Mental Health Commission of Canada

Commission de la santé mentale du Canada

Opening Minds in High School: Results of a Contact-Based Anti-Stigma Intervention

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2 OPENING MINDS: CHANGING HOW WE SEE MENTAL ILLNESS

As part of its 10-year mandate, the Mental Health Commission of Canada (MHCC) embarked on an anti-stigma initiative called Opening Minds (OM) to change the attitudes and behaviours of Canadians towards people with a mental illness. OM is the largest systematic effort undertaken in Canadian history to reduce the stigma and discrimination associated with mental illness. OM is taking a targeted approach, initially reaching out to healthcare providers, youth, the workforce, and media. OM's philosophy is not to reinvent the wheel, but rather to build on the strengths of existing programs from across the county.

As a result, OM has actively sought out such programs, few of which have been scientifically evaluated for their effectiveness. Now partnering with over 80 organizations, OM is conducting evaluations of the programs to determine their success at reducing stigma. OM's goal is to replicate effective programs nationally. A key component of programs being evaluated is contact-based educational sessions, where target audiences hear personal stories from and interact with individuals who have recovered or are successfully managing their mental illness. The success of contact-based anti-stigma interventions has been generally supported throughout international studies as a promising practice to reduce stigma. Over time, OM will add other target groups.

For more information, go to: www.mentalhealthcommission.ca/English/Pages/OpeningMinds.aspx

3 BACKGROUND

3.1 Introduction and Purpose

Stigma and discrimination have gained the attention of the public health and policy communities as a hidden and costly burden cause by society's prejudicial reaction to people with a mental illness (World Health Organization, 2001). Stigma and discrimination pose major obstacles in virtually every life domain, carrying significant negative social and psychological impacts. Reducing stigma and discrimination have become important policy objectives at both international and national levels (Sartorius & Schulze, 2005). The 2009 launch of the Mental Health Commission's *Opening Minds* anti-stigma/anti-discrimination initiative marked the largest systematic effort to combat mental illness-related stigma in Canadian History.

The *Opening Minds* program has partnered with a number of programs that deliver contact-based education to primary and high school students throughout Canada. Contact-based education involves people who have experienced a mental illness to educate students by telling their personal stories and allowing time for active discussion. In some cases, teacher lesson plans accompany the classroom presentations.

This report is intended to provide programs with an overview of their key evaluation results. A subsequent initiative will examine each program's components in depth in order to highlight the active ingredients that are associated with the largest change.

3.2 Program Overview

3.2.1 Program Description

The "Talking About Mental Illness" (T.A.M.I.) program outlines the importance of addressing mental health problems and prevention strategies. The T.A.M.I program integrates mental health promotion, prevention, and the importance of early intervention including community services for youth.

3.2.2 Program Outline – Talking About Mental Illness (TAMI)

This five-day high school program is designed to increase students' awareness about mental health and decrease the stigma associated with mental illness. The topics are:

• Mental health/illness

This presentation is an introduction to subjects such as: mental health, mental illness, stigma and recovery.

• Types of disorders

This presentation educates participants about different types of mental illnesses, the myths and reality of mental illness, warning signs of mental illness and shows them where to get help.

• Suicide Awareness and Prevention

This education session aims to increase the participants' awareness and general understanding of suicidal behaviour. Warning signs, risk factors, tips on developing helping attitudes, and identification of community resources are discussed.

• Stress management

This presentation offers simple, practical tips on how to reduce, manage and eliminate stress that may negatively impact our lives.

• Speaker testimonials

This presentation is an opportunity for the participants to hear the testimony of a person living with a mental illness.

Many anti-stigma activities are used in the program such as:

- Myths and realities game
- Student well-being report
- MuchMusic anti-stigma video clips
- Stereotype activity (parents, teens, men and women)
- Celebrity living with mental illness
- Anti-stigma surrounding suicide

3.2.3 Program Delivery

For the purpose of the evaluation project, the TAMI/Champlain East program was delivered to grade 11 students in the Stormont, Dundas, Glengarry, and Prescott and Russell counties.

Funding permits the program to hire two Mental Health Promoters (MHP) for the school calendar year. Their primary role is to deliver the T.A.M.I. program. They meet regularly with school principals, guidance and classroom teachers to make modifications to the program where needed. These modifications are

based on student learning needs and perhaps assist with some of the challenges related to student attitudes in dealing with other students' mental health issues.

The MHP will also recruit and train volunteer speakers to deliver their testimonial on the last day of the program.

The decision to hire MHPs to deliver the program was a result of school board feedback expressing that teachers do not feel comfortable delivering the mental health material, nor do they feel they have the skills or resources to address the topic of mental health in the classroom. There were also concerns about self-disclosure among the students and about how they should handle arising situations. The program requires that teachers be present in the classroom to provide follow-up if needed. It also serves as a good way to educate them on the topic.

Annually, the program helps with approximately 38–45 students who self-identify as having mental health issues, a mental health diagnosis or suicidal thoughts. These individual students are immediately linked to either school resource personnel or community resources. At times they are referred to a CMHA programming intake worker. The presence of a community mental health resource person (MHP) delivering the T.A.M.I. program brings neutrality to the topic of mental illness and has established community linkages and resources to the schools. Education and awareness is key to preventing and reducing mental health concerns from being undiagnosed. Prevention is early intervention.

4 EVALUATION METHODS

Students were surveyed before and after the contact-based intervention.

All programs participating in this network initiative used the same pre- and post-test survey questionnaires to collect their data. These surveys were adapted from items used by the six contact-based programs that participated in the instrument development phase of this project. The resulting Stigma Evaluation Survey contained 22 self-report items. Of these:

- 11 items measured **stereotyped attributions**
    - controllability of illness – 4 items,
    - potential for recovery – 2 items, and
    - potential for violence and unpredictability – 5 items
- 11 items measured expressions of **social tolerance**, which include both social distance and social responsibility items
    - desire for social distance – 7 items, and
    - social responsibility for mental health issues – 4 items

All items were scored on a 5-point agreement scale, ranging from strongly agree to strongly disagree. To avoid potential response sets, some items were positively worded while others were negatively worded. Items were scored so that higher scores on any item would reflect higher levels of stigma. The scales had

good reliability in this pooled sample with a pre-test Cronbach's alpha of 0.77 for the Stereotype Scale and 0.82 for the Social Tolerance Scale. Both are well above the conventional threshold of 0.70 indicating that they are highly reliable. Information on gender, age, grade and prior contact with someone with a mental illness (close friend or family member) was also collected.

