



**Durham Talking About Mental Illness
(TAMI) Coalition**

***Evaluation of a School-Based Mental Health
Education and Anti-stigma Program***

October, 2007

**In collaboration with the Durham TAMI
Coalition membership for 2006-2007:**

Canadian Mental Health Association – Durham Branch,
Durham Catholic District School Board, Durham District School Board,
Durham Family Court Clinic, Durham Mental Health Services,
Mood Disorders Association of Ontario, Pinewood Centre of Lakeridge Health,
Resources for Exceptional Children and Youth, The Youth Centre,
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Mission Statement

Durham TAMI Coalition

*To increase the knowledge and decrease the stigma
associated with mental illness*

Introduction

In recent years, psychiatric stigma and related public health issues have become major global health concerns. An estimated 450 million people worldwide are affected by mental disorders at any one time (Thorncroft & Maingay, 2002). In 2001, the World Health Organization (WHO) reported that mental illness represents 10% of the global burden of disease and that depression will be one of the largest worldwide health concerns by 2020 (Herrman, 2001). In Canada, these numbers translate to an average of 1 in 5 Canadians being affected by a mental illness at some point in their lifetime. Of particular importance, is the high rate of adolescents experiencing mental health issues (also 1 in 5), however less than 20% seek psychological help (Kessler et al., 1999), and 1 in 5 of all adolescent mortalities in Canada are a result of suicide. Adolescents not seeking help for mental health issues are also at risk for the underdevelopment of skills for daily living, independence, and self-confidence that they will need throughout their lifetime (Government of Canada, 2006).

Psychiatric stigma affects those with mental health issues in 2 significant ways: how they are treated by others, and, often due to the self-stigma they experience, feelings of apprehension towards seeking help. Psychiatric stigma has been found to be the most significant obstacle to the treatment of mental disorders (US Public Health Service, 1999). In 2001, the WHO reported the importance of attending to attitudes that could lead to stigmatizing behaviour, and called for countries to launch anti-stigma campaigns. Corrigan et al. (2005) found adolescents were one of the best targets for anti-stigma campaigns, since it is during this developmental period that foundations are laid for adult attitudes and beliefs about mental health, which if positive, could prevent stigmatizing behaviour in the future.

There is a growing body of international research suggesting that school-based anti-stigma programs can have a positive effect on adolescents' knowledge about mental illness, foster more tolerant attitudes towards those living with mental health issues (Sharp, Hargrove, Johnson, & Deal, 2006; Watson et al., 2004; Pinfold et al., 2003), and increase help-seeking behaviour (Sheffield, Fiorenza, & Sofronoff, 2004). Link (2001) suggested that to create effective and sustained reduction of psychiatric stigma and discrimination, approaches need to be multi-faceted and multi-level, and should address the deeply held attitudes and beliefs that are the causes of stigma, while focusing on personal contact, education, and empowerment. Research has found that personal contact with persons living with mental illness is the single most influential factor for changing public attitudes and behaviour towards people with mental health issues (Angermeyer & Matschinger, 1996; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Penn et al., 1994; Read & Law, 1999), particularly when people contradict negative stereotypes (Wood & Wahl, 2006). For adolescents, personal contact was extremely powerful because the experience increased their interest in mental health and subsequent engagement with the lessons, especially when in an environment that encouraged interactive discussion and reflection (Pinfold, Thorncroft, Huxley, & Farmer, 2005). Although

direct contact has been shown to be more effective than classroom education alone (Drolen, 1993), education plays a key role because it is the first step towards attitude and potential behaviour change. Corrigan (2004) states that “Education provides information so that the public can make more informed choices about mental illness... Stigma is further diminished when members of the general public have contact with people with mental illness,” and “Programs that decrease stigma will reduce attitudes and behaviours that might be barriers to care seeking.” However, as Pinfold et al. (2005) reports, although the question of what works to reduce psychiatric stigma is a question of global concern requiring further investigation, many programs have insufficient budgets to build an evidence base in this under researched area. Without an evidence base approach it is not possible to empirically validate the effectiveness of the intervention.

The Present Study

The current study investigated the effects of the Durham TAMI Coalition’s high school-based, mental health education and anti-stigma program. The original In-Class (5-day) program was developed in partnership between the Centre for Addiction and Mental Health (CAMH), the Mood Disorders Association of Ontario (MDAO), and the Canadian Mental Health Association (CMHA). It has been approved by the Ontario School Board as part of grades 11 and 12 health curriculum. In addition, the Durham Coalition during 5 years of operating has developed 3 new program types and 1 pilot program, and has reached over 4550 students and school personnel from 95% of all high schools in Durham Region (public and separate school boards).

Due to the increased length of time spent on program material, it was expected that participants in the In-Class (5-day) program followed by the Summit Conference, would experience the greatest gains in knowledge and attitude improvement. No assumptions were made about potential gender differences.

An additional objective of the study was to further program development, based on the results of what is working versus where improvements could be made. Being able to apply the current research to the development of curriculum for younger grades was also a goal of the Coalition.

“The voices of people who have a common goal are the most powerful way of combating the impact that STIGMA has on the students we have spoken to. Hope is what this program delivers, with the heartfelt stories told by those who have traveled the road.”

John Dick, speaker for the Durham TAMI Coalition, 5 years

Method

Participants

For the past 5 years, high school teachers in Durham Region have been recruited to participate in and facilitate TAMI programs through a variety of promotional methods, including: distribution of brochures and information sheets (electronically and in-person), word-of-mouth, face-to-face meetings, Coalition representation at Director's of Education meetings, presentations to administrative and school staff, and annual, regional Summit conferences. Of the 4550 students and school staff who have participated in TAMI programs throughout this time, the 1593 participants who had completed pre and posttests during the 2005 to 2006 and 2006 to 2007 academic years were used for the current study. Of the 45 regional high schools who participated in TAMI programs between September, 2005 and June, 2007, 32 participated in the 5-day In-

Program Type	Students		Adults		Total
	male	female	male	female	
In-Class, 5-day	403	586	0	0	989
Summit Conference	16	64	7	11	98
School Assembly	154	189	0	0	343
Staff Workshop	0	0	21	40	61
Control Group	47	55	0	0	102
Total	620	894	28	51	1593

Class Program, 30 attended TAMI's annual Stomping Out Stigma (S.O.S.) Summit Conference, 1 participated in the half-day Professional Development workshop for school staff, 1 participated in the one-period, full-School Assembly, and 2 served as the control group. For a detailed breakdown of sample sizes by program type, gender, and age, please refer to Table 1.

Measures

To measure the effect of a TAMI intervention on knowledge gain and attitude change, pre and posttests developed in partnership between CAMH, CMHA, and MDAO (specifically for the week-long In-Class TAMI program), were utilized for all program types (CAMH, 2001). The questionnaire consisted of questions designed to assess levels of knowledge about mental illness, supportive attitudes, and stigmatizing attitudes. Each question required the participant to choose on a scale of 1 to 4, how much they knew about the following statements (1=none, 2=a little, 3=some, 4=a lot), or how much they agreed or disagreed with the following statements (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree). Similarly, the posttest included additional statements regarding participants' feedback about the experience (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree), and also asked for written comments about what participants liked most about the program, liked least about the program, and further comments or suggestions.

