Evaluating an Antistigma Intervention Combining Personal Account With Musical Performance Among Rural Adolescents

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Mental health-related stigma contributes to poorer disease outcomes among youth with mental disorders. In this study, the short-term impact on mental health stigma of a universal, contact-based intervention was evaluated among students attending 4 rural high schools using an uncontrolled within-subjects pre/posttest design. Among the 736 participants, a significant reduction in stigma, particularly in students with higher preintervention stigma ratings, was found along with significant increases in help-seeking attitudes and willingness to consider working in mental health professions. These initial findings suggest that the brief contact-based intervention, delivered with a novel, musical component, may reduce mental health stigma among adolescents.

Keywords: mental health stigma, intervention, adolescent, contact-based, help-seeking

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Fifty percent of all individuals with mental disorders in the United States develop them by age 14 (Merikangas et al., 2010), making adolescence a critical period for addressing mental health education, including stigma. Stigmatizing attitudes often prevent adolescents with mental disorders from seeking health care services, potentially contributing to disease progression and increased risk of suicide (Salerno,

2016). In addition, stigma may increase social isolation, damage self-esteem, reduce hope for recovery, and negatively influence the development of autonomy of youth with mental disorders (Salerno, 2016).

In rural U.S. regions, mental health literacy is often low, stigma is high, and both negatively affect help-seeking behaviors (Gamm, Stone, & Pittman, 2010). For the youth who do seek help,

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rural regions often have fewer or no mental health providers than in urban settings (Gamm et al., 2010). Consequently, rural youth often have poorer mental health outcomes, less frequently use available mental health resources, and have higher rates of suicide than those in urban areas (Gamm et al., 2010).

Two types of interventions target mental health-related stigma in adolescents: education and contact-based (Corrigan, Morris, Michaels, Rafacz, & Rüsch, 2012). Education interventions use didactic methods to increase knowledge about mental disorders and resources while contact-based interventions try to dispel stigma through face-to-face or video contact with an individual with a mental disorder who shares personal experiences and positive messaging. Effect sizes have been small to moderate for both intervention types when delivered to adolescents as single, universal interventions (Corrigan et al., 2012). Some evidence indicates that education-based stigma interventions may be more effective in adolescents (Corrigan et al., 2012), though contact-based interventions have also significantly reduced stigma in adolescents and may be more engaging (Chisholm et al., 2016).

The current study evaluated a novel, contact-based mental health stigma reduction intervention among rural Montana high school students living in mental health resource-poor regions (Montana Department of Public Health & Human Services, 2016). The stigma-reduction intervention ("Serenity in the Storm") was developed by a country music artist (Jason DeShaw) living with Bipolar I disorder. The intervention integrated a musical performance with Mr. DeShaw's personal account of living with mental illness. The intervention, which Mr. DeShaw had delivered in schools and other rural settings prior to this study, was selected for evaluation for its combination of interpersonal contact and educational messaging about mental health; both strategies have shown significant improvement in adolescents' stigmatizing attitudes and behaviors related to mental health (Corrigan et al., 2012). The intervention was also chosen for cultural relevance, because cultural attitudes and beliefs may affect the effectiveness of interventions (Hall, Ibaraki, Huang, Marti, & Stice, 2016). Several studies have shown that culturally adapting mental health interventions resulted in improved efficacy compared to usual

care or other interventions, and improved efficacy was directly correlated with more cultural tailoring (Degnan et al., 2018).

To date, only three studies have included rural youth in evaluations of youth stigma reduction interventions: education-based interventions (Esters, Cooker, & Ittenbach, 1998; Watson et al., 2004) and a combined education and contact-based intervention (Conrad et al., 2009). Only the study by Esters et al. (1998) focused solely on rural youth. All three interventions significantly decreased stigmatizing attitudes, with effects lasting 3-months postintervention in two studies (Esters et al., 1998; Watson et al., 2004). Significant improvements in mental health literacy through 3 months were found (Esters et al., 1998; Watson et al., 2004), along with significant increases in help-seeking intent or attitudes (Conrad et al., 2009; Esters et al., 1998).

