Stigma toward Schizophrenia among Parents of High School Students

Hatsumi Yoshii1, Yuichiro Watanabe2,3, Atiqul Haq Mazumder4, Hideaki Kitamura2 & Kouhei Akazawa5

1 School of Health Sciences, Faculty of Medicine, Tohoku University, Miyagi, Japan
2 Department of Psychiatry, Niigata University Graduate School of Medical and Dental Sciences, Niigata, Japan
3 Division of Medical Education, Comprehensive Medical Education Center, School of Medicine, Faculty of Medicine, Niigata University, Niigata, Japan
4 National Institute of Mental Health, Dhaka, Bangladesh
5 Department of Medical Informatics and Statistics, Niigata University Graduate School of Medicine, Niigata, Japan

Correspondence: Hatsumi Yoshii, School of Health Sciences, Faculty of Medicine, Tohoku University, Miyagi, Japan. Tel: 81-22-717-7954. E-mail: hatsumi@med.tohoku.ac.jp

Abstract
Stigma toward schizophrenia is an important area of research as it is frequently a barrier to early intervention. This study attempted to identify factors underlying stigma in Japan. Because even adolescents can develop schizophrenia, 357 Japanese parents of high school students were enrolled. All parents lived outside the areas affected by the Tohoku earthquake that occurred on March 11, 2011 (ie, parts of Iwate, Miyagi, and Fukushima prefectures). Factor analysis using the Link Devaluation–Discrimination Measure identified two factors: comparison with an able-bodied person and non-comparison with an able-bodied person. Regression analysis revealed that family structure had independent effects on factor 2 (p <0.05), and ANOVA showed that education had independent effects on factor 2 (p <0.05). These results suggest that education programs that seek to counteract stigma should target curricula in high schools and vocational schools.

Keywords: schizophrenia, stigma, high school students, parents

1. Introduction
Schizophrenia can develop in high school student (Nishida et al., 2008). However, stigma reduces the chance for early intervention in schizophrenia (Addington et al., 2012; Tanaka et al., 2003; Lysaker et al., 2007; Esterberg et al., 2008). The possibilities of earlier detection and early treatment of schizophrenia might be increased if stigma can be reduced among parents of high school students (Perlick et al., 2001). Stigma toward schizophrenia has been studied in many populations (Loch et al., 2013; Broussard et al., 2012; Scior et al., 2013), including Brazil (Loch et al., 2013), an African-American community (Broussard et al., 2012), and across ethnic groups in the United Kingdom (white, Asian, and black African UK residents) (Scior et al., 2013). However, these studies did not investigate early intervention.

Public stigma and discrimination have harmful effects on the lives of people with serious mental illnesses (Corrigan et al., 2012), as they can lead to discrimination in education, employment, personal relationships, marriage, and housing (Takahashi et al., 2009). The future of an adolescent with a diagnosis of a serious mental disorder would thus appear to be unpromising. Researchers in psychiatry must seek to identify interventions that effectively address such stigma. In addition, sociocultural milieu can influence stigma toward schizophrenia (Thirthalli et al., 2012). Increased resistance to stigma requires an understanding of one's own sociocultural background and a strong social network, which provide a sense of comfort and security that enable a fulfilling life (Tang et al., 2012). Therefore, researchers in Japan must consider the characteristics of stigma toward schizophrenia that are unique to this country. In addition, early intervention must be considered.

Previous Japanese studies found evidence of self-stigma among people with schizophrenia (Uchino et al., 2012), stigma among psychiatric staff (Hanzawa et al., 2012; Hori et al., 2011), and a change in attitudes toward the disease after the official Japanese term used for schizophrenia was changed (Umehara et al., 2011). Previous studies also identified factors associated with early intervention for schizophrenia, including the attitudes of...
parents of junior and senior high school students (Yoshii et al., 2011), the impact of changing the term used for schizophrenia in Japan (due to stereotypical beliefs regarding schizophrenia) (Takahashi et al., 2009), and attitudes toward schizophrenia among Japanese and Taiwanese elementary school teachers (Kurumatani et al., 2004). The relation between stigma and early intervention in schizophrenia has unfortunately not been adequately studied in Japan. Such research is necessary, however, if effective early interventions for schizophrenia are to be developed. We attempted to identify the factors underlying stigma among parents of high school students in Japan.

