

ARTICLE

Self-Stigma of People with Schizophrenia as Predictor of Their Adherence to Psychosocial Treatment

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EDITOR'S NOTE:

THE TERM PSYCHOSOCIAL TREATMENT IS NOT COMMONLY USED IN THE UNITED STATES. IN THIS ARTICLE, PSYCHOSOCIAL TREATMENT REFERS TO SERVICES SUCH AS SUPPORTED EMPLOYMENT, FAMILY INTERVENTION, SOCIAL SKILLS TRAINING AND COGNITIVE BEHAVIORAL THERAPY IN THE CONTEXT OF PSYCHIATRIC HOSPITALS AND COMMUNITY SETTINGS LOCATED IN HONG KONG.

Objectives: Treatment non-adherence has frequently been noticed among people with schizophrenia. Self-stigma towards one's mental illness is believed to be a contributing factor undermining adherence. This study aimed at obtaining empirical support regarding the relationship between psychosocial treatment adherence and self-stigma. Other significant predictors of adherence to psychosocial interventions were to be identified. **Methods:** Eighty-six people with DSM IV diagnoses of schizophrenia were recruited from psychiatric hospitals and community settings in Hong Kong. Their level of stigma, self-esteem, self-efficacy, insight, psychosocial treatment adherence and demographic data were collected. Multiple regression was used to investigate the adjusted relationship between psychosocial treatment adherence and the selected independent variables. **Results:** Higher level of self-stigma, poorer current insight on the social consequences of having mental illness, and living with others were found to be significant predictors of poor psychosocial treatment attendance. Better self-esteem and current insight about the negative social consequences were significant predictors of better psychosocial treatment participation. Self-stigma and self-esteem exhibited the strongest contributions to psychosocial treatment adherence. **Conclusions:** Self-stigmatization is associated with the level of treatment adherence among people with schizophrenia, and its negative effect was found to intensify along the self-stigmatization process. Further studies to enhance understanding of self-stigma and improve treatment adherence are suggested.

Keywords: self-stigma, adherence, psychosocial treatment, insight

Mental illness is an intractable condition accounting for approximately 12% of burden among all disease groups (World Health Organization, 2001). It is estimated that 0.3% of people in Hong Kong have severe mental illness (Hong Kong Government, 1995). This estimation is translated to more than twenty thousand Hong Kong citizens. In China, it is assumed that more than 4 million people have schizophrenia (Philips, Yang, Li, & Li, 2004). The

use of antipsychotic medication is effective to reduce psychotic symptoms and relapse rate among people with schizophrenia (Manchanda & Norman, 2003; Rittmannsberger, Pachinger, Keppelmuller, & Wancata, 2004; Zygmunt, Olfson, Boyer, & Mechanic, 2002). However, evidence suggests that antipsychotic medication alone is insufficient to enhance role functioning, promote independent living, decrease symptom severity,

improve illness management, and raise subjective life satisfaction (Glynn, 2003; Mueser & Bond, 2000). Psychosocial treatment is therefore integrated with pharmacological intervention to promote beneficial outcomes. The knowledge base of psychosocial treatment has been enriched by recently accumulating empirical support (Mueser & Bond, 2000; Watson & Corrigan, 2001). Supported employment, family intervention, social skills training, and cognitive behavioral therapy are well known examples of evidence-based psychosocial treatment (Bellack, 2004; Glynn, 2003; Mueser & Bond, 2000). Reviews (Bustillo, Lauriello & Keith, 1999; Glynn, 2003; Mueser & Bond, 2000) suggest that supported employment services could enable individuals with schizophrenia to find and keep competitive employment, whereas family intervention is effective for relapse prevention. Moreover, social skills training and cognitive behavioral therapy are shown to be useful for, respectively, promoting social functioning and alleviating negative symptoms among people with schizophrenia.

In order to derive the benefits of intervention, it is essential for people with schizophrenia to adhere to their treatment regimen (Watson & Corrigan, 2001). Psychosocial treatment adherence refers to their level of attendance and participation for the prescribed evidence-based treatment such as family intervention, supported employment, and social skills training. Those who adhere to treatment regimens should demonstrate good treatment "participation" and "attendance" simultaneously. "Attendance" is defined in this study as the frequency with which an individual has kept the appointments towards prescribed treatments, and their punctuality of attending treatments. "Participation" refers to an individual's engagement in