The current study was designed to test the hypotheses that the intervention would reduce mental health-related stigma immediately following the intervention based on evidence from prior studies of education/contact-based interventions among adolescents (Corrigan et al., 2012). Reducing mental health-related stigma among youth may in turn increase hope—associated with self-esteem, life satisfaction, improved coping, and moderating depression (Marques, Lopez, & Pais-Ribeiro, 2011)—and increase adolescents' willingness to work in mental health fields, thereby at least partially addressing the shortage of such professionals in the United States.

Method

Study Design

This study used an uncontrolled, pretest/posttest design to determine whether mental health-related stigma was reduced by a contact-based intervention, in which a personal account was augmented with a musical performance, when delivered to students in four participating rural high schools in Montana (approximate ages 14–18 years). All students attending the assembly received the intervention and were asked to complete the anonymous, identical pre- and posttest evaluations immediately before and after the intervention. Prior to the intervention, the study coordinator informed students that

their participation in the survey was voluntary and anonymous, described the study, then asked students to take the pretest (placed on each chair) if they wished to participate in the study. Immediately following the intervention, the study coordinator asked students to complete the posttest survey (stapled to the pretest), if they chose.

Participants and Settings

Schools were approached based on convenience, and all four of the Montana public high schools approached agreed to participate. All students present on the day of intervention delivery received the intervention; of these, 736 completed both surveys.

Ethical Considerations

The participating Institutional Review Board (IRB) and principals at all participating schools approved the study and surveys. The IRB granted an informed consent waiver as the study was viewed to be minimal risk, and it was determined that requiring written informed consent would prevent the successful collection of the proposed survey data. All data was anonymous and no demographic information was collected. Student completion of the survey was considered passive consent.

Intervention

The intervention, "Serenity in the Storm," was developed by Jason DeShaw, a nationally recognized mental health advocate. The intervention consisted of a structured, 1-hr performance during which the artist combined songs with his personal account of living with bipolar I disease. The intervention consisted of four domains: information about mental disorders (mental health literacy), help-seeking, stigma, and hope. Specifically, Mr. DeShaw (a) described issues associated with bipolar disorder, mania, and depression; (b) provided information about suicide prevention and the benefits of seeking help when one is experiencing emotional/behavioral stress; (c) promoted acceptance of one's self and others with mental disorders to create a supportive, nonbullying culture for those struggling with mental illness or mental health-related stigma; and (d) stressed the importance of hope when faced with mental health issues. Throughout delivery of the educational content, Mr. DeShaw shared his personal experience with mental health treatment and integrated musical performances of country western songs. The first 50 min were split evenly between education/personal account and songs, and the remaining 10-min were used for a question and answer session. The same content, with the exception of song substitutions, was delivered in the same order at each of the four schools. To the authors' knowledge, no other contact-based stigma reduction intervention for youth has used a musical performance (Corrigan et al., 2012; Salerno, 2016).

Delivery of Intervention

The intervention was delivered during full school assemblies in auditoriums with all students in attendance. Prior to the start of the intervention, the study coordinator briefly described the study, its purpose, and the surveys to all attending students. She explained students' rights as study participants and that if they voluntarily chose to fill out the surveys, that was considered the granting of assent. Students were given approximately 5 min to complete the preintervention survey placed on their seats. After approximately 50 min of intervention delivery, Mr. DeShaw opened the floor for questions. At each school, students volunteered questions without prompting for approximately 10 min. Questions generally focused on mental health treatments and how to become a musician. Following questions, the study coordinator asked students to fill out the postintervention survey if they were willing. The postsurvey was attached to the presurvey but pages were color-coded to indicate pre- and postsurveys. Students had approximately 5 min to complete the postsurvey and were allowed to leave at any time after the completion of the intervention. Delivery occurred between November 1, 2016 and December 7, 2016.

Survey Instruments

The survey was developed by the study team based on a literature review and validated instruments for adolescent populations.

