2017

A Secondary Analysis of Survey Data Evaluating the Lifelines Suicide Prevention Program Among Middle School Students

Nicki Sullivan
University of Kentucky, emergencyroomnurse@gmail.com

Click here to let us know how access to this document benefits you.

STUDENT AGREEMENT:

I represent that my Practice Inquiry Project is my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained needed written permission statement(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine).

I hereby grant to The University of Kentucky and its agents a royalty-free, non-exclusive, and irrevocable license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless a preapproved embargo applies. I also authorize that the bibliographic information of the document be accessible for harvesting and reuse by third-party discovery tools such as search engines and indexing services in order to maximize the online discoverability of the document. I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Associate Dean for MSN and DNP Studies, on behalf of the program; we verify that this is the final, approved version of the student's Practice Inquiry Project including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

<div align="right">

Nicki Sullivan, Student

Dr. Jan Findlay, Advisor

</div>

DNP Final Project Report

A Secondary Analysis of Survey Data Evaluating the Lifelines Suicide Prevention Program

Among Middle School Students

Nicki Sullivan

University of Kentucky

College of Nursing

Spring, 2017

Jan Findlay, PhD, MSN, APRN -- Committee Chair

Chizimuzo Okoli PhD, MPH, MSN, RN -- Committee Member

Julie Cerel, PhD -- Committee Member/Clinical Mentor

Dedication

This is dedicated to my daughters, Casey Belle and Cara, who remind me what real strength and true beauty are, and to my wife, who has picked me, dusted me off, and helped me start over again and again during the last three years. I also dedicate this to my son Chase. His memory has given me the courage the start this journey, the strength to continue it even when I didn't think I could, and the confidence to know that I will make a difference with every person I meet.

#DoItForChase

Acknowledgements

and staff at the University of Kentucky. For the last three years, the College of Nursing has been

my home and I am grateful to everyone who has helped to make my journey a success. To Rose

and Bernadette, who keep our CON floors and bathrooms clean, smile daily, and remind me to

stay humble, and to all my peers who studied with me, laughed with me and cried with me, a

special thank you.

Table of Contents

List of Tables

List of Figures

Abstract

PURPOSE: The purpose of this study was to evaluate student feedback of the 2015 Lifelines Suicide Prevention Program at Jessie Clark Middle School. Student feedback was examined by assessing students' knowledge of suicide, attitudes toward suicide, knowledge of when and from whom to seek help if feeling suicidal or told by a friend that they are suicidal, and impressions of the educational presentation following participation in the Lifelines Suicide Prevention Program.

METHODS: In this secondary analysis, anonymous student responses (N=269) from a 2015 middle school survey were examined by using a mixed methods design with the quantitative study measures being examined by summary scores. School grade and teams were determined using frequencies. Summary scores of each of the domains of the evaluation questions were computed and described using means with standard deviations and medians. Chi-square analyses were performed to determine differences in the individual item evaluation questions by school grade and team membership. Kruskal-Wallis test was used to determine differences in the summary scores of the evaluation questions by school grade and team membership. For the qualitative portion, transcripts of student comments were read and reviewed several times by the author, then narrative data were coded to identify themes related to participant perceptions about the program.

RESULTS: There were differences between grades in individual knowledge questions as well as the mean knowledge score. Eighth graders were significantly more likely to correctly answer questions about the relationship of depression and suicide (p=0.010). However, 7th graders had significantly higher scores on use of the STOP sign logo (p=0.001). There were differences in scores between grades in individual attitude questions but not in the mean attitude score. Eighth graders were significantly more likely to answer correctly the question about the importance of

yearly suicide prevention (p=0.007). There were differences in scores between grades in individual intention questions but not in the mean intention score. Seventh graders' responses trended toward significance when endorsing having a trusted adult (p=0.053). Overall satisfaction scores were high, however 6th graders found the Lifelines videos depicting different at-risk scenarios more difficult to watch.

CONCLUSION: Almost all (98.5%) students understood the seriousness of suicide and understood the risk factors of suicide (96.2%) following the Lifelines Suicide Prevention program. This study also found that as age increased, so did mental health literacy. Overall, students were satisfied with the presenter and the presentation of the program. Students perceived the Lifelines Suicide Prevention program to be relevant to themselves, their peers and to others in general. However, younger students may need adaptations to the program including a video that more closely reflects their developmental stage. An updated version of the videos may also improve the relatability of the content. In addition, results suggested that emphasis on trust-building between staff and students is an important factor in facilitation of open communication, which can empower students and suicidal peers to seek assistance. Finally, it is important to incorporate anti-stigma interventions to reduce students' prejudices regarding mental illness and suicide, which may prevent them from seeking help for themselves or a peer.

A Secondary Analysis of Survey Data Evaluating the Lifelines Suicide Prevention Program

Among Middle School Students

Introduction

Lifelines is a multidisciplinary suicide prevention program implemented in middle and high schools. The program incorporates staff training, and student and parent educational efforts aimed at identification and effective response to those identified as being at risk for suicide. Lifelines is listed on the Substance Abuse and Mental Health Services Administration's (SAMSHA) National Registry of Evidence-based Practice Programs (NREPP, n.d.). Suicide prevention programs are included on the registry through an extensive review of evidence and must meet SAMSHA's NREPP minimum qualifications for inclusion (SAMHSA, 2016). Eleven legacy programs have been reviewed and scored on reliability and validity of measures, intervention fidelity, missing data and attrition, potential confounding variables, and appropriateness of analysis prior to changes in the grading criteria in 2015 (Suicide Prevention Resource Center (SPRC), n.d.; SAMHSA, 2015). Four new programs were reviewed using the new NREPP scoring criteria that include rigor, effect size, program fidelity, and conceptual framework (SPRC, n.d.; SAMHSA, 2015).

Based on NREPP, Lifelines has demonstrated increases in knowledge of suicide, improvement in attitudes toward suicide, greater improvement in attitudes about seeking adult help following the intervention, and improvement in suicidal secret-keeping behaviors following the intervention, yet it has never been evaluated in the context of the middle school setting (Kalafat, Madden, Haley, & O'Halloran, 2007; NREPP, 2007). Most of the current research on suicide prevention programs has focused on high school populations, however research suggests

that students are at the highest risk for suicide during seventh and eighth grade (Crepeau-Hobson, 2013).

Suicide prevention programs intuitively measure quantitative outcomes of data such as improvement in knowledge of suicide, attitudes toward suicide, and help-seeking behaviors. Very few suicide prevention programs measure qualitative outcomes such as likeability, relatability, and importance. Wilson and Deane (2001) examined high school students' opinions about barriers to help-seeking, however, no study has evaluated middle school students' qualitative perceptions of suicide prevention programs.

The purpose of this mixed methods study was to examine student feedback of the 2015 Lifelines Suicide Prevention Program at Jessie Clark Middle School to evaluate students' knowledge of suicide, attitudes toward suicide, knowledge of when and from whom to seek help if feeling suicidal or told by a friend that they are suicidal, and to evaluate program satisfaction. In addition, middle school students' perceptions of the Lifelines Suicide Prevention program were described.

Background

Suicide prevention programs have been established in elementary, middle and high schools across the world to reduce the adolescent suicide rate (Wyman, 2014). Currently, suicide is the third leading cause of death among 10-14 year olds with approximately 2.0 per 100,000 or 409 children in 2015 completing suicide (Drapeau & McIntosh, 2016). Risk factors for suicide include feelings of hopelessness or talking about suicide, changes in behavior and mood, mental health illnesses including depression and anxiety, substance abuse, access to lethal means, history of previous attempts and being bullied (American Foundation

for Suicide Prevention [AFSP], 2017). Among Kentucky middle school students, 45% of Youth Risk Behavioral Survey (YSRB) respondents reported bullying at school, while Cyberbullying, or bullying that takes place via social media or technology, was reported by 24% of respondents (CDC, 2015). Victims of bullying, or those affected by peer victimization, and those engaged in bullying behaviors such as Cyberbullying, social alienation, intimidation, physical contact and verbal harassment are at 2.4 times greater risk of suicidal ideation (SI) and 2.6 times greater risk for suicide attempts (Gini & Espelage, 2014; Lois, 2014). Therefore, when selecting a school-based suicide prevention program, Wyman (2014) recommends an integrative approach to prevent adolescent suicide that includes addressing bullying, not only in the school, but at home and in the community.

Theoretical Concept

The theoretical frameworks noted from a review of the literature included Community-Based Participatory Research and upstream youth suicide prevention. The Diffusion of Innovation (DOI) Theory and other common behavioral theories and models like the Ecological Model, Social Learning Theory, and Health Belief Model are helpful to conceptualize suicide prevention, however, none of these are an exact fit. They do not account for "virtual peers" who are friends, acquaintances, and complete strangers, whose changing beliefs and attitudes are influenced by social media sites like Facebook, Twitter, and Instagram. The spread of ideas from peer to peer can be instantaneous, and can reflect the predominant norms. For example, the belief that all those who suffer from depression are suicidal is false. However, if this myth is perpetuated, it could lead to an incorrect association that suicidality is always equivalent to mental illness. For some, having a mental illness is negatively associated with avoidance, being treated differently, dangerousness, exclusion, and

fear (Wolff, Pathare, Craig, & Leff, 1996). These misconceptions can lead to negative help-seeking behaviors for the suicidal adolescent who may be improperly persuaded by peers. A new model should capture "virtual peer" persuasion in relation to adolescent suicidal help-seeking.

