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Quantitative analysis of the *Mental Illness and Addictions: Understanding the Impact of Stigma* program

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SUMMARY

The *Mental Illness and Addictions: Understanding the Impact of Stigma* program aimed at healthcare providers showed positive changes when comparing attitudes and knowledge before and after the program when looking at individual questions. Some of these changes were not maintained at three months follow-up, although levels stayed higher than pre-survey levels. However, when analyzing subscales, three of the four subscales maintained the significant positive difference they reached in the post survey. To maintain all positive changes, there is a need for further training or “booster” sessions, more phases of anti-stigma training, as well as replication of the program in other settings. Limitations of the study included a high loss to follow-up rate, poor representation of males and doctors in the sample, and a small control group. The questionnaire used in the study also requires further validation and the assessment of confounding variables such as age, sex, professional status, education, and personally knowing a person with mental illness should be taken into account with future studies. Since a gold standard program aiming to reduce stigma in healthcare providers does not exist in Canada, the *Mental Illness and Addictions: Understanding the Impact of Stigma* is an ideal starting point for a program which could be revised and refined for national roll-out in the future.



1 INTRODUCTION

Although there is no generally accepted ‘unitary theory’ of stigma (1), the classical definition of stigma is ‘an attribute that is deeply discrediting and that reduces the bearer from a whole and usual person to a tainted, discounted one’ (2). Exhaustive research has gone into defining and conceptualizing stigma as a psychological construct; however, much research needs to be conducted about stigma, its public health implications, and creating an evidence-base of what works to reduce it.

Stigmatizing attitudes and behaviours against people with mental illness occur in many facets of daily life, which include finding housing, employment, and even healthcare (3). A sparsely studied yet significant area is that of stigma and discrimination against people with mental illness by healthcare providers. Attitudes held by healthcare providers, including those who work in and outside of mental health services, could impact patient quality of life (3-5). Research on the attitudes of healthcare providers towards people with mental illness has been conducted; however, few attempts have been made to reduce the stigma with anti-stigma programs in healthcare providers.

One promising practice identified as a way to reduce stigma and discrimination is social contact (6-8). This strategy aims to reduce stigma by providing the opportunity for interpersonal contact between people who have a mental illness and audiences who may be stigmatizing towards them. The success of contact-based anti-stigma interventions has been generally supported throughout studies; however, the type of contact must be appropriate, involving individuals who have achieved a positive level of recovery (7). That is, through sustained contact with people who have mental illness but are recovered or in recovery, the attitudes of healthcare providers and those in training can become more positive. This is also the case when they personally know someone with mental illness, such as a friend. Such information is important because when developing a mental illness-related anti-stigma training program, a key element is the personal contributions of people with lived experience of mental illness (6). Current evidence from research in this field shows that personal stories made by people with lived experience of mental illness result in the most impact (6, 7).

As part of its 10-year mandate, the Mental Health Commission of Canada (MHCC) has embarked on an initiative called Opening Minds to eliminate prejudice and discrimination directed towards people with mental illnesses. One component of the Opening Minds initiative will be to evaluate contact-based educational sessions aimed at healthcare providers/healthcare providers in training. The goal is to identify best practices to reduce the stigma experienced by people with mental illness. A program developed by the Central Local Health Integration Network (LHIN) in Ontario was identified as a potential promising or best practice.

2 HISTORY OF THE PROGRAM

In November 2007, the Central LHIN provided funds for the Mental Health and Addiction Network Education Work Group to develop and deliver an education and awareness strategy targeted to hospital emergency department employees and Ontario Works (OW) and Ontario Disability Support Program (ODSP) staff. The Education Work Group developed a work plan which identified these groups as key target audiences. For the purposes of this study, the focus of the initiative was exclusively on the impact on health service providers. This focus resulted from feedback provided by people with lived experience of mental illness who reported challenges when seeking assistance from OW, ODSP, and hospital emergency departments (ER) (9).