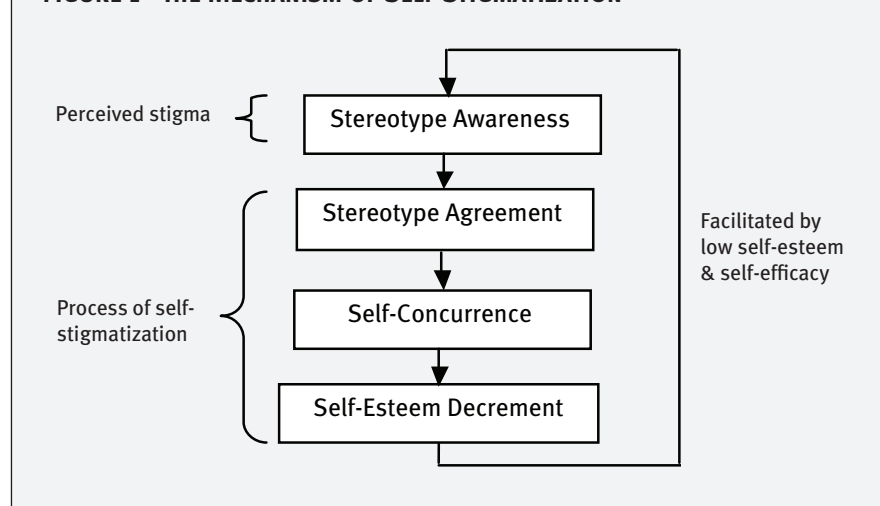
psychosocial treatment such as following instructions, seeking improvement, and cooperation with other participants and mental health professionals (Tsang, Fung, & Corrigan, 2006). Unfortunately, premature termination of treatment is frequently noted among them (Tarrier et al., 1998). Evidence from the study of Epidemiological Catchment Area reported that more than 70% of people with severe mental illness refused to pursue psychiatric interventions (Regier et al., 1993). Poor insight towards one's own mental disorder (Amador & Strauss, 1993; Lysaker, Bell, Milstein, Bryson, & Beam-Goulet, 1994; McEvoy et al., 1989) may act as a possible barrier to treatment adherence. Interestingly, self-stigma towards one's mental illness may reduce individuals' willingness to utilize psychiatric services (Watson & Corrigan, 2001).

Self-stigma occurs when the person internalizes negative stereotypes about mental illness. It, in turn, results in self-prejudicial and self-discriminatory reactions that turn in against oneself (Corrigan, 1998; Corrigan & Watson, 2002). The process of self-stigmatization may easily be understood in terms of a three-tier mechanism proposed by

Corrigan et al. (2006) (see Figure 1). People with severe mental illness are firstly aware of the public stigma, then agree with it, and eventually self-concur with those stereotypes applying to their own. Finally, this internalized stigma erodes their self-esteem and self-efficacy (Corrigan, Watson, & Barr, 2006; Holmes & River, 1998). The relationship between self-stigma, self-esteem and self-efficacy is not simply linear. Instead, they are believed to act in a vicious cycle blocking the person's recovery. Individuals with low self-esteem tend to have poor self-worth and self-acceptance and readily attribute negative circumstances to their own cause (Crocker, Alloy, & Kayne, 1988; Weiner, 1995). Those with low self-efficacy are more vulnerable to believing that stigma-relevant stressors exceed their coping demand (Major & O'Brien, 2005). Stigma-relevant stressors refer to the uncertainty experienced by individuals regarding their social identity (Major & O'Brien, 2005).

People with schizophrenia may fail to seek care to avoid possible sources of public stigma (Cooper, Corrigan & Watson, 2003). They are apt to avoid social interaction (Holmes & River, 1998) and appropriate help seeking

FIGURE 1—THE MECHANISM OF SELF-STIGMATIZATION



behaviors (Weiss & Ramakrishna, 2001), which in turn undermine their treatment adherence (Corrigan, 2004; Watson & Corrigan, 2001). Furthermore, their feeling of hopelessness and incapability that results from self-stigmatization would further undermine their willingness to participate in and attend treatment. They may find that their conditions cannot be improved, or believe that they cannot cope with the demands of treatment (Fung, Tsang, Corrigan, Lam, & Cheung, 2007). Given the above, recovery of people with schizophrenia is undoubtedly impeded by self-stigmatization (Corrigan, Watson, & Barr, 2006; Ritsher, Otilingam, & Grajales, 2003; Ritsher & Phelan, 2004; Tsang & Chen, 2007).

Although self-stigma is believed to be negatively related to treatment adherence, we are unaware of any empirical evidence that has demonstrated this relationship. This study therefore aimed at obtaining empirical support regarding the hypothesized relationship between psychosocial treatment adherence and self-stigma using a cross-sectional observational design. We hypothesize that people who endorsed self-stigma were more likely to demonstrate poorer health seeking behaviors in terms of treatment participation and attendance. In addition, its relationship with perceived stigma, self-esteem, self-efficacy, insight, and certain socio-demographic variables among people with schizophrenia was examined.

Method

Participants

Between July 2004 and February 2005, 86 adults in Hong Kong who were diagnosed by certified psychiatrists to have schizophrenia using DSM IV criteria were recruited from the day hospitals at Kwai Chung Hospital and the

Baptist Oi Kwan Social Service. Kwai Chung Hospital is a 1000-bed regional mental hospital and the Baptist Oi Kwan Social Service is an NGO providing community-based services to individuals with mental illness in Hong Kong. Occupational therapists from the corresponding mental health settings helped to identify potential participants. Research assistants then randomly recruited participants from the identified pool.