DOI Theory examines how new knowledge, attitudes, and behaviors can be spread by different people through different mediums across time (Rogers, 1962). A new behavior, or *innovation,* will be adopted if it is viewed as important. For example, teachers and students who believe that yearly suicide prevention is important will likely influence others with their opinion. These individuals are called opinion leaders. According to DOI theorist Everett Rogers (2003), adopters of *innovations* are classified into five categories, each making up a percentage of the population (see Table 1).

Rogers (2003) referred to *innovation* using five attributes: 1) relative advantage, 2) compatibility, 3) complexity, 4) trialbability, and 5) observability. Rogers developed these concepts related to technology, however, they can be applied to behavior as well. Relative advantage refers to the degree that the current innovation is better than what it is replacing (LaMorte, 2016; Kiminski, 2011; Rogers, 2003). Suicide prevention program selection would be a function of the innovator and be part of the relative advantage stage of innovation. Compatibility asks, "Does the innovation meet the needs of the adopters and align with their values?" Early adopters such as teachers and school counselors would want to make sure the suicide prevention program objectives were compatible with their teaching values for full "buy-in" of their time, which could affect the quality of the material being taught/presented.

Complexity is the difficulty to understand or use the innovation (LaMorte, 2016; Kiminski, 2011; Rogers, 2003). Complexity affects how students perceive the information

provided in the suicide prevention program. The early majority will help disseminate information

they learn to others. Trialability is the experimentation and testing of the innovation before

committing to its adoption (LaMorte, 2016; Kiminski, 2011; Rogers, 2003). Students in the late

majority who feel the effects of peer pressure may be reluctant to apply the knowledge learned

from the suicide prevention program until it is personally relevant. This may also be caused by

stigma and social media. Observability refers to the output of the innovation process to produce

results (LaMorte, 2016; Rogers, 2003). Suicide prevention programs seek to prevent suicide

through education, role modeling, and providing support. Students identified as being "laggards"

who may fall into the at-risk category could be the target of these programs.

In the five-stage adoption process, Rogers (2003) stated the steps include:

1. Knowledge

2. Persuasion

3. Decision

4. Implementation

5. Confirmation

 As students are exposed to the elements of the suicide prevention program, they gain

knowledge and awareness. During the persuasion stage, students determine if the program is

important and if they want to learn more. The decision stage is where students decide if what

they have learned is relevant and applicable to their situation. During the implementation

stage, students apply strategies they have learned from the suicide prevention program.

Confirmation is the continued use of the newly acquired skills throughout the year.

Communication plays a large part in the DOI Theory including mass media and

interpersonal channels (Rogers, 2003). According to LaMorte (2016), emerging norms can be

shaped and changed by the rapid spread of *innovation* by mass media (i.e., social media). Attitudes toward suicide and coping, help-seeking, and trusted adults can be positive or negative. For example, Cyberbullying is linked to higher levels of depression, anxiety and suicidal ideation, and social media provides a conduit for suicidal adolescents who may read hurtful comments prior to a suicide attempt (Kowalski, 2013; Long & Gross, 2011). This attracts individuals in the late majority who are strongly influenced by negative peer pressure. Students identified as Laggards may seek out negative suicide websites such as lostallhope.com and suicide forums to cope with isolation.

Alternately, social media may also be a positive influence through suicide prevention websites such as the National Suicide Prevention Lifeline (suicideprevetionlifeline.org), which provides resources for suicidal individuals, and Facebook and Snapchat, which provide a sense of community, creating positive peer interactions (Ito, 2008; Carroll & Kirkpatrick, 2011. Facebook, Twitter, and LinkdIn are currently using artificial intelligence to identify suicidal language in users' posts and can notify emergency responders if it is detected (Brandon, 2017; Honorof, 2013). Through the collection and sharing of big data to aid in suicide research efforts, as well as monitoring of Ecological Momentary Assessment (EMA), which is the real-time capture of physical and emotional symptoms directly through the electronic health record (EHR), technology can significantly aid in the prevention of suicide (de Beurs, Kirtley, Kerkhof, Portzky, & O'Connor, 2015). The role of social media in suicide prevention should be the spread of accurate information including warning signs of suicide, risk factors, protective factors, coping strategies, crisis intervention resources, and positive peer support.

Rogers (2003) argued that interpersonal interactions by opinion leaders were more

influential than mass media. This can be seen among early adopters where teachers and counselors provide guidance and direction as trusted adults within the school, and peer leaders role model innovations that support the suicide prevention program and influence attitudes that may decrease stigma within peer adopters. The tipping point for any suicide prevention program is the chasm between early adopter and the early majority, where stigma related to mental illness and suicide reduces the ability for students to achieve the full benefits of the learning outcomes. Therefore, using DOI Theory, suicide prevention programs should focus on early adopters such as teacher and counselors, encouraging buy-in for the program, and identify individual trusted adult strengths so that each student has at least one trusted adult with whom they can relate. Peer leaders who are highly influential among their peers should be chosen so that their opinions and stories become relevant to others, helping to bridge the chasm and allowing the free flow of information between adopters. Strong emphasis on reducing stigma, aided by enhanced mental health literacy, may bridge this gap.

Diathesis-Stress Models of suicidal behavior focus on specific theories including sociobiology (De Catanzaro, 1980), cognitive psychology (Schotte & Clum, 1982), biocultural stress (Rubenstien, 1986), and neurobiology and psychopathology (Mann & Arango, 1992) among others (van Heerigen, 2012). Joiner's Interpersonal Theory of Suicide (2005) addresses thwarted belongingness, perceived burdensomeness, and capability for suicide. However, there are no current models that directly address social media and its influence on adolescents and suicide and suicide prevention.

Review of Literature

Similar studies have been conducted within the middle school populations using different suicide prevention programs such as Signs of Suicide (SOS) a universal suicide

prevention program similar to Lifelines where a DVD with short vignettes is shown followed by a group discussion and includes a parent presentation training kit. However, one difference between the two programs is that SOS includes a screening for suicidal thoughts and depression (Schilling, Lawless, Buchanan, & Aseltine, 2014). SOS participants reported fewer suicidal ideations, planning, and attempts, and an increase in knowledge of depression and suicide (Schilling et al., 2014). In a similar study, Crepeau-Hobson (2013) found that among schools that implemented SOS for students and Applied Suicide Intervention Skills Training (ASIST) for mental health staff, in combination with risk assessments, zero suicides were reported over three years.

The Yellow Ribbon Suicide Prevention Program (YRSPP) is a universal suicide prevention program similar to Lifelines (Schmidt, Iachini, George, Koller, & Weist, 2014). This program includes individualized trainings for peers and for Gatekeepers. A Yellow Ribbon Suicide Prevention Card provides information for students on how to access help for a suicidal peer. An example of the success of this program is noted in a study conducted in a rural Maryland school district by Schmidt et al. (2014) who found that students had a decrease in suicidal ideation over four years from 14.34% to 9.29%, an increase in knowledge of suicidal ideation, and an increase in help-seeking behavior using YRSPP.

Sources of Strength is a peer leadership training suicide prevention program designed to increase protective factors and decrease risk factors by creating positive peer supports within schools. Wyman et al. (2010), who studied the efficacy of Sources of Strength found that there was an increase in knowledge about suicide, attitudes about suicide, and increased help-seeking following use of this program among high school students. Moreover, peer leaders who were trained with the Sources of Strength curriculum were also four times more

likely to talk to an adult about a suicidal peer.

Question, Persuade, Refer (QPR) is a Gatekeeper suicide prevention program to help participants recognize signs and symptoms of suicide, training key members of faculty and staff with the curriculum, training school counselors on how to assess at-risk students, and providing referrals to outside mental health professionals for students who may need treatment (Katz et al., 2013). Johnson and Parsons (2012) conducted a study of 3,000 middle and high school students and 400 staff members in a Midwest school district who implemented QPR. Findings showed increases in knowledge related to adolescent suicide prevention by school personnel with no suicide attempts reported in the 3 months following QPR training. The greatest increases were in knowledge of how to ask someone about suicide, knowledge of suicide facts, and appropriateness of when to ask someone about suicide. Singer and Slovak (2011) found that the benefits of QPR decreased as the level of prior training and experience with suicidal youth increased. Katz et al. (2013) found that QPR was effective in changing attitudes and behaviors toward suicide, however, the program was not effective in improving Gatekeeper behavior.

Finally, Good Behavior Game (GBG) is a classroom-based behavior management program initially designed to help students with aggression and disruptive behavior. However, a longitudinal study of first graders studied for 15 years found that students had a 50% reduction in suicidal ideation with delayed onset of suicide attempts in females and an estimated relative risk reduction of suicide by 30% (Katz et al., 2013; Musci et al., 2016).