The final curriculum of the *Understanding the Impact of Stigma* workshop was the result of combining the knowledge and resources culled from a number of existing programs, particularly those under the umbrella of the Centre for Addiction and Mental Health (CAMH) and a U.S. Consumer/Survivor advocacy organization called *On Our Own* (<http://www.onourownmd.org/index.html>). In addition, individual contributions and expertise were significant in curriculum development.

Participation of people with lived experience of mental illness was key to the success of the program workshops; however, the workshop was designed so that the focus of the training was not solely on the personal experience of the individual with lived experience, but rather their role was to reinforce the key messages of the workshop outlined below.

3 PURPOSE AND OBJECTIVES

The purpose of this study was to evaluate the Ontario Central LHIN program entitled *Mental Illness and Addictions: Understanding the Impact of Stigma*. The primary objective of the study was to determine whether there was a change in stigma-related attitudes after the program. Secondary objectives included determining whether any positive changes seen at the post-test would be sustained at three months follow-up and whether there would be changes seen at pre, post and follow-up in literacy (knowledge) questions. This study used a non-randomized quasi-experimental design.

4 METHODS

Eight sites within the Ontario Central LHIN were recruited to participate in *Mental Illness and Addictions: Understanding the Impact of Stigma*. These sites were hospitals and community care clinics which included many types of healthcare providers from medical and allied health professions. Those healthcare providers in training were also included.

4.1 Mental Illness and Addictions: Understanding the Impact of Stigma

The control group consisted of a group of mental health professionals who did not receive the intervention. The control group completed the questionnaire before and after a staff meeting which had the same duration of the program (approximately 109 minutes) if they consented to participate in the study. The content of the staff meeting did not pertain to stigma, although the evaluation study of the *Mental Illness and Addictions: Understanding the Impact of Stigma* was described.

Before each training session and control group staff meeting, written consent was obtained from the participants and the baseline questionnaire was completed. The post-test questionnaire was completed immediately after the training/staff meeting. Three month follow-up data was collected online for the intervention group. The evaluation questionnaire used questions both from a pilot questionnaire developed by Opening Minds and the previous evaluation instrument from the Ontario Central LHIN.

The training intervention was approximately 109 minutes in length including a ten minute break. As participants entered the training area, a PowerPoint presentation of famous people who had a diagnosis of a mental illness was shown on a screen. Participants were then asked to read the information sheet pertaining to the evaluation study and, if they consented to participate, sign the consent form. Participants also had an opportunity to ask questions about their participation at this time. Those who consented to participate were then asked to complete the pre-test in five minutes. This was collected and followed by a brief introduction about the program which lasted five minutes.

4.2 Ailment exercise (8 minutes)

The first activity of the program was the Ailment Exercise. This involved asking the participants if they have ever had an earache. They were asked to list the symptoms on a flip chart, which usually included: can't eat, can't sleep, want to stay in bed, hurts inside but cannot be seen. Participants were then asked where they would go for help and how long they would let it go before they sought help. Participants were also asked what would happen if they did not tell anyone. The earache term was then replaced with "psychache" and the symptoms were shown to be similar across both conditions. Participants were then engaged in a discussion around having a psychache and similar questions were asked as those for the earache.

4.3 Myths and facts (5 minutes)

The next activity of the program was a myths and facts exercise, which involved presenting correct information about mental illness. The information was presented in PowerPoint and the topics were those that are assessed by true and false questions. The misinformation many participants may have been given in the past about mental illness was clarified.

4.4 Anti-stigma video (16 minutes)

Excerpts from the “Stigma... in Our Work, in Our Lives” video (10) were shown for 16 minutes. The video featured people with lived experience of mental illness, their family members, and people who work in the fields that support people with mental illness and addictions.

4.5 Small group discussion and review (20 minutes)

Participants were then divided into small groups where they were asked to discuss the following questions and come up with three to five answers:

- Identify an element of stigma in your workplace.
- What are the effects of stigma on people with lived experience of mental illness?
- How could you do things differently?

Key discussion points were recorded on flip-charts and reviewed by the larger group as a whole.