5 RESULTS

5.1 Sample Characteristics

Five hundred and fifty-two high school students completed the pre-test and post-test surveys. The characteristics of the students are presented in **Table 1**. There were slightly more males (55%) than females (45%). Just over half (55%) were 15 years old and most (71%) were in grade 11. On the pre-test, over half (61%) of the students indicated they knew someone with a mental illness and 16% indicated that they had a mental illness.

Table 1. Sample Characteristics for Those Who Completed Both the Pre- and Post-test

Characteristic	n (=552)	%
Gender		
Female	241	44.6%
Male	299	55.4%
Missing	12	--
Age		
13	46	8.4%
14	20	3.6%
15	52	54.6%
16	300	18.4%
17	101	5.3%
18+	29	0.2%
Missing	3	--
Grade		
8	52	9.9%
9	17	3.2%
10	27	5.1%
11	375	71.4%
12	54	10.3%
Missing	27	--
Contact-Pretest – Does someone you know have a mental illness*		
No	90	17.2%
Uncertain	112	21.4%
Close friend	50	9.5%
Family member	120	22.9%
Somebody else	132	25.2%
I do	81	15.5%
Missing	28	--
*Multiple responses accepted		

5.2 Stereotype Attributions

With the exception of the items measuring dangerousness, violence and predictability, at the time of the pre-test, the majority of respondents held positive (non-stereotypical) attitudes toward people with a mental illness. For example, before the intervention students tended to disagree with the common stereotypes that people with a mental illness get what they deserve (79%) or that they need to be locked away (71%). Seventy percent disagreed that people with a mental illness could snap out of it if they wanted to and sixty-nine percent disagreed with the statement "People with a mental illness tend to bring it on themselves."

However, only 25% disagreed with the stereotype you can never know what someone with a mental illness is going to do and only 30% disagreed with the statement that people with a mental illness often become violent if not treated (see **Appendix A** for detailed tables).

Figure 1 shows the proportion of students who made any change on the controllability items from pre-test to post-test (where pre-test and post-test surveys were individually matched). The greatest positive shift (reflecting reduced stigma) was for the item "People with mental illnesses often don't try hard enough to get better" (36% improvement). The proportion that improved their response on the item "People with a mental illness tend to bring it on themselves" was 30%. There was a 28% improvement for the item "People with mental illnesses could snap out of it if they wanted to" and a 27% improvement for the item "Most people with mental illness get what they deserve." The majority of students (43%–56%) did not change scores. Percentages varied by item. These reflected two conditions: either they already held a non-stigmatizing attitude and stayed the same or they had a negative attitude on the pre-test and did not improve. A detailed item-by-item breakdown is shown in Appendix A. On all items, a proportion of students (17%-25%) showed a negative change. Please refer to **Appendix A** for specifics.

Figure 1. Proportion of students who made any change on the Likert scale from pre-test to post-test – Controllability Items (n=478 pre-test/post-test pairs). The bars show the proportion (%) of students who had a post-test score that was worse than the pre-test score, did not change, and got better.

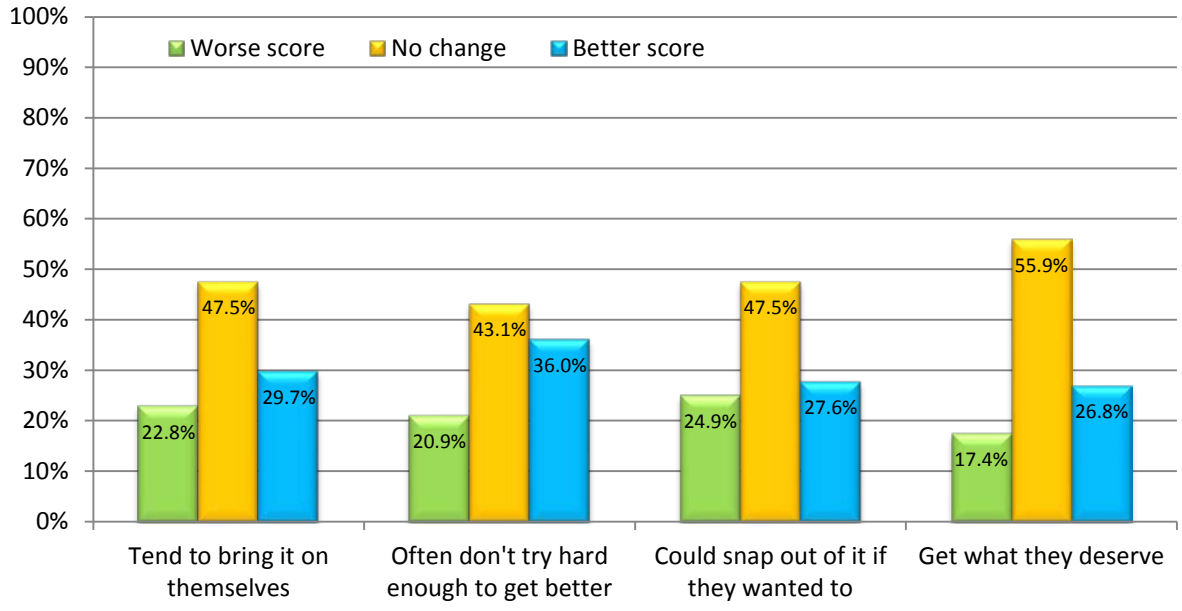
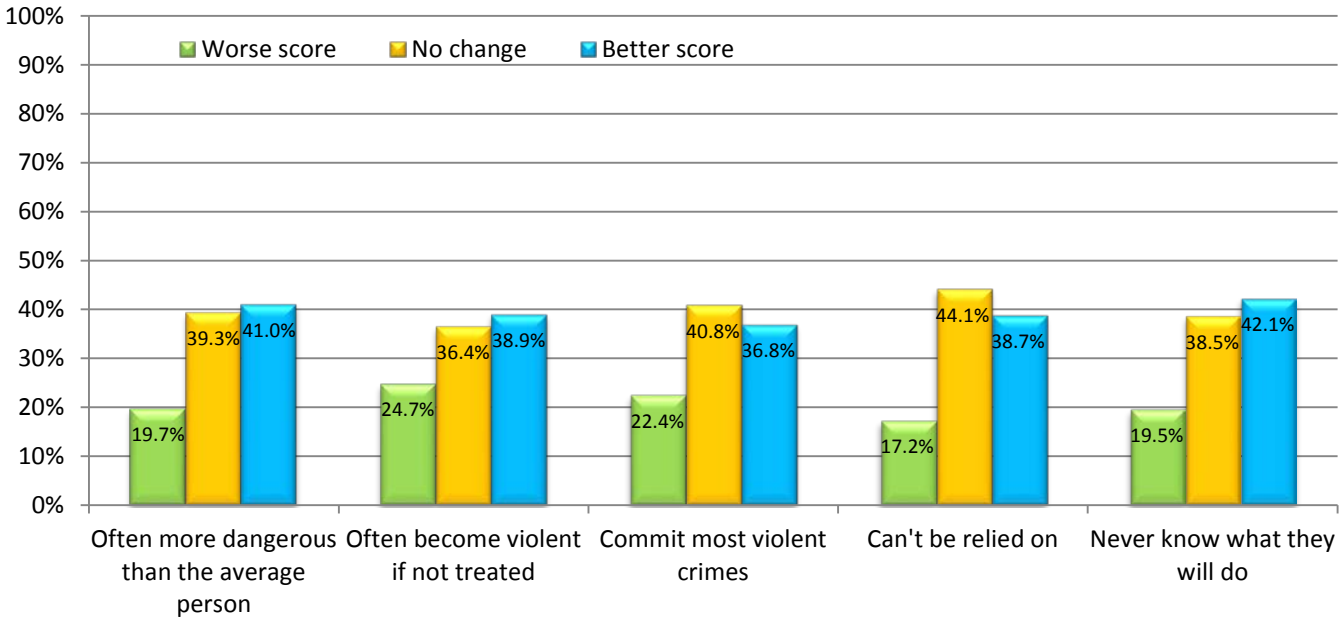


