# University of Alberta

Reducing Stigma: The Effect of an Educational Intervention

by

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To my mom. Thank you.

Abstract

The stigma associated with a mental illness can be an impediment to recovery and has been described as more long lasting and disabling than the illness itself (Schulze & Angermeyer, 2003). Thus reducing stigma is an important cornerstone in any mental health strategy. This study examined the impact of an educational presentation by the Edmonton Early Psychosis Intervention Clinic (EEPIC) on reducing stigma associated with psychosis and schizophrenia. The EEPIC educational presentation, delivered to high school students in Edmonton combines a didactic approach with indirect contact via a video-presentation. Stigma was measured using the Attribution Questionnaire (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003) and the World Psychiatric Association's Presentation Evaluation (Sartorius & Schulze, 2005). Respondents' knowledge about the causes of schizophrenia improved as a result of the presentation. In addition, respondents viewed people with schizophrenia as less dangerous and were less socially distancing after participating in the educational presentation. These results provide preliminary evidence that a time-limited educational presentation can foster positive attitudes and reduce the stigma related to schizophrenia.

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Acronyms

AQ-27 – Attribution Questionnaire

CALM – Career and Life Management

EEPIC – Edmonton Early Psychosis Intervention Program

HREB – Health Research Ethics Board

MHCC – Mental Health Commission of Canada

NAMI – National Alliance for the Mentally Ill

NMHAC – National Mental Health Awareness Campaign

REB – Education, Extension & Augustana Research Ethics Board

SS – Schizophrenia Society

WPA – World Psychiatric Association

WSR – Wilcoxon Signed Ranks Test

**Chapter 1**

*Introduction*

Reducing stigma is an important cornerstone in any mental health strategy. The stigma associated with a mental illness can be an impediment to recovery and has been described as more long lasting and disabling than the illness itself (Schulze & Angermeyer, 2003). In fact, the label attached to a mental illness is so insidious that it can remain long after aberrant behaviours have dissipated (Piner & Kahle, 1984). The stereotyping, prejudice and discrimination that arise from stigmatization can be a major barrier to seeking treatment (Corrigan, 2004a).

The Edmonton Early Psychosis Intervention Clinic (EEPIC) is a specialized program within Alberta Health Services aimed at improving the outcome of individuals with a first episode of psychosis through early detection and intervention. Psychosis is a medical condition that affects the mind and is characterized by a loss of contact with reality. The symptoms may include hallucinations, delusions, and disorganized thinking. The term psychosis is often associated with schizophrenia but can be associated with other mental and physical disorders including schizophreniform disorder, brief reactive psychosis, bipolar disorder, delusional disorder, drug-induced psychosis, psychotic depression, and schizoaffective disorder. However, recent studies have indicated that a majority of psychosis cases represent schizophrenia or other schizophrenia spectrum disorders (Power, Elkins, Adlard, Curry, McGorry, & Harrigan, 1998). During the early stages of the illness, the term psychosis is preferred when the

diagnosis is not yet confirmed as it helps to avoid the stigma and fear that can be associated with a diagnosis of schizophrenia (McGorry & Edwards, 1997).

Along with providing clinical services, EEPIC also provides education about psychosis to youths in the community. The educational program, delivered by two nurses, is based on the "Reaching Out" program developed by the Schizophrenia Society of Canada that focuses on major myths, early warning signs, and the role of stigma and discrimination as obstacles to care and recovery. The presentation includes a 20-minute video introducing the signs and symptoms of schizophrenia through the narrative of a student who is concerned about a friend who is behaving erratically and is showing early signs of mental illness. The resource kit and video are made available to educators by the Schizophrenia Society of Canada.

Since the EEPIC educational presentation began in 2004 it has reached over 3,800 students in more than 150 classes. However, no formal evaluation has been in place to assess the effectiveness of the EEPIC educational presentation. Thus the objective of the present study is to evaluate the impact of the EEPIC educational presentation in changing attributions about schizophrenia. In addition, the study will ascertain whether the time-limited educational intervention will increase knowledge about the signs and symptoms of schizophrenia and whether it will reduce the social distance towards people with schizophrenia.

*Past and Current Initiatives*

Much research has been devoted to the development and origins of stigma and its consequences, resulting in a rich theoretical and descriptive literature on stigma (Hinshaw, 2007; Kurzban & Leary, 2001; Link, Cullen, Mirotznik, & Struening, 1992; Link & Phelan, 2001). Over the past decade an internationally concerted effort has been undertaken to reduce stigma related to schizophrenia by the World Psychiatric Association (WPA) through the "Open the Doors" program. The WPA's "Open the Doors" program was launched in 1996 to fight against the stigma and discrimination associated with schizophrenia rather than mental health in general. This was due in large part to the greater severity of stigma towards schizophrenia compared to other mental illness (Sartorius & Schulze, 2005). Since then, the "Open the Doors" program has been implemented in more than 20 countries and is the largest collaborative effort of its kind (Gaebel & Baumann, 2003; Thompson et al., 2002; Ucok et al., 2006; Warner, 2005).

Similar anti-stigma efforts exist at the national level in several other countries. In the United Kingdom, the British Royal College of Psychiatrists launched the "Open Minds" initiative in 1998 to encourage people to think about their attitudes and behaviour in relation to mental disorders. The United States launched their National Mental Health Awareness Campaign (NMHAC) in 1999 to encourage people to become aware of and open discussion about mental health and to create a more accepting environment for people to seek help.

More recently, the Government of Canada announced funding for the creation of the Mental Health Commission of Canada (MHCC) with the purpose

of creating a blueprint for improving the lives of people with a mental illness and for promoting the mental health of Canadians. The MHCC was created in 2007 with the goal of creating a national mental health strategy. One of the eight broad goals identified by the Commission in the national mental health strategy is the elimination of stigma and discrimination against people living with mental health problems and illnesses. The Commission will be engaging in a 10-year anti-stigma and anti-discrimination initiative by building on existing anti-stigma programs. Currently the Commission is seeking active anti-stigma programs to serve as future demonstration sites. The results of the current study will help to inform the Commission's plan for a national protocol by revealing whether a time-limited and targeted approach is effective at increasing knowledge and decreasing social distance towards people with schizophrenia.

*Defining Stigma*

Since Goffman's seminal work in 1963, there have been many definitions of stigma. The American Psychological Association defines stigma as the negative social attitude attached to a characteristic of an individual as a result of a mental, physical, or social deficiency (APA, 2009). The word stigma originated from the Greek to denote a physical sign or "tattoo" signifying something unusual and bad about the bearer. While the definition of the word has evolved and expanded to encompass more than merely physical signs, the connotation of a "brand of shame" has remained.

Stigma develops as a result of perceived deviancy from the norm, whether it originates from physical deformities, behavioural aberrations, or tribal

differences (Goffman, 1963). Being visibly different and displaying behaviours outside the norm plays a major role in stigmatization. In the case of mental illness, though, the diagnosis of schizophrenia is sufficient for the development of stigma even in the absence of acute psychotic symptoms (Angermeyer & Schulze, 2001, Rosenhan, 1973).

The components underlying stigma are complex and multifaceted. The dimensions of stigma vary depending on the measurement scales used and the objective of the study. With different studies using different scales to measure stigma, a lack of consensus exists for a clear conceptual framework with which to examine the phenomena. Despite this, a delimited set of key concepts have emerged from various studies, which demonstrate some robustness in their association to stigma. The three concepts or dimensions identified in the current study – *prior exposure*, *knowledge*, and *social distance* – are based on the results of the WPA's "Open the Doors" program (Stuart & Arboleda-Florez, 2001). In addition, the concept of *attributions* about the *cause* and *controllability* of mental illness is included based on the results of Corrigan, Markowitz, Watson, Rowan, & Kubiak (2003).

<div align="center">*Strategies for Reducing Stigma*</div>

Strategies for reducing stigma can been grouped into three processes: protest, education, and contact (Corrigan & Penn, 1999). Protests undertaken by advocacy groups such as the National Alliance for the Mentally Ill (NAMI) in the United States and the Schizophrenia Society in Canada, have focused on raising public awareness about psychiatric disabilities and dispelling inaccurate

representations of mental illness.  In terms of effectiveness, protest has limited value in that it is reactive in nature.  In fact, research has shown that protest yielded no improvement in attitudes (Corrigan et al., 2001) and, even worse, it can lead to a paradoxical "rebound" effect.  Monteith, Sherman, and Devine (1998) found instructing individuals to suppress stereotypes or negative attitudes towards a disenfranchised group can lead to an increase in negative attitudes.  Thus, protests can fall victim to the rebound phenomenon whereby insensitive protest or foisting of unwanted information may lead to a backlash (Corrigan & Penn, 1999).  In addition, protests are often aimed at reducing negative attitudes, and neglect to foster positive attitudes.

A more effective strategy, and one that is more often used in stigma reduction, is education.  Stigma, which has social origins, results from a lack of knowledge about the illness (Jorm, 2000).  Thus, anti-stigma campaigns have focused on education as the first step in stigma reduction (Corrigan, Watson, Warpinski, & Gracia, 2004b; Pinfold, Toulmin, Thornicroft, Huxley, Farmer, & Graham, 2003; Watson et al., 2004; Yeo, Berzins, & Addington, 2007).  In particular, educational campaigns that are culturally sensitive and locally based may yield the best results (Byrne, 2001).  Unlike protests, which can be hostile and reactive, education provides facts to dispel the false assumptions on which stigma is thought to be based so that the individual can make more informed decisions about mental illness (Corrigan & Penn, 1999).  Brief educational programs have produced short-term improvements in attitudes and have increased students' knowledge of mental illness (Holmes, Corrigan, Williams, Canar, &

Kubiak, 1999; Penn, Kommana, Mansfield, & Link, 1999; Pinfold, Stuart, Thornicroft, & Arboleda-Florez, 2005; Watson et al., 2004).

Contact as a strategy for reducing stigma can be especially effective when it is paired with educational programs. A review of the literature concluded that real-life contact with persons with mental illness is effective in promoting positive attitude changes (Couture & Penn, 2003; Kolodziej & Johnson, 1996). However, the effect of contact is improved by several factors, which involve direct contact with the disenfranchised group. These factors include but are not limited to: quantitative aspects of contact (i.e., more frequent contact of longer duration yields better results), status aspects of contact (i.e., contact with a person of perceived higher social status is better), and personality of the individual experiencing the contact (Allport, 1954). These factors, which are largely uncontrollable in real-life, make the implementation of contact-based anti-stigma programs difficult to execute. Thus, video-based anti-stigma programs have been used as an alternative to direct contact (Stuart, 2006). The Reaching Out program on which the EEPIC educational presentation is based includes a 20-minute video. It was designed for educators who do not have prior knowledge of schizophrenia to teach and facilitate active dialogue about serious mental illness in their classroom. In the video, individuals with schizophrenia speak about their frustration, fear, and isolation as a result of the illness. Evaluation of the effectiveness of the Reaching Out program has found that high school students were significantly more knowledgeable and less socially distant subsequent to the Reaching Out program presentation (Stuart, 2006).

*EEPIC Presentation Description*

In recognition of the importance of combating stigma related to psychosis and schizophrenia, the Edmonton Early Psychosis Intervention Clinic (EEPIC) has initiated an educational program for senior high school students and their teachers to provide practical information regarding psychosis.  The EEPIC presentation was developed in collaboration with EEPIC team members (psychiatrists, psychologists, and nurses) following a review of the literature.  The presentation was based on the Reaching Out program developed by the Schizophrenia Society of Canada and is focused on major myths, early warning signs, the effects of drug abuse on psychosis, and the role of stigma and discrimination as obstacles to care and recovery.  The 80-minute educational presentation is delivered by two nurses, a female registered nurse and a male registered psychiatric nurse within the EEPIC clinic. The presentation combines a didactic approach with indirect contact via a video program.  Along with imparting knowledge about psychosis, the presenters also intersperse their professional and personal experiences with mental illness in an empathetic way. Included in the presentation is a 20-minute video produced by the Schizophrenia Society as part of the Reaching Out program that tells the story of a student who is concerned about a friend who is behaving erratically and is showing early signs of a mental illness.  The video also features interviews from individuals living successfully with schizophrenia and highlights the obstacles and barriers they experience as a result of stigmatizing behaviours.