4.6 Story from a person with lived experience (20 minutes)

This part of the program involved a person with lived experience of mental illness sharing their story with the participants. Speakers were selected from a pool of four speakers and trained prior to the program about writing and sharing their story. They highlighted the realities of having a mental illness, how stigma impacted their experience with the healthcare system, and what made a difference to their recovery. Participants were encouraged to ask questions.

4.7 Wrap up (20 minutes)

The end of the program constituted highlighting key messages and disseminating a hand-out entitled Language Matters (11), which discussed stigmatizing and non-stigmatizing words used to describe a person with mental illness.

4.8 Questionnaire

There were 21 questions measured with a 5-point Likert scale pertaining to attitudes towards people with mental illness. Three of these questions were suggested by the Ontario Central LHIN and were considered neutral questions because they did not measure stigma in the respondent. The remaining eighteen questions were suggested by the Mental Health Commission of Canada. What follows is the rationale for using the eighteen questions suggested by the Mental Health Commission of Canada.

Through extensive review of the academic literature on surveys used to measure attitudes towards people with mental illness, a large gap was shown in the area of surveys used to measure the attitudes of healthcare providers. Taking this into consideration, as well as the lack of focus on recovery in existing surveys, a further review of surveys used to assess attitudes towards recovery in healthcare providers was also carried out.

The survey consisted of questions from the Opinions about Mental Illness survey (12) that had previously been used in evaluating other programs as part of Opening Minds. Questions were drawn

from other existing surveys on attitudes towards recovery (13-15), and clinician attitudes towards people with mental illness (16). New questions were also created by the research associate. The survey had themes of 1) Recovery, 2) Social responsibility and the role of healthcare providers/healthcare system, 3) Social Distance, 4) Prejudice/devaluation, and 5) Self-stigma and disclosure. These questions were reviewed by a committee of people with lived experience of mental illness for their feedback. These questions were also reviewed by a stigma expert, psychiatrist, and psychiatric epidemiologist, as well as six members of the MHCC Policy and Research department who participated in interviews about the questions. Each of them was asked to read each question out loud and answer questions about the survey such as what they thought the question was asking, whether there was any ambiguity in how the question was worded, what experiences they were drawing upon to answer the question, whether they could map their answer to the answer choices, and whether they felt pressured to answer the questions in a particular way (in a socially desirable manner). The individual interviews were 30 minutes in length and several of the people were healthcare providers. Cognitive interviewing is used to understand sources of response error in surveys.

The survey also consisted of 14 true/false questions based on literacy or knowledge about mental illness and the stigma of mental illness. These questions were provided by the Ontario Central LHIN. See Appendix A for the questionnaire.

4.9 Data management

Data from the control group and from the intervention groups (groups that received the program) were sent to the Mental Health Commission of Canada headquarters in Calgary by secure mail. These were entered twice by a research assistant and compared for errors. Follow-up data for the control group was collected in hard copy while follow-up data for the intervention groups was collected online using Survey Monkey. All data was kept securely in a locked filing cabinet or password protected when stored on a computer. Online survey data was exported into MS Excel and cleaned.

4.10 Data analysis

All data was analyzed using Stata version 11.0. A Cronbach's alpha was computed and factor analysis of the principal components was also carried out on the 18 attitude questions. Questions with a factor loading of .30 or higher were considered to have a satisfactory correlation with that factor (17). The pre/post scores of the subscales were also compared. The Wilcoxon sign rank test was used to analyze the data pertaining to attitudes for each question. This shows the direction in which participants' attitudes moved; however, it is important to note that if there is an increase or decrease in participants' attitudes, it could also mean that they went from strongly agreeing/agreeing or strongly disagreeing/disagreeing to neither disagreeing nor agreeing, which still shows movement in a favourable direction. The paired t-test was used to analyze subscale scores and the true/false questions. A low score for the attitude scale indicated less stigma. A high score for the true/false questions indicated more knowledge and less stigma. Questions 15, 16, and 17 from the attitude questions were analyzed separately because these questions, whether answered positively or negatively, did not necessarily

translate to the respondent being stigmatizing; rather, they measured stigma in an outside source such as one's colleagues or workplace. All three questions were reversed so that a high score indicated stigma whereas a low score did not. These questions were:

- My workplace is pretty stigma free.
- I believe my colleagues are respectful of people with mental health problems/illnesses.
- I would not hesitate to discuss stigma with a colleague.

