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## Feasibility, Acceptability, and Fidelity: Extension Agents Teaching Youth Aware of Mental Health

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Suicide among youth is a growing public health problem—particularly in some rural western states. This study assessed the feasibility, acceptability, and fidelity of using extension agents to deliver Youth Aware of Mental Health (YAM) to students attending rural U.S. schools. Involving extension agents as YAM facilitators is a novel delivery method for YAM and may represent an effective way to improve the disseminability of YAM as agents are skilled in working with rural youth and can deliver the intervention as part of the regular work duties. A within-subjects design was utilized for this study. During the 2017–2018 school year, 12 trained extension agents delivered YAM as part of normal school curriculum to 641 students. Acceptability was measured using student ratings upon program completion. Feasibility was measured by the proportion of schools willing to participate, fidelity of implementation, student attendance at YAM sessions, and extension agent feedback. Ten of 14 schools (71%) approached participated in the study. Among consented students, 269 (82.8%) completed pencil and paper baseline surveys and 217 (66.8%) completed both the baseline and 3 month follow-up survey. Positive results were reported by youth regarding openness to having the intervention in their schools, interest in participating in YAM again, and feeling that the intervention was appropriate for rural youth. Utilizing the Extension system is a feasible and acceptable way to deliver a universal mental health educational intervention program to rural youth.

### **Public Health Significance Statement**

This study tested the feasibility of using extension agents to deliver one of the leading suicide prevention interventions, Youth Aware of Mental Health (YAM), to high school youth in rural U.S. schools. The study showed that this method of delivering a mental health promotion intervention in schools was highly acceptable to students and extension agents and there were high rates of school and student participation.

**Keywords:** mental health, suicide prevention, youth mental health, rural mental health, school-based mental health intervention

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Suicide is second only to accidental deaths in causing fatality in adolescents aged 12–18 years and is a growing public health problem (Centers for Disease Control and Prevention, 2019a). Non-fatal suicide attempts are also common among adolescents, with 7.4% of high school-aged students (14–18 years) reporting at least one attempt in the past year (Centers for Disease Control and Prevention, 2019b). Despite significant effort to reduce suicide among youth, rates have increased nationwide over the past 20 years (Centers for Disease Control and Prevention, 2019a).

Fatal suicide rates among youth living in rural U.S. regions are approximately double those of their urban peers (Fontanella et al., 2015). For example, the suicide rate among adolescents aged 12–18 years in Montana (17.9/100,000) is well above the national average (6.4/100,000; Centers for Disease Control and Prevention, 2019a).

While the reasons for higher fatal suicide rates among rural youth are not fully understood, several factors may contribute to increased suicide risk or suicide rates. Individuals living in rural U.S. regions often have low mental health literacy—“knowledge and beliefs about mental disorders which aid their recognition, management or prevention” (Jorm et al., 2006, p. 3) and high mental health stigma, both of which negatively impact help-seeking behaviors and create less supportive environments for youth with suicidality (Gamm et al., 2010). Compounding these individual barriers to help seeking, vast distances between communities and limited mental health services in rural states like Montana create challenges in addressing this public health crisis. For example, only 13.3% of the total mental health provider need is met in Montana (Kaiser Family Foundation, 2018), a state in which 65.0% of the population resides in rural regions (U.S. Department of Agriculture, 2019). A recent review of barriers in rural communities to school age children’s access to mental health care noted additional factors such as family poverty and schools’ lack of resources for mental health services (Blackstock et al., 2018). Offering educational interventions in schools may be one effective way to reach youth and lower suicide rates for two reasons. First, school-based interventions can be delivered during a critical developmental period for youth, as the onset of mental illnesses (an important risk factor for suicide behavior) develops in 50% of diagnosed individuals by

age 14 and 75% by age 24 (Kessler et al., 1999, 2005; Merikangas et al., 2010). Second, delivering interventions as part of the regular school curriculum allows access to nearly all youth in a population and avoids the need to single out individual students (thus minimizing the risk of stigmatization; Miller, 2011).

