



Interventions for Reduction of Stigma in People with Schizophrenia: A Systematic Review and Meta-analysis

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People with schizophrenia experienced a higher level of internalized stigma compared to people with other mental disorders. Internalized stigma could lead to pervasive negative effects in their life. Although internalized stigma interventions have shown some benefits, there is a dearth of interventions and meanwhile a lack of evidence as to their effectiveness in people with schizophrenia. This study aims at examining the effectiveness of internalized stigma reduction in people with schizophrenia through a systematic review and meta-analysis. Two electronic databases were searched. Studies were included if they (1) involved community or hospital-based interventions on internalized stigma, (2) included participants who were given a diagnosis of schizophrenia, and (3) were empirical and quantitative in nature. Thirteen articles were selected for extensive review and seven for meta-analysis. A variety of psychosocial interventions were utilized with the majority employing psychoeducation, cognitive behavioral therapy (CBT), social skills training, hope instillation program, and against stigma program. The internalized stigma was used to examine the efficacy of the intervention. Seven studies involving a total of 799 patients were included in the meta-analysis. Assuming a random effects model, the meta-analysis revealed an improvement in internalized stigma favoring the internalized stigma intervention (95% confidence interval [0.492; 1754], $P = 0.001$), but the heterogeneity among individual effect sizes was substantial ($I^2 = 93.20\%$). Most internalized stigma reduction programs appear to be effective. This systematic review was unable to show light in indicating the most effective intervention, however, demonstrates evidence that psychoeducation is promising. Large-scale randomized control trials and multicomponents of intervention are required to further develop the evidence based of more targeted interventions.

Key words: Internalized stigma interventions, schizophrenia, systematic review

INTRODUCTION

Schizophrenia is a severe mental illness and the burden of this disorder is substantial. Globally, prevalent cases have increased from 13.1 million in 1990 to 20.9 million in 2016 which contributes to 13.4 million years of life residing with the disability burden of the disease.¹ In recent years, there has been growing interest on the effect of internalized stigma on a wide range of adverse psychosocial outcomes, including poor well-being, illness of recovery, lower self-esteem and self-efficacy, psychiatric symptoms, and rejection of people with mental illness.²⁻⁵

Internalization stigma refers to the degree, in which people who are diagnosed will endorse and internalize the negative

stereotypes which may cause decreased self-esteem and self-efficacy.^{6,7} Lysaker *et al.*⁸ found that people with a moderate level of internalized stigma had higher insight of stable schizophrenia spectrum disorder than those with a mild level of internalized stigma. Other results also showed that higher insight was correlated with higher self-stigma and self-stigma had a negative effect on self-esteem, hopelessness, and quality of life in people with stable schizophrenia spectrum disorder.⁹ People with psychotic disorder experienced higher internalized stigma scores compared to those without psychotic diagnoses.¹⁰ Individuals with schizophrenia scored the highest internalized stigma among different mental disorders.¹¹ Morgades-Bamba

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*et al.*¹² found that alienation and stereotype endorsement have a negative effect on the quality of life. Touriño *et al.*¹³ found that 21.1% of 71 people with schizophrenia had internalized stigma and those with internalized stigma were associated with higher numbers of suicide attempts, prevalence of suicidal ideation, current suicidal risk, and prevalence of depression and hopelessness. It was suggested that there was a positive and strong correlation with loneliness in schizophrenia.¹⁴

The Internalized Stigma of Mental Illness (ISMI) Scale is a 29-item questionnaire designed to assess subjective experiences of stigma among people with mental illness. The ISMI included five subscales: alienation (e.g., “I am embarrassed or ashamed that I have a mental illness”), stereotype endorsement (e.g., “I cannot contribute anything to society because I have a mental illness”), discrimination experience (e.g., “People discriminate against me because I have a mental illness”), social withdrawal (e.g., “I do not socialize as much as I used to because my mental illness might make me look or behave “weird”), and stigma resistance (e.g., “I can have a good, fulfilling life, despite my mental illness”).¹⁵

The ISMI scale was the most commonly used measure for clinicians and clinical researchers as a confirmable and viable tool to examine the effectiveness of general psychotherapeutic interventions.¹⁵⁻¹⁷ The results of meta-analysis showed that internalized stigma was positively related with psychiatric symptom severity and negatively related with treatment adherence of people with mental illness.¹⁸ Overall, internalized stigma may be considered a risk factor for poorer mental health prognosis and recovery. Given the tremendous negative impact of internalized stigma on people with schizophrenia, interventions are needed to reduce the negative effect of internalized stigma. Numerous studies on reducing internalized stigma have been published over the past few years and these interventions or programs included psychoeducation, cognitive behavioral therapy, and social skills training (SST).^{19,20} Currently, there are no widely accepted intervention protocols on internalized stigma reduction in schizophrenia and no attempt on meta-analysis has ever been conducted. Therefore, through a systematic review and meta-analysis, this study aims to review the evidence of stigma-reduction interventions targeted to people with schizophrenia.