*Focus on Adolescents*

Stigma develops as a result of misinformation and ignorance (Brockington, Hall, Levings, & Murphy, 1993; Corrigan, et al., 2001). It is therefore expected that providing adolescents with correct information will increase their understanding of the value of early detection and intervention for the prognosis of severe mental illness (Craig et al., 2004). This information is especially timely because severe mental illness usually has onset in early adulthood (Galdos, van Os, & Murray, 1993; Hafner, Maurer Loffler, & Riecher-Rossler, 1993; McGorry et al., 1995).

Mental health promotion in schools provides opportunities and resources of potential value to students who are dealing with mental health issues but who are unaware of available assistance. Considering that one in five Canadians will experience a mental illness in his or her lifetime, combating stigma is an important component of care in the mental health system (Health Canada, 2002).

*Hypotheses*

The purpose of this study was to evaluate whether the EEPIC educational presentation was effective in achieving its aims of increasing adolescents' knowledge about the signs and symptoms of schizophrenia and decreasing negative attributions and social distance. Based on previous research on the dimensions associated with stigma (Corrigan et al., 2003; Stuart & Arboleda-Florez, 2001), four distinct research hypotheses were identified. First, it was hypothesized that respondents' attributions towards people with schizophrenia would become more positive after participating in the EEPIC educational

presentation. Second, it was hypothesized that respondents' knowledge of schizophrenia would increase as a result of participation in the educational presentation. Third, it was hypothesized that respondents' social distance towards those with schizophrenia would diminish following the educational presentation. Fourth it was hypothesized that changes in a respondent's knowledge and social distance in reaction to the presentation would be moderated by gender and prior exposure to mental illness (i.e., the magnitude of the change in respondents' knowledge and social distance would depend on whether they were female or male, and whether they had previously been exposed to mental illness or not).

**Chapter 2**

*Participants*

Three classes from Psychology 20 and six classes from Career and Life Management (CALM) 20 from five schools in the Edmonton area served as participants for the present study.  The average age of the students was 15.99 (s.d. = 0.80) and about two thirds of the sample were female.  Students were recruited through their teacher following a request for an educational presentation offered by the EEPIC clinic.  Participation in the study was voluntary and the procurement of the educational presentation was not contingent upon participation in the study.  The study received ethics approval from the Health Research Ethics Board (HREB) at the University of Alberta and from the Edmonton Public and Edmonton Catholic School Boards.  Informed consent from the students and their parents/legal guardians was obtained prior to participation in the study.

*Measures*

To assess attributions, knowledge, social distance, and prior exposure about mental illness, the study included the Attribution Questionnaire (AQ-27) (Corrigan et al., 2003) in conjunction with the stigma questionnaire developed by the World Psychiatric Association (WPA).  The stigma questionnaire developed by the WPA Canadian Local Action Group measured knowledge, social distance and prior exposure.  It was designed to establish benchmarks for knowledge and attitudes before and after the Partnership Program of the Schizophrenia Society of Alberta (SSA).  The Partnership Program is intended to educate the public about

the stigma related to severe and chronic mental illness by bringing together patients, family members, and health professionals to present their own perspectives of mental illness. The WPA's global program to fight stigma and discrimination because of schizophrenia, also known as the "Open the Doors" program, recognizes the need for specific and targeted programs tailored to the needs of the region, and thus affiliation with the WPA reflects long-lasting commitment to stigma reduction rather than a short-term campaign. Calgary, Alberta was chosen by the WPA as the first pilot project site to fight stigma and discrimination because of schizophrenia for programmatic and pragmatic reasons. The existing anti-stigma effort by the SSA and the well-developed mental health services in Canada, combined with institutional support, made Calgary an apposite choice (Sartorius & Schulze, 2005). Anti-stigma programs affiliated with the WPA are self-sustaining and receive technical and consultation support from the headquarters of the program in Geneva, Switzerland (WPA, 2005).

The Attribution Questionnaire (AQ-27) is a 27-item instrument that measures respondent attitudes towards people with mental illness using a 9-point Likert scale. As shown in Appendix A, respondents first read a vignette about a person with schizophrenia and then respond to an item using the 9-point scale. The AQ-27 consists of nine factors (three items per factor), which include: responsibility, pity, anger, dangerousness, fear, help, coercion, segregation, and avoidance (see Appendix B for the items associated with each factor). Higher scores on each factor indicate greater endorsement. For example, a score of 27 on the responsibility factor indicates that the respondent would hold Harry

accountable for his present condition and that the illness was his fault. The one

exception is the avoidance factor, which is scored in the reverse direction. High

scores on this factor indicate that respondents were more likely to carpool with

Harry, interview him for a job, or rent an apartment to him. The AQ-27 has

acceptable one-week test-retest reliability on six of the nine factors (pity, danger,

fear, help, segregation, and avoidance) ($r \geq 0.75$). The test-retest reliability of the

other three factors (responsibility, anger and coercion) is relatively poor ($r \geq 0.55$)

(Corrigan, Watson, Warpinski, & Gracia, 2004c). Written permission from the

authors to use the AQ-27 was obtained prior to the start of the study. The original

vignette was modified to increase correspondence with the primary emphasis of

the EEPIC presentation on early psychosis. The modified vignette depicts Harry

as younger, having fewer hospitalizations, and with symptoms that are typical of

an EEPIC patient. Both the original and modified versions are as follows:

Original: *Harry is a 30 year-old single man with schizophrenia.*
*Sometimes he hears voices and becomes upset. He lives alone in an*
*apartment and works as a clerk at a large law firm. He had been*
*hospitalized six times because of his illness.*

Modified: *Harry is a 17-year old male with schizophrenia. Sometimes he*
*hears voices and thinks he has an implant in his brain. He spends most of*
*his time alone in his room and has stopped spending time with his friends.*
*He had been hospitalized two times because of his illness.*

Along with the AQ-27, the WPA's stigma questionnaire was used to evaluate the presentation along the following three dimensions: knowledge, social distance, and prior exposure (as shown in Appendix C). The knowledge subsection asked respondents to rate 16 statements about the causes of psychosis or schizophrenia on a 5-point Likert scale ranging from "Definitely" to "Definitely not". A higher score corresponds to greater knowledge about the causes of psychosis or schizophrenia. Respondents were also asked to rate an additional 10 statements about what they believed about people with schizophrenia on a 4-point Likert scale ranging from "Frequently" to Never". To evaluate social distance, respondents were asked to rate using a 4-point Likert scale ranging from "Definitely" to "Definitely not" how they would feel in six social situations. A higher score in this subsection corresponds to less socially distancing attitudes towards people with psychosis. The prior exposure subsection included four questions such as: (a) "In the past 6 months, have you seen, read or heard anything in the news about people with psychosis or schizophrenia?", (b) "Have you or someone you know ever been treated for an emotional problem or a mental illness?", (c) "Have you or someone you know been treated for psychosis or schizophrenia?", (d) "To what extent does psychosis affect your life?".

The measures selected for this study have been used in previous studies of stigma and at least some of the measures have shown robust psychometric properties. In particular, the vignette method is a popular tool used in stigma research (Alexander & Link, 2003; Mann & Himelein, 2008; Rickwood, Cavanagh, Curtis, & Sakrouge, 2004), and the AQ-27 has established construct

validity and test-retest reliability (Corrigan, Watson, Warpinski, & Gracia, 2004c; Link, Yang, Phelan, & Collins, 2004). The WPA's anti-stigma questionnaire was used in a pilot-project in Calgary, Alberta, Canada, thus providing a normative sample that is geographically and demographically similar to the current respondents (Stuart & Arboleda-Florez, 2001).

*Procedure*

A one-group pre-intervention post-intervention quasi-experimental design was used to conduct the study. Two pre-intervention attitudinal questionnaires (i.e., AQ-27 and WPA's Stigma Questionnaire) were administered one week prior to the intervention. The intervention involved the EEPIC psychosis educational presentation. The post-intervention questionnaires were completed immediately following the intervention and included the same two questionnaires from the pre-intervention. To ensure respondent anonymity, the demographic section on each questionnaire asked for initials, age, and gender. The pre-intervention and post-intervention questionnaires were matched later using the respondent's initials and gender along with class number.

Prior to the start of the 2007-2008 school year, information packages describing the EEPIC presentation were sent to teachers of CALM 20, Psychology 20, and Psychology 30 high school classes in the greater Edmonton area. Teachers that requested the educational presentation for their class and whose school had received board approval were invited to participate in the study. One week before the scheduled presentation a research assistant attended the participating class to explain the study and invite students to participate in a

confidential survey of attitudes and experiences with mental health. The students were provided with an information package to review with their parents. In the days prior to the presentation, signed informed consent forms from the students and their parents or legal guardians were collected by the teacher along with the students' responses to the pre-intervention attitudinal questionnaires (see Appendix A and C). Following the presentation students with signed consent forms were invited to complete post-intervention attitudinal questionnaires, which were identical to the pre-intervention attitudinal measures. Data collection took place over the course of two semesters during the 2008 calendar year.

The study design did not include a control group for various reasons. First, the self-selection method whereby teachers that requested the presentation were invited to take part in the study made it difficult to assign specific schools to the control group. The randomization of certain schools to be in the control group was not possible as the specific requests for presentations came from various teachers throughout the year. If randomization were to occur, it would be best to randomize by school rather than by class because of the possibility of contamination (i.e., some schools allow students to move between CALM classes). However, it was not possible to determine beforehand which schools would request the presentation and which schools would act as a control group. Second, the intention of the education program was to provide presentations to all schools that made a request whenever possible. The randomization process would have limited the number of schools that received the presentation, thus limiting the number of students that can partake in the presentation. Third, it was

determined that the absence of a control group would not be detrimental to the objective of the study. Certain attitudes such as prejudices are highly resistant to change (Hovland, 1959; Miller, 1965; Zuwerink & Devine, 1996) and thus the attitudes of a control group measured one week apart without an intervention would not be expected to yield significant changes. It is recognized that some attitudes about which people know little or care little about are more receptive to change but strong attitudes such as prejudices are resistant to persuasion (Zuwerink & Devine, 1996).

In addition to the attitudinal questionnaires (i.e., AQ-27 and WPA's Stigma Questionnaire), the post-intervention evaluation queried the students' opinions about the quality of the educational presentation with the inclusion of the WPA's Partnership Program Presentation Evaluation (Appendix D). This feedback was obtained to encourage improvement in the quality of subsequent presentations. After the first semester, the nurses that were conducting the presentations felt the post-intervention evaluation was too long and consumed too much of their presentation time. For the second semester, the post-attitudinal questionnaires did not include the WPA's Partnership Program Presentation Evaluation, thus the set of post-attitudinal questionnaires was the same as the set of pre-attitudinal questionnaires. This modification is not expected to affect the results of this study as the presentation evaluation was completed after students responded to the post-intervention questionnaires.