2. Methods

2.1 Participants

For the above-mentioned reasons, 357 parents (enrolled by a Japanese company specializing in research recruitment) of high school students were asked to complete a questionnaire. Parents living in the area affected by the Japanese Tohoku earthquake of March 11, 2011 were excluded (parts of Miyagi, Fukushima, and Iwate prefectures). This study was approved by the Ethics Committee of the Niigata University School of Medicine.

2.2 Measurement

The questionnaire collected information on sociodemographic data and general attitudes toward schizophrenia, which was evaluated based on our modification of the Link Devaluation–Discrimination Measure (Link 1987). In brief, questionnaire references to a 'patient in a psychiatry department' were changed to a 'patient with schizophrenia'. This scale consists of 12 items that were graded using a 4-point Likert scale (1-4 points), with higher scores representing increased stigma. Items 1, 2, 3, 4, 8, and 10 were reverse-scored.

2.3 Statistical Analysis

All analyses were performed by using the Statistical Package for Social Sciences (SPSS) version 18.0. All statistical tests were two-tailed, and a p-value less than 0.05 was considered to indicate statistical significance. Factor analysis with the major factor method and Promax rotation was used to examine the factor structure for stigma. The reliability of scales with multiple items was evaluated by Cronbach’s $\alpha$. The $t$ test was used to analyze differences in the distributions of factor scores between categories when the factor had two categories, and ANOVA was used when the factor had more than two categories. The relative importance of different sociodemographic variables in predicting factor scores was examined by multiple regression analysis.

3. Results

3.1 Participant Characteristics

The participants were 357 Japanese parents (age range, 37-62 years) of high school students; 192 (53.8%) were male and 165 (46.2%) were female. Regarding education status, 153 (42.9%) had a university education and 105 (29.4%) had a high school education. The most frequently reported birthplace was the Kanto region (n=113; 31.7%).

3.2 Link Devaluation–Discrimination Measure Scores in Parents of High School Students

Mean (SD) score on the Link Devaluation–Discrimination Measure was 32.55 (4.42); the score range was 12 to 48. The Cronbach’s $\alpha$ of 0.788 for the Link Devaluation–Discrimination Measure was considered acceptable. The median score was 32.00, which indicates moderate stigma. Results of factor analysis of the Link Devaluation–Discrimination Measure revealed two factors with eigenvalues $\geq 1$. Factor 1 was comparison with an able-bodied person (proportion of variance, 32.0%; $\alpha$ coefficient, 0.82), and factor 2 was non-comparison with an able-bodied person (proportion of variance, 17.3%; $\alpha$ coefficient, 0.73), for a total variance of 19.5%. The mean score was 16.98 for factor 1 (SD, 2.79; range, 6-24) and 15.57 for factor 2 (SD, 2.76; range, 6-24; Table 1).
Table 1. Factor loading for the link devaluation–discrimination measure (revised) with major factor method and promax rotation

| Factors and items | Factor 1 | Factor 2 |
|-------------------|----------|----------|
| **Factor 1: Comparison with able-bodied person** |          |          |
| Q1: Most people would accept a person with schizophrenia as a close friend. | 0.676 | 0.041 |
| Q2: Most people believe that a person with schizophrenia is as intelligent as the average person. | 0.75 | -0.008 |
| Q3: Most people believe that a person with schizophrenia is just as trustworthy as the average citizen. | 0.863 | -0.064 |
| Q4: Most people would accept a person who had fully recovered from schizophrenia as a teacher of young children in a public school. | 0.591 | -0.052 |
| Q8: Most employers will hire a person with schizophrenia if he or she is qualified for the job. | 0.572 | 0.027 |
| Q10: Most people in my community would treat a person with schizophrenia just as they would treat anyone. | 0.519 | 0.05 |
| **Factor 2: Non-comparison with able-bodied person** |          |          |
| Q5: Most people feel that becoming schizophrenic is a sign of personal failure. | 0.078 | 0.364 |
| Q6: Most people would not hire a person with schizophrenia to take care of their children, even if he or she had been well for some time. | 0.03 | 0.602 |
| Q7: Most people think less of a person who has had schizophrenia. | -0.011 | 0.657 |
| Q9: Most employers will pass over the application of a person with schizophrenia in favor of another applicant. | -0.215 | 0.443 |
| Q11: Most young women would be reluctant to date a man who has schizophrenia. | 0.02 | 0.654 |
| Q12: Once they know a person had schizophrenia, most people will take his or her opinions less seriously. | 0.094 | 0.675 |
| **Eigenvalue** | 3.837 | 2.078 |
| **Explained variance %** | 31.971 | 17.317 |
| **α** | 0.822 | 0.732 |

