contextual systems, rather than focusing on an individual's specific attributes and behaviors. Individuals affect and are affected by a complex range of social influences and factors and these factors impact people differently based on life experience (Michaels, et. al., 2022), and this study examines that. Young farmers and ranchers have a multitude of influences from family and friends, industry professionals and businesses, weather, and many occupational stressors. Not only are young farmers and ranchers affected by these things, but they also affect each other by following industry norms and trends. The findings described the participants' perceptions on topics while assessing the contextual systems, like access to mental health resources, and the relationship between the two.

Instrument Recommendations

Before any additional research using this study's instrument, the researchers suggest making a few adjustments and having another panel of experts review it for face and content validity. The first suggestion is to add clarity for participants when it comes to the semantic differential scale questions. Both questions were up to the participants' interpretation and clarity on what is exactly being asked would allow for more concrete results. It is also suggested to use descriptions for the participants' operations from the USDA Agricultural Census. This would make the study more inclusive for producers around the United States.

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APPENDICES

APPENDIX A
INSTITUTIONAL REVIEW BOARD



Oklahoma State University Institutional Review Board

Date: 02/24/2023
Application Number: IRB-23-85
Proposal Title: Perceptions of Mental Health of Young Farmers and Ranchers

Principal Investigator: Abby George
Co-Investigator(s):
Faculty Adviser: Dwayne Cartmell
Project Coordinator:
Research Assistant(s):

Processed as: Exempt
Exempt Category:

Status Recommended by Reviewer(s): Approved

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in 45CFR46.

This study meets criteria in the Revised Common Rule, as well as, one or more of the circumstances for which continuing review is not required. As Principal Investigator of this research, you will be required to submit a status report to the IRB triennially.

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be approved by the IRB. Protocol modifications requiring approval may include changes to the title, PI, adviser, other research personnel, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any unanticipated and/or adverse events to the IRB Office promptly.
4. Notify the IRB office when your research project is complete or when you are no longer affiliated with Oklahoma State University.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact the IRB Office at 405-744-3377 or irb@okstate.edu.

Sincerely,
Oklahoma State University IRB

APPENDIX B

INSTRUMENT



AGRICULTURE

Information

Perceptions of Mental Health of Young Farmers and Ranchers

Investigators: Abigail George and Dr. Dwayne Cartmell, Agricultural Communications

Purpose: The purpose of this study is to measure the perception of mental health of young farmers and ranchers and develop tactics to help break the stigma surrounding mental health in agriculture. You must be 18 or older to participate, live in the United States, own or work on farm or ranch at least part-time, and have at least part of your household income coming from farming or ranching.

What to Expect: This research study is administered online via Qualtrics. Participating in this study will require you to complete one questionnaire. It should take you about 10 minutes to complete.

Risks: There are no risks associated with this project above normal daily risks. However, to minimize associated risks, your responses will be anonymous and separated from identifying information.

Benefits: You will be aiding in the important research into farmers' and ranchers' mental health.

Compensation: At the completion of the survey, you will be directed to another page where you can provide your contact information to be entered into a drawing for one of six \$50 Amazon gift cards. The drawing will take place late April 2023. Please note, completion of the form is strictly for the drawing purpose and is not tied to your responses on the previous questionnaire. If you would like to decline entering the drawing, you can close out the browsers page and your survey answers will still be counted.

Your Rights: Participation in this questionnaire is completely voluntary. You may leave at any point before submitting your answers.

Confidentiality: Your responses to this survey are completely anonymous. Any written results will discuss group findings and will not include information that may identify you. Research records will be stored on a password-protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the records. The research team works to ensure confidentiality to the degree permitted by technology. It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. However, your participation in this online survey involves risks similar to a person's everyday use of the internet. If you have concerns, consult the survey provider privacy policy at <https://www.qualtrics.com/privacy-statement/>.

Contacts: If you have any questions regarding the research, you may contact Dwayne Cartmell (405-744-0461 or dwayne.cartmell@okstate.edu). If you have any questions about your rights as a research volunteer, you may contact the IRB Office at 223 Scott Hall, Stillwater, OK 74078, 405-744-3377, or irb@okstate.edu.

Participant Agreement:

I have read the procedures described above. I voluntarily agree to participate and understand that by clicking "I agree" below, I am consenting to participate in this study and am at least 18 years of age, own or work on farm or ranch at least part-time, and have at least part of your household income coming from farming or ranching. If I choose not to participate, I will click "I Do Not Agree" and exit the questionnaire.