METHODS

The study was registered in the International Database to Register your Systematic Reviews with the number INPLASY202430079.

Search strategy

This study was conducted in compliance with the PRISMA statement.²¹ Relevant articles were identified by

searching PubMed and PsycINFO which were published in the period from January 1, 1999, to October 31, 2022, with a combination of keywords. We included interventions which met the criteria: (1) studies: Randomized clinical trials, clinical trials, and experimental studies with control groups aimed to examine self or internalized stigma reduction in people with schizophrenia; (2) participants: Participants with schizophrenia; (3) intervention: Studies that did not target self or internalized stigma were not eligible; and (4) outcome measures: Studies that used validated instruments for screening and assessing the severity of internalized stigma. Search was restricted to publications in English. Any disagreements of study selection and data extraction were resolved through the discussion of the authors.

For the systematic search, text word search terms relating to (stigma prevention OR stigma reduction OR internalized stigma) AND (schizophrenia OR schizoaffective disorder) were used and combined with corresponding thesaurus terms included in PubMed and PsycINFO. The system search produced a total of 320 studies. After the exclusion of duplicates, 306 records were screened and in total 7 studies were eligible for the meta-analysis. The characteristics of the included studies are summarized in Table 1 and an overview of the study selection process is shown in Figure 1.

Data synthesis and analysis

A number of study characteristics were extracted, including publication year, study design, type of intervention, duration of the treatment period (weeks or months), demographics (age, gender, and diagnosis), and length of sessions. We used the Effective Public Health Practice (EPHPP) tool²² which examined key potential biases: study design, withdrawals/drop outs, selection bias, data collection methods, cofounders, and validity evidence. The assessment of study quality is outlined in Table 2.

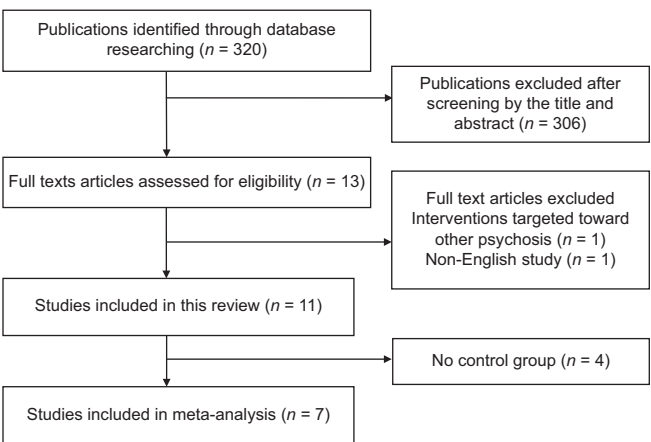


Figure 1: Selection process of included studies using PRISMA flow diagram

Table 1: Summary of the effects of self-stigma reduction interventions in schizophrenia