Factor loadings >0.3 are used. Total variance, 19.501%; α = 0.788. Q1, 2, 3, 4, 8, and 10 were reversed items and were reverse-scored.

3.3 Link Devaluation–Discrimination Measure Scores by Factor and Demographic Characteristics

The mean scores for factors 1 and 2, by demographic characteristic, are shown in Table 2. Education was significantly associated with the score for factor 2 (p=0.02). A high school education was associated with the highest score for factor 2 (mean, 16.06), and a junior high school education was associated the lowest score for that factor (mean, 11.0). The association between birthplace and factor 1 was of borderline statistical significance (p=0.051). Other demographic factors (eg, gender, age, and domicile) were not significantly associated with scores for factors 1 and 2 (p >0.05). Multiple regression analysis revealed that family structure was significantly associated with factor 2 (p <0.05; Table 3).

Table 2. Factor scores

|                | n  | factor 1 | factor 2 |
|----------------|----|----------|----------|
|                |    | mean     | p        | mean     | p        |
| **Gender**     |    |          |          |          |          |
| Male           | 192| 17.01    | 0.856    | 15.48    | 0.521    |
| Female         | 165| 16.95    |          | 15.67    |          |
| **Age, years** |    |          |          |          |          |
| 30 - 39        | 14 | 16.86    | 0.544    | 15.57    | 0.064    |
| 40 - 49        | 239| 17.14    |          | 15.49    |          |
| 50 - 59        | 103| 16.62    |          | 15.8     |          |
| 60 - 69        | 1  | 18       |          | 12       |          |
| **Education level** |    |          |          |          |          |
| Junior high school | 2 | 15      | 0.356    | 11      | 0.02     |
| High school    | 105| 17.2     |          | 16.06    |          |
| Vocational school | 42 | 16.67   |          | 16.05    |          |
| Category                              | Category | Category |
|---------------------------------------|----------|----------|
| Junior college                        | University | Graduate school |
| 40                                    | 153      | 14       |
| 17.43                                 | 16.76    | 17.86    |
| 14.8                                  | 15.43    | 15.07    |
| Other                                 |          |          |
| 1                                     | 14       |          |
| Birthplace                            |          |          |
| Hokkaido                              |          |          |
| 6                                     |          |          |
| 15.83                                 |          |          |
| 15                                    |          |          |
| Tohoku                                |          |          |
| 4                                     |          |          |
| 17.75                                 |          |          |
| 17.25                                 |          |          |
| Kanto                                 |          |          |
| 113                                   |          |          |
| 17.17                                 |          |          |
| 15.72                                 |          |          |
| Sinetsu                               |          |          |
| 10                                    |          |          |
| 15                                    |          |          |
| 16.2                                  |          |          |
| Hokuriku                              |          |          |
| 10                                    |          |          |
| 15.1                                  |          |          |
| 14.4                                  |          |          |
| Tokai                                 |          |          |
| 53                                    |          |          |
| 17.49                                 |          |          |
| 15.25                                 |          |          |
| Kinki                                 |          |          |
| 90                                    |          |          |
| 16.68                                 |          |          |
| 15.46                                 |          |          |
| Chugoku                               |          |          |
| 21                                    |          |          |
| 17.33                                 |          |          |
| 15.86                                 |          |          |
| Shikoku                               |          |          |
| 18                                    |          |          |
| 18.17                                 |          |          |
| 16.33                                 |          |          |
| Kyusyu                                |          |          |
| 31                                    |          |          |
| 16.74                                 |          |          |
| 15.42                                 |          |          |
| Okinawa                               |          |          |
| 1                                     |          |          |
| 17                                    |          |          |
| 14                                    |          |          |
| Domicile                              |          |          |
| Kanto                                 |          |          |
| 135                                   |          |          |
| 17.01                                 |          |          |
| 15.56                                 |          |          |
| Sinetsu                               |          |          |
| 8                                     |          |          |
| 14.75                                 |          |          |
| 15.5                                  |          |          |
| Hokuriku                              |          |          |
| 6                                     |          |          |
| 15.67                                 |          |          |
| 14.17                                 |          |          |
| Tokai                                 |          |          |
| 52                                    |          |          |
| 17.23                                 |          |          |
| 15.69                                 |          |          |
| Kinki                                 |          |          |
| 93                                    |          |          |
| 16.89                                 |          |          |
| 15.59                                 |          |          |
| Chugoku                               |          |          |
| 21                                    |          |          |
| 17.19                                 |          |          |