A literature review of qualitative studies examining suicide prevention programs using the terms suicide prevention programs, attitudes, middle school, students, opinion and perceptions was conducted. The databases that were searched included EBSCOhost, ERIC and

PubMed, and a total of 135 articles were located. Inclusion criteria were articles with qualitative student perceptions of suicide prevention programs. Exclusion criteria were duplicate articles, articles that were not available in full text and articles whose participants fell outside the age limits set between 10-18. Reference lists of relevant articles were examined and abstracts of key articles were reviewed. A total of two articles from health promotion and public health journals were included in the literature review.

Thia et al. (2016) examined student responses of 24 ninth grade participants rating Stories of Personal Resilience in Managing Emotions (StoryPRIME) and 36 student peer leader testimonial writers in grades 10-12 in two New York high schools. StoryPRIME is a Web-based interface developed using an interdisciplinary approach to suicide prevention with focus groups of high school peer leaders, adult sample feasibility testing, and human computer interaction (HCI) researchers (Thia et al., 2016). Peer leaders trained with the Sources of Strength suicide prevention program then created text message testimonials and were then rated by the ninth graders on how 1) relevant/useful, 2) likeable, 3) intriguing and 4) relatable the messages were (Thia et al., 2016). In the double blind controlled study, ninth grade students in the intervention group found StoryPRIME testimonials more relevant, likeable, and relatable and students responded favorably in both conditions. Intrigue was not highly significant most likely due to the limitation of 300 characters in the text box, preventing testimonial writers from detailing their stories (Thia et al., 2016).

Responses indicated that StoryPRIME helped testimonial writers remember relevant issues in high school:

> *I'm happy that I was able to share my story, in order to provide advice for students*
> *who are entering high school and preparing for challenges, as well.*

It's a bit hard to recall what happened over a years ago and decide which one to write

about

Writers of StoryPRIME discussed the likability of the system, with many expressing concern over the 300-character limit for telling their story and providing positive as well as feedback for improvement:

(Allow) More characters to type your summary with

This website is awesome as it is :)

You can improve this website by having us go into more depth of how we

handled the situation

more room to write about something or more prompting questions for

personalization

Students were able to relate to the StoryPRIME testimonials:

it was easy and felt nice to describe an incident that helped me become a good

student I learned that i actually learned from my mistakes as a freshman to be more

successful.

Limitations to this study include its small sample size, smaller effect size difference between the intervention and the control group, and some testimonials that could not be shared due to their irrelevance or lack of substantial content (Thia et al., 2016).

Langdon et al. (2016) examined perceptions of American Indian youth following the Lumbee Rite of Passage (LROP) suicide prevention model pilot program that included 16

youths, ages 11-18, and gatekeepers of the Lumbee tribe of North Carolina. A community-based participatory research (CBPR) model was used to engage tribe members, researchers, health care workers, and community members. The first step of LROP was to assess perceptions of suicide, identify Lumbee youth mental health needs and determine services available for those needs, determine current beliefs about existing mental health services, and phase two was to evaluate the LROP for cultural and tribal significance on suicidality at the end of six months (Langdon et al., 2016).

During phase one, youth were taught cultural activities such as tribal history, beadwork, drumming and dancing, and regalia-making (Langdon et al., 2016). The program focused on the protective factors enculturation, social support and building self-esteem to prevent suicide. Trends emerged from evaluation of phase one data of Lumbee youth responses including 1) nonsuicidal self-harm (i.e., cutting), 2) bullying, 3) stigma related to mental illness, 4) violence and addiction at home, and 5) economic stress. The LROP was well-received by Lumbee youth who also reported feeling connected to the program. Lumbee youth also qualitatively reported feeling supported by their teachers, elders, and peers of their participation in the program. A decrease in suicidal ideation and increase in protective factors was noted in participants who attended at least two thirds of the classes, although not statistically significant (Langdon et al., 2016).

Themes that emerged from both Lumbee youth and StoryPRIME rater and writers included likeability and being relevant (Langdon et al., 2016; Thia et al., 2016). Lumbee youth liked the LROP and many wished to continue their cultural education (Langdon et al., 2016). The likability of the StoryPRIME program related to its use of 300 characters and testimonials. Relatability had a significant impact on students' perceptions of peer leader testimonials while

feeling supported was perceived by Lumbee youth as significant.

Purpose

The purpose of this mixed methods study was to examine student feedback of the 2015 Lifelines Suicide Prevention Program at Jessie Clark Middle School by evaluating students' knowledge of suicide, attitudes toward suicide, knowledge of when and from whom to seek help if feeling suicidal or told by a friend that they are suicidal, and evaluation of the Lifelines Suicide Prevention Program presentation. In addition, middle school students' perceptions of the Lifelines Suicide Prevention Program at Jessie Clark Middle School were examined.

Methods

Quantitative. For this secondary data analysis, anonymous student survey responses regarding the Lifelines Suicide Prevention Program were analyzed. The survey responses were divided by student grade and teams, but no respondent identifiers were included.

Qualitative. Qualitative descriptive methods were used to analyze narrative data obtained from participants who received the suicide prevention training. Narrative data were obtained from participant comments provided at the conclusion of the survey. Qualitative descriptive methods are the appropriate strategy for analyzing narrative data to allow the researcher to "stay close to the data" and obtain a straight, factual description of a phenomenon (Sandelowsi, 2000, p. 334).

Measures

Quantitative Measures. The measures included for this study were based on true/false responses to questions from the 2015 Student Feedback for JCMS Suicide Prevention Program [see Appendix A]. These non-validated measures were developed by the program

coordinator based on content presented during the program. This evaluation form was

developed by the program presenters with simplicity in mind and to meet the literacy level

of participants.

Although these measures were not psychometrically tested, they provided preliminary

program evaluation data for future studies:

1. Knowledge of suicide: Knowledge of suicide was assessed using four items from
   the feedback survey that assess risk factors, asking a friend about suicide,
   relationship between depression and suicide and STOP sign use on website.

2. Attitude about suicide: Attitudes about suicide were assessed using three items
   from the feedback survey that assess seriousness of suicide, importance of suicide
   prevention, and preparedness to help a friend.

3. Intent to seek help: Intent to seek help was assessed using three items from the
   feedback survey that assess suicidal secret keeping, telling an adult, and
   having a trusted adult.

4. Student satisfaction: Student satisfaction was assessed using three items from
   the feedback survey that assess mix of information, difficulty of video to watch,
   and presenter performance to do a good job.

Qualitative. Qualitative measures consisted of invitation for open-ended comments and

responses to the intervention.

Setting

Fayette County Public Schools (FCPS) in Lexington, Kentucky, enrolls nearly 40,000

students in grades pre-K through 12th grade. Jessie Clark Middle School (JCMS) is one of 12

FCPS middle schools. There were 956 students enrolled for the 2015-2016 school year with

31.5% in 6th grade (n=301), 35.7% in 7th grade (n=341), and 32.8% in 8th grade (n=314).

Racial representation included 75.7% White (Not Hispanic), 7.7% African-American, 6.4%

Asian, 6.1% Hispanic, 3.8% Two or More Races, 0.2% Native Hawaiian or Other Pacific

Islander, and 0.1% American Indian or Alaska Native. English Language Learners (ELL)

comprised 3.7% of the population, 23.4% of students were identified as Gifted and Talented,

7.8% of students had special education needs, and 39.3% qualified for free-and-reduced

meals (Kentucky Department of Education, 2016). School starts at 9:05am and ends at

3:55pm ("Jessie Clark Middle School Information," 2017).

Features

There are three grades within JCMS: 6th, 7th, and 8th. Within each grade are three

teams, each with unique names, (for example, Titans [6th grade], Apollo [7th grade], and

Legends [8th grade]). The goal of individual student team placement is to make the teams

even for all demographics and ability. Special education, ELL, 504 plans, advanced math,

and gifted and talented are all considered upon placement. (G. Brown, personal

communication, January 23, 2017).

Sample

Quantitative. This sample consisted of 269 male and female students ranging in age from 9-

15 who participated in the mandatory Lifelines Suicide Prevention program presentation in

August and September of the 2015-2016 school year. No one was excluded in relation to sex,

gender, race, and ethnicity.

Qualitative. This sample consisted of 60 student comments from the Student Feedback for JCMS Suicide Prevention 2015 survey. Sixteen comments were removed from consideration for having no content (i.e., No comment, None, N/A) leaving a total of 44 student comments for analysis.

Data Collection

For each sub-population, the team teachers were asked to choose two out of their four classes who received the presentations to complete the surveys. Each teacher had control over which classes were selected. Only one 6th grade team was represented in the survey due to lack of teacher response. Students were asked to fill out the survey following the Lifelines Suicide Prevention program and space was provided at the end of the survey for student feedback (G. Brown, personal communication, February 16, 2017).