Participants were 39.92 ± 8.00 years of age, with forty-four of them males (51.2%). They had on average suffered from schizophrenia for 13.56 years ($SD = 8.7$), and had been admitted to inpatient psychiatric hospitals 4.07 times ($SD = 4.23$). Based on scores of the Scale to Assess Unawareness of Mental Disorder, participants were found to have delusion ($N=11$; 12.8%), hallucination ($N=18$; 20.9%), poor social judgment ($N=17$; 19.8%), blunt affect ($N=24$; 27.9%), avolition ($N=22$; 25.6%), anhedonia ($N=13$; 15.1%), poor attention ($N=12$; 14.0%) and poor social relationship ($N=19$; 22.1%). The above information was obtained from the medical record of participants, the day-to-day observation, and clinical assessments conducted by the occupational therapists. Thirty-four of them received inpatient services ($N=34$; 39.5%), and the remaining were outpatients or day-patients ($N=52$; 60.5%). All of them had received psychosocial treatment for the past three months before the study. Psychosocial treatment referred to the social, educational, occupational, and cognitive-behavioral treatments which aimed at improving role functioning and recovery of people with mental illness (Barton, 1999). Psychosocial treatment was operationally defined in this study as an evidence-based intervention which included social skills training, vocational rehabilitation, cognitive behavioral therapy, and family inter-

vention. The main vocational rehabilitation services provided to participants were supported employment and sheltered workshop training. Family intervention consisted of family psychoeducation and psychological support counseling. Social skills training included demonstration and role-play exercises in promoting the social functioning and competency among participants. Cognitive behavioral therapy aimed at alleviating hallucinations and delusions. Participants were educated at least to elementary school level. They did not have diagnoses of developmental disabilities or substance abuse of illegal drugs and/or alcohol.

Eighteen experienced occupational therapists working in these hospital and community settings were invited to join the research study. They had worked in the field of psychiatric rehabilitation for an average of 8.83 years ($SD = 4.21$). They had provided direct psychosocial services to the participants for more than three months. They assisted in rating the therapist-administered questionnaires such as the Psychosocial Treatment Compliance Scale, the Signs and Symptoms Checklist of the Scale to Assess Unawareness of Mental Disorder, and the Demographic Data Collection Form. In order to ensure the fidelity of their involvement, they went through a training session which familiarized them with the administration procedure of the questionnaires and case recruitment. All occupational therapists were blind to the research design of this study.

Instruments

The Psychosocial Treatment Compliance Scale (PTCS) (Tsang, Fung, & Corrigan, 2006) was used to measure the level of adherence of people with schizophrenia to prescribed psychosocial treatment. The PTCS is rated on a five-point Likert scale ranging

from “Never” to “Always.” It is scored according to the day-to-day observation by the case mental health rehabilitation professionals. Better adherence to prescribed psychosocial treatment is expected for those who receive higher scores on the PTCS. Good to excellent test-retest reliability, internal consistency, convergent validity and structural validity have been reported. The rating of PTCS was based on participants’ average performance on various psychosocial treatments as judged by the occupational therapists. The time period of rating was based on the past three months prior to the face-to-face interview being conducted. Exploratory factor analysis shows that it consists of two subscales, “Participation” (12 items) and “Attendance” (5 items). “Attendance” refers to the actual presence as reflected by the frequency of appointment keeping and record of attendance. Sample items included “attended prescribed psychosocial treatment on time” and “continued to participate in all psychosocial treatment and avoid premature treatment termination.” “Participation” assesses the dimension of cooperation and engagement in psychosocial treatment. Examples of items included “was willing to follow therapist instruction” and “was willing to review topics discussed in previous psychosocial treatment sessions.” The “Participation” and “Attendance” subscales are highly correlated with $r = .85$ ($p < .01$) which implies that the non-attending individuals tend to have poor participation in psychosocial treatment at the same time.

The Chinese Self-Stigma of Mental Illness Scale (CSSMIS) (Fung, Tsang, Corrigan, Lam, & Cheung, 2007) consists of four subscales measuring perceived stigma and self-stigma pertaining to mental illness. The construction of this scale is based on the psychological mechanism of self-

stigmatization proposed by Corrigan, Watson and Barr (2006). Perceived stigma is measured by “Stereotype Awareness,” and the three levels of self-stigma are respectively measured by “Stereotype Agreement,” “Self-Concurrence,” and Self-Esteem Decrement.” Each subscale contains the same 15 items with different introductory clauses. The introduction for “Stereotype Awareness” is “I think the public believes...,” whereas the one for “Stereotype Agreement” is “I think...” The introductory clauses for “Self-Concurrence” and “Self-Esteem Decrement” are “Because I have a mental illness...” and “I currently respect myself less...,” respectively. Each subscale consists of 13 negative items (e.g., “most persons with mental illness are dangerous”) and two positive items (e.g., “most persons with mental illness are mostly geniuses”). Higher score indicates higher level of stigma. Satisfactory psychometric prosperities have been reported for CSSMIS.