Figure 2 shows the proportion of students who made any change on the recovery items. Forty-four percent improved on the item "Most people with a mental illness are too disabled to work." This was the largest improvement on any single item. Almost one third (32%) improved on the item "People with serious mental illnesses need to be locked away." Students whose scores did not change reflected two conditions: either they already held a non-stigmatizing attitude and stayed the same or they had a negative attitude on the pre-test and did not improve. A proportion of students (12% and 23%) showed a negative change. Please refer to **Appendix A** for specifics.

Figure 2. Proportion of students who made any change on the Likert scale from pre-test to post-test – Recovery Items (n=478 pre-test/post-test pairs)

Figure 3 shows the proportion of students who made any change on the items dealing with violence and unpredictability. All showed a large improvement of 37% or more. The greatest improvement was for the item "You can never know what someone with a mental illness is going to do" (42% improvement). Students whose scores did not change reflected two conditions: either they already held a non-stigmatizing attitude and stayed the same or they had a negative attitude on the pre-test and did not improve. Some students (20%–25%) showed a negative change. Please refer to **Appendix A** for specifics.

Figure 3. Proportion of students who made any change on the Likert scale from pre-test to post-test – Violence/Unpredictability Items (n=478 pre-test/post-test pairs)

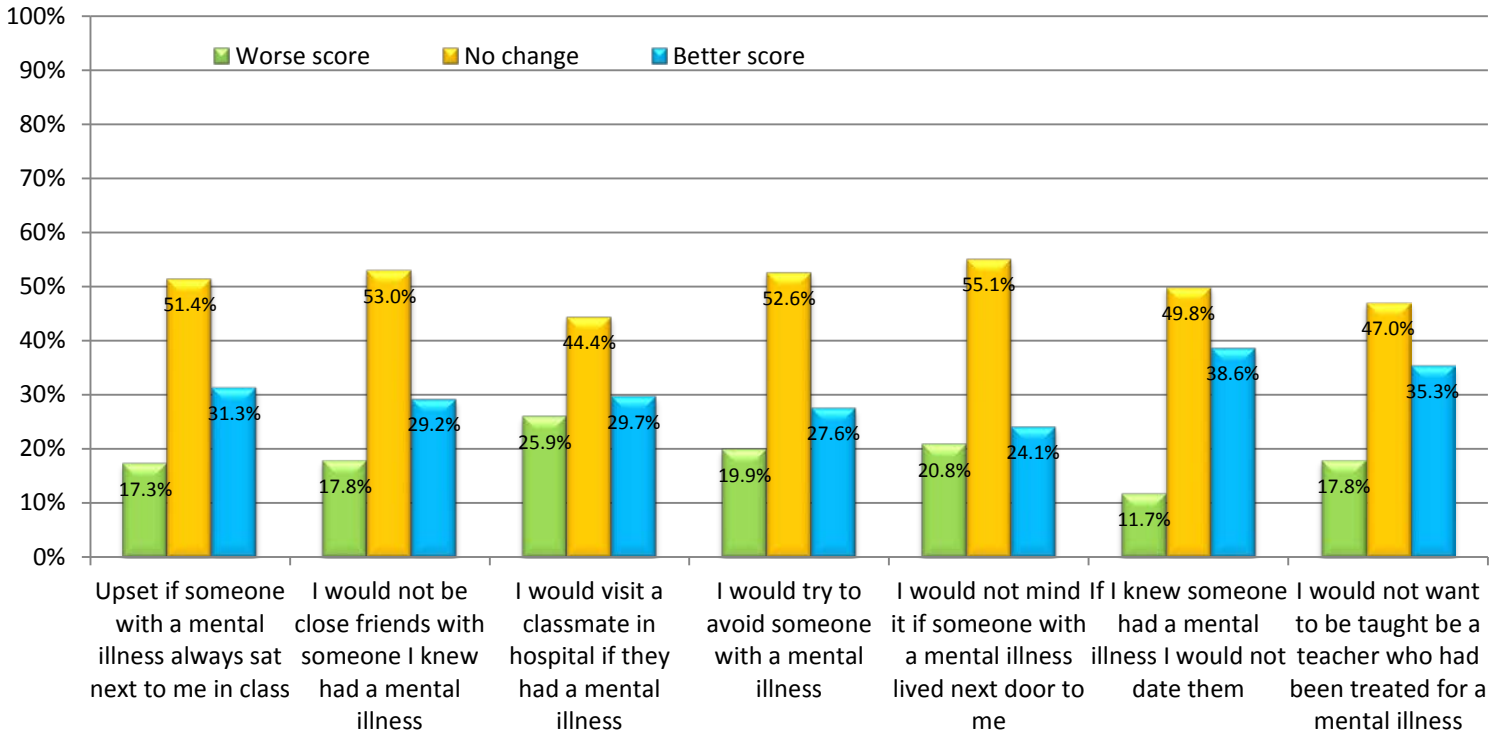


5.3 Expressions of Social Distance

Prior to the intervention, students showed generally positive, non-stigmatizing responses to six out of the seven social distance items. For example, 72% disagreed with the statement "I would try to avoid someone with a mental illness" and 71% disagreed with the statement "I would not be close friends with someone I knew had a mental illness." The most stigmatizing responses were given for the item "If I knew someone had a mental illness I would not date them," with only 26% of respondents disagreeing with the statement (see **Appendix A** for detailed tables).