I Agree

I Do Not Agree

Instructions

INSTRUCTIONS: As you complete this questionnaire, please consider your personal experiences and knowledge of mental health and mental health resources. This survey includes two sections. The first section relates to your perception(s) and the second is a demographic inventory. Please choose the best response and answer openly and truthfully. At the end of this survey you will be redirected to a page where you can be entered into a drawing for one of six \$50 Amazon gift cards. Please note completion of the form is strictly for the drawing purpose and is not tied to your responses on the previous questionnaire.

Semantic Differential Questions

Please rate the concept “Mental health is” by selecting a spot along the scale for each pair of words.

Mental health is...

Good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bad
Graceful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Awkward
Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimportant
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weak
Serious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Humorous
Masculine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Feminine
Complex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Simple
Predictable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unpredictable
Understandable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mysterious
Familiar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strange
Simple	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Complicated
Clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Confusing
Traditional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Progressive

Original	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stereotyped
Tender	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Tough
Approach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Avoid

Please rate the concept “The stigma around mental health is” by selecting a spot along the scale for each pair of words.

The stigma around mental health is...

Good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bad
Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unimportant
True	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	False
Positive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Negative
Interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Boring
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weak
Serious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Humorous
Masculine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Feminine
Active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Passive
Complex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Simple
Predictable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Unpredictable
Understandable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mysterious
Familiar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strange
Simple	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Complicated
Clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Confusing
Original	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stereotyped

Likert Scale Questions

Rate your level of agreement with each of the following statements.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Farmers and ranchers suffer from mental health conditions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to reduce the mental health stigma in agriculture.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have access to mental health resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident accessing mental health resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident discussing mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident discussing my own mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident aiding others in their mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in asking family members about their mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in spotting warning signs of mental health conditions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know how to manage my mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be more willing to seek counseling for my mental health if the counselor had a background in or understanding of agriculture.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I have a support system to help me with any mental health issues I might face.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Demographic Questions

What is your gender?

- Male
- Female
- Other
- Prefer not to say

What year were you born?

What is your education level?

- High school/some college
- Associate or vocational
- B.S. or B.A.
- Graduate degree

What U.S. state do you currently live in?

What is your race?

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Not Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White

What is your marital status?

- Single
- Married
- Separated
- Divorced

How many kids do you have?

- No children
- 1-2 children
- 3-4 children
- 5+ children

Do you have a farm or ranch related occupation?

- Yes
- No

What is your role on the operation?

- Principle owner
- Secondary owner
- Child of owner
- Other

What is your operation type?

- Independent operation
- Family operation
- Non-family operation

How many individuals do you work with daily (on or off the operation)?

- 0-1
- 2-3
- 4-5
- 6-7
- 8-10
- 11-19

- 20-99
- 100+

How many individuals do you work with daily specifically on the operation?

- 0-1
- 2-3
- 4-5
- 6-7
- 8-10
- 11-19
- 20-99
- 100+

Do you have a separate occupation off-farm?

- No
- Yes, part-time
- Yes, full-time

Would you consider your farm income primary or secondary?

- Primary
- Secondary

What percentage of your annual household income comes from farming and ranching

occupations?

- Less than 25%
- 25-49%
- 50-74%
- 75-99%
- 100%

Describe your operation: Acreage

- 1-9
- 10-49
- 50-179
- 180-499
- 500-999
- 1000+

Describe your operation: Livestock and Poultry

- Beef cows
- Dairy cows
- Cattle and calves
- Hogs and pigs
- Sheep and lambs
- Goats
- Layers
- Broilers
- Horses
- Other:

Describe your operation: Crops Harvested

- Corn
- Soybeans
- Wheat
- Oats
- Barley
- Sorghum
- Hay
- Cotton
- Nuts
- Fruits
- Vegetables
- Aquaculture
- Nursery/landscape
- Greenhouse
- Floriculture
- Vineyard
- Other:

Division of Agricultural Sciences and Natural Resources, Oklahoma State University

Powered by Qualtrics

APPENDIX C
PANEL OF EXPERTS

Panel of Experts:

Dr. Dwayne Cartmell
450 Agricultural Hall
Oklahoma State University

Dr. Audrey King
437 Agricultural Hall
Oklahoma State University

Linnea Langusch
271 Agricultural Hall
Oklahoma State University Rural Renewal Initiative

Ty Higgins
Ohio Farm Bureau

Dr. Mark Woodring
Oklahoma State University

APPENDIX D
EMAILS TO PARTICIPANTS

Initial Email to Participants and Informed Consent

Subject: Perceptions of Mental Health of Young Farmers and Ranchers Survey Invitation

Email:

Dear Farmer or Rancher,

We are conducting a study to measure the perception of mental health of young farmers and ranchers and to inform strategies to help break the stigma surrounding mental health in agriculture. This survey will be used to collect data from farmers and ranchers across the United States.