**Chapter 3**

*Demographics*

A total of 214 students from nine classes were invited to participate in the study. Overall, 98 pre-intervention questionnaires were collected by the teachers and 154 post-intervention questionnaires were collected by the presenters immediately following the presentation. Of those, 78 completed pre-post questionnaires with consent forms were matched for a return rate of approximately 36.4%. The average age of the students was 15.99 (s.d. = 0.80) and the sample was 64.1% female. Given the violation of normality of most of the dependent variables (see Table 1), a nonparametric test was used to assess changes in attributions, knowledge and social distance between the pre-intervention and post-intervention scores. *Prior exposure* was treated as a covariate and was not expected to change from pre-intervention to post-intervention as the time lapse of the intervention was too short to anticipate changes in prior exposure. However, it was expected that differences in prior exposure would influence students' attributions, knowledge, and social distance. Although it is a common assumption that non-parametric tests are not as robust at detecting differences, Blair and Higgins (1985) were able to demonstrate that when the data are not normally distributed, the Wilcoxon Signed Ranks (WSR) test was more powerful than a dependent sample *t*-test (1985). A conservative alpha level of 0.01 was used for the multiple comparisons of the Attribution Questionnaire to control for the false positive error rate associated with performing multiple statistical tests and an alpha of 0.05 was used for all

subsequent analyses with the WPA's Stigma Questionnaire as is explained in the sections *Knowledge* and *Social Distance*[1]. A median imputation at the item level was used to address missing values (Zhou, Eckert, & Tierney, 2001). A total of 78 students answered 59 questions (27 questions about *Attributions*, 26 questions about *Knowledge,* and 6 questions about *Social Distance*) resulting in 4602 possible responses. At pre-intervention a total of 42 responses were missing yielding a missing response rate of 0.91%. At post-intervention a total of 151 responses were missing yielding a missing response rate of 3.28%.

<div align="center">*Attribution*</div>

The first set of analysis involved looking at the AQ-27 and, specifically, whether the presentation led to changes in the attributions students made about schizophrenia. As shown in Table 2, the educational presentation led to statistically significant positive changes in three of the nine factors on the Attribution Questionnaire: *pity*, *fear* and *dangerousness* (Cronbach's $\alpha = 0.75$ at pre-intervention, and Cronbach's $\alpha = 0.76$ at post-intervention). Upon completion of the presentation, respondents endorsed less pity for Harry, $Z = -2.95$, $p < 0.01$, $r = -0.24$, and were less fearful of Harry, $Z = -3.10$, $p < 0.01$, $r = -0.25$. In addition, they regarded Harry as less dangerous, $Z = -4.16$, $p < 0.001$, $r = -0.33$. Interestingly, there was no change in any of the other six factors; for example, students' attribution on the avoidance factor seemed unchanged after the

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[1] Varying alpha levels were used to reflect the number of statistical tests associated with each factors. The AQ-27 had nine statistical tests and a conservative alpha level of 0.01 was used to reduce the possibility of a Type I error. A more conventional alpha level of 0.05 was used for the knowledge and social distance factors because only one statistical test was carried out for each factor.

presentation. In other words, they were no more likely to interview Harry for a job after the presentation than before the presentation. The means and standard deviations of the nine factors of the AQ-27 are listed in Table 2. A Shapiro-Wilk test revealed that over half the variables violated the assumption of normality. Of the variables that were non-normal, all but one were positively skewed (see Table 1).

*Knowledge*

The second set of analysis involved looking at the WPA questionnaire and, specifically, whether the presentation increased students' knowledge about schizophrenia as measured by the WPA. Before the presentation respondents were fairly knowledgeable about the causes of schizophrenia. As shown in Table 3, over 75% of respondents identified schizophrenia as definitely or probably caused by a genetic inheritance and approximately 50% identified a biological cause, with over 80% of respondents recognizing that schizophrenia is definitely or probably caused by a chemical imbalance in the brain (85.9% at pre-intervention and 84.0% at post-intervention). However, only half of the respondents attributed schizophrenia to a brain disease (43.6% at pre-intervention and 51.3% at post-intervention). Less than 30% of respondents identified psychosocial causes such as poor upbringing by parents, physical abuse, possession by evil spirits, or poverty (see Table 3). Half of the respondents reported that they did not know what percent of the population suffers from schizophrenia (52.6% at pre-intervention but this value decreased to 42.3% at post-intervention). A majority of respondents recognized the positive symptoms

of schizophrenia and the need for prescription medication to control the symptoms (93.5% at pre-intervention and 87.7% at post-intervention). In addition, respondents did not view people with schizophrenia as dangerous to the public because of violent behaviour (24.7% at pre-intervention and 20.8% at post-intervention) or as having lower intelligence (32.5% at pre-intervention and 17.8% at post-intervention). Close to two-thirds of the sample believed that people with schizophrenia can be successfully treated outside of the hospital in the community and can work regular jobs. However, approximately 60% of students possessed the misconception that people with schizophrenia suffer from split personality disorder (Table 3). It is surprising that many of the pre-intervention percentages are close in value to the post-intervention percentages given that the objective of the intervention was to increase knowledge and reduce misconception.

Notwithstanding the close values, after the presentation, participants' knowledge scores about the causes of schizophrenia were statistically higher, $Z = -2.66$, $p < 0.01$, $r = -0.21$ (Figure 1). A composite knowledge score[2] about the causes of schizophrenia was calculated by aggregating the 14 statements using an inverted weighting of incorrect scores so that higher scores indicated more knowledge about the causes of schizophrenia. The last two statements: "Other factors" and "The exact causes are unknown" were excluded from the calculation

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[2] In addition to reporting the individual knowledge questions (see Table 3) a composite knowledge score was calculated to assess students' overall knowledge about the causes of schizophrenia. Knowledge about the causes of schizophrenia is assumed to be a unitary construct (Cronbach's $\alpha = 0.61$) and thus the individual questions were aggregated to measure the magnitude of change in knowledge as a result of the presentation.

of total scores as they do not measure knowledge about the causes of schizophrenia. The 14 statements were transformed into a dichotomous variable corresponding to correct or incorrect answers based on the scoring guide used by Stuart (2006). Likert values of 1 and 2 (definitely and probably, respectively) were classified into one category, and Likert values of 4 and 5 (probably not and definitely not, respectively) were classified into another category. A Likert value of 3 (not sure) was scored as incorrect. For example, in response to the statement "brain disease", a Likert value of 1 or 2 would be scored as correct, and recorded as a 1, while a Likert value of 3, 4, or 5 would be scored as incorrect, and recorded as a 0. Conversely, in response to the statement "poor upbringing by parents", a Likert value of 4 or 5 would be scored as correct, and recorded as a 1 while, a Likert score of 1, 2, or 3 would be scored as incorrect, and recorded as a 0. The remaining 10 statements concerning general knowledge about schizophrenia (e.g., do you believe people with schizophrenia can be successfully treated outside of the hospital in the community) were not used as part of the calculation because upon reflection it was decided that they did not reflect knowledge about the causes of schizophrenia but rather opinions about individuals with schizophrenia. After transforming the Likert scores into dichotomous scores, students' scores were tallied. Higher scores indicated that students had answered more items correctly (i.e., chose Likert scale values that when transformed led to more 1s than 0s) than incorrectly (i.e., chose Likert scale values that when transformed led to more 0s than 1s). The Shapiro-Wilk tests before the educational presentation, $W(78) = 0.90$, $p < 0.001$, and after the

presentation, $W(78) = 0.86$, $p < 0.001$, indicated both distributions were significantly non-normal.  The distributions were negatively skewed with knowledge scores clustering at the higher end.

*Social Distance*

The third set of analysis involved looking at the WPA questionnaire and, specifically, whether the presentation decreased students' social distance towards people with psychosis as measured by six statements on a 4-point Likert scale (see Table 4).  Two questions: "Would you be able to maintain a friendship with someone who has psychosis?" and "Would you marry someone with psychosis?" were scored in the reverse direction to correspond to the rest of the statements with higher scores reflecting lower social distance towards people with psychosis (as shown in Table 3 and 4).  Prior to the presentation close to a quarter of respondents felt afraid to have a conversation with someone who has psychosis and more than 25% would be disturbed about working on the same job with them. Close to 60% of the respondents would definitely or probably be disturbed about rooming with someone who has psychosis.  Over 70% of respondents would be able to maintain a friendship with someone who has psychosis but approximately 19% of respondents would marry them (see Table 3).

As shown in Table 4, following the presentation respondents stated that they were more likely to marry someone with psychosis, $Z = -2.45$, $p < 0.05$, $r = -0.20$, but these responses were still in the minority because, as shown in Table 3, less than half of the group responded favourably (19.5% at pre-intervention and 31.9% at post-intervention).  Moreover, following the presentation respondents

felt less disturbed about rooming with someone who has psychosis, $Z = -2.63$, $p =$ < 0.01, $r = -0.21$ (59.8% at pre-intervention and 43.1% at post-intervention). Surprisingly, after the presentation they reported being less likely to be able to maintain a friendship with someone who has psychosis, $Z = -2.18$, $p < 0.05$, $r = -0.17$ (72.7% at pre-intervention and 61.1% at post-intervention) (see Figure 2).

A comparison of the magnitude of change in knowledge and social distance was undertaken by aggregating the raw scores[3] of each dimension and transforming it into a percentage maximum possible score (Rapaport, Clary, Fayyad, & Endicott, 2005).  In a Likert style questionnaire, summation of the individual questions lacks an absolute zero and thus overinflates the lower bound percentage.  For example, if a respondent answered "Definitely" (Likert value of 1) on all six questions of the social distance questionnaire, the lowest percentage possible would be 25% (6 divided 24).  In order to obtain a percentage between 0 and 100 the raw score and the maximum score are subtracted by the minimum score before converting to a percentage.  In this way the social distance maximum possible score was calculated by first summing the six items and transforming the sum to a percent score by dividing the raw score (minus minimum score of 6) by the maximum score (24 minus 6).  The summation of the knowledge scores did not require this transformation because the scores had been previously transformed to a dichotomous variable with an absolute value of zero in the above

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[3] Knowledge and social distance are assumed to be unitary constructs and are thus amenable to aggregation.

analysis.  Overall, there was a 5% change in knowledge and a 1% change in social distance (see Figure 1).

*Exposure*

An examination of exposure or level of familiarity with psychosis and schizophrenia was undertaken with the WPA's Stigma Questionnaire (see Table 3).  Overall, half of the sample reported seeing, reading, or hearing something in the news about people with psychosis or schizophrenia in the past six months.  Moreover, the respondents reported a moderate personal familiarity with mental illness as approximately half of the sample reported that they or someone they know had been treated for an emotional problem or mental illness (see Table 3 and Figure 3).  As expected the number of respondents that reported familiarity with psychosis or schizophrenia was relatively low at 15% (see Table 3 and Figure 4).  In addition, 10% of the sample reported that psychosis affects their life quite a bit or all of the time.

Initially, an analysis of covariance was planned to examine whether gender, knowledge and prior exposure is associated with social distance scores.  A bivariate correlation of gender, knowledge, prior exposure and social distance showed no significant correlations (see Table 5 and Figure 5 to 10).  Knowledge and social distance were not correlated at pre-intervention, $r(77) = -0.11$, $p < 0.32$, or at post-intervention, $r(77) = 0.06$, $p < 0.62$.  Prior exposure with psychosis was not related to social distancing at pre-intervention, $r(77) = 0.21$, $p < 0.06$, or at post-intervention, $r(77) = 0.20$, $p < 0.08$.  Gender and social distance were also not correlated at pre-intervention, $r(77) = -0.08$, $p < 0.49$, or at post-intervention, $r(77)$

$= 0.13$, $p < 0.27$.  With no significant correlations detected between the variables

of interest, an ANCOVA analysis was not necessary and was not undertaken.

**Chapter 4**

*Discussion*

Consistent with previous findings (Pinfold, Toulmin, Thornicroft, Huxley, Farmer, & Graham, 2003; Watson et al., 2004) educational presentations can have a small but positive impact on students' views about mental illness. The results of the study indicated that educational intervention aimed at high school students increases overall knowledge about psychosis and schizophrenia and reduces some aspects of reported social distance. After the presentation more respondents recognized psychosis and schizophrenia as a brain disease and were willing to share a room and marry someone with the condition. Surprisingly, only half of the respondents attributed schizophrenia to a brain disease after the intervention. Interestingly, prior exposures to mental illness did not correlate with knowledge or social distance before or after the intervention. Overall, the findings suggest that the EEPIC educational intervention is associated with improving some knowledge and reducing certain social distance.