Procedure

All TAMI participants filled out pretests prior to commencement of the program and a posttest upon completion of the program. Summit Conference and Staff Workshop participants filled out the posttest the same day, at the end of the conference/ workshop, whereas In-Class and Assembly participants varied from 1 day to 4 weeks after the program for filling out posttests (the goal was 2 weeks, but this was a challenging factor to control due to teachers administering the posttest on a volunteer basis and contributed to a significant number of participants who did not fill out posttests). The control group filled out sections A and B of the posttests 2 weeks after filling out pretests but did not complete sections C and D because they did not receive a TAMI intervention in the interim. Pre and posttests were matched by birth date in order to preserve anonymity.

In addition to the common element of pre/posttest evaluation for each TAMI program type, all participants in TAMI programs heard the life stories of 2 to 4 consumers who are living with a mental illness, followed by an interactive question, answer, and discussion period. Participants also have the opportunity to interact directly with consumers after the presentation, and to ask questions they may not have felt comfortable asking in front of the larger group. All speaker presentations are facilitated by a Coalition member, who is a trained professional in the field of mental health, addictions, and/or education. TAMI Coalition members also distribute educational materials to all participants, including a handout with information about how and where to access local assistance for a variety of issues.

Excluding the School Assembly (which uses the one-period time slot to feature the speaker's stories and interactive discussion with a brief presentation on stigma-related issues), the TAMI process for all program types involves a series of structured learning opportunities presented to students and school staff, with a focus on creating enhanced understanding of the many issues associated with mental health and illness, and associated stigma. The 5-day In-Class program does this through a 50-minute introductory presentation from a TAMI Coalition member, distribution of education materials and participation in an interactive anti-stigma activity on Day 1. The teacher then delivers a factual curriculum for the rest of the first day and following 2 days (Day 2 and 3), following CAMH's Teacher Resource Manual (2001). This manual recommends program components for days 1 to 3, to prepare students for the speaker presentation on day 4. Topics include: "Stigma: What is it? How does it affect people's lives?," and "What is mental illness?". Since January, 2006, teachers have been given additional support with curriculum delivery from the Durham TAMI Coalition through the development of a Teacher Facilitation Guide and detailed, daily activity outline for teachers; and development and provision of a corresponding Student Learning Guide for all students (except School Assembly participants). On Day 4, students listened to the speaker presentations followed by a question, answer, and interactive discussion period. Teachers are encouraged to have students prepare questions throughout the week that they would be curious to ask someone living with a mental illness. The question and answer periods run from 10 to 25 minutes. On Day 5, teachers work on debriefing and follow-up activities. When teachers within a school collaborate in order to bring the TAMI program to their school, all elements of the program remain the same except that each separate class is brought together on Day 4 for the speaker presentation. Attendance numbers for the day 4 speaker presentation averages 35 students (with a range between 8 and 70 students). A variation of the 5-day In-Class program was piloted in May, 2007, in which 14 classrooms representing the entire grade 11 class at a local high school experienced the 5-day program simultaneously throughout the week. All elements remained similar except for the speaker presentation, in which the entire grade 11 class was brought together resulting in 300 students present instead of the usual 70 student maximum.

The Summit Conference and Professional Development workshop are similar in that they are held at Whitby Mental Health Centre. Structured, interactive learning opportunities were offered to Professional Development workshop participants through a PowerPoint presentation on mental health issues amongst youth, a presentation on self-harm, 2 speaker stories followed by a question, answer, and discussion period, an interactive activity focused on what challenges teachers face and how to deal with these challenges, and a history

"This experience has been wonderful. I have seen such a positive change with the students and their outlook on mental illness. Equally important, is that I have learnt a lot and can begin to pass on a positive message about mental illness to my students."

Teacher participant, 2005

of the TAMI program and Durham Coalition.

The full-day Stomping Out Stigma (S.O.S.) Summit Conference was attended by 1 to 2 school staff and 3 to 4 student representatives from 30 different regional high schools. Education and interactive opportunities were offered through large group PowerPoint and multi-media presentations, including the sharing of what students and staff had collaboratively produced throughout their 3 S.O.S. “breakout” sessions. Breakout groups ranged from 20 to 30 people from a variety of schools. The session topics were: What is Mental Illness? Understanding Stigma, Current Stressors and Coping Skills, and Instruction on how to use TAMI’s Student Action Guide (developed by the Coalition specifically for Summit participants), to assist in developing and running anti-stigma and mental illness awareness campaigns at students’ respective schools. Participants heard the life stories of 4 consumer survivors throughout the day, followed by an interactive question, answer, and discussion period after the last speaker.

Results

Pre and posttest (labeled as the variable “time”) evaluation was divided into 3 categories: Knowledge (pre and post questions A1 to A8), Supportive attitude (pre and post questions B1 to B15), and Stigmatizing attitude (pre and post questions B6 to B10). See Table 2 for percentage changes based on pre and posttest mean scores calculated for each program type (control group included and the In-Class Pilot for all grade 11’s as separate from the regular In-Class program) and t-tests examining the significance of change. For the Stigmatizing attitude category, a decrease in mean response between pre and posttest corresponds with positive changes in attitude. Several significant changes were revealed. All program types except the control group showed significant gains in knowledge at the level of $p < 0.001$. Supportive attitude improved significantly on at least 4 out of 5 questions, for all program types except the School Assembly and control group. Fewer questions regarding stigmatizing attitude showed significant change between pre and posttests. However, the In-Class program, In-Class Pilot, and Summit Conference showed significant changes on 5, 3, and 4 questions respectively. Percentage changes in knowledge gain and attitude improvement for each program type are visually represented in Figure 1. Further t-tests were conducted to look at gender differences at baseline, then at posttest (see Appendix A). Gender differences were most prominent for the In-Class program and School Assembly (for knowledge, supportive attitude, and stigmatizing attitude),

“I liked the presentations most. My Aunt has schizophrenia and her parents rejected her for it. I’m glad that I can fight their influence with my new knowledge of the illness, and love my Aunt as she is.”

Male Student, grade 11

where females scores were higher than males at both pre and posttest, across all 3 variables. The Summit conference and In-Class pilot showed significant gender difference on at least one variable of program type, knowledge, or attitude, with the same pattern of females scoring higher at pre and post test, except for the Summit pretest, in which males’ knowledge was significantly higher than females. Refer to Appendix A for a detailed breakdown of means, standard deviations, pre/ posttest and gender difference t-tests (at pre and post), for each program type (students and adults listed separately). Appendix B provides a similar breakdown of data, comparing pre/ posttest, gender, and grades 9 to 12, for participants in the School Assembly.

Table 2. Percentage Changes Between Pretest and Posttest for All Participants in Each Program Type