The 23-item Self-Efficacy Scale (SES; Sherer et al., 1982) consists of two subscales measuring general self-efficacy (17 items) and social-efficacy (6 items). Examples of the general and social self-efficacy are “When I make plans, I am certain I can make them work” and “I do not handle myself well in social gatherings,” respectively. The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) comprises 10 items measuring global self-esteem. Examples of items include “On the whole, I am satisfied with myself” and “I wish I could have more respect for myself.” The negative items of SES and RSES are converted for scoring. Higher score for SES and RSES represents higher self-efficacy and self-esteem, respectively. Those scales were reported to have good psychometric properties.

The three general questions of the Scale to Assess Unawareness of Mental Disorder (SUMD; Amador et al., 1993) were used to measure the current and retrospective insight of having mental illness, understanding medication effects, and awareness of the social consequence of having mental illness. Higher score indicates poorer insight. The subscales of awareness and attribution of symptoms were excluded for this study. Participants who were symptomatically stable without demonstrating any forms of psychiatric symptoms, corresponding symptom-specific awareness and attribution items were scored as “not applicable.” The significant amount of missing data (up to 42 for some items) limited the use of a meaningful regression analysis to make sense of the awareness data.

Demographic data of participants were collected by the Demographic Data Collection Form. Case occupational therapists completed this form based on the medical record of participants.

The psychometric properties of the above instruments are summarized in Table 1.

Data Collection

Two research assistants from The Hong Kong Polytechnic University who were qualified occupational therapists and had experience conducting face-to-face interviews were recruited for data collection. The fidelity of questionnaire administration was ensured through discussion and role play demonstration among corresponding author and research assistants. Before data collection, research assistants explained the general information of the study to participants. After obtaining their written consent, research assistants completed the questionnaires including the Self-Stigma of Mental Illness Scale, the Rosenberg Self-Esteem Scale, the Self-Efficacy Scale and the Scale to

Assess Unawareness of Mental Disorder via face-to-face interviews. The Psychosocial Treatment Compliance Scale, the Demographic Data Collection Form, and the signs and symptoms checklist of the SUMD were completed by occupational therapists who went through a training session offered by the first author to ensure their quality of instrument implementation.

Data Analysis

Statistical Package for the Social Science version 11.0 was used for data analysis in consultation with our departmental biostatistician. Descriptive statistics were employed to summarize the score distribution of the questionnaires. Skewness and kurtosis were used to test the normality of

mean test scores of questionnaires, whereas the presence of outliers was detected by z-score. Independent *t*-test was conducted in order to evaluate the difference of adherence behaviors among the participants from different clinical settings. Multiple regression using forward selection was employed to explore the adjusted relationship between psychosocial treatment adherence and selected independent variables. The change in adjusted R^2 was used as the index to indicate the percentage of total variance accounted for the regression models by each significant independent variable. Independent variables which did not provide sufficient contribution to treatment adherence on bivariate analytical investigation were eliminated (Tabachnick & Fidell, 2001). The select-

ed independent variables were associated with "Participation" and/or "Attendance" with $p < .2$. This criterion was set to reduce the probability of excluding important variables for analysis (Bendel & Afifi, 1977). Independent variables which had obvious uneven distribution of sample and/or missing data were excluded. According to the selection criteria, "accumulated length of stay," "number of previous admission" and "the awareness and attribution subscale of the SUMD" were excluded as they had remarkable missing data. Meanwhile, "Marital status," and "certain living and financial conditions" were excluded as they had marked uneven distribution of samples.

TABLE 1—MEAN AND STANDARD DEVIATION OF TEST SCORES

Sub-scores	Mean	S.D.	Psychometric Properties
PTCS: Participation	40.81	8.21	PTSC (Tsang, Fung, & Corrigan, 2006):
PTCS: Attendance	18.51	3.47	Test-retest reliability - Participation= 0.90; Attendance= 0.86 Internal consistency - Participation= 0.96; Attendance= 0.87 Structure validity (Accounting for total variance) - Participation= 40.08%; Attendance= 30.66%
SSMIS: Stereotype Awareness	76.15	17.17	SSMIS (Fung, Tsang, Corrigan, Lam, & Cheung, 2007)
SSMIS: Stereotype Agreement	72.50	18.87	Test-retest reliability
SSMIS: Self-Concurrence	63.95	22.36	- Ranging from .80 to .90
SSMIS: Self-Esteem Decrement	64.78	21.37	Internal consistency - Ranging from .71 to .81
RSES	25.41	3.27	RSES (Blascovich & Tomaka, 1991)
			Test-retest reliability - Ranging from .82 to .88 Internal consistency - Ranging from .77 to .88
SES: General	135.98	33.85	SES (Sherer et al., 1982)
SES: Social	45.72	12.06	Internal consistency - General= .86 - Social= .71
SUMD: Mental illness (Current)	2.40	1.39	SUMD (Amador et al., 1993)
SUMD: Mental illness (Past)	2.70	1.47	Inter-rater reliability
SUMD: Medication (Current)	2.21	1.42	-Range from .67 to .89
SUMD: Medication (Past)	2.45	1.56	
SUMD: Social Consequence (Current)	2.21	1.45	
SUMD: Social Consequence (Past)	2.41	1.51	

Results

Test Scores

The mean score and standard deviation of each test score are summarized in Table 1. No violation of mean test scores was noted as the index of kurtosis (-1.184 to -.007) and skewness (-.544 to .773) were within satisfactory limits. Moreover, no univariate outlier was detected. The largest absolute *z*-score of items was 2.87 which was smaller than the criterion of |3.29|.