Author, year	Study (design; country)	Participants <i>n</i> /diagnosis (illness severity)	Age (years), mean (SD)	Female, <i>n</i> (%)	Intervention approach (frequency)	Outcome measures	Follow-up data available
Ivezić <i>et al.</i> , 2017 ^[28]	NA; Croatia	EG: 40 CG: 40 Schizophrenia (stable outpatients)	NA (by age range)	23 (57.5) 8 (20.0)	EG: The group psycho-education method (12 sessions) CG: On the waiting list for psych-education	The ISMI (29 items)	Baseline, ET
Li <i>et al.</i> , 2018 ^[20]	RCT; China	EG: 169 CG: 158 Schizophrenia (stable outpatients)	40.21 (7.57) 39.70 (7.83)	101 (50.8) 86 (46.5)	EG: SASD, psycho-education, SST and CBT (8 session, each session for 120 min) CG: TAU	The ISMI (29 items)	Baseline, 6 months, 9 months
Öztürk <i>et al.</i> , 2022 ^[29]	NA; Turkey	EG: 30 CG: 31 Schizophrenia (stable outpatients)	36.46 (9.72) 37.74 (10.95)	10 (33.3) 11 (35.4)	EG: Hope instillation program (16 sessions, twice a week, each session for 40–50 min) CG: TAU	The ISMI (29 items)	Baseline, ET
Çapar Çiftçi and Kavak Budak, 2022 ^[25]	RCT; Turkey	EG: 50 CG: 50 Schizophrenia (stable outpatients)	NA (by age range)	17 (34.0) 11 (22.0)	EG: Cognitive behavioral therapy-based psycho-education program (8 sessions, twice a week, each session for 40–50 min) CG: TAU	The ISMI (29 items)	Baseline, ET
Shih <i>et al.</i> , 2022 ^[27]	Quasi-experimental design; Taiwan	EG: 35 CG: 35 Schizophrenia (stable outpatients)	50.3 (11.4) 48.5 (11.6)	15 (42.86) 15 (42.86)	EG: ASP (6 weeks) CG: TAU	The ISMI (29 items)	Baseline, ET, 1 month
Alhadidi <i>et al.</i> , 2023 ^[26]	RCT; Malaysia	EG: 66 CG: 56 Schizophrenia (stable inpatients)	NA (by age range)	0 0	EG: Psycho-education (7 sessions, each session for 45–60 min) CG: TAU	The ISMI (10 items)	1 week, 3 months, 6 months
Erdoğan and Demir, 2022 ^[30]	NA; Turkey	EG: 20 CG: 19 Schizophrenia (stable outpatients)	40.8 (10.5) 37.3 (8.9)	10 (50) 10 (52.6)	EG: Solution-focused group psycho-education program (6 sessions) CG: TAU	The ISMI (29 items)	Baseline, ET

EG=Experimental group; CG=Control group; NA=Not applicable; TAU=Treatment as usual; CBT=Cognitive behavioral therapy; RCT=Randomized control trial; SASD=Strategies against stigma and discrimination; SST=Social skills training; ISMI=Internalized stigma of mental illness scale; ET=End of therapy; ASP=Against stigma program; SD=Standard deviation; The Internalized Stigma of Mental Illness Scale (ISMI)

Table 2: Assessment of study quality

	Study design	Withdrawals/drop outs	Selection bias	Data collection methods	Cofounders	Blinding
Ivezić <i>et al.</i> , 2017 ^[28]	Moderate	Strong	Moderate	Strong	Weak	Weak
Li <i>et al.</i> , 2018 ^[20]	Strong	Strong	Strong	Strong	Strong	Weak
Öztürk <i>et al.</i> , 2022 ^[29]	Moderate	Strong	Moderate	Strong	Strong	Weak
Çapar Çiftçi and Kavak Budak, 2022 ^[25]	Strong	Strong	Moderate	Strong	Strong	Weak
Shih <i>et al.</i> , 2022 ^[27]	Strong	Strong	Moderate	Strong	Strong	Weak
Alhadidi <i>et al.</i> , 2023 ^[26]	Strong	Strong	Moderate	Strong	Strong	Weak
Erdoğan and Demir S, 2022 ^[30]	Moderate	Strong	Moderate	Strong	Strong	Weak

Data analysis

Meta-analyses were conducted in Comprehensive Meta-Analysis version 2.2. The outcomes across studies, data from different outcome measures were combined using the standardized mean difference, Hedges *g*.²³ Effect sizes were

calculated using post therapy in the included studies, based on means, standard deviations, and sample sizes extracted from the primary studies. Heterogeneity was calculated with χ^2 and *I*. $I^2 > 75\%$ was considered high heterogeneity, 50% as moderate heterogeneity, and 25% as low heterogeneity.²⁴