Pre/Post Test Question:	In-Class: 5 Day Program	In-Class Pilot (All Gr. 11s)	Summit (students & adults)	Student Assembly	Staff Workshop	Control Group
Section A: Indicate how much you feel you know about the following:	N= 814	N=175	N=98	N=343	N=61	N=102
A1. mental illness in general	24.3% ***	18.2% ***	22.5% ***	8.7% ***	12.9% ***	1.1%
A2: how people cope with mental illness	37.7% ***	30.9% ***	35.4% ***	17.4% ***	19.4% ***	2.0%
A3: different approaches to help persons with mental illness	36.8% ***	24.0% ***	38.1% ***	16.1% ***	23.0% ***	3.4%
A4: what it is like to have a mental illness	56.6% ***	32.0% ***	58.0% ***	22.8% ***	40.4% ***	-0.6%
A5: what it is like to have a family member with a mental illness	28.5% ***	21.4% ***	27.0% ***	9.7% ***	24.6% ***	2.0%
A6: the causes of different forms of mental illness	39.4% ***	25.8% ***	34.2% ***	14.0% ***	14.9% ***	-9.2% *
A7: how to recognize signs of mental illness	35.1% ***	22.6% ***	26.4% ***	12.6% ***	20.7% ***	-2.0%
A8: different training and career paths mental health workers have	46.3% ***	24.6% ***	22.3% ***	27.5% ***	19.4% ***	5.6%
knowledge score: total % change	38.1% ***	24.7% ***	32.4% ***	15.6% ***	21.4% ***	0.3%
Section B: indicate how much you agree or disagree with the following statements:						
B1: Most people with a serious mental illness can, with proper treatment, get well and return to productive lives.	17.9% ***	13.5% ***	18.4% ***	10.8% ***	10.6% ***	1.5%
B2: In most cases, keeping up a normal life in the community helps a person with mental illness get better.	11.1% ***	6.4% **	16.0% ***	3.8% **	3.2%	0.3%
B3: People with mental illness are far less of a danger than most people believe.	16.2% ***	14.2% ***	15.0% ***	5.2% **	7.0% *	10.3% ***
B4: Locating a group home or apts. for people with mental illness in residential neighborhoods does not endanger local residents.	12.3% ***	5.7% **	11.9% ***	5.2% **	2.9%	6.5% *
B5: Locating a group home or apts. for people with mental illness in a residential neighborhood will not lower the value of surrounding homes.	7.9% ***	-0.4%	5.0%	3.1%	6.6%	0.7%
supportive attitude score: total % change	13.1% ***	7.8% ***	13.3% ***	5.6% ***	6.0% ***	3.8% *
B6: People with mental illness are, by far, more dangerous than the general population.	-11.6% **	-4.5%	-20.3% ***	-4.9% *	-1.5%	-6.8%
B7: Mental Health facilities should be kept out of residential neighbourhoods.	-7.1% ***	-8.0 **	-10.6% *	-0.9%	-1.5%	-2.3%
B8: Even if they seem OK, people with mental illness always have the potential to commit violent acts.	-6.9% ***	-6.7% **	-12.5% ***	-1.5%	-1.0%	0.8%
B9: It is easy to recognize someone who once had a serious mental illness.	-6.1% ***	-8.3% **	-9.7% *	-8.3% ***	-8.8% *	5.4%
B10: The best way to handle people with mental illness is to keep them behind locked doors.	-3.6% *	3.6%	-4.2%	-2.6%	-11.0%	-2.2%
stigmatizing attitude score (note: negative percentage change reflects positive attitude change): total % change	-7.0% ***	-5.5% **	-12.0% ***	-3.6% **	-4.2%	-0.9%

*p < 0.05; **p < 0.01; ***p < 0.001.

Knowledge Gain and Attitude Improvement

Student Participants:

Three Multivariate Tests of Significance (2 x 2 x 5 mixed factorial ANOVAs) were conducted to examine the potential main effects and interactions between time, gender, and program type for knowledge, supportive attitude, and stigmatizing attitude. Reflecting knowledge gain, Figure 1a. illustrates the significant interaction between time and program [$F(4, 3008) = 38.33, p < 0.001$], and between gender and program [$F(4, 3008) = 7.20, p < 0.001$]. This demonstrates that although all TAMI interventions were correlated with significant gains in knowledge for both males and females, participating in the In-Class model or Summit conference, and being female, corresponded with the highest amount of knowledge gain. There were also main effects for time [$F(1, 3008) = 249.11, p < 0.001$], gender [$F(1, 3008) = 4.62, p < 0.05$], and program [$F(4, 3008) = 39.56, p < 0.001$], all which support the above hypothesis.

See Figure 1b. for the results of the second ANOVA. Supportive attitude showed significant interactions between time and program [$F(4, 3008) = 9.97, p < 0.001$], and between time and gender [$F(1, 3008) = 3.94, p < 0.05$], indicating that despite all TAMI programs correlating with improvements in supportive attitude, participating in the In-Class model or Summit conference and being female, correlated with the highest amount of supportive attitude improvement. However, males also experienced higher improvements in supportive attitude as a

Figure 1 a,b,c. Comparison of Student Participants by Gender and Program Type

Fig. 1a. Knowledge Gain

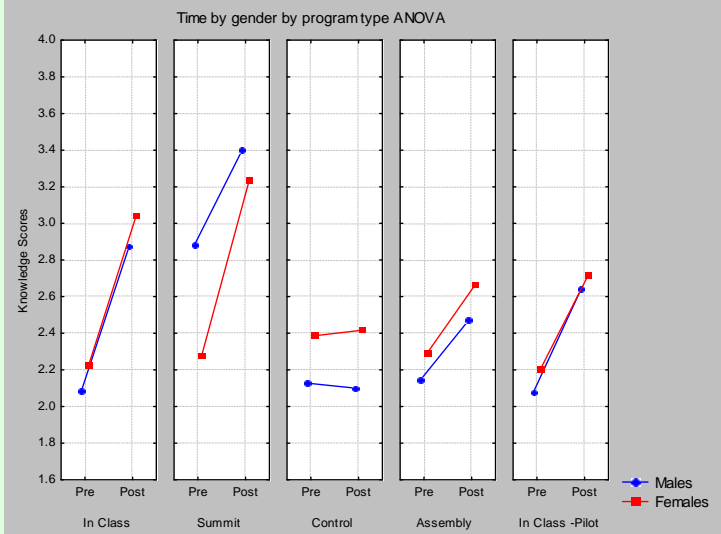


Fig. 1b. Supportive Attitude Change

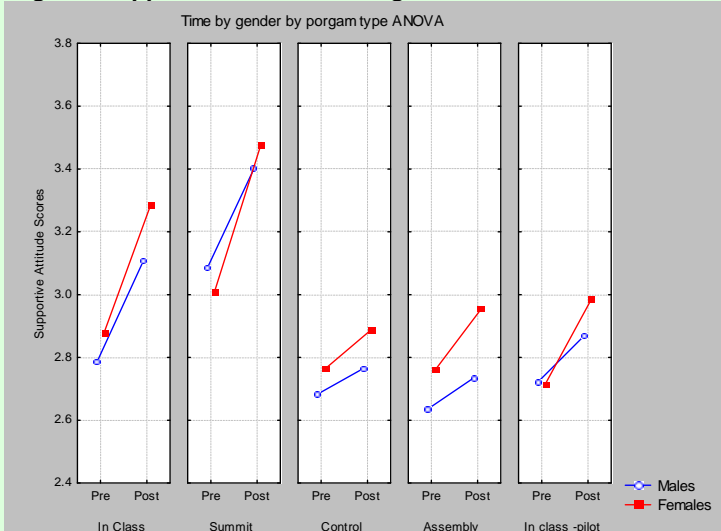
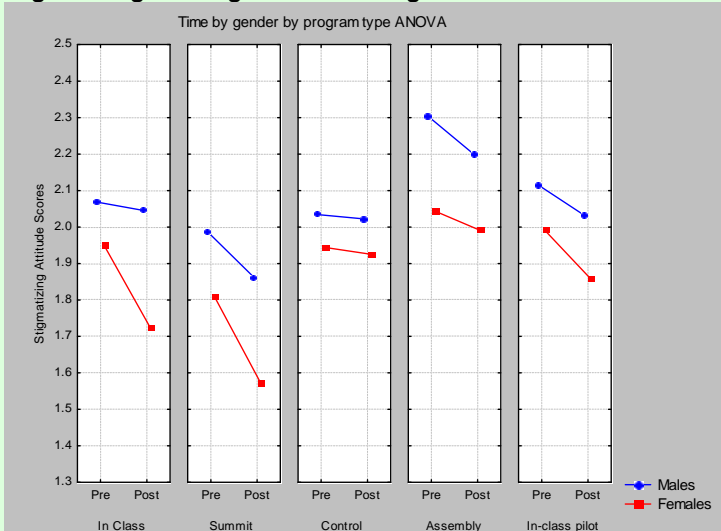


Fig. 1c. Stigmatizing Attitude Change



result of participating in the In-Class or Summit programs. Further support of these findings are shown through main effects for time [$F(1, 3008) = 93.21, p < 0.001$], gender [$F(1, 3008) = 13.12, p < 0.001$], and program [$F(4, 3008) = 58.36, p < 0.001$].