Independent *t*-test

The findings suggested no significance across settings on levels of psychosocial treatment participation ($t(84) = 1.806$; $p = .075$) and attendance ($t(84) = .482$; $p = .631$). No significant difference on psychosocial treatment adherence was noted among the two groups.

Correlational Analyses

Correlations between the "Participation" and "Attendance" subscales of the PTCS, and the subscales of Chinese Self-Stigma of Mental Illness Scales, the Rosenberg Self-Esteem Scale, the General and Social Self-Efficacy Scale, and the three current and retrospective items of the Scale to Assess Unawareness of Mental Disorder reached the Bendel et al.'s criterion (1977). Their values of the Pearson product-moment coefficient of correlation are summarized in Table 2. These subscales and items were selected for the regression analysis.

Regression Analyses

"Participants" and "Attendance" were separately treated as the independent variable. Socio-demographic data of participants including their gender, financial status, and living conditions, matched the inclusion criteria and were chosen for the regression analysis of the two subscales of PTCS respectively. After the forward stepwise procedure, the regression model

TABLE 2—CORRELATION BETWEEN THE PTCS, AND CSSMIS, RSES, SES AND SUMD

	Participation of PTCS	Attendance of PTCS
SSMIS: Stereotype Awareness	-.185	-.270*
SSMIS: Stereotype Agreement	-.328**	-.365**
SSMIS: Self-Concurrence	-.395**	-.444**
SSMIS: Self-Esteem Decrement	-.391**	-.418**
RSES	.462**	.437**
SES: General	.374**	.401**
SES: Social	.411**	.353**
SUMD: Mental illness (Current)	-.256*	-.211
SUMD: Mental illness (Past)	-.321**	-.202
SUMD: Medication (Current)	-.391**	-.368**
SUMD: Medication (Past)	-.261*	-.232*
SUMD: Social Consequence (Current)	-.384**	-.347**
SUMD: Social Consequence (Past)	-.276*	-.225*

Key: * $p < .05$; ** $p < .01$

for "Participation" and "Attendance" were generated. The models are presented in Tables 3 and 4. The excluded insignificant independent variables are also shown in the tables.

Better self-esteem and current insight on the social consequences of mental illness were found to be significant predictors of better psychosocial treatment participation. The two variables explained 29.9% of the total variance. If all of the sixteen independent variables were included in the regression model, the percentage of total variance explained was found to slightly increase to 35.3%. The strongest contribution was self-esteem ($\beta = .414$; $p < .01$).

Higher level of self-stigma, poorer current insight on the social consequences of mental illness, and living with others were found to be significant predictors of poor psychosocial

treatment attendance. Living with others referred operationally to those who lived in halfway houses, with their divorced partners, or with their children. Instead of comparing with other living conditions, this finding suggested that people who lived with others showed poorer psychosocial treatment adherence than those who did not. These variables accounted for 29.7% of the total variance. No increment on variance explained was found after including all the sixteen independent variables in the regression model. Self-concurrence of the stigmatization contributed most for treatment non-attendance ($\beta = -.424$; $p < .01$).

Discussion

Our findings suggest that self-stigma would lower psychosocial treatment adherence of participants. The findings show that self-stigma is associated

TABLE 3—THE REGRESSION MODEL FOR “PARTICIPATION”

Parameter	β	t-value	p-value	% of variance accounted
“Participation”				
Self-esteem	.414	4.510	.000	67.62
Insight: Social Consequence of Having Mental Illness (Current)	-.323	-3.513	.001	32.38
Present Use of Mental Health Services	-.172	-1.838	.070	
Gender	.161	1.759	.082	
Insight: Awareness of the Achieved Effect of Medication (Current)	-.165	-1.452	.150	
Social Self-Efficacy	.151	1.325	.189	
Insight: Awareness of Having Mental Illness (Past)	-.143	-.1283	.203	
Receiving Comprehensive Social Security Assistance	.118	1.248	.215	
Self-Stigma: Self-Concurrence	-.137	-1.040	.301	
Insight: Social Consequence of Having Mental Illness (Past)	.110	.765	.446	
Self-Stigma: Self-Esteem Decrement	-.099	-.735	.465	
Self-Stigma: Self-Agreement	-.055	-.515	.608	
Self-Stigma: Self-Awareness	.051	.488	.627	
Insight: Awareness of Having Mental Illness (Current)	.017	.129	.898	
General Self-Efficacy	.018	.116	.908	
Insight: Awareness of the Achieved Effects of Medication (Past)	.000	.003	.998	