| 15.48                                 |          |          |
| Shikoku                               |          |          |
| 12                                    |          |          |
| 18                                    |          |          |
| 16                                    |          |          |
| Kyusyu                                |          |          |
| 28                                    |          |          |
| 17.04                                 |          |          |
| 15.57                                 |          |          |
| Okinawa                               |          |          |
| 2                                     |          |          |
| 16                                    |          |          |
| 15.5                                  |          |          |
| Marriage status                       |          |          |
| Unmarried                              |          |          |
| 3                                     |          |          |
| 17.67                                 |          |          |
| 18.33                                 |          |          |
| Married                               |          |          |
| 338                                   |          |          |
| 16.93                                 |          |          |
| 15.5                                  |          |          |
| Divorced                              |          |          |
| 16                                    |          |          |
| 18                                    |          |          |
| 16.56                                 |          |          |
| Family structure                      |          |          |
| 2 parents                             |          |          |
| 280                                   |          |          |
| 16.9                                  |          |          |
| 15.41                                 |          |          |
| 1 parent                              |          |          |
| 14                                    |          |          |
| 17.36                                 |          |          |
| 16.57                                 |          |          |
| 3 generations                        |          |          |
| 56                                    |          |          |
| 17.06                                 |          |          |
| 15.91                                 |          |          |
| Others                                |          |          |
| 7                                     |          |          |
| 18.14                                 |          |          |
| 17.43                                 |          |          |
| Employment status                     |          |          |
| Full-time                             |          |          |
| 184                                   |          |          |
| 17.01                                 |          |          |
| 15.53                                 |          |          |
| Part-time                             |          |          |
| 67                                    |          |          |
| 17.13                                 |          |          |
| 15.67                                 |          |          |
| Self-employed/housework/liberal profession |      |          |
| 39                                    |          |          |
| 16.59                                 |          |          |
| 15.67                                 |          |          |
| Side job                              |          |          |
| Full-time homemaker                   |          |          |
| 62                                    |          |          |
| 16.89                                 |          |          |
| 15.47                                 |          |          |
| Unemployed                            |          |          |
| 4                                     |          |          |
| 19.5                                  |          |          |
| 15.75                                 |          |          |
| Other                                 |          |          |
| 1                                     |          |          |
| 12                                    |          |          |
| 18                                    |          |          |
| Family income, yen                    |          |          |
| <1 million                            |          |          |
| 9                                     |          |          |
| 16.56                                 |          |          |
| 14.78                                 |          |          |
| 1 to 3 million                        |          |          |
| 32                                    |          |          |
| 17.25                                 |          |          |
| 16.41                                 |          |          |
| 3 to 5 million                        |          |          |
| 70                                    |          |          |
| 16.69                                 |          |          |
| 15.3                                  |          |          |
| 5 to 10 million                       |          |          |
| 178                                   |          |          |
| 17.09                                 |          |          |
| 15.47                                 |          |          |
| >10 million                           |          |          |
| 68                                    |          |          |
| 16.93                                 |          |          |
| 15.82                                 |          |          |
| Proximity to person with schizophrenia |          |          |
| Yes                                   |          |          |
| 24                                    |          |          |
| 17.42                                 |          |          |
| 16.29                                 |          |          |
| No                                    |          |          |
| 333                                   |          |          |
| 16.95                                 |          |          |
| 15.52                                 |          |          |
| Participation in welfare activities for people with mental illnesses |          |          |
| Yes                                   |          |          |
| 30                                    |          |          |
| 17.03                                 |          |          |
| 16.33                                 |          |          |
| No                                    |          |          |
| 327                                   |          |          |
| 16.97                                 |          |          |
| 15.5                                  |          |          |