Stigmatizing attitude showed a significant interaction between time, program, and gender [$F(4, 3008) = 2.61, p < 0.05$], revealing that despite some reduction of stigmatizing attitudes between pre and posttest for both males and females, females' attitude scores are more tolerant and improve more than males, especially when experiencing the In-Class or Summit model (see Figure 1c.). Main effects for time [$F(1, 3008) = 15.88, p < 0.001$], gender [$F(1, 3008) = 52.94, p < 0.001$], and program [$F(4, 3008) = 24.47, p < 0.001$], further support this analysis.

School Assembly Participants:

Three Multivariate Tests of Significance (2 x 2 x 4 mixed factorial ANOVAs) were conducted to examine the potential main effects and interactions between time, gender, and grade for knowledge, supportive attitude, and stigmatizing attitude of School Assembly participants. Pre and posttest knowledge scores revealed a significant interaction between gender and grade [$F(3, 670) = 3.40, p < 0.05$], revealing that overall, females' knowledge improved more than males. However, grade 9 males experienced the same amount of knowledge gain as their grade 9 female peers, and grade 11 males gained more knowledge than grade 11 females (please

Figure 2 a,b,c. Comparison of School Assembly Participants by Gender and Grade Level

Fig. 2a. Knowledge Gain

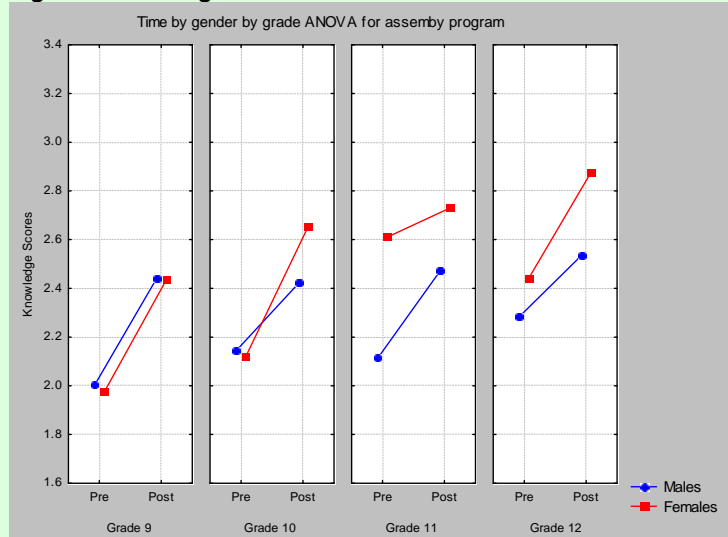


Fig. 2b. Supportive Attitude Change

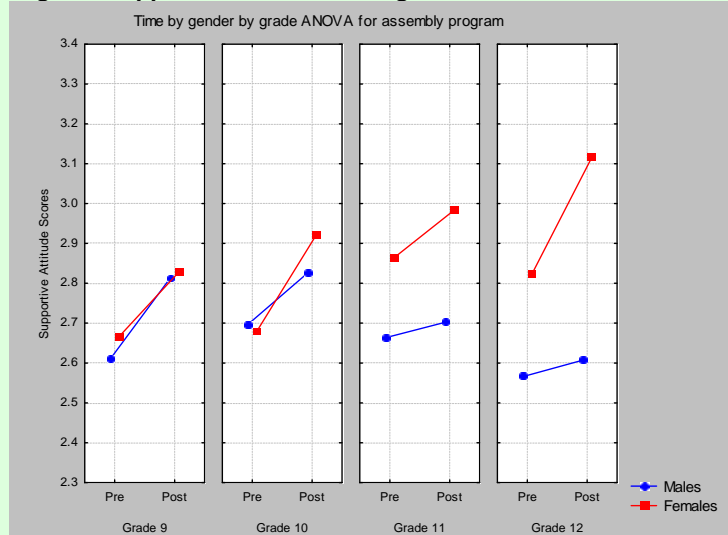
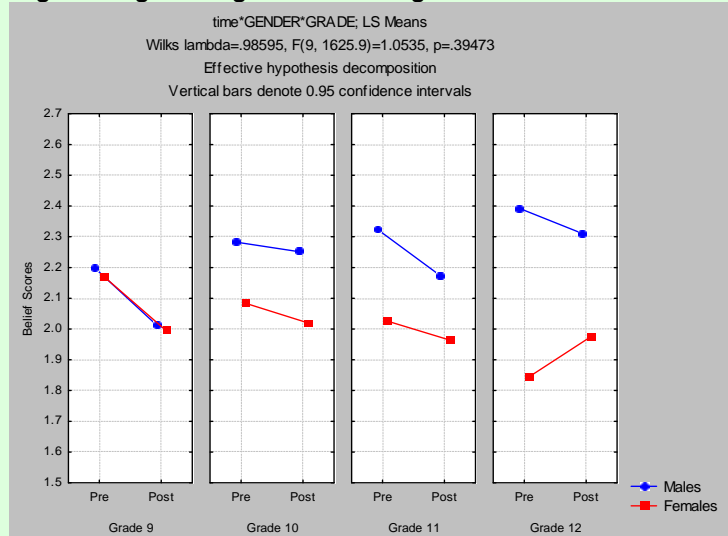


Fig. 2c. Stigmatizing Attitude Change



refer to Figure 2a.). Main effects for time [$F(1, 670) = 57.77, p < 0.001$], gender [$F(1, 670) = 14.10, p < 0.001$], and grade [$F(3, 670) = 8.85, p < 0.001$] also support these findings.

Figure 2b. illustrates that when supportive attitude was examined there was a significant interaction between gender and grade [$F(3, 670) = 4.78, p < 0.01$], revealing that despite supportive attitude improving slightly for all grades with only modest gender differences for grades 9 and 10, females have significantly higher pre and posttest supportive attitudes in grades 11 and 12 than do males, and grade 12 females show greater improvements in supportive attitude than all other sub-groups. Further support for this analysis is shown through main effects for time [$F(1, 670) = 16.71, p < 0.001$] and gender [$F(1, 670) = 21.64, p < 0.001$].

When stigmatizing attitude was explored there was a significant interaction between gender and grade [$F(3, 670) = 4.68, p < 0.01$], with main effects for time [$F(1, 670) = 4.27, p < 0.01$] and gender [$F(1, 670) = 39.39, p < 0.001$], revealing that although males and females had the same pre and posttest scores and experienced the same amount of reduction in stigmatizing attitudes in grade 9, female attitudes at baseline for all other grades were more tolerant than males. However, males overall had greater reduction of stigmatizing attitudes than females. Please refer to Figure 2c.