Figure 4 shows the proportion of students who made any change on the social distance items. All items showed improvement. For example, following the intervention there was a 39% improvement for the item "If I knew someone had a mental illness I would not date them" and a 35% improvement for the item "I would not want to be taught by a teacher who had been treated for a mental illness." Students whose scores did not change reflected two conditions: either they already held a non-stigmatizing attitude and stayed the same or they had a negative attitude on the pre-test and did not improve. Some students (12%–26%) showed a negative change (see **Appendix A**, p. A8).

Figure 4. Proportion of students who made any change on the Likert scale from pre-test to post-test – Social Distance Items (n=428 pre-test/post-test pairs)

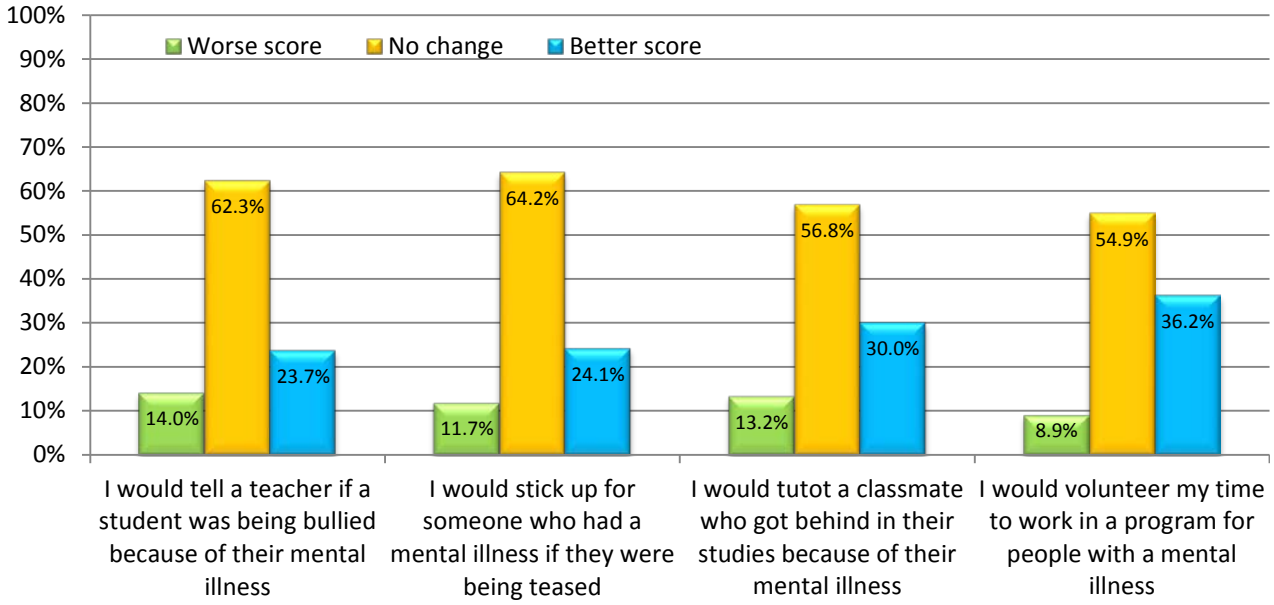


5.4 Social Responsibility

Before the program intervention, students were generally socially responsible when a time commitment was not involved, such as sticking up for someone who had a mental illness if they were being teased (78%) or telling a teacher a student was being bullied (71%). (See **Appendix A** for detailed tables).

Figure 5 shows the proportion of students who made any change on the social responsibility items. The highest changes were for the items "I would tutor a classmate who got behind in their studies because of their mental illness" (32% improvement) and "I would volunteer my time to work in a program for people with mental illness" (32% improvement). Students whose scores did not change reflected two conditions: either they already held a non-stigmatizing attitude and stayed the same or they had a negative attitude on the pre-test and did not improve. A proportion of students (19% and 22%) showed a negative change (see **Appendix A**, p. A8).

Figure 5. Proportion of students who made any change on the Likert scale from pre-test to post-test – Social Responsibility Items (n=428 pre-test/post-test pairs)



5.5 Program Success

In order to provide a measure of the overall success of the intervention, we chose (*a priori*) a cut-off score of 80% correct. Though somewhat arbitrary, we have used this cutoff in previous work to count the number of students who achieve an A grade or higher following an educational session. More specifically, success was measured by comparing the proportion of students who obtained 80% or more correct (non-stigmatizing) answers on the post-test compared to the pre-test.

Figure 6 shows the cumulative percent of items reflecting non-stigmatizing responses for the Stereotype Scale. Prior to the intervention, 21% of students gave a non-stigmatizing response to at least 9 of the 11 stereotype items reflecting 80% correct (corresponding to the red dotted line on the graphs below). At post-test, this had increased to 43% (reflecting a 22% improvement overall). When item scores were aggregated to reflect a scale value out of 55 (higher scores reflecting more stigma), the average (median score) dropped from 26% at pre-test to 23% at post-test (reflecting a 6% drop in average score). A Wilcoxon Signed Rank Test showed that at post-test there was a significant drop in the Stereotype Scale Score ($Z= -8.531$, $p <.001$).

Figure 6. Cumulative Percent of Stereotype Scale Items Reflecting Non-stigmatizing response (n=478)