There are three tiers of youth suicide prevention: primary (universal), secondary (selected), and tertiary (indicated; Miller et al., 2009). Universal suicide prevention interventions are delivered to all youth and tend to include skill development, mental health literacy, and stigma reduction as key components (Miller, 2011; Wilcox & Wyman, 2016). Selective interventions aim to identify at-risk youth and to connect them with support services (Miller et al., 2009). Common strategies for tier two interventions are reducing access to lethal means and psychological and/or pharmacological therapy (Mann et al., 2005). Lastly, indicated interventions are used for youth with current or a history of suicidality, and include dialectical or cognitive behavioral therapy (Miller et al., 2009).

Most rural schools are unable to offer comprehensive programs that cover all tiers (Schorr et al., 2017). Therefore, the reach of universal school-based suicide prevention interventions may be especially important in rural areas given the dearth of clinical services (Schorr et al., 2017; Varia et al., 2014). Notwithstanding the potential advantages of providing mental health-related programming in schools, there are few school-based suicide primary prevention interventions of proven efficacy, and most of these are designed for individuals in crisis, not primary prevention (Robinson et al., 2018; Wilcox & Wyman, 2016).

The Youth Aware of Mental Health (YAM) program intervention is a promising universal (tier 1), school-based mental health promotion and suicide primary prevention intervention for adolescents (Wasserman et al., 2015). YAM is designed to raise mental health awareness about risk and protective factors associated with suicide, including knowledge about depression and anxiety, and to enhance coping skills and emotional resiliency needed to deal with adverse life events, stress, and suicidal behaviors (Wasserman et al., 2010). The format of the YAM intervention, which includes student role-play, empowers youth to think about, verbalize, and discuss important stressors and mental health concerns, such as

depression and suicide, in a context that is meaningful to them (Wasserman et al., 2010). The intervention is administered by a certified YAM adult instructor and an assistant. Utilizing an instructor and assistant who are not school staff allows youth an opportunity to discuss the topics more freely, without concern that comments will be shared among school staff and administrators.

In a randomized-control trial assessing three youth suicide prevention interventions versus control in approximately 11,000 ninth graders in 10 European countries, the YAM group experienced significantly reduced suicidality, including 55% fewer incident suicide attempts and 50% fewer cases of severe suicidal ideation, compared to controls, over 1 year (Wasserman et al., 2015).

The usefulness of curricula can be assessed through feasibility and acceptability studies to (a) obtain data to eliminate or reduce potential barriers related to recruitment and retention; (b) enhance fidelity to intervention protocol and assessment methodologies; and (c) inform intervention outcome analyses in subsequent randomized clinical trials (Bowen et al., 2009; Leon et al., 2011). Although schools receiving YAM demonstrated marked decreases in suicidal thoughts and attempts in Europe, the intervention had not been adapted for or tested among U.S. youth. As an initial step toward evaluating the impact of YAM in the United States, a pilot study was conducted to assess the feasibility and acceptability of the intervention when adapted for and delivered as part of the regular school curriculum in primarily ninth-grade classrooms in Montana and Texas (Lindow et al., 2019)—the only two states in the United States that currently offer YAM. The pilot study utilized a model where, like the European model, YAM instructors were hired from local communities on a part-time temporary (Montana) or permanent (Texas) basis by the university specifically to deliver the intervention.

Because YAM was developed and tested in European students, a cultural adaptation for U.S. adolescents was performed and the adapted YAM intervention was evaluated among U.S. youth as described previously in Lindow et al. (2019). Briefly, tenth- or eleventh-grade students (divided into two separate groups of five students each;  $N = 10$ ) were recruited in Montana to aid the adaptation of YAM (Lindow, et al., 2019). In an iterative process, YAM was

delivered to the youth by trained YAM facilitators, student and facilitator feedback was solicited, adjustments to the intervention were discussed by the study team, and students and facilitators reviewed the modifications made to the intervention. The main changes to the YAM intervention were made in the dilemma situations used in youth-led role-play sessions. Some word changes were also made to better reflect common language usage among U.S. adolescents (Lindow et al., 2019).