Adult Participants: (Refer to Appendix A for a detailed breakdown of means, standard deviations, pre to posttest and gender difference t-tests for adults participating in the Summit conference and Staff Workshop)

Three Multivariate Tests of Significance ($2 \times 2 \times 2$ mixed factorial ANOVAs) were conducted to examine the potential main effects and interactions between time, gender, and program type on variables of knowledge, supportive attitude, and stigmatizing attitude. There was a significant interaction between gender and program for knowledge

[$F(1, 148) = 5.80, p < 0.05$], with main effects for time [$F(1, 148) = 22.88, p < 0.001$], gender [$F(1, 148) = 17.91, p < 0.001$], and program [$F(1, 148) = 12.55, p < 0.001$]. This analysis revealed that although the Summit conference and Staff Workshop were both correlated with positive gains in mental health literacy, participating in the Summit and being female correlated with the highest amount of knowledge gain.

"I don't think it's acceptable that we are not made aware of an individual's 'severe problem.'" - (Severe distress for a variety of reasons, not just mental illness) - "BUT, are often required to pick up on signs and provide help. If we did know we could offer compassion and help more."

Teacher participant in Professional Development Workshop, 2006

Supportive attitude showed significant main effects for time [$F(1, 148) = 7.59, p < 0.01$] and program [$F(1, 148) = 38.06, p < 0.001$], showing us that for both program types, although improvements in supportive attitude were found, participating in the Summit had a higher correlation with attitude improvement.

Stigmatizing attitude showed a significant main effect for program [$F(1, 148) = 15.16, p < 0.001$], indicating that the Summit had a stronger influence over the reduction of stigmatizing attitudes than the Staff Workshop.

Tests for Predictors of Knowledge Gain and Attitude Improvement in Students

Three standard multiple regressions were computed in order to examine the ability of gender, program type, group size (at the speaker presentation), and number of days between speaker presentation and posttest, to predict knowledge gain, supportive attitude, and reduction of stigmatizing attitude for all students participating in TAMI programs. The unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semi partial correlations (sr^2), and R , R^2 , and adjusted R^2 for the 3 regressions are presented in Appendix C.

A significant overall relationship was found between the 4 variables and knowledge, supportive attitude, stigmatizing attitude ($F(4, 1407) = 39.27, p < 0.001$), ($F(4, 1407) = 44.78, p < 0.001$), ($F(4, 1407) = 36.49, p < 0.001$), with 35%, 35%, and 36% of the variance explained by the 4 variables. Gender and program type were found to be significant predictors of knowledge gain ($\beta = 0.15, t = 5.72, p < 0.001$, and $\beta = -0.42, t = -4.91, p < 0.001$ respectively), revealing that being female and attending the In-Class program or Summit Conference predicted higher gains in knowledge. Please refer to Figure 3a.

Figure 3b. illustrates that gender, program type, and the number of days between pre and posttest were found to be significant predictors of supportive attitude change ($\beta = 0.19, t = 7.34, p < 0.001$, $\beta = -0.32, t = -3.70, p < 0.001$, and $\beta = -0.06, t = -2.03, p < 0.05$ respectively). Similar to knowledge, being female and attending the In-Class program or Summit Conference predicted more improvement in supportive attitude, however, the fewer number of days between pre and posttest also predicted this improvement. Gender was also a significant predictor of stigmatizing attitude change ($\beta = -0.28, t = -10.86, p < 0.001$), showing that being female predicted stronger improvements in stigmatizing attitude. See Figure 3c.

Figure 3 a,b,c. Influences on Predicting Knowledge and Attitude Change for ALL Student Participants

Fig. 3a. Predictors of Knowledge Gain

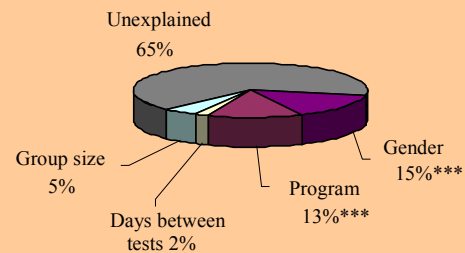


Fig. 3b. Predictors of Supportive Attitude Change

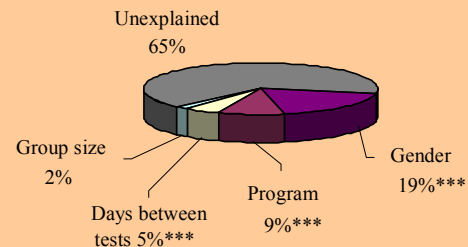
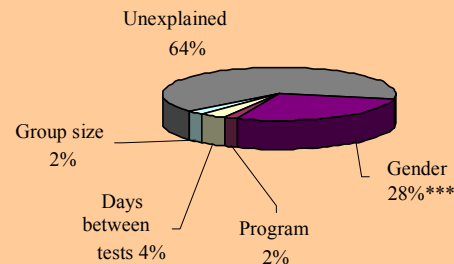


Fig. 3c. Predictors of Stigmatizing Attitude Change



Posttest Section C: Analysis of Personal Growth Experienced

The posttest includes 2 additional sections from the pretest. Section C is comprised of 10 questions, 5 of which represent participants' reflections of personal growth they have experienced due to the TAMI intervention (questions: C2, C6, C7, C8, C9), and 5 questions regarding program feedback (questions: C1, C3, C4, C5, C10). For a breakdown of section C questions (categorized as personal growth and program feedback), means, standard deviations, and gender difference t-tests, please refer to Table 3a. and 3b.

Table 3a. Posttest Section C Questions Categorized by: Personal Growth Experienced and Program Feedback

Personal Growth Experienced					
C2: I learned a lot from the presentations					
C6: I learned some new information about mental illness					
C7: I feel better about my ability to talk with someone with mental illness					
C8: I feel that I know more about the emotions experienced by someone who has a mental illness					
C9: In the future, I will feel more comfortable when I meet people with mental illness					
Program Feedback					
C1: The classroom activities and presentations held my attention					
C3: The presentations are a good way to learn about mental illness					
C4: It is valuable for students to be able to ask presenters questions					
C5: The experience of the presentation was relevant to people my age					
C10: I would recommend this program to a friend who hasn't participated in it					
Table 3b. Comparisons Between Program Type and Gender for Posttest Section C Questions					
Grade Level	Males		Females		Gender differences t-value
	Mean	(SD)	Mean	(SD)	
Students					
In-Class					
N = 814					
Personal growth experienced ^a	3.18	(0.49)	3.42	(0.42)	-7.27 ***
Program feedback ^b	3.22	(0.52)	3.48	(0.40)	-8.05 ***
In-Class Pilot					
N = 175					
Personal growth experienced ^a	2.91	(0.56)	3.16	(0.48)	-3.27 ***
Program feedback ^b	2.91	(0.56)	3.22	(0.49)	-3.92 ***
Summit Conference					
N = 80					
Personal growth experienced ^a	3.28	(0.70)	3.57	(0.37)	-2.34 *
Program feedback ^b	3.55	(0.45)	3.65	(0.32)	-1.10
School Assembly					
N = 343					
Personal growth experienced ^a	2.72	(0.57)	3.04	(0.45)	-5.80 ***
Program feedback ^b	2.81	(0.56)	3.17	(0.43)	-6.69 ***
Adults					
Summit Conference					
N = 18					
Personal growth experienced ^a	3.63	(0.41)	3.60	(0.46)	0.12
Program feedback ^b	3.60	(0.38)	3.89	(0.21)	-2.09
Staff Workshop					
N = 61					
Personal growth experienced ^a	3.30	(0.40)	3.29	(0.48)	0.08
Program feedback ^b	3.45	(0.36)	3.43	(0.39)	0.17

^a knowledge=pre/posttest questions A1-A8

^b supportive attitude=pre/posttest questions B1-B5

^c stigmatizing attitude=pre/posttest questions B6-B10

*p < 0.05; **p < 0.01; ***p < 0.001.