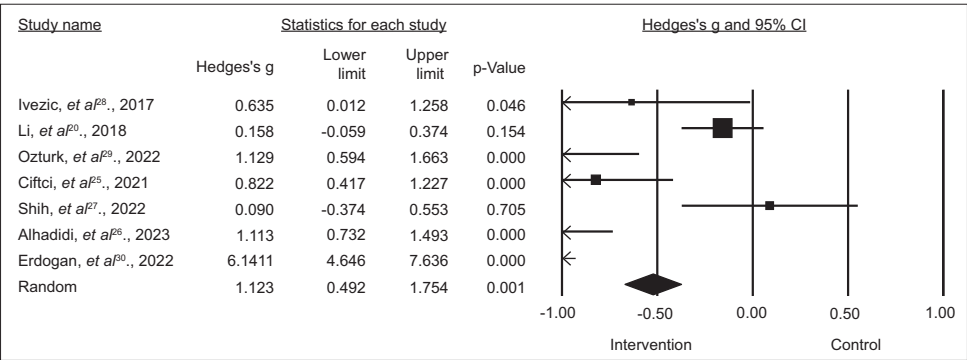


Figure 2: Random effects model of stigma intervention output for internalized stigma of people with schizophrenia ($Q = 88.231$, $P < 0.001$, $I^2 = 93.20\%$)

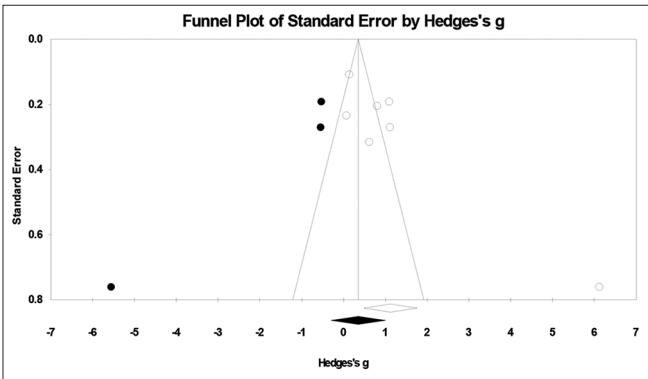


Figure 3: Random effect funnel plot of Hedges's g by standard error detaining publication bias in the studies reporting psychosocial interventions for internalized stigma of people with schizophrenia

We used the random effects model to investigate the effects of postintervention compared to the control group. A value of $P < 0.05$ was considered statistically significant. The potential publication bias on the determined mean effect was evaluated and subgroup and meta-regression were performed. The publication bias used funnel plot, trim-and-fill analysis, and Egger's regression test.

RESULTS

Description of study search and included studies

The study search generated 320 records of which 13 were assessed for full-text eligibility. Seven studies were included in the meta-analysis [Figure 1]. Study characteristics are detailed in Table 1. Three studies were randomized control trials (RCTs),^{20,25,26} one study was quasi-experimental design,²⁷ and three studies could not be applicable to assign for the type of interventions.²⁸⁻³⁰ These studies were originated from Asia ($n = 6$)^{20,25-27,29,30} and Europe ($n = 1$).²⁸ The intervention programs included psychoeducation approach,^{26,28,30} cognitive behavioral therapy (CBT),²⁵ hope instillation program,²⁹ against stigma program,²⁷ and psychoeducation combined with

other components such as SST and strategies against stigma and discrimination (SASD).^{20,26,28,30}

The duration of these programs ranged from 6 to 16 sessions.^{20,25,26,27-30} Participants were mostly given a diagnosis by psychiatrists according to DSM-IV, DSM-5, or ICD-10.^{20,25-28,30} Only one study recruited participants without verifying the diagnostic criteria.²⁹ The sample size of the studies varied from 19 to 169 participants with a total of 799 participants including 410 participants in the experimental group and 389 participants in the control group. Most studies included stable outpatients,^{20,25,27,28-30} and one study included stable inpatients.²⁶ The control group of most studies was treatment as usual^{20,25-27,29,30} and one study was on the waiting list for psycho-education.²⁸ Three studies examined the sustainability of intervention effect after follow-up periods ranging from 1 month to 9 months.^{20,26,27} Regarding outcome measures, all studies used internalized stigma as the main outcome of included studies in the meta-analysis. All studies used the ISMI scale to examine the effectiveness of stigma interventions in stable participants with schizophrenia.

Six studies used the 29-item ISMI,^{20,25,27,28-30} and only one study used the 10-item ISMI²⁶ [Table 1].

Meta-analysis

A meta-analysis suggested a significant difference in internalized stigma between groups at the end of therapy^{20,25,26,27,28,29,30} (Hedges' g 1.123, 95% confidence interval [CI] [0.492; 1.754], $P = 0.001$). Heterogeneity between studies was high ($Q = 88.231$, $P < 0.001$, $I^2 = 93.20$) [Figure 2].