The present study examines the feasibility and acceptability of a novel YAM delivery method, namely, using a land-grant Extension system to bring the intervention to rural schools. Extension agents are university faculty located in communities across the state. Extension is well suited to provide YAM as agents working in the areas of Family and Consumer Sciences and 4-H have backgrounds in working with youth, experience in delivering a wide range of evidence-based programming, and are known and respected in their counties. Additionally, utilizing extension agents is cost-effective as the agents can deliver the intervention as a regular activity of the extension office. This reduces the cost of hiring part-time, temporary YAM facilitators as was done in the Montana component of the YAM pilot model.

For nearly two decades the Extension Family and Human Development Specialist received requests on how to address stress, suicide, and depression due to the high suicide rate in the state. In 2014, the university created a Center for Mental Health Research and Recovery (CMHRR) to conduct research focused on mental health promotion and suicide prevention in a rural setting. A partnership of mental health content expertise and the educational outreach of Extension provided the opportunity to address mental health in the state, and specifically with YAM. Seventeen extension agents volunteered to become certified in YAM and deliver the intervention in rural schools during the 2017–2018 school year. This feasibility study was conducted to assess if delivery of YAM by extension agents is a suitable strategy for suicide prevention programming in rural schools.

## Methods

The primary outcomes of this study were feasibility of delivery, acceptability, and fidelity of the YAM intervention taught by extension agents.

## Study Design and Participants

A within-subjects design assessed the feasibility, acceptability, and fidelity of delivering and evaluating the YAM intervention through the Extension system. As this study focused on extension agents delivering YAM in schools located in rural regions of their respective counties as part of their normal job activities, a convenience sample of schools in rural regions was approached and invited to participate. Due to the requirements of the funding mechanism, the schools were required to be located in rural areas of the state as designated by the U.S. Department of Agriculture Economic Research Service (2013). The U.S. Department of Agriculture Economic Research Service first categorizes metro and nonmetro areas by county. From there, the county rural classification is provided in more detail based on population and proximity to an urban area. Only 5 Montana counties out of 56 are considered metro.

Students were eligible to participate in the study if their principals gave permission for their classes to receive YAM, and they and their parents provided written informed assent/consent. YAM was delivered to all classes of an entire grade as part of the regular curriculum. Most students receiving the intervention were in ninth grade; however, in some rural schools, there were multiple grades in a single class, or school administrator requests necessitated implementation in a higher grade.

### *School Recruitment*

Schools were initially approached through an email developed by the research team describing the YAM intervention and research project, and a request to meet if the school wished to participate. Extension agents followed up with telephone calls to the schools. The school official contacted by the extension agents varied by school—some were reached through superintendents/principals, whereas others were reached through a school counselor or teacher. Initially, extension agents and the CMHRR director attended a school meeting to explain YAM and the study to school staff. After a few meetings, it became clear that this was not necessary in most communities as the extension agent was well known and trusted in the county. This step was revised so that the director attended a school or community meeting upon request. All parents of youth receiving YAM

were notified in a community meeting, by newsletter notice, or on a school's Facebook page. Extension agents met with school staff to explain the intervention and discuss logistics for teaching it in each school. YAM was typically offered during a health enhancement class and components of YAM met some state teaching standards for health enhancement. School recruitment rates were defined as the number of schools that agreed to allow YAM to be offered in the school after contact by extension agents. All students in participating classes received YAM, but only those providing signed consent/assent completed surveys.

### *Consent and Assent*

Parental consent forms were sent home with the students and/or mailed to parents. Youth assent forms were either sent home with the students or the students reviewed and signed them at school. Extension agents gave verbal and written instructions about the study and students' rights immediately prior to survey administration. Students in each school were offered a chance to win an iPad Mini in a drawing as an incentive for participation.

### *Intervention*

The YAM intervention was developed and evaluated in European countries (Wasserman et al., 2010, 2015). YAM is a manualized intervention comprising five 60 min sessions delivered over a period of 3 to 5 weeks. The format includes two lectures/discussion sessions and three role-play sessions during which students enact scenarios of and generate solutions to challenges common to youth. These classroom activities are supplemented by six posters illustrating the core principles and take-home messages of YAM that remained in the classroom during YAM delivery, and an information booklet that reinforced what was taught in the session and a listing of local and national mental health resources for students to keep.