Intended behavioral discrimination against individuals with mental illness. Mental health-related stigma was operationalized as a function of Items 5–8 (5-point Likert-like scale with 1 = *strongly agree* to 5 =

strongly disagree) from the validated Reported and Intended Behavior Scale (RIBS; Evans-Lacko et al., 2011). A higher score equaled greater stigma. Because RIBS Items 1–4 only measured the prevalence of behaviors and whether respondents may or may not have engaged in those behaviors, they were not included (pursuant to the scoring protocol) in the RIBS total score. The survey has high test–retest reliability (0.75) and the subscale (Items 5–8) have acceptable/good internal consistency (Cronbach's alpha = .85; Evans-Lacko et al., 2011).

Hope. Hope was measured via the Children's Hope Scale (Snyder et al., 1997), a six-item measure, validated for youth (8–16 years). This instrument tests a child's belief in his or her ability to achieve a goal. The items were measured on a 6-point Likert-type scale (1 = *none of the time* to 6 = *all of the time*) and were reported as the mean of all six items and higher scores signifying greater hope. Cronbach's alpha ranged from 0.72 to 0.86 and coefficients of variability, ranging from 0.12 to 0.24 (Snyder et al., 1997).

Help-seeking attitudes. Help-seeking attitudes were measured using one item (7-point Likert-type scale ranging from 1 = *very unlikely* to 7 = *very likely*) from a study evaluating a contact-based youth intervention for decreasing stigma (Chisholm et al., 2016): "In the next 12 months if you were to experience a mental illness, how likely are you to seek help?". Higher scores indicated greater willingness to seek help. Because of an error on the surveys administered at three of the schools (duplication of "very likely" in the scale categories), results for this scale were only analyzed for students receiving the correct scale (*n* = 326 participants, High School 1; see Table S1).

Interest in working in a mental health field. Students' interest in mental health careers was assessed using one item (5-point Likert-type scale ranging from 1 = *not at all interested* to 5 = *extremely interested*) developed for this study: "How interested are you in pursuing work in a mental health field?". A higher score equaled greater interest.

Data Analysis

For the primary analysis, a within-subjects linear mixed model (LMM) analysis of repeated measures (pretest to posttest) with robust estimates of standard errors (to account for any heterogeneity of error terms) was used to examine the effect of the intervention on each outcome. Restricted maximum likelihood estimation, Type 3 tests of fixed effects, and generalized least squares (LS) were used along with the compound symmetry covariance structure. The LMM analysis accounted for between site (school-to-school) variability as well as the clustering of students nested in schools with random effects terms. Changes in each of the outcome measures over the acute intervention period (pre- to posttest) were examined using LS mean contrasts from the mixed model. Cohen's *d* was calculated to estimate effect sizes for the within-subjects difference of LS estimates.

A mixed model analysis was implemented for youth who completed both the pretest and posttest on a given measure. A complete case analysis, however, assumes that the observed complete cases were a random sample of the originally targeted sample and that any missing data were missing at random. Thus, in a sensitivity analysis so as to evaluate the completer analysis and to mitigate the threat of bias and statistical inefficiency of the estimates, a mixed model analysis similar to that described above was also implemented, which made use of all available data while assuming that the missing data was missing at random. The mixed model procedures provide a robust mechanism for handling data that are assumed missing at random (Mallinckrodt et al., 2003; Wolfinger & Chang, 1995).

Finally, as an exploratory analysis using complete cases only, a subgroup analysis was performed to evaluate whether youth with a "high" level of pretest (preintervention) stigma would show the most effect (benefit) from the intervention. To accomplish this, a separate mixed model (completer) analysis like that described above for stigma with fixed-effects terms for group cutpoint (pretest: low, high), time (pre- and posttest), and Group × Time interaction was used. Simple time (pre/posttest) effects in each group were also assessed. A median-split criterion was used to dichotomize the pretest (preintervention) measures of stigma into two levels: high (≥ median) and low (< median). The median value for pretest stigma was 2.25. All statistical analyses were carried

out using SAS software, Version 9.4 (SAS Institute, Inc., Cary, NC). The level of significance was set at $\alpha = .05$ (two-tailed).