The current AQ-27 results are consistent with an earlier report of stigma perceptions by Corrigan, Larson, Sells, Niessen, and Watson (2007). In the Corrigan et al. study, participants were randomly assigned to either videotaped versions of education or contact and were assessed with a pre-intervention, post-intervention, and a 1-week follow-up survey. The response pattern across the nine factors reported by Corrigan et al. (2007) in the contact group was similar to the current study, with both groups reporting high levels of pity and a willingness to help Harry as indicated by higher scores (see Table 2). However, in the

previous study, the benefit of education was limited to responsibility. In contrast, the EEPIC educational intervention resulted in reductions in pity, fear, and perceived dangerousness. The latter is particularly important because it suggests that the presentation was effective in dispelling a common myth about serious mental illness. Corrigan found that fear of dangerousness was a key attitude leading to discriminatory behaviour (2002). Interestingly, however, there was no change in avoidance. That is, participants were no more likely to interview Harry for a job, or rent an apartment to Harry or carpool with Harry every day. There were also no significant changes in responsibility, anger, help, coercion or segregation. A comparison of the current study to Corrigan et al. (2007) has its limitations. Corrigan's study randomized participants to either an education or contact group. The EEPIC educational intervention in contrast is a hybridization of education and contact and thus direct comparison of the magnitude of change as a result of the intervention may not yield meaningful conclusions. However, a comparison of the baseline measures of both groups provides a useful benchmark for the attitudes of students prior to the intervention.

The current results are also consistent with the prior findings of a community survey on attitudes (Stuart & Arboleda-Florez, 2001). In terms of exposure, the proportion of participants that reported knowing someone or having themselves been treated for a mental illness or schizophrenia in the pre-intervention and post-intervention was similar to that reported by Stuart and Arboleda-Florez (2001). However, more respondents in the current sample viewed schizophrenia as having touched their lives and the proportion of those

reporting that they dealt with schizophrenia almost daily (2.6% at pre-intervention and 1.3% at post-intervention) is generally consistent with the prevalence of schizophrenia in the general population.  Half the respondents reported that they did not know what percent of the population suffers from schizophrenia; this number improved by 10% after the educational presentation.  The social distance factors were comparable with the exception of one question.  Respondents in the current sample were more likely to maintain a friendship with someone who has psychosis (72.7% at pre-intervention stated "definitely" or "probably" and 61.1% at post-intervention stated "definitely" or "probably") compared to 18.1% found by Stuart & Arboleda-Florez (2001).

Given that a one group pre-intervention post-intervention design was used without a non-intervention control group, generalizations from this study must be made with caution.  Although this design is commonly used in the social sciences it has specific threats to valid interpretation including the potential confounding effect of *history, maturation, regression,* and *testing* (Cook & Campbell, 1979). Contributions from *history* were addressed by quantification of personal familiarity with mental illness measured at pre-intervention and post-intervention. The bivariate correlation analysis suggested no change over time and no contribution of prior exposure to knowledge and social distance.  Threats to validity from *maturation* were highly unlikely given the short pre-intervention post-intervention time interval of one week.  Typically, attitudes are stable and not prone to large variations and thus the threats to validity from maturation would be rendered unlikely because *maturation* presupposes that attitudes are

unstable. Another competing explanation for the changes in pre-intervention and post-intervention scores is *statistical regression.* That is, the selection of students with high stigma scores may result in spurious improvements as a result of regression to the mean rather than as a result of the intervention. Because random assignment was not possible, and because respondents were allowed to self-select to participate in the study, this threat cannot be ruled out entirely. However, a comparison of the current responses to previous studies using similar outcome measures revealed a comparable pattern of responses (Corrigan, Larson, Sells, Niessen, & Watson, 2007; Stuart & Arboleda-Florez, 2001). It is thus reasonable to assume that an ascertainment bias was not in effect and that *regression to the mean* did not bring about the changes in attitudes.

It is also possible that merely testing subjects will result in a shift in response and create more socially desirable responses. Link and Cullen (1983) have argued that the typical response format of attitude measures results in socially desirable responses. Indeed, they have shown that when asked to respond to a vignette about a person under three different instructions: a) what *most people* would feel about the person; b) what their *own feelings* were; and c) how an *ideal* person would respond, participants displayed more social rejection in the *most people* condition. It is assumed that the *most people* condition reflects a deeper level of attitudes compared to the other response set. Social desirability remains the most serious threat to the validity of data obtained from an attitudinal survey. While this constraint cannot be completely removed, steps were taken to maintain

the anonymity of the respondents and to create a safe and open environment in which respondents were free to express their attitudes.

In this particular study, with a return rate of approximately 36.4%, non-response rate was a serious problem. Since the respondents were under the age of 18 and not of consenting age, they required their parent's or legal guardian's signature to participate in the study. Although the subjects were willing to participate in the study and had completed the stigma questionnaire, many did not obtain parental signatures and thus we could not include them in the study. The onerous consent procedures resulted in a higher than normal attrition rate. It is possible that the students that returned the surveys were more sensitive to the feelings of people with schizophrenia, which could have resulted in the positive findings. However, Keeter, Miller, Kohut, Grovers, and Presser (2000) illustrated that a survey with comparatively low response rate produced results that were very similar to one with a much higher response rate. Nonetheless, the generalization of the study is weakened by the low response rate.

Stigma is a complex social issue with important ramifications to the well being of people suffering from a mental illness. It appears that a short educational intervention can improve the knowledge and social distance displayed by adolescents. Overall, the findings suggest that an educational intervention has an immediate effect on reducing stigma. However, it is not known whether this effect endures over time. Future studies with a follow-up of the respondents will be required to address this question.

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Table 1

*Test of Normality for all Dependent Variables*

|  | Shapiro-Wilk | | | Skewness | Kurtosis |
|  | Statistic | df | *p* | Z | Z |
|---|---|---|---|---|---|
| *AQ-27* | | | | | |
| *Pre* | | | | | |
| Responsibility | 0.90 | 78.00 | 0.00 | 4.84* | 5.22* |
| Pity | 0.94 | 78.00 | 0.00 | -2.78* | 0.41 |
| Anger | 0.89 | 78.00 | 0.00 | 3.90* | 0.96 |
| Dangerousness | 0.96 | 78.00 | 0.01 | 2.28* | -0.15 |
| Fear | 0.92 | 78.00 | 0.00 | 3.57* | 1.05 |
| Help | 0.96 | 78.00 | 0.02 | -1.84 | -0.65 |
| Coercion | 0.99 | 78.00 | 0.48 | -0.14 | -0.77 |
| Segregation | 0.95 | 78.00 | 0.01 | 2.08* | -0.19 |
| Avoidance | 0.98 | 78.00 | 0.17 | -0.31 | -1.34 |
|  | 0.93 | 78.00 | 0.00 | 3.08* | 2.16* |
| *Post* | | | | | |
| Responsibility | | | | | |
| Pity | 0.97 | 78.00 | 0.03 | -1.53 | -0.67 |
| Anger | 0.89 | 78.00 | 0.00 | 4.10* | 2.54* |
| Dangerousness | 0.91 | 78.00 | 0.00 | 3.28* | 0.32 |
| Fear | 0.89 | 78.00 | 0.00 | 3.49* | 0.36 |
| Help | 0.95 | 78.00 | 0.00 | -1.47 | -1.39 |
| Coercion | 0.97 | 78.00 | 0.08 | -0.95 | -1.39 |
| Segregation | 0.91 | 78.00 | 0.00 | 3.62* | 0.94 |
| Avoidance | 0.98 | 78.00 | 0.46 | -0.03 | -0.98 |
| *WPA's Stigma Questionnaire* | | | | | |
| *Pre* | | | | | |
| Knowledge | 0.90 | 78.00 | 0.00 | -4.07* | 2.61* |
| Social distance | 0.98 | 78.00 | 0.18 | -0.19 | -0.26 |
| *Post* | | | | | |
| Knowledge | 0.86 | 78.00 | 0.00 | -4.12* | 0.57 |
| Social distance | 0.97 | 78.00 | 0.04 | 0.40 | .87 |

Note: The Shapiro-Wilk test reflects analysis to evaluate the normality of the distribution of individual variables. *p* < .05 indicate violation of normality. The skewness statistic reflects analysis to evaluate the direction of the skewness. Positive values indicate a positively skewed distribution and negative values indicate a negatively skewed distribution. The kurtosis statistic reflects analysis to evaluate the pointyness of the distribution. Positive values of kurtosis indicate a leptokurtic distribution and negative values indicate a platykurtic distribution.
Z > |1.96| indicate statistically significant level of skewness and kurtosis.

Table 2

*Means and Standard Deviations of AQ-27 Scores*

| | Pre | Post | Wilcoxon's Signed Ranks Test | |
|---|---|---|---|---|
| | | | Z | p |
| Responsibility | 7.68 (3.73) | 8.05 (4.05) | -0.93[a] | 0.35 |
| Pity | 19.23 (5.70) | 17.56 (6.13) | -2.95[b] | 0.00 |
| Anger | 8.87 (4.91) | 7.76 (4.37) | -2.14[b] | 0.03 |
| Dangerousness | 10.28 (5.02) | 8.22 (4.64) | -4.16[b] | 0.00 |
| Fear | 9.78 (5.61) | 8.29 (5.07) | -3.10[b] | 0.00 |
| Help | 18.30 (5.87) | 18.38 (6.22) | -0.56[a] | 0.57 |
| Coercion | 15.55 (4.56) | 15.66 (4.94) | -0.03[a] | 0.98 |
| Segregation | 9.36 (4.55) | 8.72 (4.83) | -1.70[b] | 0.09 |
| Avoidance | 15.17 (5.83) | 15.63 (5.44) | -0.79[a] | 0.43 |

*Note.* The pre-intervention scores were subtracted from
the post-intervention scores.

a. Based on negative ranks.

b. Based on positive ranks.

Table 3

*Summary of the WPA's Stigma Questionnaire by Respondents Before and After*

*the Educational Presentation*

| Questionnaire Item: | Pre-Intervention | Post-Intervention |
|---|---|---|
| **Prior Exposure factors:** | | |
| In the past 6 months, have you seen, read or heard anything in the news about people with psychosis or schizophrenia? | | |
| Yes | 50.6 | 62.3 |
| No | 49.4 | 37.7 |
| | | |
| Know someone or have themselves been treated for | | |
| An emotional problem or mental illness | 50.6 | 39.0 |
| Psychosis or Schizophrenia | 15.4 | 22.1 |
| | | |
| To what extent does psychosis affect your life? | | |
| Not at all | 47.4 | 50.6 |
| Somewhat | 42.3 | 39.0 |
| Quite a bit | 7.7 | 9.1 |
| All the time | 2.6 | 1.3 |
| | | |
| | | |
| **Knowledge factors:** | | |
| Percentage of respondents who thinks schizophrenia is definitely or probably caused by | | |
| Physical abnormalities in the brain | 74.4 | 68.0 |
| Chemical imbalance in the brain | 85.9 | 84.0 |
| Brain disease | 43.6 | 51.3 |
| Virus during pregnancy | 26.9 | 21.1 |
| Genetic inheritance | 76.9 | 72.4 |
| Other biological factor | 46.8 | 59.5 |
| Poor upbringing by parents | 6.4 | 10.7 |
| Physical abuse | 20.5 | 18.7 |
| Drug or alcohol abuse | 42.3 | 85.3 |
| Stress (such as losing a job, social stress) | 35.9 | 76.0 |
| Traumatic event or shock (eg. assault, death & accident) | 51.3 | 54.7 |
| Poverty | 28.2 | 9.3 |
| General breakdown in social values | 19.2 | 21.3 |
| Possession by evil spirits, God's punishment | 10.4 | 18.7 |
| Other factors | 44.2 | 48.0 |
| The exact causes are unknown | 37.7 | 42.7 |

**Knowledge Continued:**

Percentage of respondents who thinks all things considered, people with psychosis/schizophrenia frequently or often

|  |  |  |
|---|---|---|
| Can be successfully treated outside of the hospital in the community | 71.4 | 70.3 |
| Tend to be mentally retarded or of lower intelligence | 32.5 | 17.8 |
| Hear voices telling them what to do | 92.2 | 79.5 |
| Need prescription drugs to control their symptoms | 93.5 | 87.7 |
| Can be successfully treated without drugs using psychotherapy or social interventions | 36.4 | 26.0 |
| Are a public nuisance due to panhandling, poor hygiene or odd behavior | 37.7 | 33.8 |
| Suffer from split or multiple personalities | 59.7 | 58.3 |
| Can be seen talking to themselves or shouting in city streets | 78.9 | 66.7 |
| Can work in regular jobs | 67.5 | 59.7 |
| Are dangerous to the public because of violent behaviour | 24.7 | 20.8 |

What percent of the population suffers from schizophrenia? (unprompted)

|  |  |  |
|---|---|---|
| ≤ 1% | 5.1 | 5.1 |
| 2-10% | 26.9 | 35.9 |
| ≥ 10% | 15.4 | 16.7 |
| Don't know | 52.6 | 42.3 |

**Social Distance factors:**

Portion of respondents who would definitely or probably

|  |  |  |
|---|---|---|
| Feel afraid to have a conversation with someone who has psychosis? | 22.1 | 25.0 |
| Be upset or disturbed about working on the same job with someone who has psychosis? | 29.9 | 26.4 |
| Be able to maintain a friendship with someone who has psychosis? | 72.7 | 61.1 |
| Feel upset or disturbed about rooming with someone who has psychosis? | 59.8 | 43.1 |
| Feel ashamed if people knew someone in your family has been diagnosed with psychosis? | 11.7 | 16.7 |
| Marry someone with psychosis? | 19.5 | 31.9 |

*Note.* Valid percents were used.