Session 1 provides an overview of mental health in a lecture format. The next three sessions involve role-play designed to help students explore how they would feel and react to stressful situations commonly encountered by youth and examine how others may approach similar

scenarios. Specifically, in session 2, students role-play specific scenarios developed for the YAM curriculum. Students are encouraged to work through several conflict situations or dilemmas in small-group discussions, followed by a full class discussion aimed at helping students identify possible resolutions and consequences thereof. Session 3 begins with students brainstorming common stressors that young adults may face. In small groups, students develop a scenario in which they act out a stressor and events that may occur due to the said stressful event. The facilitators again encourage students to think about the process of identifying feelings, actions, and outcomes. In session 4, the focus is on practicing listening to others and finding ways to support a friend in need. Facilitators stress the importance of finding a caring adult and that keeping a secret is not always helpful. Students again role-play specific scenarios outlined by YAM in which friends help a struggling student in need. In session 5, facilitators guide students in reflecting on what they learned throughout the program and remind students of the importance of seeking support from an adult when needed. Throughout the sessions, the facilitators encourage participation by all students in the role-play exercises and an honest and frank exploration of a range of emotional responses in response to stressors common to youth, and consideration of the consequences of various behaviors when responding to such stressors.

### ***YAM Delivery***

Extension agents are faculty within the university who hold a bachelor's or master's degree and have extensive experience teaching evidence-based educational programs. Agents working with YAM also have experience working with youth.

Extension agents were trained by the YAM developers in a 36 hr (week-long) training to become certified YAM facilitators.<sup>1</sup> The facilitators delivered the five YAM sessions to individual classes over 3–5 weeks, guided by a facilitator manual and procedures guide developed by the CMHRR. The intervention is designed to be taught over 3–5 weeks to allow youth an opportunity to process the information discussed in each session. Flexibility for 3–5 weeks allows schools to offer the intervention within their

schedules. A YAM assistant who received 3 hr of training by certified YAM facilitators assisted each facilitator. YAM delivery occurred between September 2017 and June 2018.

## **Measures**

### ***Feasibility***

Feasibility was evaluated in several ways. School participation was specified as the percentage of schools approached that implemented YAM delivery and assessments. Consent rates were defined as the percentage of students in participating classes (total study population) who provided written assent/consent. YAM facilitators were asked to track the attendance of consented students for each YAM session (intervention dose). Youth participation was assessed by the number of consented students who completed  $\geq 50\%$  of the items on all scales on baseline and 3 month follow-up questionnaires.

### ***Quality Control of YAM Fidelity***

An implementation manual specifically for extension agents was developed by the CMHRR. The manual discussed each step to be taken in delivering YAM, from approaching a school through notification of parents, implementation of the curriculum, and all other logistics. A separate facilitator manual guided extension agents in how to deliver each session.

Extension agents met with their YAM assistants after each class to discuss any problems or concerns, document any adverse events, and discuss the logistics of delivering the intervention. Questions related to protocol deviations were sent to the Extension Family and Human Development Specialist, who then consulted the CMHRR. For example, one agent could not be at the school the day the baseline survey was to be administered and asked if the teacher could administer the survey. Another agent asked about

<sup>1</sup> Costs for training YAM facilitators varies. The first training required the university to bring the YAM originators to Montana from Europe; therefore, the cost per extension agent was \$2,900. Now we have master trainers in Montana, thus reducing the cost to \$1,700 per extension agent. Booklets cost approximately \$8 each and posters cost approximately \$240 (six posters).



reducing the size of the posters as little wall space was available in the school.

To support fidelity to the YAM model, extension agents participated in weekly telephone and as-needed consultations with a YAM master trainer/mental health therapist. Discussions included problems agents were experiencing in delivery and specific issues that arose during delivery. Written summaries of consultation meetings were shared with all YAM extension agents.