The remaining 18 questions were analyzed using the 5-point Likert scale (1 = Strongly disagree, 2 = Disagree, 3 = Neither disagree nor agree, 4 = Agree, and 5 = Agree) and questions 2, 3, 4, 6, 9, 11, 13, 14, 18, 20, and 21 were reversed accordingly. A low score indicated less stigmatizing attitudes, while a high score indicated more stigmatizing attitudes. A Cronbach's alpha was computed for the 18 items measuring respondent stigma and were factor analyzed using factor analysis with varimax rotation. Questions were analyzed for the pre/post samples of the intervention and control groups and the pre/post/follow-up samples of the intervention and control groups so as not to lose important findings from the larger samples.

The 14 true/false questions were coded so that a false answer received a value of 1, whereas a true answer received a value of -1. Answers that were "not sure" received a value of zero. A high score indicated more literacy. Questions 23, 28, 34, and 25 were reversed.

5 RESULTS

Regarding psychometric properties, the Cronbach's alpha for the 18 questions was .73 showing satisfactory internal consistency. Factor analysis showed a four-factor solution with 14/18 questions having a factor loading of .3 or higher.

The program was delivered to 272 participants. Baseline (pre-test) data was collected from n = 202 (74% response rate), and n = 151 completed post-tests (75% response rate). Participants did not always answer every question. The control group consisted of 48 participants and pre and post data were completed by 42 participants (88% response rate). There was 57% loss to follow-up for the intervention group with n = 66 completing follow-up surveys, and a 40% loss to follow-up for the control group with n = 25 completing follow-up surveys. Table 1 shows the demographic characteristics of participants.

The sample that consented to participate in the evaluation was predominantly female, with the majority knowing someone close to them with a mental illness. Most of the respondents were between the ages of 30 to 49 years. In the intervention group, the majority of participants were nurses or other types of healthcare providers, or healthcare workers such as pharmacists, dieticians, x-ray technologists, medical secretaries, and hospital administrative staff. The control group was comprised mainly of social workers.

Table 1. Demographic Characteristics of Intervention and Control Groups

| Demographic variables | Proportion (%) Pre/Post Intervention group (n = 151) | Proportion (%) Pre/Post/Intervention Follow-up group (n = 66) | Proportion (%) Pre/Post Control group (n = 42) | Proportion (%) Pre/Post/Follow- up Control group (n = 25) |
|--|---|--|---|--|
| Sex | | | | |
| Male | 14.6 | 15.2 | 23.8 | 28.0 |
| Female | 85.4 | 84.8 | 76.2 | 72.0 |
| Personal contact with a person who has mental illness | | | | |
| Yes | 70.9 | 78.8 | 83.3 | 84.0 |
| No | 29.1 | 21.2 | 16.7 | 16.0 |
| Age (years) | | | | |
| 18-24 years | 5.3 | 4.5 | 9.5 | 4.0 |
| 25-29 years | 14.6 | 13.6 | 23.8 | 16.0 |
| 30-39 years | 25.2 | 33.3 | 33.3 | 36.0 |
| 40-49 years | 25.2 | 18.1 | 21.4 | 36.0 |
| 50-59 years | 20.7 | 18.1 | 9.6 | 4.0 |
| 60 years and above | 8.1 | 10.6 | 2.4 | 4.0 |
| Ethnicity | | | | |
| White | 63.0 | 65.0 | 46.3 | 44.0 |
| Aboriginal | 0 | 0 | 4.9 | 0 |
| Asian | 14.6 | 12.1 | 9.0 | 8.0 |
| Black | 6.0 | 6.1 | 11.6 | 20.0 |
| Arab/West African | 3.3 | 3.1 | 4.9 | 0 |
| Latin American | 0.7 | 0 | 4.3 | 4.0 |
| South East Asian | 6.0 | 6.1 | 12.0 | 16.0 |
| Other | 6.4 | 7.6 | 7.0 | 8.0 |
| Education | | | | |
| Less than High School | 0.7 | 0 | 0 | 0.00 |
| High School | 4.0 | 3.1 | 4.8 | 0 |
| Non-university | 27.2 | 24.2 | 26.2 | 28.0 |
| Bachelor's Degree | 36.4 | 39.4 | 42.8 | 40.0 |
| Post-grad Degree | 31.7 | 33.3 | 26.2 | 32.0 |
| Professional Status | | | | |
| Doctor | 4.0 | 1.5 | 2.4 | 0 |
| Nurse | 38.0 | 26.0 | 7.1 | 8.0 |
| Occupational Therapist | 4.0 | 6.7 | 0 | 0 |
| Social Worker | 13.3 | 18.8 | 64.3 | 60.0 |
| Psychologist | 0.7 | 1.5 | 0 | 0 |
| Medical Lab Technician | 0.7 | 0 | 0 | 0 |
| Other | 39.3 | 45.5 | 26.2 | 32.0 |