The survey is completely confidential. By clicking the link, you are making the decision to participate in this study. You may exit at any time without penalty or loss of benefits to which the subject is otherwise entitled. You should not click the link until you understand all the information presented in this email and until all your questions about the research have been answered to your satisfaction.

Survey link: https://okstatecasnr.az1.qualtrics.com/jfe/form/SV_2cyye1k17DKbWmi

At the completion of the survey, you will be directed to another page where you can enter your contact information to be entered into a drawing for one of six \$50 Amazon gift cards. Please note, completion of the form is strictly for the drawing purpose and is not tied to your responses on the previous questionnaire. If you would like to decline entering the drawing, you can close out the browsers page and your survey answers will still be counted.

By clicking on the link, you have indicated to participate, having read (or having been read) the information in this email. There are no known risks or discomforts in this survey beyond what you might experience in everyday life.

If you have any questions regarding this study, please contact Dwayne Cartmell at dwayne.cartmell@okstate.edu or Abby George at abigail.george@okstate.edu.

If you have any questions or concerns regarding your rights as a subject in this study, independent of the research team, you may contact Oklahoma State University Institutional Review Board via email at irb@okstate.edu.

Sincerely,
Dr. Dwayne Cartmell, Professor
Abigail George, Graduate Research Assistant

1st Reminder Email to Participants and Informed Consent

Subject: Voice Your Opinion in the Perceptions of Mental Health of Young Farmers and Ranchers Survey

Email:

Dear Farmer or Rancher,

Last week we sent an email asking for your participation in the Perceptions of Mental Health of Young Farmers and Ranchers Survey. We are conducting this study to measure the perception of mental health of young farmers and ranchers and to inform strategies to help break the stigma surrounding mental health in agriculture. This survey will be used to collect data from farmers and ranchers across the United States.

As a farmer or rancher, your response is crucial to the success of this study. Please complete the following survey link. If you have already completed the survey, please ignore this email.

The survey is completely confidential. By clicking the link, you are making the decision to participate in this study. You may exit at any time without penalty or loss of benefits to which the subject is otherwise entitled. You should not click the link until you understand all the information presented in this email and until all your questions about the research have been answered to your satisfaction.

Survey link: https://okstatecasnr.az1.qualtrics.com/jfe/form/SV_2cyye1k17DKbWmi

At the completion of the survey, you will be directed to another page where you can enter your contact information to be entered into a drawing for one of six \$50 Amazon gift cards. Please note, completion of the form is strictly for the drawing purpose and is not tied to your responses on the previous questionnaire. If you would like to decline entering the drawing, you can close out the browsers page and your survey answers will still be counted.

By clicking on the link, you have indicated to participate, having read (or having been read) the information in this email. There are no known risks or discomforts in this survey beyond what you might experience in everyday life.

If you have any questions regarding this study, please contact Dwayne Cartmell at dwayne.cartmell@okstate.edu or Abby George at abigail.george@okstate.edu.

If you have any questions or concerns regarding your rights as a subject in this study, independent of the research team, you may contact Oklahoma State University Institutional Review Board via email at irb@okstate.edu.

Sincerely,

Dr. Dwayne Cartmell, Professor
Abigail George, Graduate Research Assistant

2nd Reminder Email to Participants and Informed Consent

Subject: Help Us Understand the Perceptions of Mental Health of Young Farmers and Ranchers and Win a \$50 Amazon Gift Card

Email:

Dear Farmer or Rancher,

Recently we sent an email asking for your participation in the Perceptions of Mental Health of Young Farmers and Ranchers Survey. We are conducting this study to measure the perception of mental health of young farmers and ranchers and to inform strategies to help break the stigma surrounding mental health in agriculture. This survey will be used to collect data from farmers and ranchers across the United States.