Data Analysis

Quantitative. The outcomes for this study were assessed using a post-test only design with all the study measures being examined by summary scores. School grade and teams were determined using frequencies. Summary scores of each of the domains of the evaluation questions were computed and described using means with standard deviations and medians. Chi- square analyses were performed to determine differences in the individual item evaluation questions by school grade and team membership. Kruskal-Wallis test was used to determine differences in the summary scores of the evaluation questions by school grade and team membership. All analyses were performed using IBM SPSS Statistics version 23. An alpha of 0.05 was used to determined significance in all analyses.

Qualitative. Transcripts of student comments were read and reviewed several times by the author, then narrative data were coded to identify themes related to participant perceptions about the program. Themes were organized into three broad categories: 1) quality, 2) relevance, and 3) awareness. Quality was evaluated on 1) presentation, 2) video, and 3) presenter. Relevance measures were based on 1) self, 2) peers, and 3) general. Finally, awareness was evaluated on 1) seriousness of suicide, 2) help-seeking, and 3) lack of awareness.

Results

Sample Characteristics

Of the 269 student responses, 19.3% were in the 6th grade, 33.1% were in the 7th grade, and 47.6% were in the 8th grade. All those on Team 1 were in the 6th grade (n=52), those on Team 2 and Team 3 were in the 7th grade (n=41 and n=48, respectively), and those on Team 4 and Team 5 were in the 8th grade (n=23 and n=105, respectively). No other demographic data was available.

Quantitative findings:

Knowledge of Suicide

When examining knowledge of suicide, findings indicate that students across all grades scored high in recognizing what risk factors to pay attention to following the Lifelines Suicide Prevention program (see Table 2). On the question 'Asking a friend directly if they are thinking about suicide can actually help lower anxiety regarding their situation' students had lower overall scores, which may indicate that students do not

understand the impact that their interaction can make on a suicidal peer. Dazzi, Gribble, Wessely, and Fear (2014) found that students who acknowledge their peers who have suicidal thoughts and talk with them directly, may reduce their suicidal ideations and significantly decrease their distress.

Therefore, more emphasis should be placed on role playing during teacher-led discussions, to help students become more comfortable interacting with a suicidal peer.

With regard to the correlation of depression and suicide, 8th graders were significantly more likely to correctly answer False to the question: All people who suffer from depression are suicidal (p=0.010). Stigma associated with mental illness may have affected how 6th and 7th graders responded. Mental health literacy may have also contributed to lower scores for younger students in that their previous exposure to suicide prevention may not have required them to challenge suicide causation. Seventh graders were significantly more likely to correctly answer False to the question "The "STOP" sign logo on the JCMS website is only to report bullying" (p=0.001). This survey question is unique to the Kentucky School System and independent of the Lifelines program. The STOP sign logo is used to report unsafe or potentially dangerous behavior including bullying, harassment, depression, self-harm and drug use. Reasons to use the STOP sign logo are reviewed with every student at the beginning of year during the suicide prevention program. One reason that 7th graders scored higher than 6th and 8th graders might be attributed to the individual differences in 7th grade team teaching styles during the discussion of the STOP sign use. Overall low scores on the use of the STOP sign logo suggest more emphasis should be placed on it use during thepresentation.

Seventh and 8th graders scored higher overall on knowledge of suicide than

the 6th graders (p=0.017). This may be due to students having had the Lifelines

Suicide Prevention Program for successive years leading to reiteration of knowledge.

Another reason for this may include the transition from early adolescence to middle

adolescence where 7th and 8th graders have more abstract thinking and begin to use

systematic thinking to influence their relationships with others (American Academy

of Children and Adolescent Psychiatry (AACAP), 2008). Decreased mental health

literacy may also be attributed to this finding.

Attitudes Toward Suicide

Across all grades, students' attitudes following the Lifelines Suicide

Prevention program indicated that suicide was a serious problem for teens and

young adults (see Table 3). Eighth graders were significantly more likely to

correctly answer the question that "It is important for students to have suicide

prevention every year" (p=0.007). This could be due to repeated exposure to

suicide prevention programs in previous years. A confounding factor may exist due

to this class having suffered the loss of one of its classmates to suicide two years

previously, which may have resulted in a stronger importance placed on the need

for suicide prevention programs.

Intent to Seek Help

Sixth graders scored slightly lower when asked "If I think they are ok, I

can keep a secret of suicide and not tell anyone" (see Table 4). This may be due

to their social-emotional development in that they are struggling with

independence and privacy versus the increased desire to fit into their peer group

(AACAP, 2008).

Overall, 97% of students indicated their intent not to keep a friend's suicidal thoughts a secret following the Lifelines Suicide Prevention program. Seventh graders scored slightly lower on the question "If a friend talks to me about suicide I should tell an adult as soon as possible". Again, this may be related to social-emotional development where the need for popularity and self-involvement may delay relaying the information to an adult. It may also be a characteristic of this population.

However, greater emphasis on trusted adults and gatekeepers within the school may be needed to ensure that all students understand who to contact in the event of a student crisis.

Stigma remains a significant barrier to adolescent suicidal secret keeping and this may explain why responses by the 7th graders trended toward significance. The 7th graders were more likely (94.4%) to answer True to the question "I have an adult at Jessie Clark I trust, and can talk to if I need something" (p=0.053) while 6th and 8th graders reported lower responses (86.3% and 83.5%, respectively). When examining the previous question, it seems that 7th graders have a trusted adult at Jessie Clark, but perhaps not outside the school. Every effort should be made to include resources such as Crisis Text Line, Virtual Hope Box, and National Suicide Prevention Hotline among others, within the discussion portion of the program. Having a trusted adult can reduce suicidal ideation as well as improve school dropout rates, and reduce the risk for depression and student substance abuse (Wyman et al., 2010; DuBois & Silverthorn, 2005a; DuBois & Silverthorn,

2005b; Resnick et al., 1997; Resnick, Harris, & Blum, 1993; Rhodes, Contreras, & Mangelsdorf, 1994).

Program Satisfaction

There were no statistically significant differences between the individual grades or teams on student satisfaction (see Table 5). However, 6th graders found the content of the Lifelines video more difficult to watch as compared to 7th and 8th graders. This may be attributed to cognitive development in that they are not as focused on the future and therefore may not see suicide as a finality. Another reason for the difficulty may be that this presentation may be their first introduction to a more in-depth discussion about suicide and its affects.

Previous Findings

Kalafat and Gagliano (1996) evaluated 8th grade students' responses to two vignettes from the Lifelines Suicide Prevention curriculum following small group discussions led by a mental health professional. There was a significant improvement in students' intent to "tell an adult" in the intervention group than in the control.

Kalafat and Gagliano (1996) built off Kalafat, Elias and Gara (1993) who examined students in grades 9-11. These high school students completed a questionnaire with four vignettes after a discussion with peer counselors. Kalafat et al. (1993) found that both male and female students would approach a suicidal peer but were more comfortable telling an adult in unambiguous situations and males were more likely to do nothing overall than females. Kalafat and Elias (1994) evaluated the Lifelines Suicide Prevention Program among 10th grade students and

found a significant increase in overall knowledge of suicide, attitudes toward suicide, and responses toward suicidal peers.

Students were significantly more likely to tell another friend about what they noticed in a suicidal friend, were less likely to agree that talking about suicide in class may stop some kids from trying to kill themselves, and students were more likely to tell a suicidal peer to call a hotline, talk to a counselor or get advice from another friend. There were no gender differences. Among high school students, Kalafat et al. (2007) found a significantly greater increase in knowledge about suicide, greater improvement in attitudes about suicide and suicide intervention, significantly improved attitudes toward seeking adult help, and significantly improved attitudes about keeping a friend's suicidal thought a secret in the intervention group (p< 0.001) following the Lifelines curriculum.

Qualitative findings:

Quality

Of the 44 middle school student responses, 50% (n=22) of the comments mentioned the quality of the Lifelines Suicide Prevention program. Of those 22 comments, 54.5% of students evaluated the presentation (n=12), 45.5% of students evaluated the video (n=10), and 9.1% of students evaluated the presenter (n=2). Students who evaluated the presentation indicated favorable responses 75% of the time (n=9), while 25% of students indicated a neutral or negative response (n=3). Thirty percent of students reported positive responses to the video (n=3) while 70% reported negative or neutral responses (n=7). With regard to the presenter, 100% of students provided positive feedback (n=2).

Relevance

Of the 44 middle student responses, 43.2% (n=19) of students indicated that the program was relevant to themselves, peers, or others in general following the Lifelines Suicide Prevention program. Of those 19 responses, 63.2% of students discussed how the presentation was relevant to themselves (n=12), 21.1% of student comments revealed finding relevance for a friend (n=4), and 21.1% of student comments revealed a general relevance of suicide prevention to everyone (n=4).

Awareness

Of the 44 middle student responses, 34.1% (n=15) of students indicated an awareness of the seriousness of suicide, help-seeking behaviors, and the importance of suicide prevention following the Lifelines Suicide Prevention program. Of those 15 responses, 66.7% of students reported an awareness of the seriousness of suicide (n=10), 33.3% indicated an awareness of help-seeking behaviors (n=5), and 13.3% of student comments indicated a negative awareness of suicide, help-seeking, and the importance of suicide prevention (n=2).