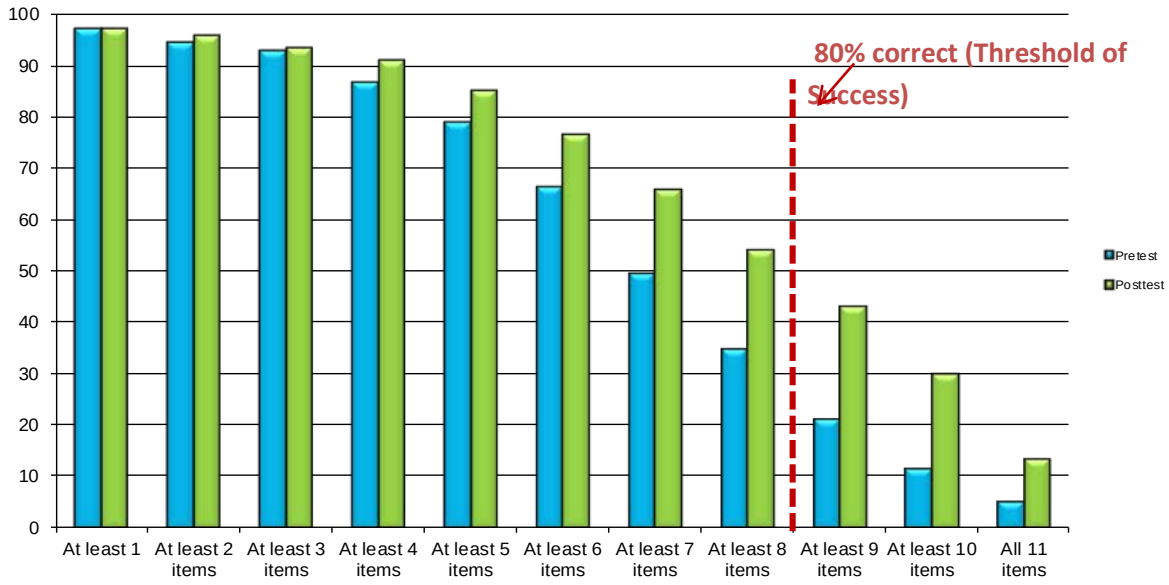
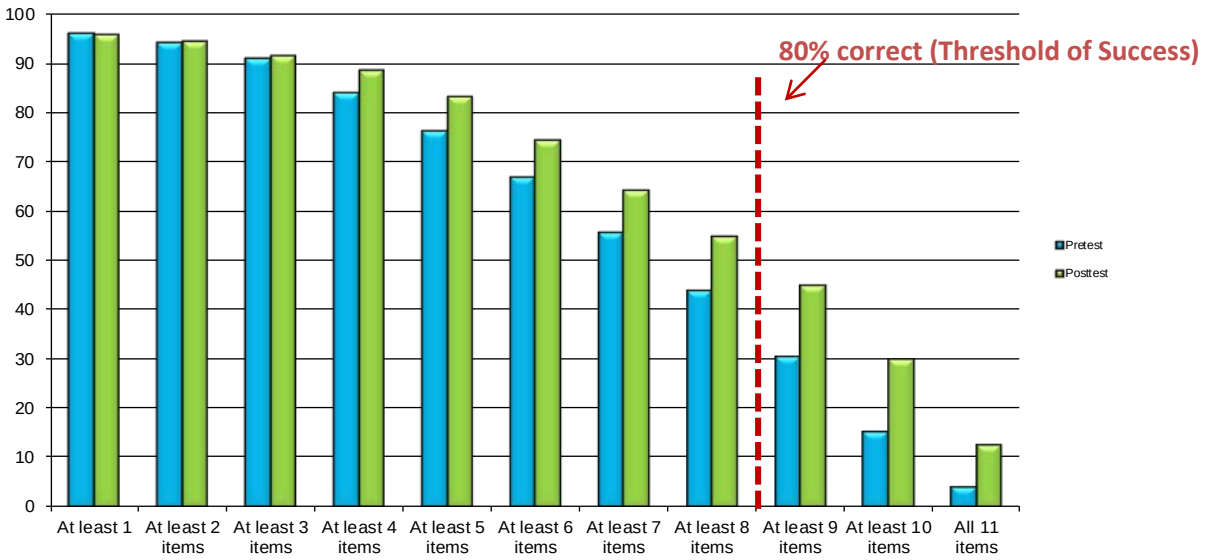


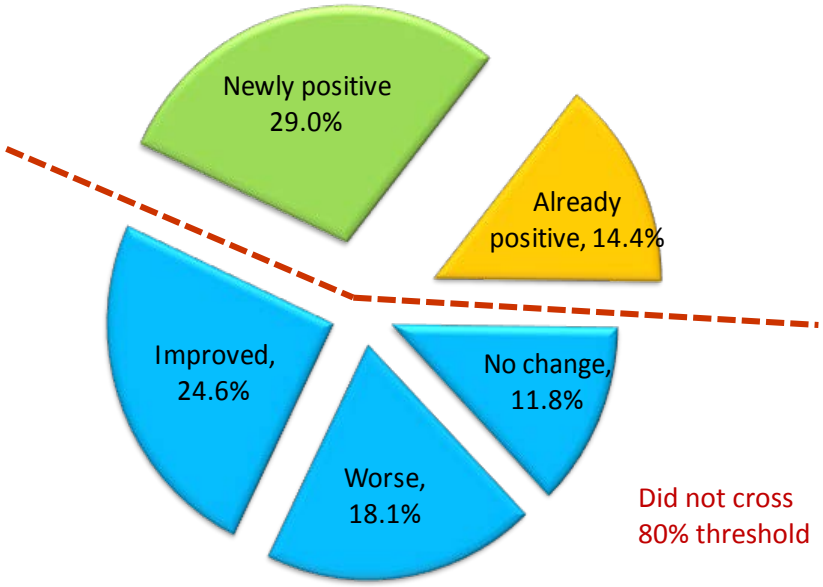
Figure 7 shows the cumulative percent of items reflecting non-stigmatizing responses for the Social Tolerance Scale. Prior to the intervention, 31% of students gave a non-stigmatizing response to at least 9 of the 11 items reflecting 80% correct (corresponding to the red-dotted line on the graphs below). At post-test this had increased to 45% (reflecting a 14% improvement overall). When item scores were aggregated to reflect a scale value out of 55 (higher scores reflecting more stigma), the average (median score) dropped from 26% at pre-test to 24% at post-test (reflecting a 4% drop in average score). A Wilcoxon Signed Rank Test showed that at post-test there was a significant drop in the Stereotype Scale Score (Z= -6.123, p <.001).

Figure 7. Cumulative Percent of Tolerance Items Reflecting Non-stigmatizing response (n=428)



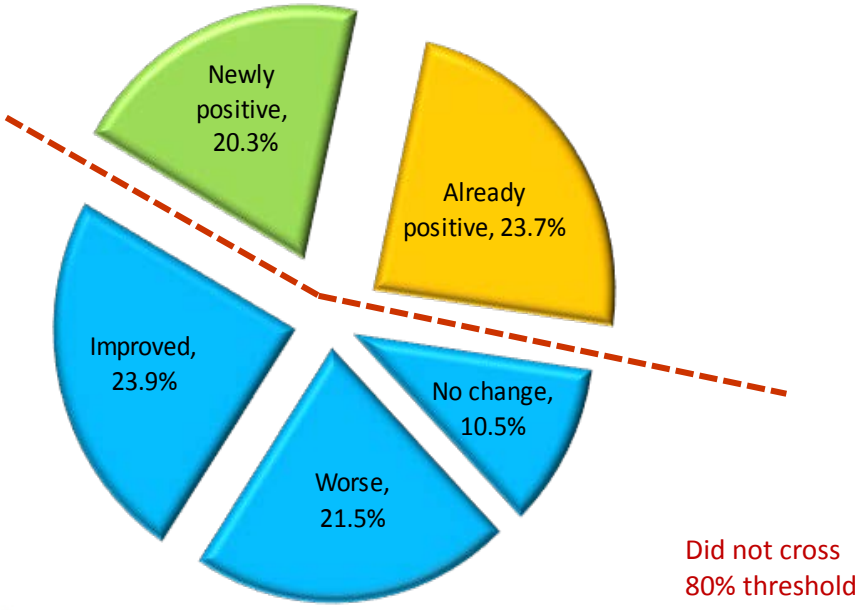
Figures 8 and 9 show the change in stereotype and social tolerance scale scores. Prior to the intervention, more respondents were positive (80% threshold, 9 out of 11 positive responses) on the tolerance scale (31%) compared to the stereotype scale (21%). After the intervention, the percent that improved their attitudes by crossing the 80% threshold was 29% (stereotype scale) and 23% (tolerance scale). The percent that improved their scores but did not cross the 80% threshold was 25% (stereotype scale) and 24% (tolerance scale).