As a farmer or rancher, your response is crucial to the success of this study. Please complete the following survey link. If you have already completed the survey, please ignore this email.

The survey is completely confidential. By clicking the link, you are making the decision to participate in this study. You may exit at any time without penalty or loss of benefits to which the subject is otherwise entitled. You should not click the link until you understand all the information presented in this email and until all your questions about the research have been answered to your satisfaction.

Survey link: https://okstatecasnr.az1.qualtrics.com/jfe/form/SV_2cyye1k17DKbWmi

At the completion of the survey, you will be directed to another page where you can enter your contact information to be entered into a drawing for one of six \$50 Amazon gift cards. Please note, completion of the form is strictly for the drawing purpose and is not tied to your responses on the previous questionnaire. If you would like to decline entering the drawing, you can close out the browsers page and your survey answers will still be counted.

By clicking on the link, you have indicated to participate, having read (or having been read) the information in this email. There are no known risks or discomforts in this survey beyond what you might experience in everyday life.

If you have any questions regarding this study, please contact Dwayne Cartmell at dwayne.cartmell@okstate.edu or Abby George at abigail.george@okstate.edu.

If you have any questions or concerns regarding your rights as a subject in this study, independent of the research team, you may contact Oklahoma State University Institutional Review Board via email at irb@okstate.edu.

Sincerely,

Dr. Dwayne Cartmell, Professor
Abigail George, Graduate Research Assistant

3rd Reminder Email to Participants and Informed Consent

Subject: Last Chance for Participation in the Perceptions of Mental Health of Young Farmers and Ranchers Survey

Email:

Dear Farmer or Rancher,

Recently we sent an email asking for your participation in the Perceptions of Mental Health of Young Farmers and Ranchers Survey. This is now the last chance to participate in the survey and enter to win a \$50 Amazon gift card.

We are conducting this study to measure the perception of mental health of young farmers and ranchers and to inform strategies to help break the stigma surrounding mental health in agriculture. This survey will be used to collect data from farmers and ranchers across the United States.

As a farmer or rancher, your response is crucial to the success of this study. Please complete the following survey link. If you have already completed the survey, please ignore this email.

The survey is completely confidential. By clicking the link, you are making the decision to participate in this study. You may exit at any time without penalty or loss of benefits to which the subject is otherwise entitled. You should not click the link until you understand all the information presented in this email and until all your questions about the research have been answered to your satisfaction.

Survey link: https://okstatecasnr.az1.qualtrics.com/jfe/form/SV_2cy5e1k17DKbWmi

At the completion of the survey, you will be directed to another page where you can enter your contact information to be entered into a drawing for one of six \$50 Amazon gift cards. Please note, completion of the form is strictly for the drawing purpose and is not tied to your responses on the previous questionnaire. If you would like to decline entering the drawing, you can close out the browsers page and your survey answers will still be counted.

By clicking on the link, you have indicated to participate, having read (or having been read) the information in this email. There are no known risks or discomforts in this survey beyond what you might experience in everyday life.

If you have any questions regarding this study, please contact Dwayne Cartmell at dwayne.cartmell@okstate.edu or Abby George at abigail.george@okstate.edu.

If you have any questions or concerns regarding your rights as a subject in this study, independent of the research team, you may contact Oklahoma State University Institutional Review Board via email at irb@okstate.edu.

Sincerely,

Dr. Dwayne Cartmell, Professor

Abigail George, Graduate Research Assistant

VITA

Abigail Dawn George

Candidate for the Degree of

Master of Science

Thesis: YOUNG FARMERS' AND RANCHERS' PERCEPTIONS OF MENTAL HEALTH

Major Field: Agricultural Communications

Biographical:

Education:

Graduated from Mondovi High School, Mondovi, Wisconsin, May 2017

Received Bachelor of Sciences degrees in Agricultural Business and Agricultural Marketing and Communications and Animal Science minor from the University of Wisconsin-River Falls, River Falls, Wisconsin, May 2021

Completed the requirements for the Master of Science in Agricultural Communications at Oklahoma State University, Stillwater, Oklahoma in May 2023.

Experience:

Served as the Oklahoma 4-H Graduate Assistant from August 2021-May 2023

Served as the *Progressive Cattle* Editorial Intern from May 2022-August 2023

Professional Memberships:

American Association for Agricultural Education (AAAE)

Agricultural Communication Graduate Student Association