Social distance toward people with schizophrenia is associated with favorable understanding and negative stereotype

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A R T I C L E I N F O

A B S T R A C T

Previous studies have suggested the consequence of mental health-related public stigma: the problem of knowledge may develop into problem of attitude and behaviour. However, this has not been directly explored in a longitudinal study. As the secondary analysis from our previous randomized controlled trial (RCT) for 219 participants who completed the survey at the 12-month follow-up, we aimed to investigate whether the knowledge and attitude components of stigma toward people with schizophrenia affect each other. At baseline and at 12 months, three types of stigma scales were measured: favorable understanding, negative stereotype, and social distance toward people with schizophrenia. A structured equation model was fitted to the trajectory of stigma scales taking into account the effect of the other stigma components and the interventions. The results showed that greater social distance toward people with schizophrenia at baseline was associated with less favorable understanding and more negative stereotype at the 12-month follow-up. This was not in line with the existing consequences from the previous studies; however, in line with the recent RCTs showing that social contact is the most effective intervention to reduce stigma. Future observational studies with a larger sample size are needed to clarify this relationship further.

1. Introduction

Mental health-related stigma has become a crucial issue for the general public and for people with mental illness (Ando et al., 2013; Corrigan and Shapiro, 2010; Thornicroft, 2006; Thornicroft et al., 2016, 2007). Although stigma is an overarching term, previous studies attempting to explore why people actually discriminate other people have shown that public stigma is divided mainly into three phases: problem of knowledge, attitude, and behaviour toward people with mental illness (Ando et al., 2013; Corrigan and Shapiro, 2010; Thornicroft et al., 2016, 2007) as well as AIDS/HIV (Xing et al., 2016) and tuberculosis (Sima et al., 2017). Problem of knowledge means inappropriate belief and understanding for mental health problems and involves ignorance (inaccurate knowledge about mental illness) and negative stereotype (e.g., "people with schizophrenia are dangerous"). Problem of attitude, prejudice or social distance, includes affective reactions such as anxiety,

anger, hostility, or disgust (e.g. "I do not want to talk with a person with schizophrenia"). Problem of behaviour indicates that the general public actually discriminates and socially excludes people with mental illness. A number of studies in psychiatry have suggested a concept of the consequence of public stigma, showing that problem of knowledge may develop into problem of attitude and finally result in the problem of behaviour (Ando et al., 2013; Corrigan et al., 2003, 2001; Thornicroft et al., 2016, 2007). Studies in experimental psychology also showed the consequence of knowledge, attitude, and behaviour (Glasman and Albarracin, 2006; Han et al., 2010). In particular, types of information related to closeness and perspective taking toward people with the target condition is crucial to reduce stigma (Han et al., 2010; Todd et al., 2011). However, to the best of our knowledge, no long-term longitudinal study have shown the consequence quantitatively (Link and Phelan, 2001; Thornicroft, 2006).

Randomized controlled trials (RCTs) have showed that social

contact, meeting and talking with people with mental illness, is the most effective intervention to reduce stigma (Koike et al., 2016b; Thornicroft et al., 2016). In particular, social contact may act more on the attitude domain of public stigma compared to the knowledge domain (Maulik et al., 2016; Yamaguchi et al., 2014). We also reported an RCT for 259 undergraduate and graduate students that repeated filmed social contacts including contacts with people with mental illness and related mental health lectures improved a variety of stigma (knowledge, attitude, and behavioural intention) over 12 months compared to repeated self-instructional Internet search interventions or a control condition (Koike et al., 2016b). Although lectures and education are also effective for reducing stigma, observational studies have shown that biomedical information (e.g. a biological or genetic explanation of the cause of mental illness) may increase mental illness-related stigma (Angermeyer et al., 2013; Schomerus et al., 2014; Thornicroft et al., 2016). These results imply that the consequence of attitude on knowledge is more crucial for generating and resolving stigma towards people with mental illness, compared to the consequence of knowledge on attitude. There has been, however, no longitudinal study to directly explore the consequence of public stigma.

In the present study, we analyzed the data from our previous RCT for young adults (Koike et al., 2016b) as the secondary analysis, where we measured a variety of stigma toward people with schizophrenia (favorable understanding, negative stereotype, and social distance). We aimed to investigate whether the knowledge and attitude components of stigma toward people with schizophrenia would affect each other in a 12-month follow-up using a structured equation model (SEM). An SEM can test and illustrate the difference in the correlations and relationships between three stigma components for 12 months in one model. Our primary hypothesis was that increase of favorable understanding and decrease of negative stereotype toward people with schizophrenia at baseline are associated with decrease of social distance at 12-month follow-up.