Table 4

*Means and Standard Deviations of WPA's Social Distance Scores*

| | Pre | Post | Wilcoxon's Signed Ranks Test | |
| --- | --- | --- | --- | --- |
| | | | Z | p |
| Would you feel afraid to have a conversation with someone who has psychosis? | 2.99 (0.70) | 2.92 (0.76) | -0.68[a] | 0.50 |
| Would you be upset or disturbed about working on the same job with someone who has psychosis? | 2.87 (0.85) | 2.93 (0.83) | -0.02[a] | 0.98 |
| Would you be able to maintain a friendship with someone who has psychosis[c]? | 2.87 (0.68) | 2.70 (0.66) | -2.18[a] | 0.03 |
| Would you feel upset or disturbed about rooming with someone who has psychosis? | 2.23 (0.79) | 2.58 (0.82) | -2.63[b] | 0.01 |
| Would you feel ashamed if people know someone in your family has been diagnosed with psychosis? | 3.43 (0.80) | 3.17 (0.90) | -1.68[a] | 0.09 |
| Would you marry someone with psychosis[c]? | 1.99 (0.79) | 2.21 (0.85) | -2.45[b] | 0.01 |

*Note.* The pre-intervention scores were subtracted from the post-intervention scores.

a. Based on negative ranks.

b. Based on positive ranks.

c. Questions were scored in the reverse direction.

Table 5

*Spearman's Correlations Between the Stigma Dimensions for Pre-Intervention*

*Scores and Post-Intervention Scores*

| Stigma Dimensions | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Pre-Intervention Scores (*n*=78) | | | | |
| 1. Prior Exposure | — | -.19 | .21 | .07 |
| 2. Knowledge | | — | -.11 | -.06 |
| 3. Social Distance | | | — | -.08 |
| 4. Gender | | | | — |
| Post-Intervention Scores (*n*=78) | | | | |
| 1. Prior Exposure | — | -.23 | .20 | .03 |
| 2. Knowledge | | — | .06 | -.06 |
| 3. Social Distance | | | — | .13 |
| 4. Gender | | | | — |
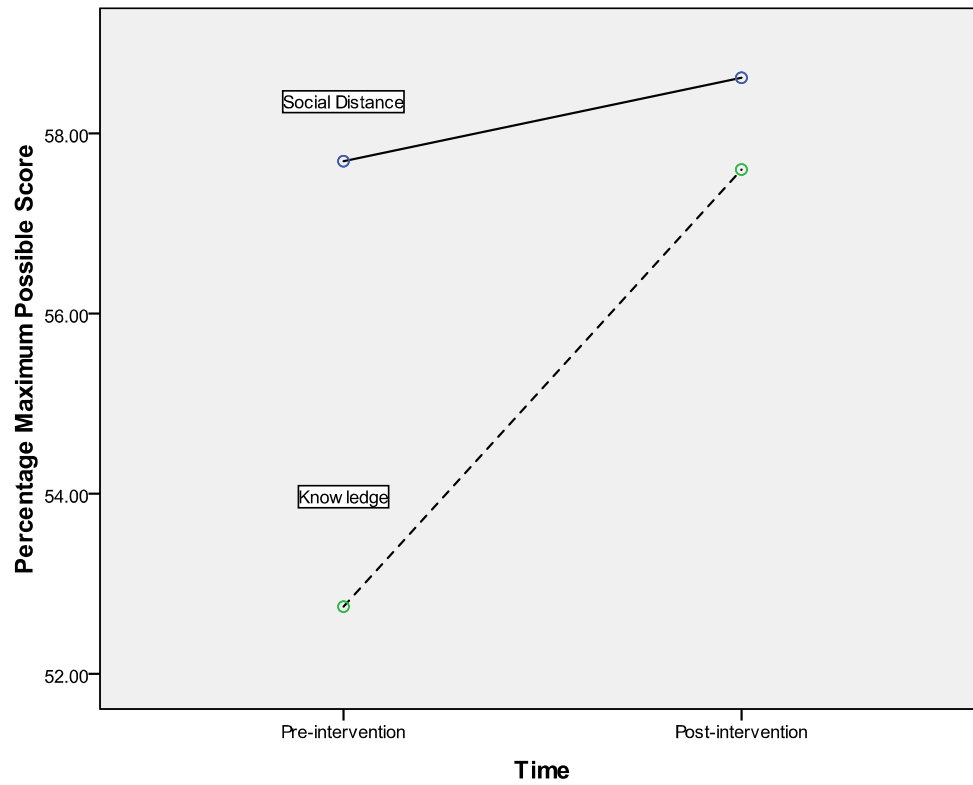
Figure 1. Changes in knowledge and social distance before and after the presentation as expressed by percentage of maximum possible score.

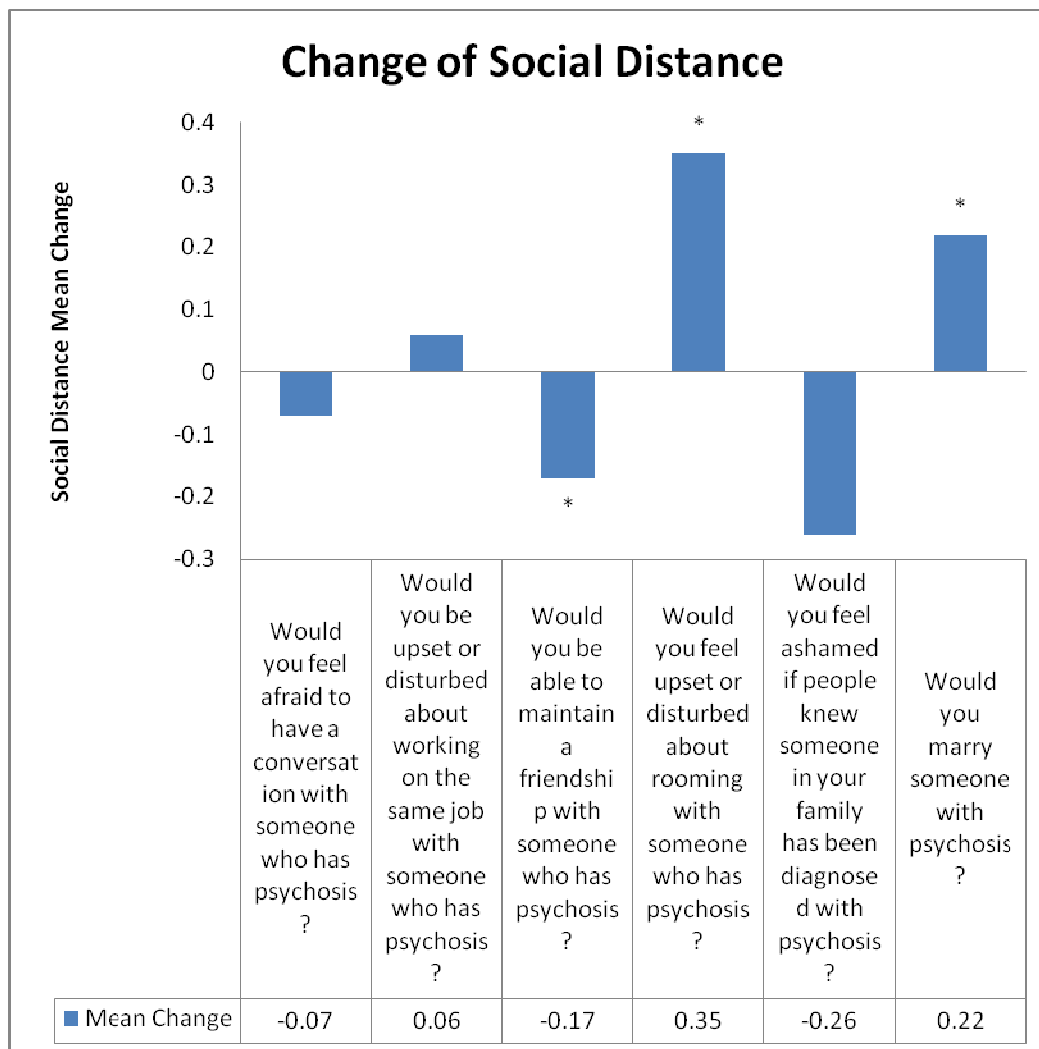**Change of Social Distance**

| Mean Change | Would you feel afraid to have a conversation with someone who has psychosis? | Would you be upset or disturbed about working on the same job with someone who has psychosis? | Would you be able to maintain a friendship with someone who has psychosis? | Would you feel upset or disturbed about rooming with someone who has psychosis? | Would you feel ashamed if people knew someone in your family has been diagnosed with psychosis? | Would you marry someone with psychosis? |
|---|---|---|---|---|---|---|
| Mean Change | -0.07 | 0.06 | -0.17 | 0.35 | -0.26 | 0.22 |

Figure 2. Change of social distance before and after the educational presentation.