### *Determination of Acceptability*

Student satisfaction surveys were administered as part of the 3 month follow-up survey. The surveys contained five items (Likert-like scale with 1 = *strongly disagree* to 5 = *strongly agree*) asking YAM-related satisfaction questions listed in Table 1.

### *Extension Agent Experiences*

An 11-question anonymous Qualtrics survey was administered in the spring of 2018 to assess the extension agents' experiences in delivering YAM and participating in the research study. Questions included quantitative responses of "yes" and "no" and some Likert-type scales all including an opportunity to provide additional information to explain their responses via text boxes.

### *Ethical Considerations*

This study was approved by the university's institutional review board. Additionally, all YAM

extension agent facilitators completed research ethics and compliance training. A form to document adverse events and their resolutions was part of the research protocol.

### **Data Analyses**

Data were double entered into an Excel database. Among consented students, 269 (82.8%) completed pencil and paper baseline surveys and 217 (66.8%) completed both the baseline and 3 month follow up survey. Therefore, the sample was defined as those students ( $n = 217$ ) who participated in both surveys (completed  $\geq 50\%$  of all scales at each time point). Data were stored in a secure database accessible only by the research team. Descriptive statistics were used to describe all demographic data and the primary outcomes. Data were analyzed using SPSS statistical software. Given that data analyses were primarily descriptive (i.e., frequencies), listwise deletion was used to manage missing data.

## **Results**

### **Participant Characteristics**

Most schools offered YAM to ninth-grade students; however, due to mixed grades in some classes and requests by school administrators, some grade 10, 11, and 12 high school students also received the intervention. Of those youth who participated in this study, there were 209 ninth-grade students, 50 tenth-grade students, 8 eleventh-grade students, and 2

**Table 1**  
*Student Endorsement for YAM<sup>a</sup>*

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
I liked/was pleased/satisfied with/the YAM project that my school took part in	7 (3.2)	6 (2.7)	51 (23.3)	105 (47.9)	50 (22.4)
I would suggest participating in this program to other schools	6 (2.8)	9 (4.1)	49 (22.5)	94 (43.1)	60 (27.6)
I would want my school to participate again in the YAM project	10 (4.6)	12 (5.5)	63 (28.8)	78 (35.6)	56 (25.6)
I think it is a good idea to provide young people with a mental health promotion and risk behavior prevention program in schools	0 (0)	4 (1.8)	20 (9.1)	96 (43.6)	100 (45.5)
Most students would find the program implemented in your school appropriate	2 (.9)	5 (3.2)	58 (26.6)	96 (44.0)	57 (26.1)

*Note.* <sup>a</sup> Results reported as number of responses (percentage of total responses).

twelfth-grade students. The average age of youth who participated in both surveys was  $15.7 \pm .75$  years, 52.1% were female, 65.9% lived with both parents, and 12 (5.5%) identified as LGBTQ.

### **Feasibility**

Ten of 14 schools (71%) approached participated in the study. One school did not respond to emails about the intervention. Two schools met with the extension agent and the CMHRR director but declined to participate. One felt that they had sufficiently addressed suicide prevention and did not want a new intervention.

Within the 10 participating schools, 641 students received the YAM intervention, with 325 (50.7%) of those students providing consent and assent to participate in the study. Among consented students, 269 (82.8%) completed baseline surveys and 217 (66.8%) completed both the baseline and 3 month follow-up survey as defined by completing  $\geq 50\%$  of the questions on one of the scales at each time point.

### **Adverse Events**

During the 2017–2018 year there were three documented adverse experiences, a student who made the YAM facilitator aware of self-cutting, a class where four students left during the lesson as there had been a recent suicide in the school and the students were uncomfortable with the discussion, and a case where the YAM facilitator was made aware of a student suicide attempt. In these instances, the youth were escorted to a primary contact at the school. In the second incident, the school counselor was the contact. The facilitator was aware of the recent suicide in the community. She met with the school administrator and counselor ahead of the session and it was agreed that she would give permission for students to leave if needed. In the third situation there was a change in start date of YAM in a school where there had been a suicide attempt. The student who made the attempt had recently transferred from another school where he had received YAM. The student agreed to attend the YAM sessions when they began at his new school. No other action was needed by the YAM facilitators. These examples illustrate the importance of having plans in place and strong support from the school administrators

and counselors when implementing a universal suicide prevention intervention.