Discussion

Quality

Middle school student perceptions of the quality of the Lifelines Suicide Prevention program presentation suggested that the program was well-received and liked by most students:

> *…the subject was well*
>
> *covered I loved the*
>
> *presentation*

The presentation was organized and easy to

understand I felt like this was a great

presentation! Thank you!

Middle school student perceptions of the quality of the Lifelines Suicide Prevention program video were mixed. The video evoked emotion in some students:

The video is definitely very intense. I tear up a little & it stayed with me throughout

the rest of the day.

The video was a little much

While other students found that a more updated version of the video would be more

relevant: *I didn't really like the video I think it should be one more up to date and*

more reasons to why people are suicidal other than bullying

The video could be updated some or have a better one. It felt old.

I think they should keep doing the presentation but different every year. Not the same

thing because it gets boring.

Students also noted that they had difficulty watching the video and taking notes. Story maps may be beneficial for students to have a visual-spatial way to organize thoughts rather than traditional note taking (Derefinko et al., 2014). Story mapping would allow the students to record important elements of the video such as the problem, goal, actions, outcome, and conclusion and has been successful with students with attention deficit hyperactivity disorder (ADHD) (DuPaul et al., 2006; Jitendra et al., 2007; Derefinko et al., 2014).

Students felt that the material was well delivered:

I think the presenter did a great job at telling us about suicide.

Overall, students' perceptions of the Lifelines presentation were positive with

recommendations for an updated version of the video, which might be more relatable to middle school students. While some students commented that the video may be hard to watch, it is important to remember that this may be the students' first exposure to a formal suicide prevention program. Alternately, students may find the videos difficult to watch due to its personal relevance discussed below.

Relevance

Middle school student comments indicated that the Lifelines Suicide Prevention program was relevant to themselves, their peers, and to others in general.

The presentation was very helpful and informational for my situation. Thank you for informing me!

Students seemed to relate personal experiences to the knowledge being taught in the program:

It was hard to watch cause about a year ago that's what happened to my uncle

I have a friend that is talking, she was talking about shes done with life and she posted on Instagram

I'm glad I watched the video because now I'm prepared

As adolescents begin to develop their sense of identity, self-concept (personal beliefs) and self- esteem (personal worth) are attributes that affect how students relate to different concepts and emotions (Erikson, 1968). Based on student responses, middle school students related to concepts of personal loss, having a trusted adult, help-seeking, and feeling prepared. Students also felt a sense of connectedness following the program:

I know a lot of people who have been suicidal, including myself, that have overcome it, or are in the process of overcoming it.

Suicide is a subject that young adult like us need to know as much as possible to

either prevent it from happening to someone we care about…

There were also some students who did not find meaning in the presentation:

> *I already know how to help a friend.*

> *I already knew most of the information.*

These responses may be the result of repetitive exposure to suicide prevention curriculum from previous years. Middle school students generally found a positive connectedness and relatability to the content of the Lifelines Suicide Prevention program with many students voicing their understanding of the importance of suicide prevention, seeking help for themselves or peers, connecting with others in similar situations, and using social media to communicate.

Awareness

Following the Lifelines Suicide prevention program, middle school students seemed to understand the seriousness of suicide indicating greater perceptions of knowledge and understanding of the concept of suicide and risk factors:

> *I learned that suicide is preventable and suicide is not a thing to joke about. I also learned that life is not about this year and suicide can stop everything we want to do. Because suicide can happen and people still want to live*

> *I understand that suicide is a serious issue and I will not take it lightly*

> *This presentation help me to understand that suicide is a big deal.*

Middle school students also gained an awareness of the importance of seeking help for themselves and peers following the presentation:

> *I learned that you HAVE to tell and adult about someones suicide [thoughts], even if*

> *they don't want you to*
>
> *Now I know what I can do if a friend or I are suicidal.*
>
> *I know what to do now if someone is thinking about suicide.*
>
> *…it seemed like talking to an adult could help.*

However, negative help-seeking was noted among this middle school sample along with issues of mental health literacy, stigma, and a general lack of awareness of suicide knowledge:

> *If my friend was suicidal I would be scared to tell an adult or their parents. Some kids get sent to a mental hospital or get lectured for being suicidal.*
>
> *…that's not the only reason people are suicidal, mostly now its because they*
>
> *hate themselves, not other people hating them*

Students voicing these concerns may be considered Laggards according to the DOI Theory. Home visits prior to the beginning of the school year may help to identify psychosocial issues that may be contributing to the negative self-worth being projected in these comments. Sweet and Applebaum (2004) found higher cognitive and socioemotional outcomes for children including the possibility for lowering the potential for abuse, and an increase in maternal employment and education following home visits. This could be a significant area of impact between the school and families to establish a trusted adult, identify placement of the student in the DOI model (i.e., early adopter, Laggard) for suicide prevention program dissemination of information and to help reduce stigma through the upstream community approach by challenging parental misconceptions. Important to the current study is that middle school students voiced an improved awareness of suicide following the Lifelines Suicide Prevention program.

Limitations

There were several limitations to this study. Because this is a post-test only design, changes in knowledge of suicide, attitudes about suicide, intent to seek help, and satisfaction with the program were unable to be assessed. To measure change, it is recommended that future research incorporate a pre-test/post-test method or evaluate data longitudinally.

Teachers were asked to choose which teams to take the survey and not all teams were represented in the study population. This could have led to selection bias of students, and the results may not be generalizable to all middle school students. Information provided to students during the discussion portion of the Lifelines program may not have been consistent across all grades resulting in differences in students' responses to some survey items. Currently teachers receive a district-wide mandatory two-hour training through the Jason Foundation, however, teachers may need additional training in the Lifelines curriculum to ensure consistency of the program.

Another recommendation might be to bring in mental health professionals to facilitate the group-led discussions. No other demographic information was collected at the time the survey was administered, therefore differences in gender and race could not be taken into account. Future surveys could be modified to include questions regarding gender, age and race. It is also recommended to include a suicidality screening component such as "Have you ever felt like you wanted to die?" and "Have you ever tried to kill yourself?" to get a baseline of students' suicidal patterning. The study measures have not been psychometrically tested, therefore, the measurement instrument should be tested for its psychometric properties to determine validity and reliability. Data results were self-reported

which could have led to measurement error based on students' interpretation of the survey question. Future surveys could be tested for reliability and validity to avoid misinterpretation and students should be allowed to clarify any survey items they do not understand. Finally, parts of the Lifelines Suicide Prevention Program were adapted from its original format to fit the needs of this school. Future evaluations could examine the program in its entirety for overall effectiveness of its core measures. In addition, it might be important to examine the content of the Lifelines program for developmental appropriateness, length, and ease of administration to see if modifications are needed to better suit implementation in middle schools.

Implications for Practice, Research, and Policy

This study is unique because it is the first to examine the Lifelines Suicide Prevention program in the middle school setting. Further research needs to be done to evaluate this program against a control group to assess the effectiveness of the Lifelines program's ability to increase knowledge of suicide, improve attitudes regarding suicide, reduce suicidal secret keeping and improve intent to seek help. Results of the current study indicate that mental health literacy is significantly lower in 6th grade students. Therefore, targeted discussions on symptoms of mental illnesses and stigma that surrounds these illnesses may be needed with this age group. Skre, Friborg, Breivik, Inge Johnsen, Arnesen, & Arfwedson Wang (2013) evaluated the mental health literacy of 1,100 students ages 12-17 in three schools in Norway looking at improving naming of symptom profiles of mental disorders, reducing prejudiced beliefs about mental illness, and improving knowledge about where to seek help for mental problems. Anxiety and depression were the least identified mental illnesses based on symptoms. They also found that younger students

had more prejudiced beliefs, which should be addressed prior to initiating any mental health program (Skre et al., 2013).

This study found overall low scores on the use of the STOP sign logo, therefore, it is recommended that schools using this online reporting tool take proper steps to ensure that students are aware of its location and purpose. A finding unique to this study is that 100% of 8th grade students believed that suicide prevention was important to have every year. This class experienced the death of a classmate to suicide when they were 6th graders. Although anecdotal, future research should look at the correlation between students who have lost a peer to suicide and the importance placed on suicide prevention programs.

Public health policy should be directed at ensuring funding for all schools to implement a NREPP program like Lifelines for suicide prevention. Ulrich (2012), found that only 26% of schools had formal suicide prevention programs. In Kentucky, state law requires middle and high schools to present suicide prevention information to students annually by Sept. 1 (Lane, 2015), however, suicide prevention information can be a flyer or a pencil with the National Suicide Prevention Hotline printed on it (G. Brown, personal communication, September 7, 2016). Greater steps should be taken to implement a NREPP suicide prevention program in all schools.