Publication bias

Under a random-effects model, visual evaluation of the funnel plot revealed the absence of publication bias. The trim-and-fill analysis indicated that two studies were missing. The left-sided test for the asymmetry of the funnel plot using Egger's regression test was not significant ($P = 0.01561$) [Figure 3].

Additional analyses

Other analysis for intervening variables was conducted which could have an effect on the association between different interventions and internalized stigma and may explain the heterogeneity of study effects. A significant effect was identified: using RCT/non-RCT ($P < 0.001$) and different interventions ($P < 0.001$), respectively [Table 3].

Assessment of study quality

All studies were assessed for bias using the EPHPP tool.¹⁴ Summary scores and ratings are outlined in Table 2. All studies were rated strongly of withdrawals/dropouts, indicating that participants were able to complete the intervention programs.

Selection bias was examined and only one study rated strongly in this category as they sampled participants from a variety of services,²⁰ whereas all other studies were either not randomized and/or recruited participants from one or two clinics, and therefore, scored moderately in selection bias. The RCTs were rated as strongly on study design because investigators would have no way of predicting the allocation of participants to groups thus minimizing bias. Most studies scored strongly on confounders, except Ivezić, *et al.*²⁸ as confounders were not reported. All studies did not comment on blinding procedures so the blinding category scored weakly. All studies scored strongly on data collection methods as they all employed outcome measures which have been validated among people with schizophrenia.

DISCUSSION

This article presented the most updated systematic review and meta-analysis on internalized stigma reduction in people with schizophrenia. A total of 7 studies were included in the review, being the first to examine the efficacy of internalized stigma interventions among schizophrenia. Although the meta-analysis showed that the interventions had significant

effects on reducing the scores of internalized stigma in people with schizophrenia, results should be interpreted tentatively due to the relatively small number of included studies and high heterogeneity. The source of heterogeneity included study design and different approaches of stigma interventions. In this meta-analysis, the interventions on internalized stigma revealed that psychoeducation and cognitive behavioral therapy (CBT) were the most commonly used techniques, others included hope instillation program, against stigma program and CBT combined with SST, SASD. It was beyond the scope of this review to statistically examine which interventions significantly predicted outcome measures due to insufficient studies. To date, there are a variety of interventions available but lack a commonly accepted framework on internalized stigma reduction. Other researchers suggested that psychoeducation and cognitive behavioral therapy (CBT) were key components of all interventions in people with mental illness.^{31,32}

One of the limitations of the review was the incorporation of a small number of studies. In a meta-analysis, small studies could fail to detect a modest intervention effect due to the lack of power within each study.³³ Small studies could also have small study effects and were likely to suffer from publication bias.³⁴ It would be important to examine the efficacy of an internalized stigma intervention in large-scale RCTs of schizophrenia, such as the experience of their first psychotic episode, or severe and enduring psychotic symptoms.^{32,35}

The meta-analysis was limited by small sample sizes, and a limited number of included studies that examined the internalized stigma as outcome measure, thus, it should be cautionary when making conclusions based on our results. Further large-scale RCTs or large samples, other outcome measures (such as recovery, self-esteem, coping skills, and self-efficacy) are needed to examine the efficacy of internalized stigma interventions in people with schizophrenia.

CONCLUSION

Internalized stigma interventions do show an impact in alleviating the internalized stigma in people with schizophrenia. However, the studies were limited by the small sample size, small effect sizes, and only seven studies were included in the review. In the future, more evidence-based interventions should be developed and more RCTs on multi-aspects as outcome measures need to be examined to probe at the effects of the intervention in internalized stigma reduction.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Table 3: Results of meta-regression and subgroup

Variable	Coefficient	SE	95% CI	P
Proportion of female study participants	0.0150	0.0110	-0.0065–0.0366	0.1716
Publication year	-0.2282	0.1718	-0.5649–0.1086	0.1842
Sample size	0.0111	0.0074	-0.0033–0.0255	0.1301
Items of internalized stigma of mental illness	0.0024	0.0502	-0.0961–0.1008	0.9625
Variable	Q		F	P
RCT/non-RCT	16.476		93.20	<0.001
Different interventions	14.105		93.20	<0.001

SE=Standard error; CI=Confidence interval; RCT=Randomized controlled trial

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Conflicts of interest

There are no conflicts of interest.

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