### **Fidelity of Delivery**

#### ***Completion of Scheduled Intervention Sessions***

Twelve YAM Extension facilitator–assistant teams delivered the intervention (five sessions) in 3–5 weeks as designed by the developers of YAM.

#### ***Fidelity Support Calls***

A mental health counselor and YAM master trainer provided weekly and as-needed conference calls to discuss problems agents were experiencing in the delivery and specific issues that arose during delivery. All agents participated in calls when possible and 10 of 11 (90.9%) responding extension agents suggested that the resource be continued in the future. One responded that other extension agents provided support that was needed.

#### ***Intervention Dose***

Attendance was recorded for 206 (63%) of consented students. Of these students, 184 (89.6%) participated in  $\geq 4$  of the 5 sessions. Sessions were primarily missed due to school absences, school field trips, or a student moving that overlapped with the class.

### **Acceptability**

#### ***Students***

A total of  $n = 217$  (66.8%) students provided evaluations of their experiences within YAM. Students reported overall positive satisfaction with YAM and agreed they would recommend the program to other schools. For instance, 89.1% of youth agreed or strongly agreed that “It is a good idea to provide young people with a mental health and risk behavior prevention program in schools.” Many students (70.3%) also reported they were pleased with YAM, and 61.2% indicated that they wanted their school to participate again. Youth (70.7%) thought YAM should be suggested for other schools and 70.1% of youth



thought students would find the program appropriate. See Table 1.

### *Extension Agents' Experiences*

Eleven of the 17 (64.7%) facilitators responded to the survey. Of the six who did not participate, five had not yet delivered YAM and one did not respond.

### *Intent to Continue YAM Delivery*

Nine of the 11 (81.8%) responding agents reported they would deliver YAM again in the following school year, while two (18.2%) said they would “maybe” deliver the intervention again.

### *Suggested Changes to YAM Delivery*

When asked for suggestions to improve YAM, one agent responded that there were two challenges to the intervention—logistics and teaching. The agent responded, “It was difficult being responsible for both because the implementation part was not seamless. In delivery of YAM, I needed a toolbox that included more questions to generate discussion and a curriculum that was clearer or easier to follow.” In the larger schools, a staff member from the CMHRR completed the logistics of arranging to teach YAM in the schools while the YAM facilitator could focus solely on teaching the intervention.

Another agent suggested more role-play scenarios and more training for situations that come up during YAM sessions. Additional training was a theme identified by 3 of the 11 (27.3%) respondents. One commented that it would be nice to have the YAM assistant take the lead for some parts of the intervention to break up the “voice” of the delivery and be a tool to help youth refocus during the sessions.

Securing YAM assistants was a challenge. Some agents had difficulty finding a suitable person to be the assistant as the position was part-time and temporary. Fellow agents within or in neighboring counties were recruited to be assistants, one agent's county commissioner was his assistant, and in other cases agents found appropriate assistants from members of local community groups.

Unexpected expenses were concerns voiced by several agents. The cost to photocopy the

evaluation materials for the larger rural schools, laminating the YAM posters to make them more durable, bringing snacks or treats to encourage class participation, and mileage to travel to the schools were among the extra expenses mentioned. Travel for YAM assistants was particularly a challenge as they may live in another community from where YAM was being taught. Budgets were adapted to pay YAM assistants' mileage to and from the school.

## **Discussion**

Results of this study indicate that the YAM intervention delivered by extension agents was feasible and acceptable for rural school settings as assessed by school and student recruitment, intervention fidelity, assessment completion rates, and extension agent feedback. Student surveys showed high satisfaction with YAM delivered by extension agents, which tended to be at least as positive as those from delivered by non-Extension facilitators (Lindow et al., 2019). This may be due to extension agents having experience working with youth especially using experiential methods such as role-play. This study provides support for utilizing extension agents to teach mental health educational intervention programs in rural schools.