Note: t-test, ANOVA
Table 3. Results of multiple regression analysis of factors 1 and 2 as dependent variables (n = 357)

| Variable                        | Factor 1 |          |          | Factor 2 |          |          |
|--------------------------------|----------|----------|----------|----------|----------|----------|
|                                | \(\beta\) | \(t\)   | \(p\)    | \(\beta\) | \(t\)   | \(p\)    |
| Gender                         | -0.01    | -0.181   | 0.856    | 0.034    | 0.643    | 0.521    |
| Age                            | -0.064   | -1.205   | 0.229    | 0.031    | 0.586    | 0.558    |
| Education                      | -0.028   | -0.527   | 0.599    | -0.101   | -1.918   | 0.056    |
| Birthplace                     | 0.016    | 0.304    | 0.761    | -0.018   | -0.346   | 0.73     |
| Domicile                       | 0.027    | 0.509    | 0.611    | 0.012    | 0.232    | 0.817    |
| Marriage status                | 0.072    | 1.364    | 0.173    | 0.056    | 1.057    | 0.291    |
| Family structure               | 0.061    | 1.154    | 0.249    | 0.113    | 2.139    | 0.033    |
| Employment status              | -0.015   | -0.278   | 0.781    | 0.004    | 0.081    | 0.935    |
| Job                            | -0.011   | -0.192   | 0.848    | 0.008    | 0.142    | 0.887    |
| Family income                  | 0.012    | 0.223    | 0.824    | 0.004    | 0.084    | 0.934    |
| Proximity to person with       | -0.042   | -0.793   | 0.428    | -0.07    | -1.326   | 0.186    |
| schizophrenia                  |          |          |          |          |          |          |
| Participation in welfare       | -0.017   | -0.313   | 0.754    | -0.084   | -1.584   | 0.114    |
| activities for people with     |          |          |          |          |          |          |
| mental illness                 |          |          |          |          |          |          |

\(\beta\): standardized regression coefficient; \(t\): t-value; \(R\): multiple correlation coefficients

4. Discussion

Early diagnosis (during the prodromal phase) and early treatment of the first episode of psychosis (FEP) may prevent or reduce disease morbidity (Lenciu et al., 2010). Treatment is often delayed, even in developed nations such as the United Kingdom, and it may require as long as 2 years from the first signs of psychosis for families to seek help (Kulhara et al., 2008). Mental disorders are common in young people; yet many do not seek help (Anzai et al., 2002). Studies of help-seeking have shown that stigma components have varying effects on help-seeking (Wright et al., 2011). We hypothesize that decreasing stigma to schizophrenia among parents of high school student would lead to earlier detection and early treatment of schizophrenia. We therefore limited our investigation of stigma to parents of high school students, and the factor of stigma was investigated. Stigma is an overarching term that comprises three key elements: problems of knowledge, problems of attitudes, and problems of behavior (Durand-Zaleski et al., 2012). The present results revealed two important factors: comparison with an able-bodied person and non-comparison with an able-bodied person. The former is synonymous with public stigma, which was first conceptualized by Corrigan and Watson (Peluso et al., 2010). In a probabilistic sample of 500 individuals aged 18 to 65 years and living in the city of Sao Paulo, Brazil, Peluso and Blay found that 59.0% perceived people with schizophrenia as capable of arousing negative reactions and 57.2% as capable of arousing discrimination in society (Peluso et al., 2011). Stigma components associated with reduced willingness to seek help for a mental disorder include personally believing that a person is weak not sick, social distance, perceived stigma, and self-stigma (Wright et al., 2011).