A (2 x 2 between-subjects ANOVA) was conducted to test for correlations between gender, program type, and post C scores reflecting personal growth experienced. There were significant main effects for both gender [$F(1, 1402) = 55.37, p < 0.001$] and program type [$F(4, 1402) = 54.72, p < 0.001$], revealing that the Summit conference, the In-Class program, and being female, had the strongest correlations to student opinions of personal growth they experienced as a result of the TAMI intervention.

In a similar ANOVA computed for adults, there was a main effect for program type [$F(1, 74) = 6.76, p < 0.05$], showing that the Summit had a much stronger relationship than the staff workshop to participants' reflections of personal growth experienced.

Figure 4a,b. Participant Responses to What They Liked Most About the TAMI Program and Further Suggestions

Fig. 4a. What TAMI Participants Liked Most

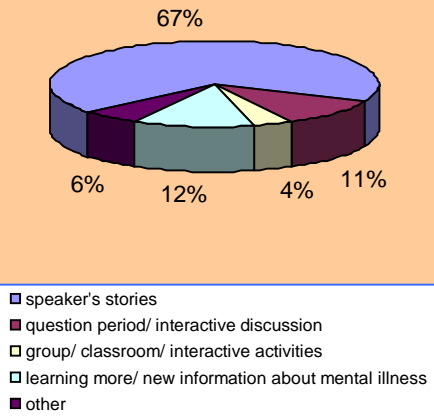
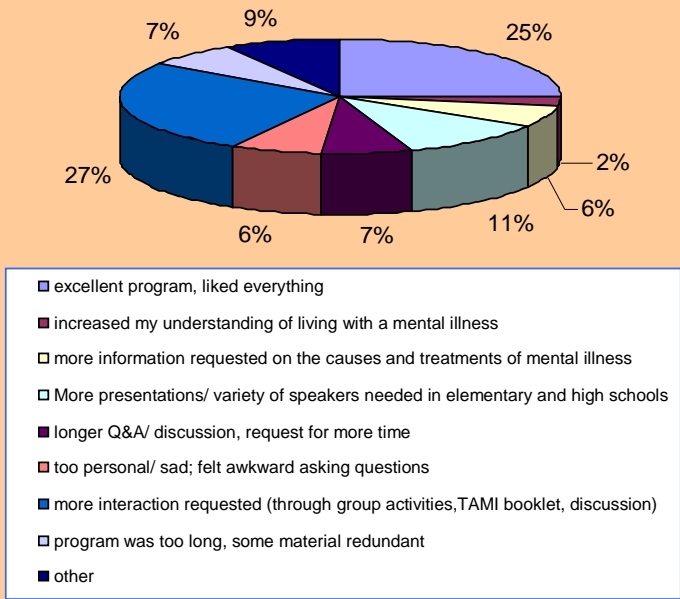


Fig. 4b. Further Comments and Suggestions



Qualitative Feedback from Participants in TAMI programs

The second additional section is listed as Section D, and is comprised of 3 statements requesting a written response from participants. D1: What I liked most about the program was, D2: What I liked least about the program was, and D3: If you have any further comments about the program or would like to make suggestions for the improvement of the program, please add them below. Due to the overlap of similar responses, D2 and D3 were combined for analysis. Section D qualitative statements (D1 and D2/ D3 combined), were evaluated by calculating the percentage of total responses for each category of statements. Due to the high rate of missing responses (D1=8.9%, D2/ D3=46.7%), percentages were calculated based on the total number of actual responses given. Please refer to figure 4 for a visual representation and percentage breakdown of the most frequent responses given. Quotes throughout this report also reflect responses given by students and staff for sections D1, D2, and D3.

Discussion

Results from the present study provide strong evidence that Durham Region's Talking About Mental Illness (TAMI) programs are effective strategies for increasing knowledge about mental illness and improving attitudes towards those living with mental health issues, for both high school students (male and female) and school personnel. There is also some indication of improved help-seeking behaviour for current or potential mental health issues. Of particular interest, the In-Class (5-day) program and Summit conference model (for students and school personnel, males and females) led to the greatest increase in knowledge and attitude improvement. The Summit conference has the extra benefit of being located at a mental health facility, Whitby Mental Health Centre (WMHC). Research has shown that even a brief visit to a mental health facility can improve attitudes beyond classroom education (Wallach, 2004; Watson, Miller, & Lyons, 2005). Although the staff workshop was also held at WMHC, adults still gained more knowledge and attitude change from the Summit conference. It appears that the combination of being held at a mental health facility, hearing 4 versus 2 speakers' stories (with consumers facilitating and interacting with participants throughout the day), and providing a wider variety of experiential learning opportunities, contributes to the Summit's greater success.

Both the In-Class and Summit models offer interactive learning experiences, including an activity which through role-play puts a person in the role of someone living with schizophrenia. Role play and experiential learning has been shown to be more influential and memorable over time for participants in anti-stigma programs (Pinfold et al., 2005). An additional benefit is that participants in the In-Class and Summit models hear the life stories of 3 (In-Class) and 4 (Summit) consumers, whereas other program participants only hear 2, and as reported in the introduction, evidence shows that personal contact is the most powerful ingredient for changing attitudes towards mental health. Further evidence for the effectiveness of real-life stories and interaction, is the positive increase in knowledge and attitude experienced by School Assembly participants, who did not receive educational curriculum. However, all program types in addition to consumer stories, incorporate other strategies found to have a positive influence on knowledge and attitude change, including: an interactive discussion about stigma, the distribution of educational hand-outs, and facilitation by a trained professional (Drolen, 1993).

The In-Class pilot of grade 11 students was not as effective as the regular In-Class sessions despite the same 5-day format being followed. There are a few possibilities as to why this discrepancy exists. First, teachers who regularly run the In-Class program teach related subjects, run the program on a volunteer basis, and have a particular interest in mental health issues. All grade 11 teachers for the In-Class pilot were instructed to teach the TAMI curriculum, regardless of the course they were teaching (eg. science, math, etc.), and may not have been as thorough with or committed to teaching the material. As well, group sizes for the In-Class presentation have ranged from 8 to 70 students (with an average

*“The success of the program
culminated when TAMI proudly
accepted the 2007 Minister’s
Innovation Award for Innovations
in Health Promotion.”*

**WHITBY MENTAL HEALTH CENTRE,
ANNUAL REPORT, 2007 (IN REFERENCE
TO THE DURHAM TAMI COALITION’S
SUMMIT CONFERENCE MODEL)**



of 35 students), whereas all grade 11s (300) were gathered together for the speaker presentation. This may have impacted the intimacy level, quality of questions, and related discussions. More so than other programs, many students experiencing the pilot and School Assembly (also groups of 300 students), reported feeling awkward and forced to ask questions. The Coalition plans to take this into consideration when planning large-scale presentations in the future.