2. Methods

2.1. Framework of this study sample

We previously reported a parallel-group RCT for 259 students over 12 months (Koike et al., 2016b). The initial aim of the RCT was whether 12-month repeated filmed social contact interventions would reduce stigma toward people with mental illness among general university students, compared to repeated self-instructional Internet search interventions or a control condition. The primary outcome was whether behavioural intention measured using the Japanese version of Reported and Intended Behaviour Scale in the filmed social contact group would improve more than that in the self-instructional Internet search or control groups for 12 months. The results supported the hypothesis.

The brief methods of the RCT was as follows: Participants were individually allocated to three groups. All surveys were conducted using anonymous, self-administered questionnaires. All participants received an instruction that they sealed and posted their completed questionnaire in a box themselves to ensure confidentiality. Following completion of a baseline survey, participants received individual laptop computers containing one of three 30-min interventions in accordance with the intervention groups (Koike et al., 2016b). Then, the participants received the follow-up interventions every 2 months (2, 4, 6, 8, and 10 months after registration) in the form of e-mails.

The study was registered at the University Hospital Medical Information Network Clinical Trial Registration before the start of the initial survey (trial number: UMIN000012239), and approved by the Research Ethics Committee at the Office for Life Science Research Ethics and Safety, The University of Tokyo (approval no. 15-115, 116). All participants provided written informed consent after receiving a full explanation of the study, including the detailed study settings and main purpose.

Table 1
Demographic variables and stigma scale scores at baseline and 12-month follow-up for the study participants.

	Baseline	12-month follow-up	Difference
Male, n (%)	129 (58.9%)		
Age, mean (SD)	19.9 (1.2)		
Mental health-related experiences, n (%)[a]			
Self	34 (15.5%)		
Lecture	111 (50.7%)		
Media	182 (83.1%)		
Stigma scales, mean (SD), n			
MIDUS-SR	5.1 (2.4), 217	4.3 (2.7), 217	< .001
OS	19.8 (3.3), 216	21.2 (4.1), 217	< .001
SDSJ	6.1 (2.8), 219	5.3 (3.2), 218	< .001

Differences are tested using paired *t*-tests. Bold shows significance (p < .05).
Abbreviations: MIDUS-SR, the Social Recognition subscale of the Mental Illness and Disorder Understanding Scale; OS, the Omnibus Survey; SDSJ, the Japanese-language version of the Social Distance Scale.
[a] The participants were reported for dichotomous questions: Self, 'Have you ever had any mental health problem yourself?'; Lecture: 'Have you ever taken any lecture or course related to mental health?'; Media, 'Have you ever watched a television program or read an article in the newspaper or on the internet about those who have mental health problems?'.

In this study, we used three types of stigma scales towards people with schizophrenia: favorable understanding, negative stereotype, and social distance at baseline and 12-month follow-up. All of the measures are for secondary outcome measures in the RCT.

2.2. Participants

This study used the data for 219 participants who completed a survey at the 12-month follow-up (84.1%, Table 1), which is acceptable to test a saturated model without any latent variable using an SEM (Little, 2013). Thirty-six and 4 participants were no response and lost to follow-up at the survey, respectively. For the initial objectives in the RCT (Koike et al., 2016b), the participants were recruited via a website of a job recruitment board authorised by more than 200 colleges and universities in Japan (Nasic I support Co. Ltd., Kyoto, Japan). Undergraduate and graduate students from 20 colleges and universities, located within 60 min of the intervention site to avoid cohort effects of the intervention and to ensure generalisability of the findings, participated. No information about the mental health-related survey or trial was provided during recruitment to avoid influencing the results due to participants' interest in mental health. Students in the third year or higher in the departments of medicine or psychology, regularly receiving professional education in Japan, at the time of registration were excluded from the study in order to avoid the influence of psychiatry and psychology lectures on the survey.

There were no differences in demographics and the number of the groups at baseline between those who did and did not respond to the follow-up survey (p > 0.05).

2.3. Measures

In this study, we used three types of stigma scales to quantify stigma towards people with schizophrenia: the Social Recognition subscale of the Mental Illness and Disorder Understanding Scale (MIDUS-SR) for favorable understanding, the Omnibus Survey (OS) for negative stereotype, and the Japanese-language version of the Social Distance Scale (SDSJ) for social distance.

2.3.1. Favorable understanding towards people with schizophrenia

The MIDUS consists of 15 items exploring favorable understanding