High school students hold certain stereotypical beliefs about people with schizophrenia and are sometimes reluctant to interact with them (Economou et al., 2012). However, upon completion of an intervention, positive changes were seen in student beliefs, attitudes, and desired social distance, and these changes in beliefs and attitudes were still present one year later (Economou et al., 2012). Imaging of intergroup contact can combat mental health stigma by reducing anxiety, avoidance, and negative stereotyping (Stathi et al., 2012). The present authors believe that interventions should also target parents of students, as parents of children with schizophrenia typically have difficulties in understanding their child’s condition. Using unit-factor analysis, we previously sought to identify factors influencing stigma against schizophrenia among parents of junior high and high school students (Yoshii, 2011). The extracted factors were occupation, household annual income, history of contact with a person with schizophrenia, and history of participating in a mental-health welfare activities. These results obviously differ from those of the present study. The above-mentioned factors were not significantly associated with scores for factors 1 or 2 (p >0.05) in the present study. Therefore, it can be said that stigma differs according to the subject.
The stigma associated with mental illness in Japanese families is high (Anzai et al., 2002), and individuals with schizophrenia and their families have suffered greatly from the effects of such stigma (Omori et al., 2012). Individuals with mental illness who are highly stigmatized face serious obstacles in multiple domains, including social isolation, loss of income, difficulty obtaining housing and employment, depression, decreased quality of life, and reduced access to medical care (Park et al., 2013). The quality of life of patients with schizophrenia is lower than that of the general population and that of individuals with certain physical disorders or other mental illnesses (Sibitz et al., 2011). Thus, the study of factors associated with public stigma is important in understanding the construction of stigma and in developing anti-stigma strategies aimed at the population (Peluso et al., 2010). Patients with schizophrenia were compared with an able-bodied person in our analysis of parents of high school students. Family structure and education had independent effects on the factor of non-comparison with an able-bodied person. In a study of relatives of people with schizophrenia, opinions and attitudes regarding schizophrenia were related to education level, economic status, and geographic origin (Bouhlel et al., 2012). These results suggest that education programs that seek to counteract stigma should target high school and vocational school curricula.

Strategies have been developed to reduce stigma among people with mental illnesses. Targeted strategies to decrease stigma toward people with schizophrenia may be useful to facilitate their social participation and full inclusion in the community. However, such strategies must conform to the characteristics of the target community. Therefore, it is necessary to understand the demographic characteristic of the target community (e.g., educational level). The present authors hope to develop relevant strategies in Japan. In Japan, educational level is lower among rural communities than in cities (Benesse Educational Research and Development Institute). Therefore, anti-stigma measures that target parents of high school students in Japan, especially households with one parent and those in rural communities, might be important. Finally, community-level programs and the participation of psychiatric specialists could help individuals and their families overcome the challenges of mental illness and improve their quality of life (Lenciu et al., 2010).

Acknowledgements and Funding
This work was supported by a 2010 Grant-in-Aid for Scientific Research (C), entitled “Investigations of the Consciousness of Parents of Junior and Senior High School Students Concerning Schizophrenia and the Development of Educational Enlightenment Media,” from the Japan Society for the Promotion of Science (22592581).

References
Addington, D., Berzins, S., & Yeo, M. (2012). Psychosis literacy in a canadian health region: results from a general population sample. Can J Psychiatry, 57, 381-8.

Anzai, N., Yoneda, S., Kumagai, N., Nakamura, U., Ikebuchi, E., & Liberman, R. P. (2002). Rehab Rounds: Training persons with schizophrenia in illness self-management: a randomized controlled trial in Japan. Psychiatric Services, 53, 545-7.

Benesse Educational Research and Development Institute. Retrieved from http://benesse.jp/berd/center/open/report/kyoiku_kakusa/2008/kyoiku_kakusa_Chapter1_05.html

Bouhlel, S., Ben Haouala, S., Klibi, A., Ghaouar, M., Chennoufi, L., Melki, W., & El-Hechmi, Z. (2012). Assessing beliefs and attitudes of relatives of patients with schizophrenia: A study in a Tunisian sample. Encephale, 39, 165-73. http://dx.doi.org/10.1016/j.encep.2012.06.012

Broussard, B., Goulding, S., Talley, C. L., & Compton, M. T. (2012). Social distance and stigma toward individuals with schizophrenia: findings in an urban,African-American community sample. J Nerv Ment Dis, 200, 935-40. http://dx.doi.org/10.1097/NMD.0b013e3182718c1b

Corrigan, P. W., Morris, S. B., Michaels, P. J., Rafacz, J. D., & Rusch, N. (2012). Challenging the public stigma of mental illness: a meta-analysis of outcome studies. Psychiatr Serv, 63, 963-73. http://dx.doi.org/10.1176/appi.ps.201100529