Figure 8. Change in Stereotype Scale Score (n=452)



Notes: To adjust for regression to the mean, pre-test outliers (those whose pre-test scale scores were over 2 standard deviations beyond the mean) where omitted from this analysis.

Figure 9. Change in Social Tolerance Scale Score (n=418)



6 SUMMARY AND CONCLUSIONS

This report describes the results of a contact-based anti-stigma intervention provided to high school students. The results show that this program was successful in improving the proportion of students who got 80% of the answers correct, so received an "A" grade on the tests used to assess social stereotypes and social tolerance. The program achieved greater success in diminishing stereotyped attitudes (22% more students received an "A" grade at post-test) than expressions of social tolerance (14% more students received an "A" grade at post-test).

The positive findings suggest that there are components of the program that are working. Program staff consider a number of things contribute to their success, including:

- Champion schools/school boards support mental health initiatives
- School cultures in the area create wellness beyond these presentations
- Agency profile of CMHA has been raised through local media and school fundraisers
- Anti-stigma is central to the entire program
- Access to Guest Speakers: speaker selection/orientation/coaching/presentation preparations
- Delivery of the program is by Mental Health Promoters, not classroom teachers.

Other specific program activities that contribute to the success of the program include:

Day 1

The TAMI program addresses many of the stereotypes measured in the survey. For example, "tend to bring it on themselves" is dispelled when facilitators educate students on possible triggers and/or causes of mental illness and focus is placed on the fact that mental illness is an ILLNESS like any other.

Facilitators also challenge students with a competitive game "Myth or Reality" to dispel some of the common myths surrounding mental illness: "People could snap out of it if they wanted."

They challenge the idea that "people get what they deserve" by educating or reminding students about the fact 1 in 5 will be affected by mental illness, that mental illness has no boundaries and it could happen to anyone. Program facilitators feel this message really sticks. They use the mental health and well-being report for current stats on youth mental health.

http://www.camh.ca/en/research/news_and_publications/ontario-student-drug-use-and-health-survey/Documents/2011%20OSDUHS%20Docs/2011OSDUHS_Detailed_MentalHealthReport.pdf

Day 2

Pictures or videos of high profile individuals who live with mental illness such as athletes, celebrities and/or politicians are used. This addresses the "People with mental illness are too disabled to work" stereotype. Many of the celebrities showcased are individuals who are highly respected by students. This changes their perception completely. In **figure 4,** social distance was measured and program staff believe

the use of high profile individuals makes a difference in regards to stigma because many of the celebrities are people the students look up to.

The TAMI program discusses types of disorders in terms of the stereotype “don’t try hard enough to get better.” The program educates students on common illnesses such as depression, anxiety, schizophrenia and they do this by showing video clips from www.teenmentalhealth.org that explain disorders in a way that is easy for students to understand. In “Ellie’s Depression” video, students realize that sometimes symptoms get in the way of someone getting better.

Figure 3 deals with violence. The program addresses this stereotype by providing students with an opportunity to hear a testimony from someone who has lived with a mental illness and is in recovery. Having a real life person who does not fit the common stereotype is a really powerful way to reinforce the message and helps change attitudes. Many of the students thank the speakers, shake their hand and are both inspired and moved by the speaker’s journey into recovery.

Program staff believe a combination of education/awareness and real life experience is the winning combination in the success of this program. They try to ensure the learning activities are engaging and participatory to encourage group work and personal reflection on own mental health and well-being.

Appendix A

Stereotyped attribution items are shown in the three tables below. For ease of presentation, items were recoded into three categories: agree (strongly agree and agree), neutral, and disagree (disagree and strongly disagree) and grouped by theme controllability of illness, potential for recovery and potential for violence and unpredictability.

Stigma Stereotype Results

Controllability Items

Stereotyped Attributions Items	Pre-test %(n=478)	Post-test %(n=478)	% Change
4. People with a mental illness tend to bring it on themselves. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 68.6%(328) 20.9%(100) 10.5%(50)	 72.0%(344) 16.9%(81) 11.1%(53)	 3.4 -4.0 0.6
5. People with mental illnesses often don't try hard enough to get better. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 66.1%(316) 22.0%(105) 11.9%(57)	 72.8%(348) 18.6%(89) 8.6%(41)	 6.7 -3.4 -3.3
6. People with a mental illness could snap out of it if they wanted to. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 70.1%(335) 22.0%(105) 7.9%(38)	 71.8%(343) 17.8%(85) 10.5%(50)	 31.7 -4.2 2.6
14. Most people with a mental illness get what they deserve. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 79.3%(340) 17.6%(96) 3.1%(42)	 82.8%(396) 14.2%(68) 2.9%(14)	 3.5 -3.4 -0.2

Recovery Items

Stereotyped Attributions Items	Pre-test %(n=478)	Post-test %(n=478)	% Change
3. Most people with a mental illness are too disabled to work. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 64.6%(3.9) 22.0%(105) 13.4%(64)	 82.8%(396) 11.7%(56) 5.4%(26)	 18.2 -10.3 -8.0
15. People with serious mental illnesses need to be locked away. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 71.1%(340) 20.1%(96) 8.8%(42)	 76.2%(364) 16.5%(79) 7.3%(35)	 5.1 -3.6 -1.5