Across all variables of knowledge, supportive attitude, and stigmatizing attitude, females' scores were similar, if not higher than males at baseline, and for the majority, gained more knowledge and attitude improvement between pre and posttest. There are a couple of reasons why this pattern has emerged. In general, males have been shown to express more negative attitudes towards mental illness than females (Watson et al., 2005; Sheffield et al., 2004). In addition, females are more open to seeking help than males (Leong & Zachar, 1999). The 2006 report on mental illness in Canada states that: "Societal attitudes encourage stoicism and an illusion of immunity from mental illness. As a result, men may focus on physical symptoms and disregard an underlying mental illness." Interestingly, other studies have shown that it is not necessarily gender, but adherence to masculine gender roles (eg. restricted emotionality in either males or females), that is related to negative attitudes towards help-seeking (Magovcevic, & Addis, 2005). The Coalition will review plans to produce an additional research report focusing on the School Assembly, in order to present a more detailed interpretation of gender and age differences (13 to 18), and how different types of interactive activities/ experiences, could more effectively engage male students and facilitate further reduction of stigmatizing attitudes.

"...young people were more comfortable relating to people with a mental illness. They were more open to social contact and less socially rejecting, making them a potentially important target group for anti-stigma campaigns."

Stuart, H. (2005). Fighting Stigma and Discrimination is Fighting for Mental Health. (In reference to Trute, Teft, & Segall, 1989).

In addition to significant gender differences, the School Assembly model provides a platform to compare students in grades 9 to 12, and their response to a TAMI intervention. Although the same gender pattern emerged as in other program types, additional differences occurred across grades. Females' knowledge scores rose steadily on the posttest with each progressive grade, however, males in all grades ended at the same level of knowledge after experiencing the assembly, revealing that grade 12 males did not have a deeper understanding of mental illness at posttest than their grade 9 peers. Females followed the same pattern of

progressively higher supportive attitude scores for each grade, whereas males' baseline and posttest scores for both supportive and stigmatizing attitude were lower for grades 11 and 12 than grades 9 and 10, implying that attitudes towards mental health had grown more negative with age. Research also supports this trend (Wahl, 2003). Although females had more positive scores on stigmatizing attitudes, there was only slight improvement across grades. Kohlberg's theory of the development of moral reasoning (the ability to see oneself in relation to others) may shed light on why this gender pattern of attitude response occurred. Skoe and Gooden (1993) found that adolescent girls tend to show a care-based morality that involves caring for other people, more so than males. However, despite girls being more advanced in their moral reasoning in early adolescence, by late adolescence and adulthood, these gender differences disappear (Basinger, Gibbs, & Fuller, 1995; Jadack et al., 1995).

A major limitation in existing research is the lack of evidence demonstrating behaviour change as a result of increased knowledge and attitude improvement. Specific questions regarding behaviour change are

not currently asked at pre and posttest. However, there is some indication of potential behaviour change found in the positive responses from both males and females on 2 of the posttest section C questions, which reflect personal growth experienced as a result of participating in a TAMI program. These 2 questions are: “I feel better about my ability to talk with someone with mental illness,” and “In the future, I will feel more comfortable when I meet people with mental illness,” for which mean scores for all students revealed that both males and females generally agreed with these statements. Qualitative comments from students also show the potential for TAMI programs to influence behaviour in positive ways. A grade 11 male told us “What I liked most was the fact that there is someone I know who has a mental illness that I see everyday and I used to not feel comfortable around her. Now, I’m always with her.” A female in grade 9 said “I didn’t see the presentations, but I wish I did. It helped some of my friends and now they talk more openly about depression.” Finally, numerous comments reflected students realizing that they should talk to someone about how they are feeling. For example, “What I like most about the program was being able to learn about how to realize if you should get help and how to notice certain problems. Then I realized that maybe I should talk to someone.” To improve our ability to determine behaviour change, the Coalition plans to review the current tests and in the future, to develop revised pre and posttests.

One further limitation to the current pre and posttests are questions B1 to 6 (reflecting stigmatizing attitudes), in which disagreeing reflects positive attitudes versus agreeing, which is the structure of the rest of the test. Due to the high number of missing answers on these questions, and the fact that many students physically wrote question marks on this section, it appears that this portion of the test may have been confusing. This may also support why there was less change for both males and females on stigmatizing versus supportive attitudes. Again, revision of the current tests will aim to alleviate this issue. In addition, the Coalition plans to create consistency measures for filling out the posttest, in order to examine the effect of time on the maintenance of these positive changes in knowledge and attitudes.

One final, unique element of direct, contact-based anti-stigma programs is the empowering impact that telling one’s story and interacting with program participants, can have on consumers (Wood & Wahl, 2006). The following TAMI speaker testimonial supports this finding, and the Coalition is currently in the process of increasing its speaker base. Speakers for the Durham TAMI Coalition are also represented on the Coalition itself and participate in program development: *“Speaking for TAMI has given me the confidence I need to reach out to students and try to erase the stigma that’s attached to mental illness. The students I talk to have become like a second family. Their well-spoken and intelligent questions have taught me how much they are willing to learn and I’ve become a better person for talking to them. I am very proud to be part of TAMI. I am very thankful to have learned so much from it.” Ivor Vasconcellos, TAMI speaker, 5 years*

Conclusion



As a result of experiencing a Durham TAMI school-based, anti-stigma program, high school students and school personnel show tremendous growth in their overall understanding of mental illness, improved attitudes towards people living with mental health issues, and there is an indication of greater willingness to seek help for current or potential mental health issues. Through a review of similar programs operated internationally, it is evident that Durham TAMI programs possess many of the elements currently shown to be effective for increasing knowledge about mental illness and improving attitudes. These include: A focus on personal contact with consumers who contradict negative stereotypes, education in various forms

(interactive and experiential activities and discussion), facilitation by a trained professional, and for 2 program types, a visit to a mental health facility. Data from the current study will not only serve to show the positive gains that the Coalition has made towards decreasing psychiatric stigma amongst Durham High School students, but will also guide the Coalition in refining and developing new and more effective programs, particularly for males and students in younger grades.

"It was a very rewarding and educating experience that everyone should have a chance to have."

Female student, grade 12

Wood and Wahl (2006) state that " Indeed, it is important to expand awareness of and put to use those anti-stigma programs that have been empirically validated so that limited resources may be used wisely." Although the TAMI Coalition has further research to conduct in order to validate its educational model, the success of all current elements of the program and Coalition, indicate that TAMI is already successful in fulfilling its mission. This indicates that the TAMI program has the potential to serve as a model for implementing successful anti-stigma mental health education programs, far beyond the borders of Durham Region.

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Appendix A.

Table 4. Comparisons Between Gender, Program Type, and pre/posttest for All Student Participants in TAMI Programs