5.1 Neutral questions (Questions that did not measure stigma in the respondent)

For the pre-test/post-test intervention group, results showed a significant difference between participants reporting whether they thought their workplace was stigma free. There was a 34% ($p < .001$) increase in the direction of participants believing their workplace was not free of stigma after the program. There was a 22% ($p = .04$) increase in the direction of participants stating that their colleagues were not respectful to people with mental illness. There was no difference between pre-test and post-test responses as to whether the participant would hesitate to discuss stigma with a colleague. There were no significant differences in these questions in the group with the follow-up results, with the exception that there was a 31% increase in participants who believed that their colleagues were more respectful with people who have mental illness compared to post-test ($p = .03$). Regarding the neutral questions in the control group, there were no changes before and after the staff meeting or after the staff meeting at follow-up.

5.2 Attitudes

5.2.1 Pre-test and post-test of the intervention group

For the subscale analysis, there were significant differences shown in the mental illness and healthcare providers, discrimination and devaluation, and disclosure factors (see Table 2). Regarding an individual item analysis, there were statistically significant changes in favourable directions for 9 of the 18 items analyzed. For question 2, there was a 28% increase in participants who would become closer friends with a person who has a mental illness ($p < .001$). For question 3, there was a 31% increase in participants who would be willing to admit to their friends if they had a mental illness ($p < .001$). For question 5, there was a 30% increase in participants who would go to a physician if they knew that the physician had been treated for a mental illness ($p = .005$). For question 6, there was a 25% increase in participants who agreed that employers should hire people with mental illness ($p < .001$). For question 8, there was a 21% increase in participants who agreed that public health programs and early intervention of mental illness are of value ($p = .02$). For question 9, there was a 35% increase in participants who agreed that it is the responsibility of healthcare providers to encourage recovery in people with a mental illness ($p = .001$). For question 13, there was a 40% increase in participants who would be willing to admit to their colleagues if they had a mental illness ($p < .001$). For question 14, there was a 20% increase in participants who agreed that healthcare providers should be advocates for people with mental illness ($p = .01$). For question 21, there was an 8% increase in participants who would still work with a colleague who had a mental illness ($p = .02$).

5.2.2 Pre-test, post-test, and follow-up intervention group

For the sample that included the follow-up group, there were no significant differences at three months follow-up. The item-by-item analysis showed improvements in questions 2 (19% increase, $p = 0.02$), 3 (35% increase, $p = .002$), 6 (24% increase, $p = .002$), 9 (43% increase, $p = .005$), 13 (44% increase, $p < .001$), and 14 (23% increase, $p = .01$). Additionally, questions 7 and 19 also showed improvement; however, question 5 did not. This should be interpreted with caution given the decrease in sample size with the follow-up group.

Interestingly at follow-up, improvements of attitudes were not maintained for questions 6, 9, 13, and 14 compared to the post-test. For question 6, there was a 26% decrease in agreeing that employers should hire people with mental illness if they are right person for the job ($p = .02$). For question 9, there was a 43% decrease in agreeing it is the responsibility of healthcare providers to encourage recovery in people with mental illness ($p = .03$). For question 13, there was 38% decrease in respondents who would be willing to admit to colleagues that they had a mental illness ($p = .03$). For question 14, there was a 26% decrease in respondents agreeing that healthcare providers should be advocates for people with mental illness ($p = .03$).