* Wilcoxon signed rank test for paired samples *p* < .05.
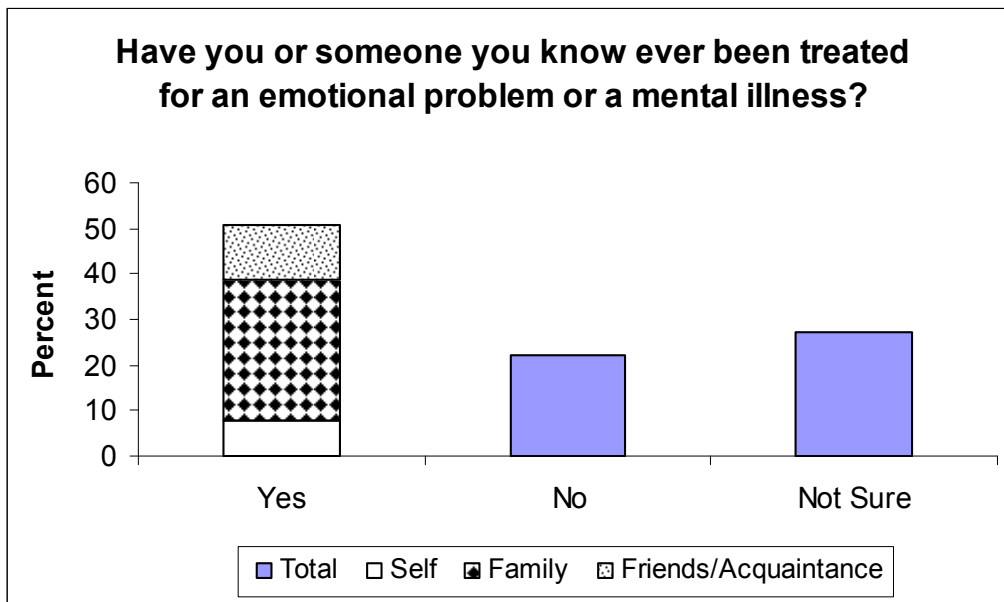
Figure 3. Percentages of respondents that reported whether they or someone they know have ever been treated for an emotional or mental illness.
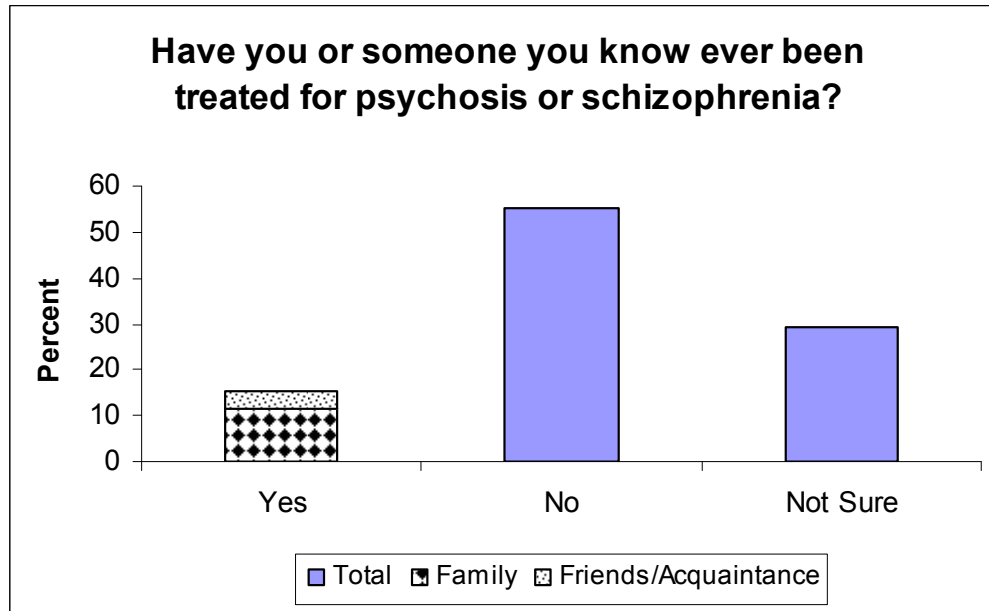
Figure 4. Percentages of respondents that reported whether they or someone they

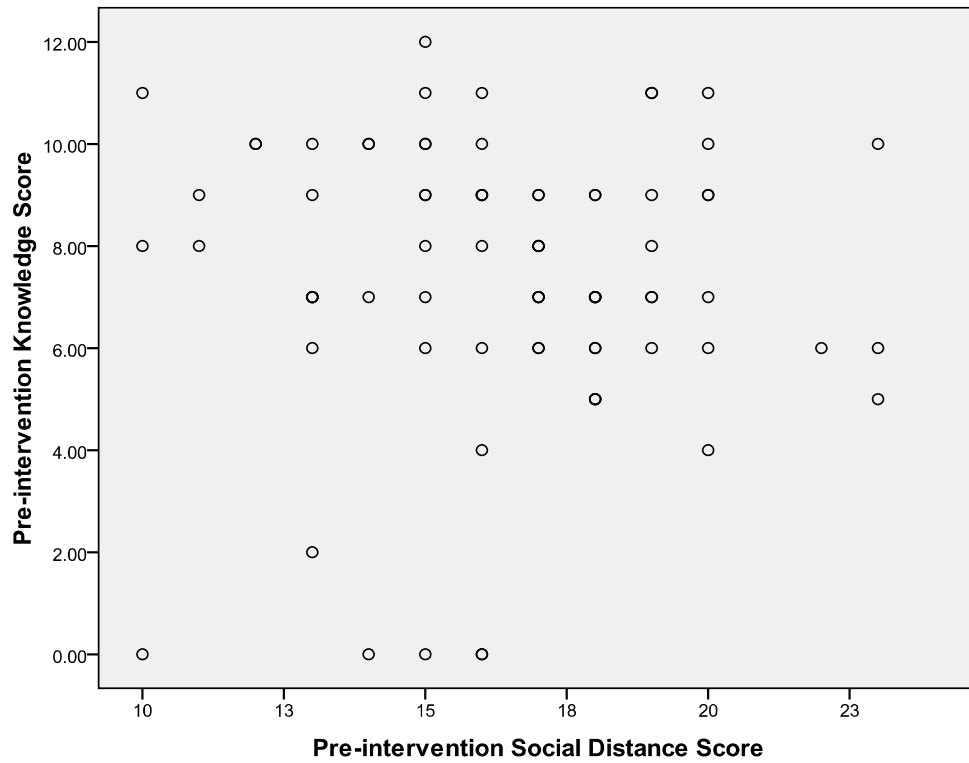know have ever been treated for psychosis or schizophrenia.

Figure 5. Scatter plot of knowledge scores and social distance scores before the presentation.
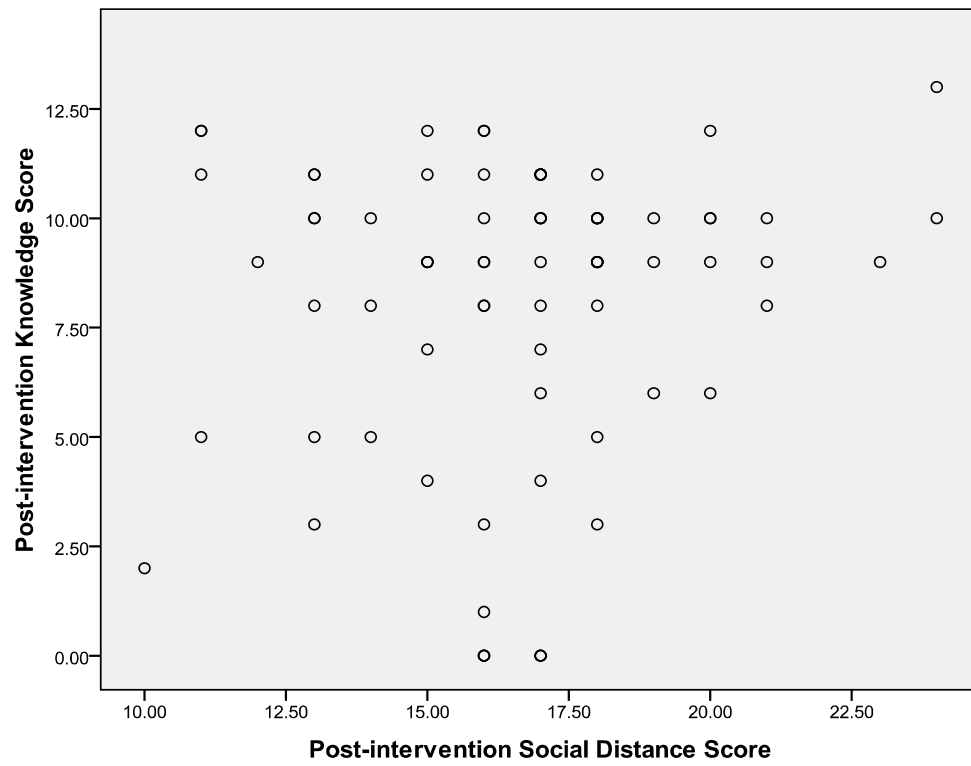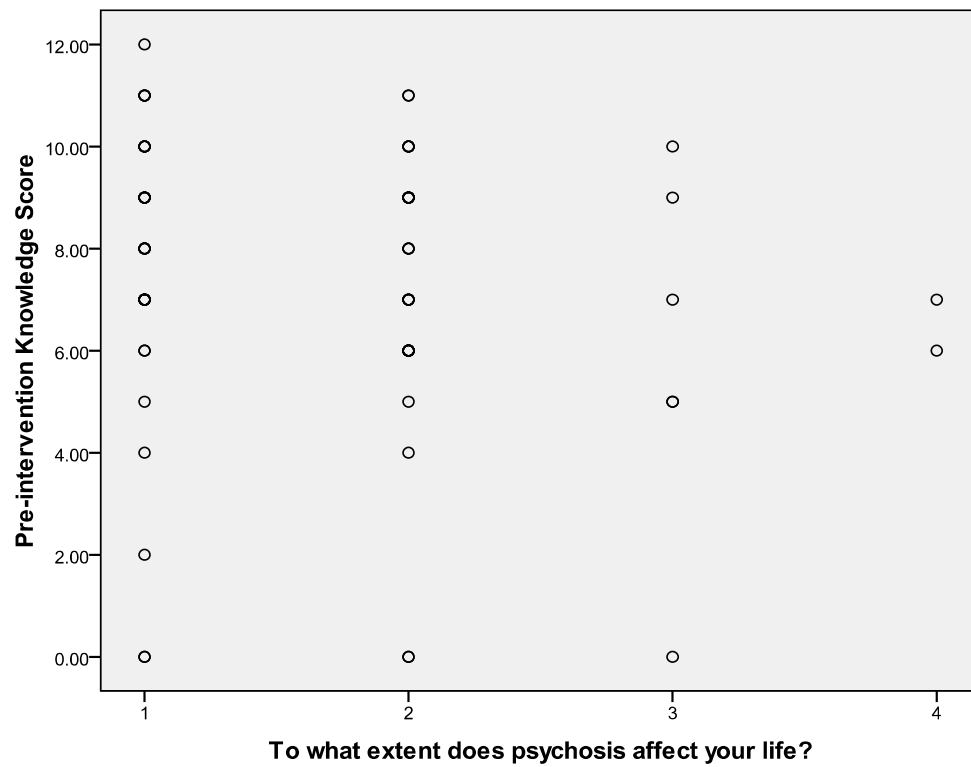
Figure 6. Scatter plot of knowledge scores and social distance scores after the presentation.