Adjusted $r^2 = .299$ (Only including the significant independent variables)

with psychosocial treatment adherence for people with schizophrenia. Our results suggest that once the people with schizophrenia concurred with public stigma and internalized it, they were likely to show poorer adherence to psychosocial treatment. A possible reason is that they seemingly wanted to keep their mental illness secret by abandoning seeking (Cooper, Corrigan, & Watson, 2003) and utilizing psychiatric services so as to avoid further discrimination (Corrigan, 2004). This is in line with our finding that the self-concurrence subscale of self-stigma predicted “attendance.” This finding also provides indirect evidence to the three-tier mechanism of self-stigmati-

zation (Corrigan, Watson, & Barr, 2006) that the adherence behavior is affected only at the late stage at the level of self-concurrence but not at earlier stages such as stereotype awareness and agreement.

Most of the insight subscales were found to be associated with “Participation” and “Attendance” of the PTCS. Specifically, current awareness on the negative social consequences of mental illness was significantly associated with psychosocial treatment participation and attendance. These findings are consistent with earlier research (Lysaker, Bell, Milstein, Bryson, & Beam-Goulet, 1994) that insight is a significant

predictor of psychosocial treatment adherence. Illness recognition forms the foundation of having the urge to receive treatment (Cuffel, Alford, Fischer, & Owen, 1996). People with schizophrenia who are not aware of their psychiatric conditions may believe that they do not need to receive psychiatric interventions (Rusch & Corrigan, 2002) and thus refuse to adhere to the prescribed psychosocial treatment. On the contrary, those who are more aware of the negative social consequences are more willing to improve their symptoms by adhering to psychiatric intervention.

Our results on predictors of the “participation” factor of treatment

TABLE 4—THE REGRESSION MODEL FOR “ATTENDANCE”

“Attendance”

Self-Stigma: Self-Concurrence	-.424	-4.598	.000	61.18
Insight: Social Consequence of Having Mental Illness (Current)	-.285	-3.098	.003	26.71
Living with other (“no” set as base)	-.199	-2.164	.033	12.11
Gender	.151	1.642	.104	
Self-Esteem	.176	1.339	.184	
Insight: Awareness of the Achieved Effect of Medication (Current)	-.112	-1.058	.293	
Social Self-Efficacy	.082	.743	.460	
General Self-Efficacy	.088	.622	.536	
Insight: Awareness of Having Mental Illness (Current)	.078	.579	.564	
Receiving Comprehensive Social Security Assistance	.048	.491	.625	
Self-Stigma: Self-Esteem Decrement	.115	.485	.629	
Insight: Social Consequence of Having Mental Illness (Past)	.057	.405	.687	
Self-Stigma: Self-Agreement	-.029	-.231	.818	
Insight: Awareness of Having Mental Illness (Past)	.016	.144	.886	
Insight: Awareness of the Achieved Effect of Medication (Past)	.014	.129	.898	
Self-Stigma: Self-Awareness	.009	.081	.935	

Adjusted $r^2 = .297$ (Only including the significant independent variables)

adherence also yielded interesting points of discussion. People with schizophrenia who had low self-esteem demonstrated poorer psychosocial treatment participation. This is in full agreement with our literature review that individuals with low self-esteem often endorse hopeless feelings (Rosenfield, 1997) and do not believe in the beneficial effects of psychiatric services (Watson & Corrigan, 2001). This results in poorer adherence behaviors. Our findings further support the mechanism of self-stigmatization that self-esteem decrement would undermine treatment adherence. Surprisingly, unlike self-stigma, insight and self-esteem, the relationship between self-efficacy and psychosocial treatment adherence is at odds with our study. A possible explanation is

that the effect of poor self-efficacy on psychosocial treatment adherence is mediated through other predictor variables. The mechanism remains elusive at this stage. Further efforts should therefore be put towards unveiling the mediating relationship between self-efficacy and other variables in undermining treatment adherence.

Individuals who are self-stigmatized are likely to avoid engaging in appropriate help-seeking behaviors (Weiss & Ramakrishna, 2001). Failure to promote treatment adherence would inhibit treatment outcomes and act as the barrier for the recovery of people with schizophrenia (Swanson et al., 1997). Effective intervention which may help them to reduce their self-stigma and thus improve their adherence to

psychosocial treatment is therefore urgently needed. We suggest that goal attainment programs (GAP; Ng & Tsang, 2002) and motivational interviewing (MI; Miller, 1983) which help people with schizophrenia develop realistic life goals and insight are promising interventions to enhance treatment participation. As stigma creates irrational fears (Gibson, 1992) which may interfere with the psychological well-being of individuals (Dryden, 1995), we propose that cognitive behavioral therapy (Holmes & River, 1998; Kingdon & Turkington, 1991) is also helpful to normalize individuals’ stigmatized ideas.