Violence/Unpredictability Items

Stereotyped Attributions Items	Pre-test %(n=478)	Post-test %(n=478)	% Change
7. People with a mental illness are often more dangerous than the average person. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 42.9%(205) 31.6%(151) 25.5%(22)	 58.8%(281) 23.2%(111) 18.0%(86)	 15.9 -8.4 -7.5
8. People with a mental illness often become violent if not treated • Strongly disagree/disagree • Unsure • Strongly agree/agree	 29.5%(141) 47.3%(226) 23.3%(111)	 43.7%(209) 32.4%(155) 23.8%(114)	 14.2 -14.9 0.6
10. Most violent crimes are committed by people with a mental illness. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 58.8%(281) 26.6%(127) 14.6%(70)	 67.2%(321) 20.5%(98) 12.3%(59)	. 8.4 -6.1 -2.3
11. You can't rely on someone with a mental illness. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 62.3%(298) 28.0%(134) 9.6%(46)	 75.3%(360) 18.4%(88) 6.3%(30)	 13.0 -9.6 -3.3
12. You can never know what someone with a mental illness is going to do. • Strongly disagree/disagree • Unsure • Strongly agree/agree	 25.1%(120) 31.4%(150) 43.5%(208)	 42.3%(202) 23.8%(114) 33.9%(162)	 17.2 -7.6 -9.6

Survey Item	Negative change % (n)	No change % (n)		Positive change % (n)	*McNemar-Bowker* Significance
		Stigmatizing* % (n)	Non-stigmatizing* % (n)		
Controllability Items					
4 People with a mental illness tend to bring it on themselves	22.8% (109)	47.5% (227)		29.7% (142)	χ2 = 12.9; df = 10; p=.230
		9.2% (44)	38.3% (183)		
5 People with mental illnesses often don't try hard enough to get better	20.9% (100)	43.1% (209)		36.0% (172)	χ2 =26.6; df = 10; p=.003
		9.6% (46)	33.5% (160)		
6 People with a mental illness could snap out of it if they wanted to	24.9% (119)	47.5% (227)		27.6% (132)	χ2 =11.3; df = 10; p= .331
		9.6% (46)	37.9% (181)		
14 Most people with a mental illness get what they deserve	17.4% (83)	55.9% (267)		26.8% (128)	χ2 =15.2; df = 9; p= .086
		7.7% (37)	48.1% (230)		
Recovery Items					
3 Most people with a mental illness are too disabled to work	11.7% (56)	43.9% (210)		44.4% (212)	χ2 = 107.0; df = 10; p<.001
		8.2% (39)	35.8% (171)		
15 People with serious mental illnesses need to be locked away	23.4% (112)	44.6% (213)		32.0% (153)	χ2 =12.8;df =10 ; p=.237
		8.2% (39)	36.4% (174)		
Violence / Unpredictability Items					
7 People with a mental illness are often more dangerous than the average person	19.7% (94)	39.3% (188)		41.0% (196)	χ2= 47.4; df = 10; p<.001
		19.7% (94)	19.7% (94)		
8 People with a mental illness often become violent if not treated	24.7% (118)	36.4% (174)		38.9% (186)	χ2 =44.2; df =10; p<.001
		24.7% (118)	11.7% (56)		
10 Most violent crimes are committed by people with a mental illness	22.4% (107)	40.8% (195)		36.8% (176)	χ2 =25.6 df =10; p=.004
		13.8% (66)	27.0% (129)		
11 You can't rely on someone with a mental illness	17.2% (82)	44.1% (211)		38.7% (185)	χ2= 45.7; df =10; p<.001
		9.6% (46)	34.5% (165)		
12 You can never know what someone with a mental illness is going to do	19.5% (93)	38.5% (184)		42.1% (201)	χ2 =55.9; df 10=; p<.001
		26.8% (128)	11.7% (56)		

Notes:

- Base size is those who responded to all the pre-test and post-test items (n=478)
- Change was defined as moving on 5-point Likert Scale from the pre-test to the post-test (negative change: toward a more stigmatizing answer; positive change: toward a less stigmatizing answer)
- *The non-stigmatizing response means agree or strongly agree; the stigmatizing response includes unsure, disagree, and strongly disagree
- Statistical tests use the original five point scale, positive change does not necessary imply non-stigmatizing response
- Degrees of freedom depend on the number of non-empty cells and may vary by question due to different response patterns

Percent Non Stigmatizing Endorsement of Stereotype Items

	Pre-test % (n=478)	Post-test % (n=478)
None	2.9% (14)	2.7% (13)
At least 1	97.1% (464)	97.3% (465)
At least 2 items	94.4% (451)	95.8% (458)
At least 3 items	92.9% (444)	93.5% (447)
At least 4 items	86.8% (415)	91.0% (435)
At least 5 items	79.1% (378)	85.1% (407)
At least 6 items	66.3% (317)	76.6% (366)
At least 7 items	49.6% (237)	65.9% (315)
At least 8 items	34.7% (166)	54.0% (258)
At least 9 items	21.1% (101)	43.1% (206)
At least 10 times	11.5% (55)	29.9% (143)
All 11 times	5.0% (24)	13.4% (64)

Social Tolerance Results

Social Distance Items

Stereotyped Attributions Items	Pre-test % (n=428)	Post-test % (n=428)	% Change
18. I would be upset if someone with a mental illness always sat next to me in class.			
• Strongly disagree/disagree	65.7% (281)	72.9% (312)	7.2
• Unsure	25.0% (107)	18.0% (77)	-7.0
• Strongly agree/ agree	9.3% (0)	9.1 % (39)	-0.2
19. I would not be close friends with someone I knew had a mental illness.			
• Strongly disagree/disagree	71.0% (304)	80.1% (343)	9.1
• Unsure	23.6% (101)	15.9% (68)	-7.7
• Strongly agree/ agree	5.4% (23)	4.0% (17)	-1.4
20. (R) I would visit a classmate in hospital if they had a mental illness.			
• Strongly agree/ agree	61.4% (263)	65.9% (282)	4.5
• Unsure	28.7% (123)	21.7% (93)	-7.0
• Strongly disagree/disagree	9.8% (42)	12.4 % (53)	2.6
21. I would try to avoid someone with a mental illness.			
• Strongly disagree/disagree	72.4% (310)	75.9% (325)	3.5
• Unsure	21.3% (91)	16.4% (70)	-4.9
• Strongly agree/ agree	6.3% (27)	7.7% (33)	1.4
22. (R) I would not mind it if someone with a mental illness lived next door to me.			
• Strongly agree/ agree	70.1% (300)	72.9% (312)	2.8
• Unsure	18.2% (78)	15.4% (66)	-2.8
• Strongly disagree/disagree	11.7 % (50)	11.7% (50)	0.0
24. If I knew someone had a mental illness I would not date them.			
• Strongly disagree/disagree	25.5% (109)	40.4% (173)	14.9
• Unsure	48.8% (209)	45.8% (196)	-3.0
• Strongly agree/ agree	25.7% (110)	13.8% (59)	-11.9
25. I would not want to be taught by a teacher who had been treated for a mental illness.			
• Strongly disagree/disagree	58.6% (251)	71.0% (304)	12.4
• Unsure	27.8% (119)	22.4% (96)	-5.4
• Strongly agree/ agree	13.6 % (58)	6.5% (28)	-7.1