Figure 7. Scatter plot of knowledge about psychosis and prior exposure before the presentation
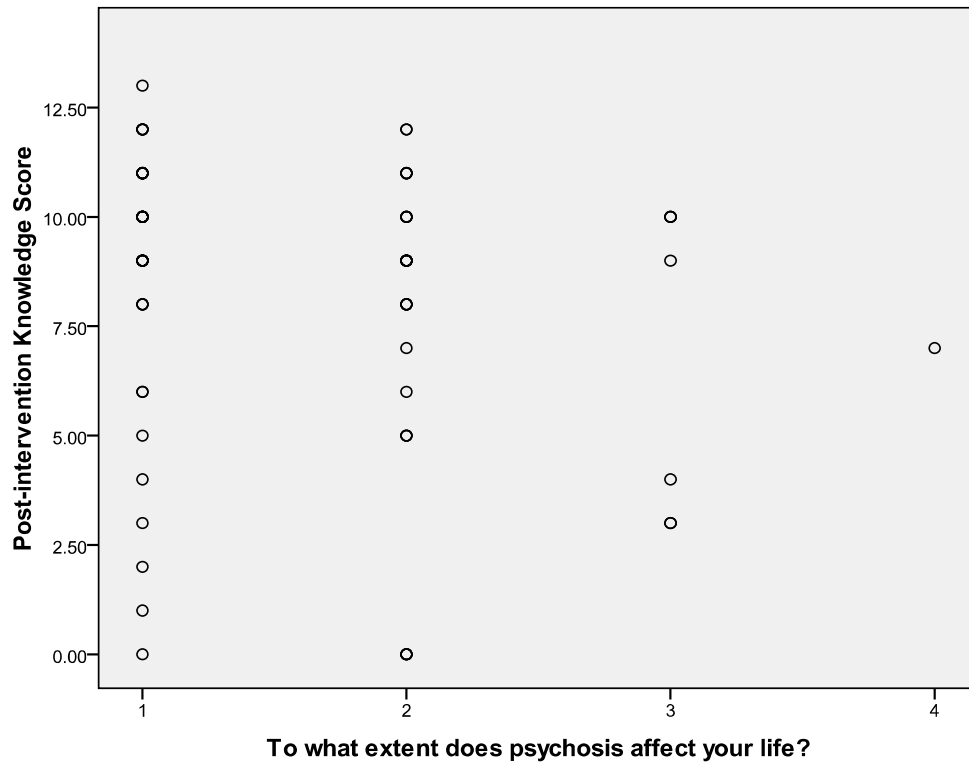
Figure 8. Scatter plot of knowledge about psychosis and prior exposure after the presentation
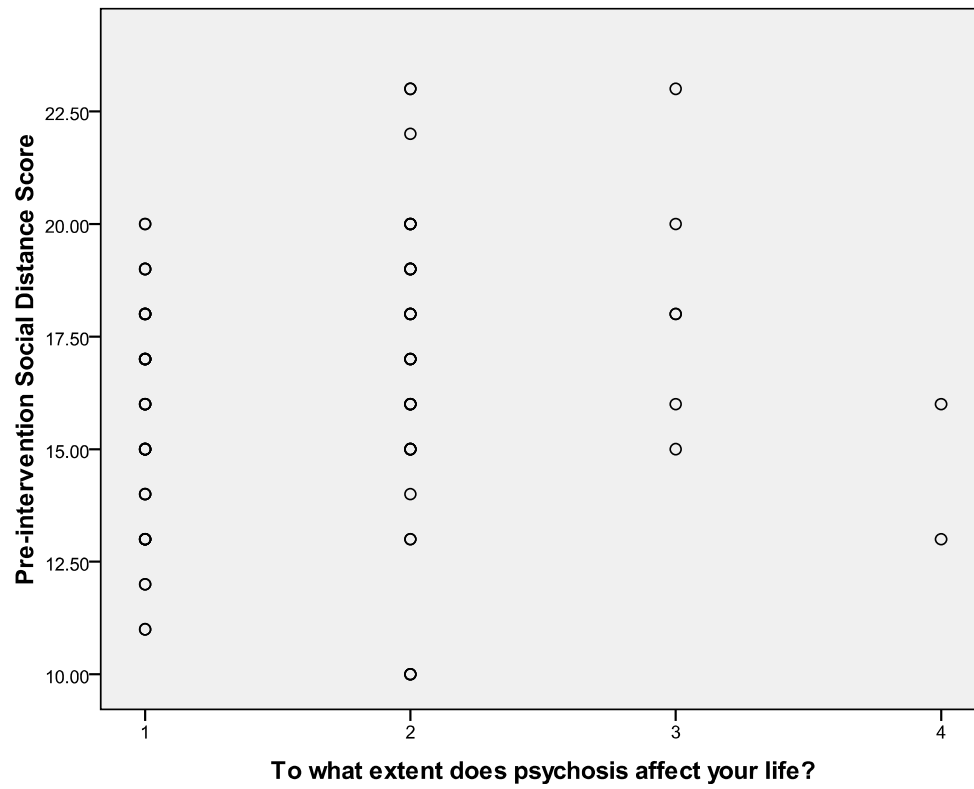
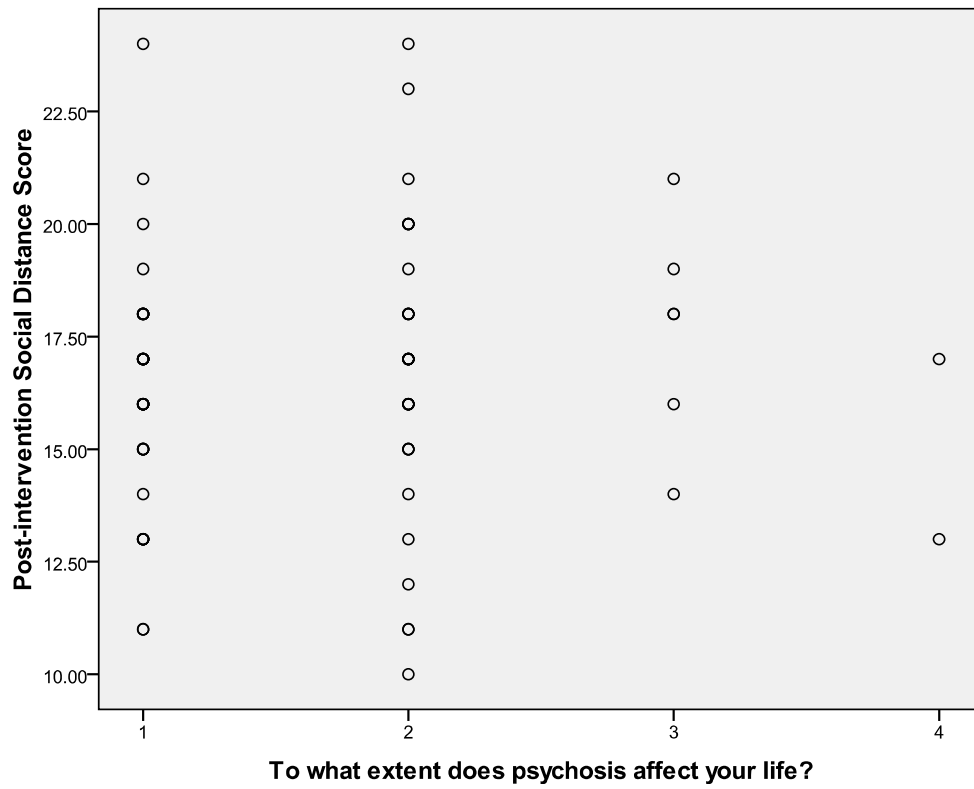Figure 9. Scatter plot of social distance and prior exposure before the presentation.

Figure 10. Scatter plot of social distance and prior exposure after the presentation
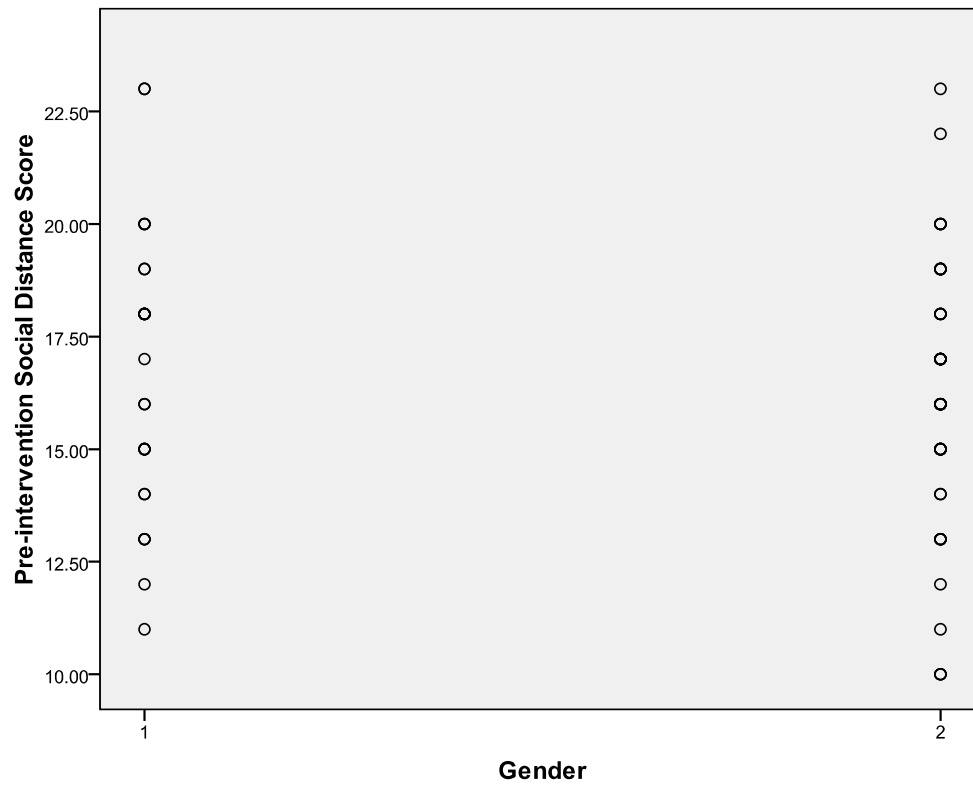
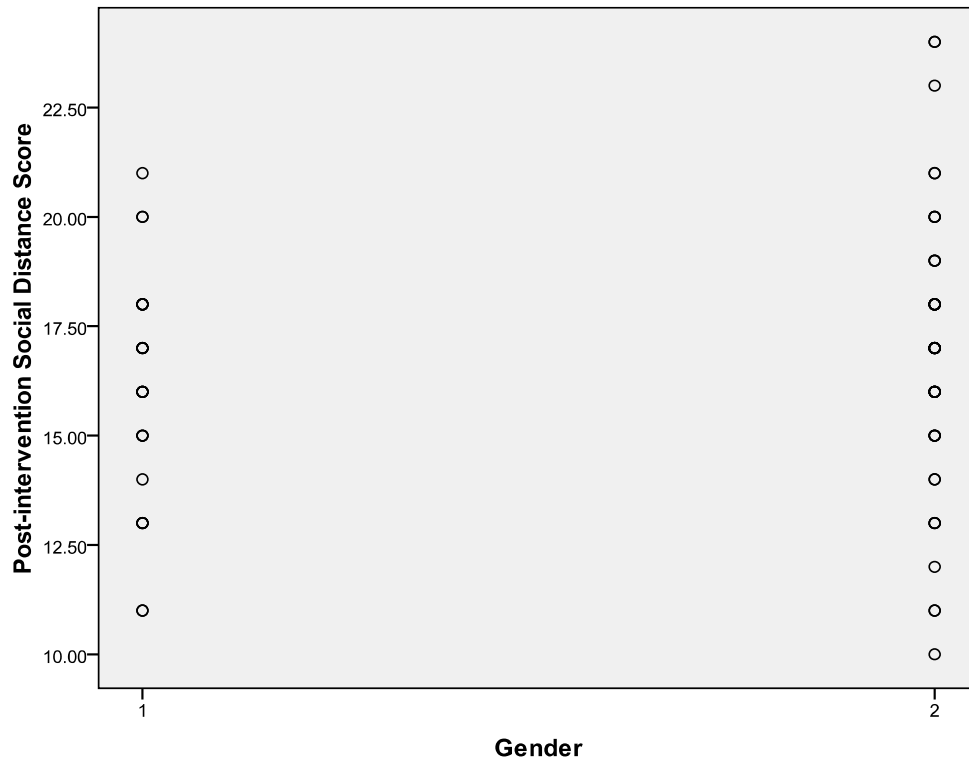Figure 11. Scatter plot of gender and social distance before the presentation.