Mandatory suicide prevention training upon hiring and as a yearly requirement of employment for all school employees and personnel should be an expectation and should be enforced by the state Department of Education. Currently 19 states have annual mandated training under the *Jason Flatt Act* (AFSP, 2016). States should enact mandatory reporting of all suicide-related data to the National Violent Death Reporting System (NVDRS) maintained by the CDC and update this annually. Currently 40 states, the

District of Columbia, and Puerto Rico participate in the NVDRS (CDC, 2016).

Finally, anti-stigma interventions can improve outcomes and address stigma associated with mental illness that may prevent students from recognizing personal bias as well as from seeking help for themselves or others. The Lived Experience is a contact-based intervention where individuals who live with or have had experience with mental illness or suicidal ideation and attempt speak with students, tell their stories, describe their challenges, and empower their audience. The Lived Experience was twice as likely to improve attitudes (fewer prejudices) toward mental illness and improve behavior (less stigma) than education alone (Corrigan, Michaels, & Morris, 2014). Education, mental health literacy campaigns, peer support services, protest and advocacy, and legislative and policy changes are additional anti-stigma interventions to support change and awareness suicide prevention ("Approaches to Reducing Stigma", 2016).

Conclusion

This study found that middle school students understood the importance of suicide and recognized the signs and symptoms of suicide following the Lifelines Suicide Prevention program. Most middle school students in this population found the Lifelines curriculum relevant to themselves, their peers and to others in general and the majority indicated knowledge of the seriousness of suicide following the Lifelines presentation. Consistent with previous studies, relevance provides relatability to personal situations and allows students to make connections to the concepts being presented (Thia et al., 2016; Langdon et al., 2016).

Seriousness of suicide is a unique measure of this study and findings of improved perceptions of seriousness of suicide are unique. Middle school students also indicated

improved help- seeking behaviors for themselves and for friends because of the Lifelines suicide prevention program. This is consistent with Kalafat et al. (2007) who found that high school students had improved attitudes toward seeking help following the Lifelines Suicide Prevention program.

Middle school students were satisfied, overall, with the presentation of the program and expressed likeability for the presentation and the presenter, but some students felt the video was hard to watch and needed updating. Consistent with the findings of Thia et al. (2016) and Langdon et al. (2016), likeability of a program is essential for student engagement. Younger students may need adaptations to the program based on their developmental stage based on this study found that mental health literacy increased with increasing age. Emotional and developmental needs should be adjusted for when developing, implementing, or modifying a suicide prevention program. It is also key to assess and adjust for the mental health literacy of this population. School counselors, teachers, and peer leaders should watch for students who exhibit signs of ineffectual learning, causing them to fall into the "Laggards" category of the DOI Theory model. Stigma can be reduced by improving mental health literacy. Middle school students who develop their own self-concept of suicide and mental illness with the appropriate knowledge, warning signs, risk factors, and positive coping strategies to help themselves and peers determine when and from whom to seek help, may serve as the tipping point in the DOI Theory model to bridge the chasm and potentiate learning.

In addition, study findings suggest that emphasis could be placed on trust-building between staff and students to facilitate open communication, which can empower students and suicidal peers to come forward and seek assistance. Finally, it is important to

incorporate anti- stigma interventions to reduce students' prejudices regarding mental illness and suicide, which may prevent them from seeking help for themselves or a peer. Suicide prevention is vital to the mental health of all students. Supportive school officials, faculty and staff with knowledge of suicide prevention programs combined with family and community participation can make a positive difference in the middle school population (WHO, 2014). A social strategy to make access to mental health care, funding for suicide research, and suicide prevention education must also be priority (WHO, 2014). In conclusion, this study contributes to the much-needed body of knowledge regarding suicide prevention program research in middle school populations and suggests the need for suicide prevention programs for all middle schools. Additionally, this is the first study of its kind to contribute to the qualitative body of research regarding middle school students' perceptions of suicide prevention programs.

References

American Academy of Child and Adolescent Psychiatry. (2008). Stages of adolescent

    development. Retrieved from http://eclkc.ohs.acf.hhs.gov/hslc/ttasystem/ehsnrc/docs/_

    34_Stages_of_adolescence1.pdf

American Foundation for Suicide Prevention. (2016, August 1). State laws: Suicide prevention

    in schools issue brief. Retrieved from http://afsp.org/wpcontent/uploads/2016/04/

    Suicide-Prevention-in-Schools-Issue-Brief.pdf

American Foundation for Suicide Prevention. (2017). Risk factors and warning signs.

    Retrieved from https://afsp.org/about-suicide/risk-factors-and-warning-signs/

"Approaches to Reducing Stigma." National Academies of Sciences, Engineering, and

    Medicine. (2016). *Ending Discrimination Against People with Mental and Substance

    Use Disorders: The Evidence for Stigma Change.* Washington, DC: The National

    Academies Press. doi: 10.17226/23442

Brandon, J. (2017, March 9). Fox News. *Facebook is using AI to identify suicidal thoughts—

    but it's not enough experts say*. Retrieved from http://www.foxnews.com/tech/2017/

    03/09/facebook-is-using-ai-to-identify-suicidal-thoughts-but-its-not-enough-experts-

    say.html

Carroll, J. A., & Kirkpatrick, R. L. (2011). *Impact of social media on adolescent behavioral

    health*. California Adolescent Health Collaborative. Retrieved from

    http://www.phi.org/uploads/application/files/g9g6xbfghdxoe3yytmc1rfvvm8lt1ly9sr3

    j369pstkojdly15.pdf

Centers for Disease Prevention and Control. (2015). Middle school YRSB-Kentucky 2015

    results. Retrieved from https://nccd.cdc.gov/youthonline/App/Results.aspx?LID=KY

Centers for Disease Prevention and Control. (2016, October 13). National violent death

reporting system. Retrieved from https://www.cdc.gov/violenceprevention/nvdrs/

Corrigan, P. W., Michaels, P. J., & Morris, S. (2015). Do the effects of antistigma program

persist over time? Findings from a meta-analysis. *Psychiatric Services, 66*(5), 543-546.

doi: 10.1176/appi.ps.201400291

Crepeau-Hobson, F. (2013). An explanatory study of suicide risk assessment practices in the

school setting. *Psychology in the Schools, 50*(8), 810-822. doi:10.1002/pits.21705

Dazzi, T., Gribble, R., Wessely, S., & Fear, N. T. (2014). Does asking about suicide and

related behaviours induce suicidal ideation? What is the evidence? *Psychological

Medicine, 44*(16), 3361-3363. Retrieved from https://doi.org/10.1017/S0033291

714001299

De Beurs, D., Kirtley, O., Kerkhof, A., Portzky, G., & O'Connor, R. C. (2015). The role

of mobile phone technology in understanding and preventing suicidal behavior.

Crisis, 36(2), 79-82. doi: 10.1027/0227-5910/a0003

De Catanzaro D. (1980). Human suicide: A biological perspective. *Behavioral and

Brain Sciences*, *3*(2), 265–272. doi: 10.1017/S0140525X0000474X

Derefinko, K. J., Hayden, A., Sibley, M. H., Duvall, J., Milich, R., & Lorch, E. P. (2014). A

story mapping intervention to Improve Narrative Comprehension Deficits in

Adolescents with ADHD. *School Mental Health, 6*(4), 251-263. doi: 10.1007/s12310-

014-9127-7

Drapeau, C. W., & McIntosh, J. L. (for the American Association of Suicidology). (2016).

U.S.A. suicide 2015: Official final data. Washington, DC: American Association of

Suicidology, dated December 23, 2016, downloaded from http://www.suicidology.org

DuBois, D. L., & Silverthorn, N. (2005a). Natural mentoring relationships and adolescent

health: Evidence from a national study. *American Journal of Public Health, 95*(3), 518-

524. doi:10.2105/AJPH.2003.031476

DuBois, D. L., & Silverthorn, N. (2005b). Characteristics of natural mentoring relationships and

adolescent adjustment: Evidence from a national study. *Journal of Primary Prevention,*

26(2), 69-92. doi:10.1007/s10935-005-1832-4

DuPaul, G.J., Jitendra, A.K., Volpe, R.J., Tresco, K.E., Lutz, J.G., Vile Junod, R.E…Mannella,

M. C. (2006). Consultation-based academic interventions for children with

ADHD: Effects on reading and mathematics achievement. *Journal of Abnormal*

Child Psychology, *34*(5), 635–648. doi: 10.1007/s10802-006-9046-7

Erikson, E. (1968). *Identity, youth, and crisis* (1st ed.). New York, NY: Norton.

Fayette County Public Schools. (2017, February 1). *Jessie Clark middle school information*.