Note: (R) Signifies the item was reverse coded in the scale calculation. Higher scale scores reflect higher levels of stigma

Social Responsibility Items

Stereotyped Attributions Items	Pre-test % (n=428)	Post-test % (n=428)	% Change
28. (R) I would tell a teacher if a student was being bullied because of their mental illness.			
• Strongly agree/ agree	71.3% (305)	74.3% (318)	3.0
• Unsure	21.3% (91)	17.5% (75)	-3.8
• Strongly disagree/disagree	7.5% (32)	8.2% (35)	0.7
32. (R) I would stick up for someone who had a mental illness if they were being teased.			
• Strongly agree/ agree	77.8% (333)	75.9% (325)	-1.9
• Unsure	17.8 % (76)	17.5% (75)	-0.3
• Strongly disagree/disagree	4.4% (19)	6.5% (28)	2.1
33. (R) I would tutor a classmate who got behind in their studies because of their mental illness.			
• Strongly agree/ agree	47.4% (203)	57.5 % (246)	10.1
• Unsure	36.9% (158)	28.3% (121)	-8.6
• Strongly disagree/disagree	15.7% (67)	14.3% (61)	-1.4
34. (R) I would volunteer my time to work in a program for people with a mental illness.			
• Strongly agree/ agree	36.9% (158)	47.4% (203)	10.5
• Unsure	47.9% (205)	34.8% (149)	-13.1
• Strongly disagree/disagree	15.2% (65)	17.8% (76)	2.6

Note: (R) Signifies the item was reverse coded in the scale calculation. Higher scale scores reflect higher levels of stigma

Survey Item	Negative change % (n)	No change % (n)		Positive change % (n)	*McNemar-Bowker* Significance
		Stigmatizing* % (n)	Non-stigmatizing* % (n)		
Social Distance Items					
18 I would be upset if someone with a mental illness always sat next to me in class	17.3% (74)	51.4% (220)		31.3% (134)	χ2 = 35.2 df =10; p<.001
		13.8% (59)	37.6% (161)		
19 I would not be close friends with someone I knew had a mental illness	17.8% (76)	53.0% (227)		29.2% (125)	χ2 =21.3; df =9; p=.001
		8.6% (37)	44.4% (190)		
(R)20 I would visit a classmate in hospital if they had a mental illness	25.9% (111)	44.4% (190)		29.7% (127)	χ2 =14.2; df =10; p=.164
		11.9% (51)	32.5% (139)		
21 I would try to avoid someone with a mental illness	19.9% (85)	52.6% (225)		27.6% (118)	χ2 =21.9; df =10; p=.015
		9.3% (40)	43.2% (185)		
22 (R) I would not mind it if someone with a mental illness lived next door to me	20.8% (89)	55.1% (236)		24.1% (103)	χ2 =7.4; df =10; p=..690
		10.5% (45)	44.6% (191)		
24If I knew someone had a mental illness I would not date them	11.7% (50)	49.8% (213)		38.6% (165)	χ2 =65.4; df =10; p<.001
		37.1% (159)	12.6% (54)		
25 I would not want to be taught by a teacher who had been treated for a mental illness	17.8% (76)	47.0% (201)		35.3% (151)	χ2 =31.5; df =10; p<.001
		11.4% (49)	35.5% (152)		
Social Responsibility Items					
28 (R) I would tell a teacher if a student was being bullied because of their mental	19.2% (82)	57.2% (245)		23.6% (101)	χ2 =18.3; df =10; p=.050
		11.0% (47)	46.3% (198)		
32 (R) I would stick up for someone who had a mental illness if they were being teased	21.5% (92)	57.9% (248)		20.6% (88)	χ2 =7.3;df =9; p=.680
		10.0% (43)	47.9% (205)		
33(R) I would tutor a classmate who got behind in their studies because of their mental illness	20.3% (87)	48.1% (206)		31.5% (134)	χ2 =24.1; df =10; p=.007
		21.7% (93)	26.4% (113)		
34(R) I would volunteer my time to work in a program for people with a mental illness	21.3% (91)	47.4% (203)		31.3% (134)	χ2 =28.2 df =10; p=.002
		26.9% (115)	20.6% (203)		

Notes:

- Base size is those who responded to all the pre-test and post-test items (n=428)
- Change was defined as moving on 5-point Likert Scale from the pre-test to the post-test (negative change: toward a more stigmatizing answer; positive change: toward a less stigmatizing answer)
- *The non-stigmatizing response means agree or strongly agree; the stigmatizing response includes unsure, disagree, and strongly disagree.
- Statistical tests use the original five point scale, positive change does not necessary imply non stigmatizing response.
- Degrees of freedom depend on the number of non-empty cells and may vary by question due to different response patterns

Percent Non Stigmatizing Endorsement of Social Tolerance Items

	Pre-test % (n=428)	Post-test % (n=428)
None	4.0% (17)	4.2% (18)
At least 1	96.0% (411)	95.8% (410)
At least 2 items	94.2% (403)	94.4% (404)
At least 3 items	91.1% (390)	91.6% (392)
At least 4 items	84.1% (360)	88.6% (379)
At least 5 items	76.4% (327)	83.2% (356)
At least 6 items	66.8% (286)	74.3% (318)
At least 7 items	55.8% (239)	64.3% (275)
At least 8 items	43.9% (188)	54.9% (235)
At least 9 items	30.6% (131)	44.9% (192)
At least 10 times	15.2% (65)	29.9% (128)
All 11 times	4.0% (17)	12.6% (54)

	Already positive % (n)	Positive Change % (n)	Did Not Cross 80% Threshold % (n)
Stereotype scale score (n=452)	**14.4% (65)**	**29.0% (131)**	**56.6% (256)**
Social tolerance scale score (n=249)	**23.7% (99)**	**20.3 % (85)**	**56.0% (234)**

Notes:
To adjust for regression to the mean, pretest outliers (those whose pretest scale scores were over 2 standard deviations beyond the mean) where omitted from this analysis.

The responses to the items on each of the scales can be summed to obtain a scale score. The possible score for each scale ranges from 11 to 55 with a lower score indicating less stigma.

Scale scores

Stereotype Scale Score (n=478)

	Median (interquartile range)
Pre-test	26 (22-30)
Post-test	23 (19-29)

Tolerance Scale Score (n=428)

	Median (interquartile range)
Pre-test	26 (21-30)
Post-test	24 (19-29)