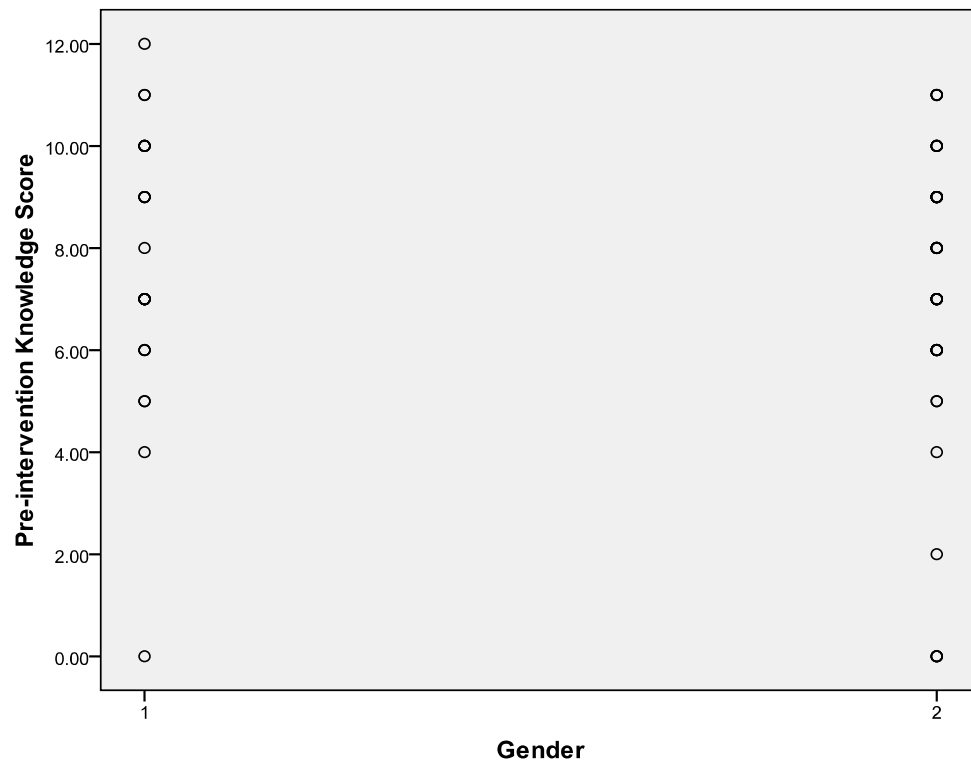Figure 12. Scatter plot of gender and social distance after the presentation.

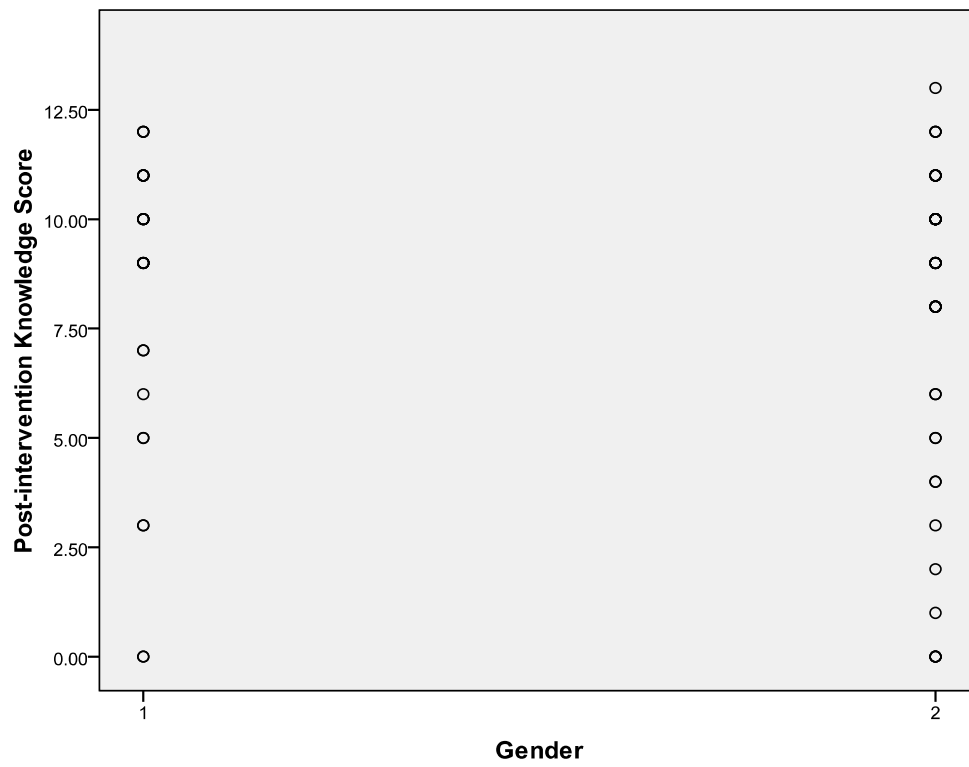Figure 13. Scatter plot of gender and knowledge before the presentation.

Figure 14. Scatter plot of gender and knowledge after the presentation.

Appendix A

Attribution Questionnaire (AQ-27)

Date: _____ Age: _____ Gender: _____ Initials (First/Middle/Last): _____

Part A:
**PLEASE READ THE FOLLOWING STATEMENT ABOUT HARRY:**
Harry is a 17-year old male with schizophrenia. Sometimes he hears voices and thinks he has an implant in his brain. He spends most of his time alone in his room and has stopped spending time with his friends. He had been hospitalized two times because of his illness.

**NOW ANSWER EACH OF THE FOLLOWING QUESTIONS ABOUT HARRY.**
**CIRCLE THE NUMBER OF THE BEST ANSWER TO EACH QUESTION.**

| | not at all | | | | | | | very much | |
|---|---|---|---|---|---|---|---|---|---|
| 1. I would feel aggravated by Harry. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 2. I would feel unsafe around Harry. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 3. Harry would terrify me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 4. How angry would you feel at Harry? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 5. If I were in charge of Harry's treatment, I would require him to take his medication. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 6. I think Harry poses a risk to his neighbors unless he is hospitalized. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 7. If I were an employer, I would interview Harry for a job. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 8. I would be willing to talk to Harry about his problems. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 9. I would feel pity for Harry. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10. I would think that it was Harry's own fault that he is in the present condition. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 11. How controllable, do you think, is the cause of Harry's present condition? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 12. How irritated would you feel by Harry? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 13. How dangerous would you feel Harry is? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 14. How much do you agree that Harry should be forced into treatment with his doctor even if he does not want to? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 15. I think it would be best for Harry's community of he were put away in a psychiatric hospital. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 16. I would share a car pool with Harry every day. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 17. How much do you think an asylum, where Harry can be kept away from his neighbors, is the best place for him? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 18. I would feel threatened by Harry. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 19. How scared of Harry would you feel? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 20. How likely is it that you would help Harry? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 21. How certain would you feel that you would help Harry? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 22. How much sympathy would you feel for Harry? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 23. How responsible, do you think, is Harry for his present condition? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 24. How frightened of Harry would you feel? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 25. If I were in charge of Harry's treatment, I would force him to live in a group home. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 26. If I were a landlord, I probably would rent an apartment to Harry. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 27. How much concern would you feel for Harry? | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Appendix B

Scoring Guide of the Attribution Questionnaire (AQ-27)

The AQ consists of 9 factors, which are scored by summing the items as outlined below:
Responsibility = AQ10+ AQ11 +AQ23
Pity = AQ9 + AQ22 + AQ27
Anger = AQ1 + AQ4 + AQ12
Dangerousness = AQ2 + AQ13 + AQ18
Fear = AQ3 + AQ19 + AQ24
Help = AQ8 + AQ20 + AQ21
Coercion = AQ5 + AQ14 + AQ25
Segregation = AQ6 + AQ15 + AQ17
Avoidance = AQ7 + AQ16 + AQ26

The higher the score, the more that factor is being endorsed by the subject.
Note the reversals in scoring items AQ7, AQ16, and AQ26.

Appendix C

World Psychiatric Association's Stigma Questionnaire

1. In the past 6 months, have you seen, read or heard anything in the news about people with psychosis or schizophrenia?

❐ Yes         ❐ No

2. Have you or someone you know ever been treated for an emotional problem or a mental illness?

❐ Yes         ❐ No         ❐ Not sure

(2a) If yes, was that …
❐ Yourself
❐ Spouse/child
❐ Other relation
❐ Friend
❐ Acquaintance
❐ Co-worker

3. Have you or someone you know ever been treated for psychosis or schizophrenia?

❐ Yes         ❐ No         ❐ Not sure

(3a) If yes, was that …
❐ Yourself
❐ Spouse/child
❐ Other relation
❐ Friend
❐ Acquaintance
❐ Co-worker

4. Psychosis can touch the lives of many people, often through close friends or relatives, but also through work, volunteerism or life in general. To what extent does psychosis affect your life?

❐         Not at all
❐         Somewhat
❐         Quite a bit
❐         All the time, that is, you deal with it almost daily

5. To the best of your knowledge what causes psychosis/schizophrenia?

(1) Definitely         (2) Probably         (3) Not sure         (4) Probably not   (5) Definitely not

_____Physical abnormalities in the brain
_____Chemical imbalance in the brain
_____Brain disease
_____Virus during pregnancy
_____Genetic inheritance
_____Other biological factor
_____Poor upbringing by parents
_____Physical abuse
_____Drug or alcohol abuse.

_____ Stress (such as losing a job, social stress)
_____ Traumatic event or shock (eg. assault, death and accident)
_____ Poverty
_____ General breakdown in social values
_____ Possession by evil spirits, God's punishment
_____ Other factors
_____ The exact causes are unknown

6. All things considered, do you believe people with psychosis/schizophrenia …
    (1) Frequently        (2) Often        (3) Rarely        or (4) Never
_____ Can be successfully treated outside of the hospital in the community
_____ Tend to be mentally retarded or of lower intelligence
_____ Hear voices telling them what to do
_____ Need prescription drugs to control their symptoms
_____ Can be successfully treated without drugs using psychotherapy or social
      interventions
_____ Are a public nuisance due to panhandling, poor hygiene or odd behavior
_____ Suffer from split or multiple personalities
_____ Can be seen talking to themselves or shouting in city streets
_____ Can work in regular jobs
_____ Are dangerous to the public because of violent behaviour

7. To the best of your knowledge, what percent of the population suffers from
schizophrenia?
        ❏ _____ per cent
        ❏ Don't know

8. Please tell us how you would feel in each of the following situations using the
scale…
        (1) Definitely  (2) Probably   (3) Probably not        (4) Definitely not

_____ Would you feel afraid to have a conversation with someone who has
psychosis?
_____ Would you be upset or disturbed about working on the same job with
someone who has psychosis?
_____ Would you be able to maintain a friendship with someone who has
psychosis?
_____ Would you feel upset or disturbed about rooming with someone who has
psychosis?
_____ Would you feel ashamed if people knew someone in your family has been
diagnosed with psychosis?
_____ Would you marry someone with psychosis?

Appendix D

World Psychiatric Association's Partnership Program Presentation Evaluation

**PRESENTATION EVALUATION**

We would appreciate your time in answering the following few questions about the presentation. Your response will help us evaluate whether we are meeting our goals and will help us to improve our performance.

1. Has your knowledge about psychosis improved as a result of this presentation?
□ Not at all □ Somewhat □ Considerably

2. Has this presentation changed your attitude towards people with psychosis?
□ My attitude has become more positive.
□ My attitude has not changed.
□ My attitude has become more negative.

3. Has your knowledge about other mental illnesses improved as a result of this presentation?
□ Not at all □ Somewhat □ Considerably

4. Has this presentation changed your attitude towards people with a mental illness?
□ My attitude has become more positive.
□ My attitude has not changed.
□ My attitude has become more negative.

5. What part of this presentation had the most benefit for you?

6. What part of this presentation would you improve?

7. Do you think that you will now act differently towards people with a mental illness as a result of this presentation? Please explain.

Appendix E

Knowledge Scoring Guide

5. To the best of your knowledge what causes psychosis/schizophrenia?

   Y   Physical abnormalities in the brain
   Y   Chemical imbalance in the brain
   Y   Brain disease
   Y   Virus during pregnancy
   Y   Genetic inheritance
   Y   Other biological factor
   N   Poor upbringing by parents
   N   Physical abuse
   N   Drug or alcohol abuse.
   N   Stress (such as losing a job, social stress)
   N   Traumatic event or shock (eg. assault, death and accident)
   N   Poverty
   N   General breakdown in social values
   N   Possession by evil spirits, God's punishment
  N/A  Other factors
  N/A  The exact causes are unknown

Note: "Y" indicates that the correct answer for this statement corresponds to a Likert scale value of 1 and 2. "N" indicates that the correct answer for this statement corresponds to a Likert scale value of 4 or 5.