The recruitment of schools was feasible, with high proportions of schools agreeing to participate. The overall school recruitment rate (71%) is similar to that observed in the only three randomized control trials of adolescent school-based mental health promotion/suicide prevention interventions reporting school recruitment data (50%, 75%, and 72%; Schilling et al., 2016; Swartz et al., 2017; Wasserman et al., 2015). Extension agents live within their counties and are generally well known and respected by their constituents. For many of the extension agents who had pre-existing relationships with school administration or staff, strong support for the YAM intervention was easily obtained. In locations where the extension agent was not a familiar figure, agents reported poorer response rates from the school and in some cases, no response at all.

Participant recruitment is a key element of study feasibility as greater participation limits selection bias (Ghaemi, 2009). In the current study, consent/assent was 50.7%. This rate is higher than the pilot study of YAM in Montana (37%; Lindow et al., 2019) and similar to three

other studies on school-based mental health promoting/suicide prevention requiring consent for youth (35%–69%; Schilling et al., 2014, 2016; Wyman et al., 2010), and higher than one not requiring consent (19% and 10%; Wyman et al., 2008). However, two other studies not requiring consent reported significantly higher participation (>90%; Aseltine & Demartino, 2004; Aseltine et al., 2007; Hart et al., 2018).

Incentivizing students may increase youth research participation in school-based intervention studies (Wolfenden et al., 2009). In a replication study of one adolescent school-based mental health promotion/suicide prevention intervention, higher consent rates were achieved (50% vs. 35%) when students were offered a gift card and raffle for consent form return (Schilling et al., 2014, 2016). In the current study, participating youth were offered a chance to win an iPad Mini for completing the baseline survey and a second chance for completing the follow-up survey. iPad Mini's were drawn when the authors had approximately 100 baseline and follow-up surveys completed. This strategy proved to be cumbersome, delayed youths' gratification, and, in most instances, did not appear to motivate youth participation.

Anecdotal reports from extension agents suggested that consent rates were influenced by school administrator and teacher interest in YAM as well as the time of the year the intervention was delivered. For example, schools that offered YAM in the fall seemed to garner greater enthusiasm from administrators and teachers and had higher consent and completion rates. One potential reason for lower consent rates during the winter and spring months is the variety of activities that have occurred during the current school year with less attention to certain programs requiring parental consent and student assent.

Another challenge in mental health promotion/suicide prevention studies is achieving high rates of assessment completion, which is important for limiting sampling bias (Ghaemi, 2009). In this study, 83% of consented students participated in baseline surveys and 67% participated in both surveys. The attrition in the follow-up survey was related to several issues, often student absences or moves. However, a lower rate of assessment completion also occurred as some extension agents had incorrect versions of surveys. Although the procedures manual had the correct survey, some

agents had downloaded an earlier version and failed to go back to the manual to find the final version developed for the evaluation. This is an error that can occur when conducting a statewide applied research study with multiple sites.

Although there were some problems with survey delivery, the 67% response rate is similar to the participation rates of students in other interventions requiring consent/assent (29%–79%; Connell et al., 2016; Schilling et al., 2014, 2016; Swartz et al., 2017), but lower than two of those using opt-out methods (58%, 92%, and 93%; Aseltine & Demartino, 2004; Aseltine et al., 2007; Hart et al., 2018).

Extension agents participated in activities to ensure YAM was delivered with high fidelity. All 17 extension agents completed the 36 hr YAM facilitator training. A step-by-step procedure manual was created specifically for Extension that documented the entire process of implementing YAM in rural schools. During YAM delivery in the schools, contact with the Family and Human Development Extension Specialist with questions related to specific situations within a school helped adhere to fidelity. Weekly "debriefing" conference calls with the YAM master trainer and mental health therapist likely supported adherence to the protocol. Unlike the SEYLE randomized control trial, YAM Extension did not institute monitoring visits or facilitator questionnaires. The SEYLE monitoring visits and quality control questionnaires for facilitators showed no or small differences among sites (Carli et al., 2013).

