**Supplementary materials**

**Secondary outcome measures**

The future domain of the RIBS-J at the post-intervention and 1-month surveys, and the Japanese-language version of the Social Distance Scale (SDSJ), the Mental Illness and Disorder Understanding Scale (MIDUS), and the Omnibus Survey (OS) at post-intervention, 1-month, and 12-month surveys were set as the secondary outcomes.

*The Japanese-language version of the Social Distance Scale*

The SDSJ was developed from the original, validated 8-item questionnaire measuring negative attitudes about people with schizophrenia (Whatley, 1959), and comprises five items rated on a 4-point Likert scale (range 0–15; ‘Agree’=3 to ‘Disagree’=0; higher scores represent stronger desire for social distance, such as “It is best not to associate with a person with schizophrenia who has been in a mental hospital.”; α=0.76) (Makita, 2006).

*The Mental Illness and Disorder Understanding Scale*

The MIDUS consists of 15 items exploring feasible knowledge for mental illness, rated on a 5-point Likert scale (range 0–60, ‘Agree’=3 to ‘Disagree’=0; higher scores represent smaller feasible knowledge of mental illness; α=0.76) and was originally developed and validated in Japanese (Tanaka *et al.*, 2003). The MIDUS was divided into three components: Treatability of illness (e.g., “Mental illness is treatable.”), efficacy of medication (e.g., “Medication is effective in improving symptoms.”), and social recognition of illness (e.g., “Mental illnesses are very common.”). We also used the social recognition illness subscale of the MIDUS (MIDUS-SR) for two specific disease names, schizophrenia and depressive disorder (α=0.59 and 0.57, respectively) (Koike *et al.*, 2016, Koike *et al.*, 2015).

*The Omnibus Survey*

The Office for National Statistics in the UK carried out a mental illness and addiction stigma campaign on behalf of the Royal College of Psychiatrists between 1998 and 2003 (Crisp *et al.*, 2000). We previously confirmed validation of the Japanese version of the OS consisting of seven items rated on a 5-point Likert scale covering negative and stereotyped knowledge about two specific disease names, schizophrenia and depressive disorder (range 7–35; ‘Strongly agree’=5 to ‘Strongly disagree’=1; higher scores represent greater stereotypes, such as “Patients with schizophrenia are a danger to others.”; α=0.70 and 0.63, respectively) (Koike *et al.*, 2016, Koike *et al.*, 2015).

**Sample size estimation**

We estimated an initial sample size of 61 participants in each group, based on the results of a preliminary pilot study in which 29 undergraduate students were allocated to both the FSC and INS groups. This sample size was determined to be adequate to detect a 1·55 mean difference in the score for the future domain of the RIBS-J (FSC: 15.6 [SD 2.7]; INS: 14.0 [3.4]) between the groups immediately after interventions in the pilot study, assuming a 5% significance level (two-sided) at 80% power. To allow a 20% dropout rate and reduced effect for 12 months, the final estimation was 83 participants for each group (249 in total).

**Randomization and blinding**

Random allocation was conducted by an envelope method. A research assistant (RA), independent from the interventions, assessments, and data analysis, generated random permuted blocks with block sizes of six or nine stratified by sex using a website (www.randomization.com). RA made allocation sequence and all envelopes before the start of the trial. The authors (SY, KO, and SA) conducted enrolment and assignment without any information from the survey. As each participant was assigned to one of the three intervention groups during the baseline assessment, concealment of allocation for each participant was maintained before completion of the assessment at baseline. The allocation was masked to researchers involved in processing and analysing the data until all the participants completed their baseline survey.

**The results for secondary outcome measures**

For the RIBS-J past score across the four surveys, there were no differences or changes among the groups during the 12-month follow-up (p>0.05, Supplementary Table S4).

For the SDSJ scores, a GLMM showed similar results compared with those for the RIBS-J future scores (Supplementary Table S5). However, the improvement in the SDSJ scores was found in the FSC and INS groups at 12-months after intervention (Time by Group interaction for FSC: B=−0.52 [−0.78, −0.27], p<0.001; INS: B=−0.37 [−0.63, −0.12], p=0.004). There was no difference between the FSC and INS groups (B=−0.15 [−0.41, 0.11], p=0.25).

For the MIDUS total scores, the effect of the intervention seemed to be more explicit, showing the greatest improvement in the FSC group, followed by the INS and control groups (Supplementary Table S6). Additionally, the tendency was maintained at 12 months after intervention (Time by Group interaction for FSC: B=−0.45 [−0.60, −0.31], p<0.001; INS: B=−0.17 [−0.32, −0.02], p=0.022; FSC by INS as a reference: B=−0.29 [−0.43, −0.14], p<0.001).

For the changes in the MIDUS-SR subscale-scores and the OS scores for schizophrenia and depressive disorder, the sustainability of the effect in the FSC and INS groups varied by scales and target diseases. The FSC and INS groups had similar effects on reducing the MIDUS-SR schizophrenia subscale-scores at 12 months after intervention compared with the control group. In contrast, there was little effect of any intervention on the MIDUS-SR for depressive disorder subscale-scores at 12 months after intervention. For the OS schizophrenia and depressive disorder scores, the effect of the FSC intervention lasted for 12 months, while that of the INS intervention did not.

**References**

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