Durand-Zaleski, I., Scott, J., Rouillon, F., & Leboyer, M. (2012). A first national survey of knowledge, attitudes and behaviours towards schizophrenia, bipolar disorders and autism in France. BMC Psychiatry, 12, 128. http://dx.doi.org/10.1186/1471-244X-12-128

Economou, M., Louki, E., Peppou, L. E., Gramandani, C., Yotis, L., & Stefanis, C. N. (2012). Fighting psychiatric stigma in the classroom: the impact of an educational intervention on secondary school students' stitudes to schizophrenia. Int J Soc Psychiatry, 58, 544-51. http://dx.doi.org/10.1177/0020764011413678
Esterberg, M. L., Compton, M. T., McGee, R., Shim, R., & Hochman, K. (2008). Knowledge about schizophrenia and social distance toward individuals with schizophrenia: A survey among predominantly low-income, urban, African American community members. *Journal of Psychiatric Practice, 14*, 86-93. http://dx.doi.org/10.1097/01.pra.0000314315.94791.80

Hanzawa, S., Nosaki, A., Yatabe, K., Nagai, Y., Tanaka, G., Nakane, H., & Nakane, Y. (2012). Study of understanding the internalized stigma of schizophrenia in psychiatric nurses in Japan. *Psychiatry Clin Neurosci, 66*, 113-20. http://dx.doi.org/10.1111/j.1440-1819.2011.02307.x

Hori, H., Richards, M., Kawamoto, Y., & Kunugi, H. (2011). Attitudes toward schizophrenia in the general population, psychiatric staff, physicians, and psychiatrists: a web-based survey in Japan. *Psychiatry Res, 186*, 183-9. http://dx.doi.org/10.1016/j.psychres.2010.08.019

Kulhara, P., Banerjee, A., & Dutt, A. (2008). Early intervention in schizophrenia. *Indian J Psychiatry, 50*, 128-134. http://dx.doi.org/10.4103/0019-5545.42402

Kurumatani, T., Ukawa, K., Kawaguchi, Y., Miyata, S., Suzuki, M., Ide, H., ... Uemoto, M. (2004). Teachers' knowledge, beliefs and attitudes concerning schizophrenia- a cross-cultural approach in Japan and Taiwan. *Soc Psychiatry Psychiatr Epidemiol, 39*, 402-9.

Lenciu, M., Romosan, F., Bredicean, C., & Romosan, R. (2010). First episode psychosis and treatment delay--causes and consequences. *Psychiatr Danub, 22*, 540-3.

Link, B. G. (1987). Understanding labelling effects in the area of mental disorders: an assessment of the effects of expectations of rejection. *Am Sociol Rev, 52*, 96-112.

Loch, A. A., Hengartner, M. P., Guarniero, F. B., Lawson, F. L., Wan, Y. P., Gattaz, W. F., & Rossler, W. (2013). The more information, the more negative stigma towards schizophrenia: Brazilian general population and psychiatrists compared. *Psychiatry Res, 28*, 185-91. http://dx.doi.org/10.1016/j.psychres.2012.11.023

Lysaker, P. H., Davis, L. W., Warman, D. M., Strasburger, A., & Beattie, N. (2007). Stigma, social function and symptoms in schizophrenia and schizoaffective disorder: Associations across 6 months. *Psychiatry Research, 149*, 89-95. http://dx.doi.org/10.1016/j.psychres.2006.03.007

Nishida, A., Tanii, H., Nishimura, Y., Kajiki, N., Inoue, K., Okada, M., ... Okazaki, Y. (2008). Associations between psychotic-like experiences and mental health status and other psychopathologies among Japanese early teens. *Schizophr Res, 99*, 125-133. http://dx.doi.org/10.1016/j.schres.2007.11.038

Omori, A., Tateno, A., Ideno, T., Takahashi, H., Kawashima, Y., Takemura, K., & Okubo, Y. (2012). Influence of contact with schizophrenia on implicit attitudes towards schizophrenia patients held by clinical residents. *BMC Psychiatry, 12*, 205. http://dx.doi.org/10.1186/1471-244X-12-205.