5.2.3 Pre-test and post-test control group

There was a significant difference in the mental illness and healthcare providers subscale, with participants in the control group becoming more negative in their attitudes towards this group of questions compared to baseline. In the pre-test and post-test of the control group, four questions showed change when analyzing individual questions. Question 2 showed a 12% increase in participants agreeing they would become close friends with a person who has a mental illness ($p = .03$). For question 13, there was 31% increase in those willing to admit to their colleagues that they had a mental illness ($p = .001$). For questions 8 and 18 respectively, there was a 15% decrease in those agreeing that public health programs aimed at the early intervention of mental illnesses/problems are of value, and a 12% increase in people agreeing they are not respectful of people with mental health problems/illnesses.

5.2.4 Pre-test, post-test, and follow-up control group

There were no significant differences when comparing pre, post, and follow-up change scores for each subscale. When conducting analyses for separate questions, in the pre-test, post-test, and follow-up group, the three questions described above showed change similar to that above. The p-value, however, for question 8 was 0.08 and, given the small sample size, these results should be interpreted with caution. For question 18, there was a 16% increase in people agreeing they are not respectful of people with mental health problems/illnesses ($p = .04$). For question 13, there was a 35% increase in those willing to admit to their colleagues that they had a mental illness ($p = .02$).

Table 2. Change Scores for Intervention and Control Group for Pre and Post Testing according to Subscales

| Factor | Intervention group | | | | Control group | | | |
|---|--------------------|--------------|------|---------|---------------|--------------|------|---------|
| | n | Change score | t | p-value | n | Change score | t | p-value |
| Recovery of people with mental illness | 140 | -0.1 | -0.5 | .6 | 38 | -0.4 | -1 | .3 |
| Mental illness and healthcare providers | 139 | 0.3 | 2.1 | .04 | 40 | -0.6 | -2.8 | .009 |
| Devaluation of people with mental illness | 131 | 0.4 | 3 | .003 | 39 | 0.4 | 1.4 | .2 |
| Disclosure of having a mental illness | 131 | 0.7 | 5.2 | .001 | 35 | 0.3 | 1.4 | .2 |

5.3 Literacy

5.3.1 Pre-test and post-test intervention group

Of 151 participants, 128 had complete data to compute a total score of the literacy questions. The mean score at baseline was 11.9 and the mean score after the program was 13.9. There was an increase in literacy after the program, $t = -9.1, p < .001$.

5.3.2 Pre-test, post-test, and follow-up of the intervention group

Of the 66 participants, 56 had complete data to compute a total score of literacy questions after the program and 55 had had complete data at follow-up. The mean score at baseline was 10.9 and the mean score after the program was 13.1. There was an increase in literacy after the program, $t = -7.1, p < .001$. There was a significant decrease in literacy from post-test to follow-up ($M = 13.1$ vs. $M = 12.5$, respectively), $t = -7.1, p = .03$; however, this was still significantly higher than pre-test.

5.3.3 Pre-test and post-test of the control group

All 42 participants had complete data to compute a total score of the literacy questions. The mean score at baseline was 11.8 and the mean score after the staff meeting was 12.2. An increase in literacy was not detected after the staff meeting, $t = -1.5, p = .13$.

5.3.4 Pre-test, post-test, and follow-up of the control group

All 25 participants had complete data to compute a total score of the literacy questions. The mean score at baseline was 11.5 and the mean score after the staff meeting was 12.3. An increase in literacy was not detected after the staff meeting, $t = -1.6, p = .13$. There was no change in literacy from post-test to follow-up ($M = 11.5$ vs. $M = 12.0$, respectively), $t = -1.4, p = .18$.