Intervention attendance by students, which likely supports program efficacy, is another important fidelity measure. Attendance for YAM taught by extension agents was recorded for 206 (63%) of the consented students. Of these students, 184 (89.6%) participated in  $\geq 4$  out of the 5 sessions. Attendance of 89.6% was considerably higher than in three similar intervention studies involving indicated depression or universal interventions reporting similar attendance data (35%, 30%, and 65%; Connell et al., 2016; Hart et al., 2018; Silverstone et al., 2015).

Two schools offered YAM in late spring, requiring the extension agent to return to the school the following fall to administer the follow-up. This presented problems for the school and the agent as the students were no longer all in the

same class during a given period, requiring the agent to work with several teachers to disrupt a class period for students to complete the follow-up survey. Although extension agents were able to obtain the follow-up survey, this timing of YAM delivery when implementing the evaluation would not be recommended for the future. In the future, surveys will be web based so that participating youth can access them any time and the research team can better track student completion rates. This should assist in alleviating problems of reaching students for the follow-up if the intervention is offered in the latter part of the spring semester.

Youth positive acceptability of a school-based intervention is an additional characteristic needed for widespread implementation of such programs (Bowen et al., 2009). In this study, students reported overall satisfaction with the YAM intervention and mental health programming. The single study of a similar intervention that collected quantitative satisfaction data reported high student satisfaction with presentation of materials, knowledge gained, and content (Hart et al., 2016). The positive student satisfaction ratings of YAM, and for similar interventions, suggest there would be continued support for future YAM delivery and testing.

### Limitations and Conclusion

Although feasibility, acceptability, and fidelity outcomes of this study were promising, there were several limitations. Using an uncontrolled design potentially masked the effect of randomization on recruitment rates, especially that of schools. Not assessing variation among ethnicities limits generalization to various racial/ethnic groups. Montana, where this study was conducted, has a homogenous population, predominately White. Further, it is unknown whether missing acceptability data occurred at random.

There are challenges in delivering and conducting a study on intervention programs like YAM, such as ensuring consistent protocols for approaching schools and intervention fidelity. This study provided some suggestions to address these limitations, such as having a YAM master trainer meet weekly with facilitators and be available for one-on-one consultation, considering the

time of year YAM is taught in the schools and having the extension specialist available to address logistical concerns.

For an intervention to have a large impact, it must be scalable to a large population. Two limitations of YAM are that it must be delivered by trained facilitators, not school staff, and it requires fidelity monitoring of the facilitators, increasing the delivery cost and presenting logistical challenges. In urban settings, YAM can be delivered efficiently and with optimal facilitator skill development using a core group of facilitators who need limited travel to deliver YAM to large numbers of youths (Lindow et al., 2019). However, providing YAM in rural regions, such as most of Montana, represents a significant challenge as either a core group is required to travel extensively or many local facilitators are needed (Lindow et al., 2019). In the former model, facilitators hone delivery, but the travel increases cost. Additionally, difficult travel conditions can create scheduling difficulties. In the latter scenario, facilitators gain less experience delivering YAM, but travel costs and scheduling problems are reduced and familiarity of the facilitator with the community is increased. The current study tested the feasibility and acceptability of the latter model using Extension faculty who are integrated members of communities with experience working with youth and who can deliver YAM as part of their normal job activities, reducing costs.

Although there were limitations, the current study provides promising feasibility and acceptability results for YAM delivery in the United States using extension agents as facilitators in rural schools as well as possible solutions to delivery challenges identified during the study. Future research should include a randomized-control trial and focus on the effectiveness of YAM in increasing the ability of youth to cope with stressful life events and reducing suicidal ideations and attempts when delivered in a rural school setting. If the findings are similar to those seen in Europe (Wasserman et al., 2015), YAM could be considered an effective school-based intervention to help reduce youth suicide in rural areas. Offering YAM by trained extension agents would be an innovative strategy for addressing the need for scalable universal prevention interventions to help reduce the crisis of suicide among rural youth in the United States.

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