Park, S. G., Bennett, M. E., Couture, S. M., & Blanchard, J. J. (2013). Internalized stigma in schizophrenia: Relations with dysfunctional attitudes, symptoms, and quality of life. *Psychiatry Research, 205*, 43-7. http://dx.doi.org/10.1016/j.psychres.2012.08.040

Perlick, D. A., Rosenheck, R. A., Clarkson, J. F., Sirey, J. A., Salahi, J., Struening, E. L., & Link, B. G. (2001). Stigma as a barrier to recovery: adverse effects of perceived stigma on social adaptation of persons diagnosed with bipolar affective disorder. *Psychiatric Services, 52*, 1627-1632.

Peluso, E. T., & Blay, S. L. (2010). Public stigma and schizophrenia in Sao Paulo city. *Rev Bras Psiquiatr, 23*. http://dx.doi.org/S1516-44462010005000004

Peluso, E. T., & Blay, S. L. (2011). Public stigma and schizophrenia in Sao Paulo city. *Rev Bras Psiquiatr, 33*, 130-6.

Scior, K., Potts, H. W., & Furnham, A. F. (2013). Awareness of schizophrenia and intellectual disability and stigma across ethnic groups in the UK. *Psychiatry Res, 30*, 125-30. http://dx.doi.org/10.1016/j.psychres.2012.09.059.

Sibitz, I., Amering, M., Unger, A., Seyringer, M. E., Bachmann, A., Schrank, B., ... Woppmann, A. (2011). The impact of the social network, stigma and empowerment on the quality of life in patients with schizophrenia. *European Psychiatry, 26*, 28-33. http://dx.doi.org/10.1016/j.eurpsy.2010.08.010

Stathi, S., Tsantila, K., & Crisp, R. J. (2012). Imaging intergroup contact can combat mental health stigma by reducing anxiety, avoidance and negative stereotyping. *J Soc Psychol, 152*, 746-57.

Takahashi, H., Ideno, T., Okubo, S., Matsu, H., Takemura, K., Matsuura, M., ... Okubo, Y. (2009). Impact of
changing the Japanese term for "schizophrenia" for reasons of stereotypical beliefs of schizophrenia in Japanese youth. *Schizophr Res*, 112, 149-52. http://dx.doi.org/10.1016/j.schres.2009.03.037

Tanaka, G., Ogawa, T., Inadomi, H., Kikuchi, Y., & Ohta, Y. (2003). Effects of an educational program on public attitudes towards mental illness. *Psychiatry and Clinical Neurosciences*, 57, 595-602. http://dx.doi.org/10.1046/j.1440-1819.2003.01173.x

Tang, I. C., & Wu, H. C. (2012). Quality of life and self-stigma in individuals with schizophrenia. *Psychiatr Q.*, 83, 497-507. http://dx.doi.org/10.1007/s11126-012-9218-2

Thirthalli, J., & Kumar, C. N. (2012). Stigma and disability in schizophrenia: developing countries' perspective. *Int Rev Psychiatry*, 24, 423-40. http://dx.doi.org/10.3109/09540261.2012.703644

Uchino, T., Maeda, M., & Uchimura, N. (2012). Psycho education may Reduce Self-Stigma of People with Schizophrenia and Schizoaffective Disorder. *Kurume Med J*, 59, 25-31.

Umehara, H., Fangerau, H., Gaebel, W., Kim, Y., Schott, H., & Zielasek, J. (2011). From "schizophrenia" to "disturbance of the integrity of the self": causes and consequences of renaming schizophrenia in Japan in 2002. *Nervenarzt*, 82, 1160-8. http://dx.doi.org/10.1007/s00115-010-3208-0

Wright, A., Jorm, A. F., & Mackinnon, A. J. (2011). Labeling of mental disorders and stigma in young people. *Social Science & Medicine*, 73, 498-506. http://dx.doi.org/10.1016/j.socscimed.2011.06.015

Yoshii, H., Watanabe, Y., Kitamura, H., Nan, Z., & Akazawa, K. (2011). Stigma toward schizophrenia among parents of junior and senior high school students in Japan. *BMC Res Notes*, 22, 558. http://dx.doi.org/10.1186/1756-0500-4-558

**Copyrights**

Copyright for this article is retained by the author(s), with first publication rights granted to the journal. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/3.0/).