Results

The aggregate profile of the total enrolled student body at each of the four schools is described in Table S1 in the online supplemental material. Demographics of participants were not collected for brevity and to protect students' identities at the small schools. The survey participation rate was 58.6% overall, with individual school rates of 51.2% (School 1), 81.3% (School 2), 66.9% (School 3), and 73.7% (School 4). Both sets of analyses (the mixed model analysis with missing data and the mixed model complete case analysis) indicated that the intervention significantly reduced mental health-related stigma ($p < .001$, Cohen's $d = 0.274$, Table 1; Cohen's $d = 0.268$, Table S2). A significant increase in a willingness to work in a mental health field was also found ($p < 0.001$, Cohen's $d = 0.168$, Table 1; $p < .001$, Cohen's $d = 0.164$, Table S2). Although help-seeking attitudes also increased significantly, the effect size was very small ($p = .030$, Cohen's $d = 0.074$, Table 1; $p = .045$, Cohen's $d = 0.069$, Table S2). Lastly, hopefulness was unchanged ($p = .832$, Cohen's $d = 0.005$, Table 1; $p = .902$, Cohen's $d = 0.003$, Table S2).

In the secondary analysis of stigma, the mixed model analysis showed a significant Group (pretest: low, high) $\times$ Time (pre/posttest) interaction effect ($p < .001$, $F = 64.83$; $df = 1, 609$, Table S3). Simple effects in each group suggest that the intervention had a greater effect in reducing stigma in youth with a "high" level of preintervention stigma (*LS* mean difference $= -0.409$, $p < .001$, $d = 0.619$) than youth with a "low" level of preintervention stigma (*LS* mean difference $= -0.024$, $p = .464$, $d = 0.042$ Table S3). Significant Group $\times$ Time results were also found for the Children's Hope Scale ($F = 13.13$; $df = 1, 594$; $p < .001$) with greater positive effects found in youth with a "low" level of pretest (preintervention) hope (*LS* mean difference $= 0.101$, $p = .024$, $d = 0.104$, Table S3). In contrast, the intervention reduced hope among those with a "high" level of preintervention hope (*LS* mean difference $= -0.103$, $p = .003$, $d = 0.172$, Table S3).

Discussion

This study examined the immediate efficacy of a brief contact-based mental health stigma reduction intervention augmented with signing delivered to rural adolescents in a school setting. Among rural youth, the results suggest that the intervention may reduce mental health-related stigma, with the greatest benefit for those with the high pretest levels of stigma. Positive impacts on help-seeking attitudes and interest in working in a mental health field, but not hope, among adolescents were also found.

Effect sizes for stigma reduction among 24 adolescent antistigma interventions (education-based and contact-based) have generally been small (Chisholm et al., 2016; Corrigan et al., 2012; Ke et al., 2015; Milin et al., 2016; Vila-Badia et al., 2016). Only one recent study reported small to medium effect sizes ($d = 0.26$-.058) for reducing stigma among youth (Winkler et al., 2017). Although the effect size for stigma reduction in the current study is also small ($d = 0.274$), the significant improvements in stigma may be meaningful on a population-scale. For example, the greatest reduction in stigma was observed among those with the highest stigma preintervention ($d = 0.619$). Reducing stigma among those with the highest levels may help create a more supportive environment for those with mental disorders by reducing stereotypes, prejudice, and discrimination (Silke, Swords, & Heary, 2016).

Delivering effective stigma interventions in schools could reduce negative stereotypes and social isolation and increase help-seeking behaviors (Salerno, 2016), leading to improved long-term mental health outcomes for youth. Unfortunately, obtaining mental health care in rural regions in the United States can be challenging. For example, 54 of 56 counties in Montana have a shortage in mental health providers (Montana Department of Public Health & Human Services, 2016). Increasing mental health literacy among youth might create more supportive environments for those with mental disorders, encourage awareness of mental health disparities, and pique youths' interest in future mental health care careers, potentially helping to fill a major mental health service gap.