Grade Level	Males				Females				Pre/post differences t-value	Gender differences	
	pre Mean	post (SD)	Mean	(SD)	pre Mean	post (SD)	Mean	(SD)		pre t-value	post t-value
Students											
In-Class		N = 327				N = 486					
Knowledge ^a	2.08	(0.53)	2.87	(-0.56)	2.22	(0.56)	3.04	(0.50)	-39.84 ***	-3.53***	-4.54***
Supportive attitude ^b	2.79	(0.41)	3.11	(-0.50)	2.88	(0.39)	3.28	(0.45)	-22.71 ***	-3.19***	-5.24***
Stigmatizing attitude ^c	2.07	(0.44)	2.05	(-0.56)	1.95	(0.41)	1.72	(0.43)	8.95 ***	3.92 ***	9.23 ***
In-Class Pilot		N = 76				N = 99					
Knowledge ^a	2.08	(0.46)	2.64	(-0.56)	2.20	(0.48)	2.72	(0.49)	-12.75 ***	-1.75	-0.96
Supportive attitude ^b	2.72	(0.40)	2.87	(-0.50)	2.71	(0.36)	2.98	(0.47)	-6.59 ***	0.15	-1.56
Stigmatizing attitude ^c	2.12	(0.35)	2.03	(-0.54)	1.99	(0.45)	1.86	(0.49)	3.07 **	1.98 *	2.27 *
Summit		N = 16				N = 64					
Knowledge ^a	2.88	(0.44)	3.40	(0.43)	2.27	(0.47)	3.23	(0.36)	-14.38 ***	4.68 ***	1.59
Supportive attitude ^b	3.09	(0.59)	3.40	(0.54)	3.01	(0.45)	3.48	(0.48)	-8.75 ***	0.59	-0.54
Stigmatizing attitude ^c	1.99	(0.51)	1.86	(0.55)	1.81	(0.35)	1.57	(0.38)	4.84 ***	1.65	2.46 *
School Assembly		N = 154				N = 189					
Knowledge ^a	2.14	-0.63	2.47	(0.62)	2.30	(0.63)	2.67	(0.59)	-10.50 ***	-2.21 *	-3.01 **
Supportive attitude ^b	2.64	-0.47	2.74	(0.51)	2.76	(0.46)	2.95	(0.50)	-6.06 ***	-2.44 *	-3.97***
Stigmatizing attitude ^c	2.30	-0.5	2.20	(0.52)	2.04	(0.45)	1.99	(0.45)	3.19 **	5.03 ***	3.98 ***
Control Group		N = 47				N = 55					
Knowledge ^a	2.13	(0.61)	2.10	(0.57)	2.39	(0.51)	2.42	(0.49)	-0.11	-2.33 *	-3.01 **
Supportive attitude ^b	2.68	(0.35)	2.77	(0.39)	2.76	(0.42)	2.89	(0.41)	-3.14 **	-1.03	-1.53
Stigmatizing attitude ^c	2.03	(0.44)	2.02	(0.40)	1.94	(0.40)	1.93	(0.36)	0.48	1.08	1.28
Adults											
Staff Workshop		N = 21				N = 39					
Knowledge ^a	2.20	(0.56)	2.83	(0.43)	2.51	(0.70)	2.93	(0.57)	-7.66 ***	-1.74	-0.72
Supportive attitude ^b	2.93	(0.42)	3.13	(0.44)	2.96	(0.47)	3.12	(0.41)	-3.79 ***	-0.28	0.08
Stigmatizing attitude ^c	1.94	(0.44)	1.94	(0.67)	1.84	(0.45)	1.72	(0.43)	1.24	0.81	1.54
Summit		N = 7				N = 11					
Knowledge ^a	2.25	(0.43)	3.04	(0.33)	3.23	(0.67)	3.56	(0.39)	-4.54 ***	-3.41 **	-2.91 **
Supportive attitude ^b	3.49	(0.43)	3.77	(0.37)	3.33	(0.41)	3.61	(0.34)	-4.86 ***	0.78	0.95
Stigmatizing attitude ^c	1.53	(0.39)	1.31	(0.41)	1.69	(0.30)	1.49	(0.35)	2.16 *	-0.96	-0.96

^a knowledge=pre/posttest questions A1-A8^b supportive attitude=pre/posttest questions B1-B5^c stigmatizing attitude=pre/posttest questions B6-B10

*p < 0.05; **p < 0.01; ***p < 0.001.

Appendix B.

Table 5. Comparisons Between Gender, Grade Level and pre/posttest for the School Assembly

Grade Level	Males				Females				Pre/post differences t-value	Gender differences	
	pre Mean	(SD)	post Mean	(SD)	pre Mean	(SD)	post Mean	(SD)		pre t-value	post t-value
Grade 9	N = 32				N = 41						
Knowledge ^a	2.00	(0.65)	2.44	(0.63)	1.97	(0.45)	2.43	(0.51)	-6.01 ***	0.24	0.07
Supportive attitude ^b	2.61	(0.53)	2.81	(0.67)	2.67	(0.33)	2.83	(0.43)	-3.18 **	-0.56	-0.12
Stigmatizing attitude ^c	2.20	(0.53)	2.01	(0.49)	2.17	(0.34)	2.00	(0.30)	3.14 **	0.28	0.19
Grade 10	N = 44				N = 57						
Knowledge ^a	2.14	(0.61)	2.42	(0.62)	2.12	(0.52)	2.65	(0.57)	-7.98 ***	0.23	-1.93
Supportive attitude ^b	2.70	(0.41)	2.83	(0.46)	2.68	(0.46)	2.92	(0.52)	-4.79 ***	0.19	-0.97
Stigmatizing attitude ^c	2.28	(0.54)	2.25	(0.48)	2.08	(0.50)	2.02	(0.50)	1.13	1.92	2.35 *
Grade 11	N = 38				N = 59						
Knowledge ^a	2.11	(0.67)	2.47	(0.61)	2.61	(0.69)	2.73	(0.60)	-3.27 **	-3.48 ***	-2.06 *
Supportive attitude ^b	2.66	(0.46)	2.70	(0.54)	2.86	(0.54)	2.98	(0.54)	-1.67	-1.90	-2.49 *
Stigmatizing attitude ^c	2.32	(0.38)	2.17	(0.42)	2.03	(0.48)	1.96	(0.49)	2.48 *	3.22 **	2.17 *
Grade 12	N = 40				N = 32						
Knowledge ^a	2.28	(0.58)	2.54	(0.65)	2.44	(0.61)	2.88	(0.64)	-4.34 ***	-1.12	-2.21 *
Supportive attitude ^b	2.57	(0.49)	2.61	(0.37)	2.82	(0.40)	3.12	(0.42)	-2.86 **	-2.41 *	-5.41 ***
Stigmatizing attitude ^c	2.39	(0.53)	2.31	(0.62)	1.84	(0.39)	1.98	(0.48)	-0.23	4.85 ***	2.53 *

^a knowledge=pre/posttest questions A1-A8

^b supportive attitude=pre/posttest questions B1-B5

^c stigmatizing attitude=pre/posttest questions B6-B10

*p < 0.05; **p < 0.01; ***p < 0.001.

Appendix C.

Table 6. Summary of Multiple Regressions for Student Participant Posttests in all Program Types

Knowledge				
Variable	B	β	Semi Part r	sr ²
Gender	0.17	0.15	0.15	0.02 *
Program	-0.09	-0.42	-0.12	0.01 *
Days between tests	-0.01	-0.02	-0.02	0.00
Group size for Speaker Presentation	0.19	0.17	0.05	0.00
				Intercept = 2.64
				R ² = 0.10
				Adj R ² = 0.10
				R = 0.32
Supportive Attitude				
Variable	B	β	Semi Part r	sr ²
Gender	0.20	0.19	0.19	0.08 *
Program	-0.06	-0.32	-0.10	0.01 *
Days between tests	-0.02	-0.06	-0.05	0.00 *
Group size for Speaker Presentation	0.06	0.05	-0.02	0.00
				Intercept = 2.99
				R ² = 0.11
				Adj R ² = 0.11
				R = 0.34
Stigmatizing Attitude				
Variable	B	β	Semi Part r	sr ²
Gender	-0.29	-0.28	-0.28	0.08 *
Program	0.01	0.05	0.02	0.00
Days between tests	0.01	0.04	0.04	0.00
Group size for Speaker Presentation	0.07	0.07	0.02	0.00
				Intercept = 2.18
				R ² = 0.09
				Adj R ² = 0.09
				R = 0.31

*p < 0.001.