People in Hong Kong and mainland China have shared similar cultural values such as Confucianism and famil-

ism. In Hong Kong, the lay belief towards people with schizophrenia is largely influenced by Confucian values and familism (Furnham & Chan, 2004; Tsang et al., 2007; Wong, 2000). The deviant behavior of mental illness is regarded as the absence of moral standard, and it would violate the harmonious social relationship expected by Confucianism (Tsang et al., 2007). In addition, people with severe mental illness create enormous shame to the family, and affect the reputation of the family (Tsang et al., 2007). In order to "save face," people tend not to disclose that they have a family member who has mental illness (Furnham & Chan, 2004). These culturally specific values explain why people in Hong Kong in general hold a more negative attitude towards people with schizophrenia, and exaggerate stigma towards mental illness compared with the western societies (Furnham & Chan, 2004; Tsang et al., 2007). Given the above, it makes sense to suggest that the problem of self-stigma among people with schizophrenia in Hong Kong and probably the mainland China is more severe than the western civilization. Our finding may partially explain the underlying reasons why stigma towards mental illness is so highly endorsed in China. Further research with appropriate cultural adaptation is required to better explain this phenomenon.

There are several limitations to this study that need to be considered in future research. First, this cross-sectional observational design restricted the possibility of examining the causal relationship between self-stigma and psychosocial treatment non-adherence, and unveiling the longitudinal process of stigma integration. Second, no inter-rater reliability between the raters of the current study was established for the Psychosocial Treatment Compliance Scale. Third, a small por-

tion of people with schizophrenia who demonstrated extremely poor mental function and treatment adherence had been excluded during the recruitment process. Generalization of findings would then be limited to those who refused to join the prescribed psychosocial interventions. Furthermore, we did not look into some mediating factors such as therapeutic alliance, positive symptoms, cognitive deficits and severity of illness of individuals. The adherence behavior of individuals towards different types of psychosocial interventions should also be examined.

References

- Amador, X., F., & Strauss, D. H. (1993). Poor insight in schizophrenia. *Psychiatric Quarterly*, 64, 305-318.
- Amador, X., F., Strauss, D. H., Yale, S. A., Flaum, M. M., Endicott, J., & Gorman, J. M. (1993). The assessment of insight in psychosis. *American Journal of Psychiatry*, 150(6), 873-879.
- Barton, R. (1999). Psychosocial Rehabilitation Services in Community Support Systems: A review of outcomes and policy recommendations. *Psychiatric Services*, 50(4), 525-534.
- Bellack, A. S. (2004). Skills training for people with severe mental illness. *Psychiatric Rehabilitation Journal*, 27(4), 375-391.
- Bendel, R. B., & Afifi, A. A. (1977). Comparison of stopping rules in forward stepwise regression. *Journal of American Statistical Association*, 72, 46-53.
- Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes, Volume I*. San Diego, CA: Academic Press.
- Bustillo, J. R., Lauriello, J., & Keith, S. J. (1999). Schizophrenia: Improving outcome. *Harvard Review of Psychiatry*, 6, 229-240.
- Cooper, A. E., Corrigan, P. W., & Watson, A. C. (2003). Mental illness and care seeking. *Journal of Nervous and Mental Disease*, 191(5), 339-341.
- Corrigan, P. W. (1998). The impact of stigma on severe mental illness. *Cognitive and Behavioral Practice*, 5, 201-222.
- Corrigan, P. W. (2004). How stigma interferes with mental health care. *American Psychologist*, 59(7), 614-625.
- Corrigan, P. W., & Watson, A. C. (2002). The paradox of self-stigma and mental illness. *Clinical Psychology: Sciences and Practice*, 9, 35-53.
- Corrigan, P. W., Watson, A. C., & Barr, L. (2006). Understanding the self-stigma of mental illness: Implication for self-esteem and self-efficacy. *Journal of Social and Clinical Psychology*, 25(9), 875-884.
- Crocker, J., Alloy, L. B., & Kayne, N. T. (1988). Attributional style, depression, and perceptions of consensus for events. *Journal of Personality and Social Psychology*, 54, 840-846.
- Cuffel, B. J., Alford, J., Fischer, E. P., & Owen, R. R. (1996). Awareness of illness in schizophrenia and outpatient treatment adherence. *Journal of Nervous and Mental Disease*, 184(11), 653-659.
- Dryden, W. (1995). *Brief rational emotive behaviour therapy*. Chichester, New York: Wiley.
- Fung, K. M. T., Tsang, H. W. H., Corrigan, P. W., Lam, C. S., & Cheung, W. M. (2007). Measuring self-stigma of mental illness in China and its implications for recovery. *International Journal of Social Psychiatry*, 53(5), 408-418.
- Furnham, A., & Chan, E. (2004). Lay theories of schizophrenia: A cross-cultural comparison of British and Hong Kong Chinese attitudes, attributions and beliefs. *Social Psychiatry and Psychiatric Epidemiology*, 39, 543-552.
- Gibson, R. (1992). The psychiatric hospital and reduction of stigma. In P. J. Fink & A. Tasman (Eds.), *Stigma and mental illness*. Washington, DC: American Psychiatric Press.
- Glynn, S. M. (2003). Psychiatric rehabilitation in schizophrenia: Advances and challenges. *Clinical Neuroscience Research*, 3(1-2), 23-33.
- Holmes, E. P., & River, L. P. (1998). Individual strategies for coping with the stigma of severe mental illness. *Cognitive and Behavioral Practice*, 5, 231-239.
- Hong Kong Government (1995). *Rehabilitation program plan review*. Hong Kong: Hong Kong Government Press.
- Kingdon, D. G., & Turkington, D. (1991). The use of cognitive behavioral therapy with a normalizing rationale in schizophrenia: Preliminary findings. *Journal of Nervous and Mental Disease*, 179, 207-211.
- Lysaker, P., Bell, M., Milstein, R., Bryson, G., & Beam-Goulet, J. (1994). Insight and psychosocial treatment compliance in schizophrenia. *Psychiatry*, 57(4), 307-311.