Retrieved from http://www.jessieclark.fcps.net/school-information

Gini, G., & Espelage, D. D. (2014) Peer victimization, cyberbullying, and suicide risk in

children and adolescents. *JAMA Pediatrics, 312,* 545-546. Retrieved from

http://jamanetwork. com/journals/jama/article-abstract/1892227

Hardy, A. (2016, January 27). *Diffusion and innovation reaching the millennials*. The

Hardy Exchange. Retrieved from http://anneshiahardy.strikingly.com/blog/

diffusion-and-innovation-reaching-the-millennials

Honorof, M. (2013, July 6). Mashable. *Can Facebook predict suicide risk?* Retrieved

from http://mashable.com/2013/07/06/facebook-predict-suicide/#Rfeuq3

WHziqK

Ichikawa, Y., Yakamura, M., Hata, K., & Nakagawa, T. (2008). *Diffusion of innovation.*

Provision of services according to individual user preferences over a cross-section of

sites implemented with "Personalized-service Platform." *NTT Technical Review, 6*(4),

1-6. Retrieved from https://www.ntt-review.jp/archive/ntttechnical.php?contents=ntr

200804le1.pdf&mode=show_pdf

Ito, M., Horst, H., Bittani, M., Boyd, D., Herr-Stephenson, B., Lange, P. G., . . .Tripp, L. (2008,

November). *Living and learning with new media: Summary of findings from the

digital youth project*. John D. and Catherine T. MacArthur Foundation. Retrieved

from http://digitalyouth.ischool.berkeley.edu/files/report/digitalyouth-

WhitePaper.pdf

Jitendra, A.K., DuPaul, G.J., Volpe, R.J., Tresco, K.E., Vile Junod, R.E., Lutz, J.G…Mannella,

M. C. (2007). Consultation-based academic intervention for children with Attention

Deficit Hyperactivity Disorder: School functioning outcomes. *School Psychology

Review*, *36*(2), 217-236.

Johnson, L. A., & Parsons, M. E. (2012). Adolescent suicide prevention in a school setting:

Use of a gatekeeper program. *NASN School Nurse, 27*(6), 312-317. doi:

10.1177/1942602 X12454459

Joiner, T. E. (2005). *Why people die by suicide*. Cambridge, MA: Harvard University Press.

Kalafat, J., & Elias, M. (1994). An evaluation of school-based suicide awareness intervention.

Suicide & Life-Threatening Behavior, 24(3), 224-233. doi: 10.1111/j.1943278X.

1994.tb00747.x

Kalafat, J., Elias, M., & Gara, M. A. (1993). The relationship of bystander intervention

variables to adolescents' responses to suicidal peers. *The Journal of Primary

Prevention, 13*(4), 231-244. doi:10.1007/BF01324560

Kalafat, J., & Gagliano, C. (1996). The use of simulations to assess the impact of an

adolescent suicide response curriculum. *Suicide & Life-Threatening Behavior, 26*(4),

359-364. doi: 10.1111/j.1943-278X.1996.tb00839.x

Kalafat, J., Madden, M., Haley, D., & O'Halloran, S. (2007). Evaluation of Lifelines classes: A component of the school-community based Maine Youth Suicide Prevention Project. Report for NREPP. Unpublished manuscript.

Katz, C., Bolton, S.-L., Katz, L. Y., Isaak, C., Tilston-Jones, T., Sareen, J., & Swampy Cree Suicide Prevention Team. (2013). A systematic review of school-based suicide prevention programs. *Depression and Anxiety, 30*(10), 1030-1045. doi:10.1002/da.22114

Kentucky Department of Education. (2016, October 3). School report card: Jessie M Clark middle school. Retrieved from http://applications.education.ky.gov/SRC/Learning Environment.aspx

Kiminski, J. (2011). Theory in nursing informatics column: Diffusion of innovation theory. *Canadian Journal of Nursing Informatics, 6*(2). Retrieved from http://cjni.net/journal/? p=1444

Kowalski, R. M. (2013, September 30). *Cyberbullying: What it means and how to protect our kids.* Clemson University. Retrieved from http://blogs.clemson.edu/discovery/ 2013/09/30/cyberbullying/

LaMorte, W. W. (2016, April 28). *Behavioral change models.* Boston University School of Public Health. Retrieved from http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/ BehavioralChangeTheories/BehavioralChangeTheories4.html

Lane, T. (2015, August 25). Fayette County Public Schools. *Jessie Clark spreads suicide prevention message to parents.* Retrieved from http://www.fcps.net/news/features/ 2015-16/suicide

Langdon, S. E., Golden, S. L., Mayfield Arnold, E., Maynor, R. F., Bryant, A., Freeman, V.

    K., & Bell, R. A. (2016). Lessons learned from a community-based participatory

    research mental health promotion program for American Indian youth. *Health*

    Promotion Practice, 17(3), 457-463. doi: 10.1177/1524839916636568

Lois, J. (2014, October 17). #4 bullying continued Jordyn Lois. Retrieved from

    http://jordynnlois.blogspot.com/search?q=%234

Long, C., & Gross, S. (2011, May 25). Alexis Pilkington Facebook horror: Cyber bullies harass

    teen even after suicide. Retrieved from http://www.huffingtonpost.com/2010/03/24/alexis-

    pilkington-faceboo_n_512482.html

Manganello, J. A. (2008). Health literacy and adolescents: A framework and agenda for

    future research. *Health Education Research, 23*(5), 840-847. Retrieved from

    https://academic. oup.com/her/article-lookup/doi/10.1093/her/cym069

Musci, R. J., Hart, S. R., Ballard, E. D., Newcomer, A., Van Eck, K., Ialongo, N….Wilcox,

    H. (2016). Trajectories of suicidal ideation from sixth through tenth grades in

    predicting suicide attempts in young adulthood in an urban African American

    cohort. *Suicide and Life-Threatening Behavior, 46*(3), 255-265. doi: 10.1111/sltb.

    12191

NREPP. (n.d.). Lifelines curriculum. Retrieved from http://legacy.nreppadmin.net/View

    Intervention.aspx?id=37

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J….Udry, J.

    R. (1997). Protecting adolescents from harm: Findings from the national longitudinal

    study on adolescent health. *Journal of the American Medical Association, 278*(10),

    823- 832. doi:10.1001/jama.1997.03550100049038

Resnick, M. D., Harris, L. J., & Blum, R. W. (1993). The impact of caring and connectedness

　　　on adolescent health and well-being. *Journal of Pediatric and Child Health, 29*(Suppl

　　　1), S3-9. doi: 10.1111/j.1440-1754.1993.tb02257.x

Rhodes, J. E., Contreras, J. M., & Mangelsdorf, S. C. (1994). Natural mentor relationships

　　　among Latina adolescent mothers: Psychological adjustment, moderating processes,

　　　and the role of early parental acceptance. *American Journal of Community Psychology,*

　　　22(2), 211-227. doi: 10.1007/BF02506863

Rogers, E. M. (1962). *Diffusion of innovations.* (1st ed.). New York, NY: Free Press.

Rogers, E. M. (2003). *Diffusion of innovations*. (5th ed.). New York, NY: Free Press.

Sandelowski, M. (2000). Whatever happened to qualitative description? *Nursing in Research*

　　　and Health, 23, 334-340.

Schilling, E. A., Lawless, M., Buchanan, L., & Aseltine, R. H., Jr. (2014). "Signs of Suicide"

　　　shows promise as a middle school suicide prevention program. *Suicide and Life-*

　　　Threatening Behavior, 44(6), 653-667. doi:10.1111/sltb.12097

Schmidt, R. C., Iachini, A. L., George, M., Koller, J., & Weist, M. (2015). Integrating a

　　　suicide prevention program into a school mental health system: A case example from a

　　　rural school district. *Children & Schools, 37*(1), 18-26. doi:10.1093/cs/cdu026

Singer, J. B., & Slovak, K. (2011). School social workers' experiences with youth suicidal

　　　behavior: An exploratory study. *Children & Schools, 33*(4), 215-228. Retrieved

　　　from https://doi.org/10.1093/cs/33.4.215

Skre, I., Friborg, O., Breivik, C., Inge Johnsen, L., Arnesen, Y., & Arfwedson Wang, C. A.

　　　(2013). A school intervention for mental health literacy in adolescents: effects of a non-

　　　randomized cluster controlled trial. *BMC Public Health, 13*(873), 1-15.

doi:10.1186/1471-2458-13-873

Substance Abuse and Mental Health Services Administration. (2015, September). Newly

reviewed/legacy programs. Retrieved from http://nrepp.samhsa.gov/AdvancedSearch.

aspx#aLegacyPrograms

Substance Abuse and Mental Health Services Administration. (2016, March 29). About

NREPP. Retrieved from http://nrepp.samhsa.gov/02_about.aspx

Suicide Prevention Resource Center. (n.d.). Overview of criteria and ratings: National

Registry of Evidence-Based Programs and Practices (NREPP). Retrieved from

http://www.sprc.org/sites/default/files/resourceprogram/NREPP%20Overview%20of

%20Criteria%20and%20Ratings.pdf

Suicide Prevention Resource Center. (2016, May). *Suicide Prevention Policy and Legislation.*

Waltham, MA: Education Development Center, Inc.

Sweet, M. A., & Applebaum, M. I. (2004). Is home visiting an effective strategy? A

meta-analytic review of home visiting programs for families with young

children. *Child Development, 75*(5), 1435-1456. doi: 10.1111/j.14678624.2004.

00750.x

Thia, P., Pisani, A. R., Gurditta, K., Cherry, E., Peterson, D. R., Kautz., H., & Wyman, P. A.