6 DISCUSSION

Overall the *Mental Illness and Addictions: Understanding the Impact of Stigma* program showed improvement in attitudes and literacy (knowledge) after the program compared to baseline assessment. Positive changes in both attitudes and knowledge were not sustained at three months follow-up when conducting an individual item analysis. The control group also showed changes in attitudes in a positive direction, such as willing to admit to a colleague about a mental illness/mental health problem, the admission of being disrespectful towards people with mental illness, and indicating that public health programs are of little value for people with mental illness/mental health problems. This is important to note because of the social desirability bias which may hinder the evaluation of anti-stigma programs.

When data was analyzed according to the four subscales that resulted from the factor analysis, three of the four subscales showed positive changes in the intervention group at pre- and post-testing, whereas the subscale pertaining to mental illness and healthcare providers showed a negative change in attitudes compared to baseline in the control group. This could have been due to the staff meeting raising awareness about the issues of stigma, and therefore participants tended to be honest about their

attitudes. Since, however, the sample size of the control group was small, this result should be interpreted with caution. There were no changes in any of the groups when comparing post subscale scores to three-month follow-up scores, which raises the question as to whether attitudes really deteriorated as shown during the individual item analysis.

The social desirability bias is caused by respondents answering questions in a favourable manner so that they over-report good behaviour and under-report bad behaviour (18). In the case of this study, participants in the control group were honest about being stigmatizing which led to a change in the results after the staff meeting; however, this change is notable because, by virtue of participating in a staff meeting that discussed the study briefly and involved them completing the questionnaire, participants thought about stigma more. It is important to again note the sample size of the control group; it would be important to study the impact of the social desirability bias in a larger sample.

It is also important to note that, compared with answers to the neutral questions before the program, participants reported that their workplace was not stigma free and they believed their colleagues were not respectful of people with mental illness. This shows that the program raises awareness of how stigma and discrimination may manifest itself in the healthcare provider workplace. Such questions are important to ask in future evaluation studies.

Regarding the group that received the intervention, change was seen in several attitude questions before and after the program, showing that the program is capable of changing attitudes. However, there was also a significant change in these attitudes in a negative direction after three months follow-up, suggesting the need for a program that is ongoing. For example, several phases of the booster session programs, which could prompt the participant about the important material pertaining to mental illness and stigma, may be needed.

Overall, the questions used to measure respondent attitudes had good internal consistency with a satisfactory Cronbach's alpha. The questionnaire used may need further validation and testing since several of the questions did not show change before and after the program and some did not have sufficient factor loadings on one of the four factors. Furthermore, depending on how the questions are analyzed can yield different results. The factors, however, appear consistent with the five exploratory themes originally determined in the validation of the questionnaire, with the exception of social distance and discrimination/devaluation which seemed to combine during the factor analysis and result in four factors instead of five. Further validation of the questionnaire could include concurrent validity with other generic stigma measures, as well as test-retest reliability.

There are several limitations of this study. First, the sample that received the program was mostly comprised of females who were white/Caucasian within the 30-49 year age range. This could have affected the results since this group may have attitudes that are more amenable to change. A larger more representative sample would be useful in future studies, for example, one that has more males,

doctors, and healthcare providers of various ages and ethnic backgrounds. Second, this study had a small sample for the control group, and the sample consisted mainly of social workers who were white and female which may have affected answers. It would be useful to conduct the study with a larger group of controls to determine if the results found here can be replicated. Third, confounding variables such as age, sex, education, professional status, and personal contact with a person who has mental illness were not taken into account when analyzing results. Future studies should adjust for such variables.

There are also many strengths of this study. At present, a gold standard program for reducing stigma of people with mental illness among healthcare providers does not exist in Canada. *The Mental Illness and Addictions: Understanding the Impact of Stigma* is the first program to show credible results and can provide a starting point which future programs could be based on. Second, most evaluation studies of anti-stigma programs do not have a controlled comparison or collect follow-up data; therefore, this study provides valuable information on the possible changes that can occur in a control group and the impact on attitudes and knowledge after three months of no further anti-stigma training.

It is important to increase awareness and change attitudes towards people with mental illness, but certainly a major task at hand is to also change behaviour towards people with mental illness. This program provides a good foundation for changing attitudes and knowledge and future phases could focus on changing related behaviour.

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