Hope, which could be affected by stigma, may be a key factor in improving clinical outcomes and quality of life for individuals living

Table 1
Difference in Outcome Measures Before (Pretest) and After (Posttest) the Intervention

Outcome measures	Survey (N)	LSM (SE)	Difference (SE)	95% CI	Pretest to posttest		
					F statistic	p value (FDR)	Cohen's d
Mental health stigma[a]	Pretest (736)	2.218 (.031)	−.229 (.025)	[−.278, −.179]	$F(1, 610) = 82.53$	<.001 (<.001)	.274
	Posttest (611)	1.989 (.032)					
Children's Hope Scale[b]	Pretest (727)	4.219 (.039)	.006 (.028)	[−.049, .061]	$F(1, 595) = .05$	.832 (.832)	.005
	Posttest (596)	4.225 (.044)					
Help-seeking attitude[c]	Pretest (420)	4.466 (.099)	.154 (.071)	[.015, .294]	$F(1, 325) = 4.74$	.030 (.040)	.074
	Posttest (334)	4.621 (.106)					
Interest in mental health[d]	Pretest (701)	1.869 (.042)	.196 (.032)	[.132, .260]	$F(1, 567) = 36.63$	<.001 (<.001)	.168
	Posttest (578)	2.066 (.046)					

Note. LSM = least squares mean estimate; SE = robust/empirical (first order residual) standard error estimate; N = sample size (represents youth who completed both the pretest and posttest); Difference = difference of LSM estimates (posttest minus pretest); CI = confidence interval for the difference of LSM estimate; p value = associated with the test (F statistic) for the difference of the LSM estimate, and p values were adjusted using the false discovery rate (FDR); Cohen's d, which was adjusted for the correlated LS means from pre to posttest, was calculated to estimate effect sizes for the within-subjects difference of LSM estimates.
[a] Higher score equals more stigma. [b] Higher score equals more hope. [c] Higher score equals more likely to seek help (help-seeking scale was implemented at only 1 of the 4 high schools, School 1 [Supplemental Table S1]). [d] Higher score equals more interest.

with mental disorders, but to date, no interventions that target youth mental health stigma (beyond the current study) have evaluated hope as an outcome (Corrigan et al., 2012). Although hope was not significantly changed in the total group in the current study, it was improved slightly in students reporting lower hopefulness prior to the intervention and negatively impacted in those with higher preintervention scores. The decrease in hopefulness in students with initial higher scores could be an immediate response to exposure to the topics discussed, and the duration of this response should be explored in future studies. The lack of change in the entire student population could be due to the difficulty in affecting a dispositional trait such as hope in a brief amount of time or that the intervention did not target mediators of hope in participants and other types of interventions would be needed to improve hopefulness outcomes.

Although this study provides promising results, it had three important limitations: it did not have a control group, it lacked random assignment, and the postintervention surveys were collected only one hour after the pretest surveys. Because demographic data was not collected, it is also possible that selection bias could have affected the results, with possible higher survey participation by students with greater interest in mental health. To increase feasibility and reproducibility, a DVD or video version of the intervention should be created and tested to increase ease of delivery and affordability for schools. Previous studies have found the effectiveness of video interventions is comparable to live interventions for reducing stigma (Janoušková et al., 2017).

Conclusion

This study provides an initial step in developing an effective mental health stigma reduction module for rural youth that could be standardized in a video format and combined with an educational component for increased impact and distribution to such schools. If a video version of the intervention proves effective, including in testing of other youth populations, then it can be easily and widely implemented into schools' curricula for very low cost. Reducing mental health stigma will increase help-seeking behaviors and treatment in youth with

mental disorders. In addition, improving knowledge about mental health in all students may have long-term positive impact on affected individuals, increasing their personal, social, and professional successes.

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