(2016). Efficacy of web-based collection of strength-based testimonials for text

message extension of youth suicide prevention program: Randomized controlled

experiment. *Public Health Surveillance, 2*(2), e164. doi: 10.2196/publichealth.6207

Ulrich, S. (2012). School-based adolescent suicide reduction. Unpublished clinical research

paper, St. Catherine University, St. Paul, Minnesota. Retrieved from

http://sophia.stkate. edu/cgi/viewcontent.cgi?article=1097&context=msw_papers

U.S. Department of Health & Human Services. Centers for Disease Prevention and

      Control. National Center for Injury Prevention and Control, Division of

      Violence Prevention (2016, October 13). National Violent Death Reporting

      System. Atlanta, GA. Retrieved from https://www.cdc.gov/violence

      prevention/nvdrs/

van Heeringen, K. (2012). Stress-dianthesis model of suicidal behavior. In Y. Dwivedi (Ed.), *The*

      Neurological Basis of Suicide. Boca Raton, FL: CRC Press/Taylor & Francis. Retrieved

      from https://www.ncbi.nlm.nih.gov/books/NBK107203/

Wilson, C. J., & Deane, F. P. (2001). Adolescent opinions about reducing help-seeking

      barriers and increasing appropriate help engagement. *Journal of Educational and*

      Psychological Consultation, 12(4), 345-364. Retrieved from http://dx.doi.org/

      10.1207/S1532768XJEPC1204_03

Wolff, G., Pathare, S., Craig, T., & Leff, J. (1996). Community knowledge of mental illness

      and reaction to mentally ill people. *British Journal of Psychiatry, 168*(2), 191-198.

      doi: 10.1192/bjp.168.2.191

World Health Organization. (2014). Preventing suicide: A global imperative. Retrieved

      from http://apps.who.int/iris/bitstream/10665/131056/1/9789241564779_eng.

      pdf?ua

Wyman, P. A., Brown, C. H., LoMurray, M., Schmeelk-Cone, K., Petrova, M., Yu, Q.,…Wang,

      W. (2010). An outcome evaluation of the Sources of Strength suicide prevention

      program delivered by adolescent peer leaders in high schools. *American Journal of*

      Public Health, 100(9), 1653-1661. doi: 10.2105/AJPH.2009.190025

Wyman, P. A. (2014). Developmental approach to prevent adolescent suicides: Research

      pathways to effective upstream preventive interventions. *American Journal of*

Preventive Medicine, 47(3 Suppl 2), S251-256. doi:10.1016/j.amepre.2014.05.039

Table 1. Application of Diffusion of Innovation Theory and Suicide Prevention Programs

	%	Description	Role	Example
Innovators	2.5%	The first people to develop and try the innovation; Intuitive with new ideas and not afraid to take risks	Serve at gatekeepers for the early adopters	School Youth Service Coordinator who chooses and implements the school-wide suicide prevention program
Early Adopters	13.5%	Early adopters of new ideas; No evidence is necessary to elicit change; Implementation buy-in can be attained with how-to manuals and information sheets	Those with leadership roles who recognize the need for change and have a great degree of opinion leadership.	School counselors, peer leaders, and teachers training on the implementation of the suicide prevention program
Early Majority	34%	Adopters of new ideas before the average person and usually need evidence like success stories before adopting the innovation to see how it fits within their social system	Rarely hold opinion leadership positions	Students who participate in the suicide prevention program, meet all the learning outcomes, and have more positive coping strategies, help seeking, and access to mental health care
Late Majority	34%	Adopters of the innovation only after the majority have successfully tried it; Very skeptical, reluctant, and cautious of change due to social pressure and emerging norms	Usually only influenced by a single trusted peer or advisor	Students who meet some of the learning outcomes of the suicide prevention program but who are highly influenced by peer pressure, social media, and the stigma associated with mental illness and suicide
Laggards	16%	Conservative traditionalists who are very skeptical of change, highly suspicious, and need statistics to make a change; Pressure from other adopters and fear appeals disrupt their ideologies that are often based on previous generations or past experiences, i.e. "this is how we've always done it"	Isolated from opinion leadership	Students who do not meet learning outcomes of the suicide prevention program, who exhibit symptoms of substance abuse, negative coping skills, trauma, previous suicide attempts, acculturation, discrimination, or may have known access to lethal means

(LaMorte, 2016; Kaminski, 2011; Rogers, 2003)

Table 2. Differences in 'Student Feedback for JCMS Suicide Prevention 2015'
Knowledge of Suicide Questions by Grade

Evaluation Questions	Total		6th grade		7th grade		8th grade		Difference	
	N	%	n	%	n	%	n	%	Chi-square (df)	p-value
Knowledge of Suicide										
Risk factors	256	96.2	49	96.1	84	95.5	123	96.9	.29 (2)	.867
Asking a friend about suicide	238	89.5	44	86.3	80	90.9	114	89.8	.76 (2)	.685
Relationship between depression and suicide	253	95.1	45	90.0	81	92.0	127	99.5	9.24 (2)	**.010***
STOP sign use on website	226	85.0	36	70.6	83	93.3	107	84.9	13.04 (2)	**.001***
Total score (Means, SD)	3.66	0.60	3.43	0.74	3.72	0.59	3.70	0.54	8.19 (2)	**.017***

*Denotes statistical significance

Table 3. Differences in 'Student Feedback for JCMS Suicide Prevention 2015'
Attitudes Toward Suicide Questions by Grade

Evaluation Questions	Total		6th grade		7th grade		8th grade		Difference	
	N	%	n	%	n	%	n	%	Chi-square (df)	p-value
Attitudes Toward Suicide										
Seriousness of suicide	265	98.5	52	100.0	87	97.8	126	98.4	1.14 (2)	.565
Importance of suicide prevention	259	96.3	49	94.2	82	92.1	128	100.0	9.83 (2)	**.007***
Preparedness to help a friend	250	94.3	46	93.9	84	94.4	120	94.5	.03 (2)	.988
Total score (Means, SD)	2.89	0.39	2.88	0.33	2.84	0.54	2.93	0.26	1.36 (2)	.506

*Denotes statistical significance

Table 4. Differences in 'Student Feedback for JCMS Suicide Prevention 2015' Intent to
Seek Help Questions by Grade

Evaluation Questions	Total		6th grade		7th grade		8th grade		Difference	
	N	%	n	%	n	%	n	%	Chi-square (df)	p-value
Intent to Seek Help										
Suicidal secret keeping	258	97.0	47	94.0	87	97.8	124	97.6	1.89 (2)	.388
Telling an adult	255	95.5	49	98.0	83	93.3	123	96.1	1.88 (2)	.392
Having a trusted adult	234	87.6	44	86.3	84	94.4	106	83.5	5.87 (2)	**.053+**
Total score (Means, SD)	2.80	0.44	2.80	0.50	2.85	0.36	2.77	0.48	1.50 (2)	.473

+Denotes trending toward significance

Table 5. Differences in 'Student Feedback for JCMS Suicide Prevention 2015' Program
Satisfaction Questions by Grade

Evaluation Questions	Total		6th grade		7th grade		8th grade		Difference	
	N	%	n	%	n	%	n	%	Chi-square (df)	p-value
Program Satisfaction										
Good mix of information	257	95.9	49	96.1	85	95.5	123	96.1	.05 (2)	.975
Difficulty of video to watch	238	90.2	47	94.0	78	89.7	113	89.0	1.06 (2)	.590
Presenter performance to do a good job	257	98.1	48	98.0	86	97.7	123	98.4	.13 (2)	.937
Total score (Means, SD)	2.85	0.43	2.90	0.31	2.83	0.49	2.85	0.42	.41 (2)	.814

(Hardy, 2016)

Figure 1. The Chasm of Diffusion of Innovation

Appendix

Student Feedback for JCMS Suicide Prevention 2015

Please fill out this survey based on the prevention program. You do not have to write you name, but please answer all questions.

1) I am in the _____ grade on the _____ team.

2) Suicide is a serious problem for teenagers and young adults.   [] T   [] F

3) It is important for students to have suicide prevention every year.   [] T   [] F

4) The presentation was good a mix of information (talking & video).   [] T   [] F

5) I am aware of what risk factors to pay attention to because of the presentation.
                                                                                    [] T   [] F

6) All people who suffer from depression are suicidal.   [] T   [] F

7) Asking a friend directly if they are thinking about suicide can actually help lower anxiety regarding their situation.   [] T   [] F

8) If I think they are ok, I can keep a secret of suicide and not tell anyone.   [] T   [] F

9) I felt like the video was too difficult to watch.   [] T   [] F

10) If a friend talks to me about suicide I should tell an adult as soon as possible.
                                                                                    [] T   [] F

11) I have an adult at Jessie Clark I trust, and can talk to if I need something.
                                                                                    [] T   [] F

12) The "STOP" sign logo on the JCMS website is only to report bullying.   [] T   [] F

13) The presenter did a good job with the presentation.   [] T   [] F

14) I am better prepared to help a friend who is having problems because
    of the presentation.   [] T   [] F

Comments: _____

_____

_____