- Major, B., & O'Brien, L. T. (2005). The social psychology of stigma. *Annual Review of Psychology*, 56, 393-421.
- Manchanda, R., & Norman, R. M. G. (2003). Schizophrenia: Early intervention. *The Canadian Journal of Continuing Medical Education*, 11, 123-127.
- McEvoy, J. P., Freter, S., Everett, G., Geller, J. L., Appelbaum, P., Apperson, L. J., et al. (1989). Insight and the clinical outcome of schizophrenic patients. *Journal of Nervous and Mental Disease*, 177, 48-51.
- Miller, W. R. (1983). Motivational interviewing with problem drinkers. *Behavioural Psychotherapy*, 11, 147-172.
- Mueser, K. T., & Bond, G. R. (2000). Psychosocial treatment approaches for schizophrenia. *Current Opinion in Psychiatry*, 13, 27-35.
- Ng, F. L. B., & Tsang, H. W. H. (2002). A program to assist people with severe mental illness in formulating realistic life goals. *Journal of Rehabilitation*, 16(4), 59-66.
- Philips, M. R., Yang, G., Li, S., & Li, Y. (2004). Suicide and the unique prevalence pattern of schizophrenia in mainland China: A retrospective observational study. *Lancet*, 364, 1062-1068.
- Regier, D. A., Narrow, W. E., Rae, D. S., Manderscheid, R. W., Locke, B. Z., & Goodwin, F. K. (1993). The De-facto United States mental and addictive disorders service system. *Archives of General Psychiatry*, 50(2), 85-94.
- Ritsher, J. B., Otilingam, P. G., & Grajales, M. (2003). Internalized stigma of mental illness: Psychometric properties of a new measure. *Psychiatry Research*, 121(1), 31-49.
- Ritsher, J. B., & Phelan, J. C. (2004). Internalized stigma predicts erosion of morale among psychiatric outpatients. *Psychiatry Research*, 129(3), 257-265.
- Rittmannsberger, H., Pachinger, L., Keppelmüller, P., & Wancata, J. (2004). Medication adherence among psychotic patients before admission to inpatient treatment. *Psychiatric Services*, 55(2), 174-179.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, New Jersey: Princeton University Press.
- Rosenfield, S. (1997). Labeling mental illness: The effects of received services and perceived stigma on life satisfaction. *American Sociological Review*, 62, 660-671.
- Rusch, N., & Corrigan, P. W. (2002). Motivational interviewing to improve insight and treatment adherence in schizophrenia. *Psychiatric Rehabilitation Journal*, 26(1), 23-32.
- Sherer, M., Maddus, J. E., Mercandante, B., Prenticedunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports*, 51(2), 663-671.
- Swanson, J., Estroff, S., Swartz, M., Borum, R., Lachicotte, W., Zimmer, C., et al. (1997). Violence and severe mental disorder in clinical and community populations: The effects of psychotic symptoms, comorbidity, and lack of treatment. *Psychiatry: Interpersonal and Biological Processes*, 60(1), 1-22.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th Ed.). Boston: Allyn and Bacon.
- Tarrier, N., Yusupoff, L., Kinney, C., McCarthy, E., Gledhill, A., Haddock, G., et al. (1998). Randomised controlled trial of intensive cognitive behaviour therapy for patients with chronic schizophrenia. *British Medical Journal*, 317, 303-307.
- Tsang, H. W. H., Angell, B., Corrigan, P. W., Lee, Y. L., Shi, K., Lam C. S., et al. (2007). A cross-cultural study of employers' concerns about hiring people with psychotic disorder: Implication for recovery. *Social Psychiatry and Psychiatric Epidemiology*, 42, 723-733.
- Tsang, H. W. H., & Chen, E. Y. H. (2007). Perceptions on remission and recovery in schizophrenia. *Psychopathology*, 40, 469.
- Tsang, H. W. H., Fung, K. M. T., & Corrigan, P. W. (2006). The Psychosocial Treatment Compliance Scale (PTCS) for people with psychotic disorders. *Australian and New Zealand Journal of Psychiatry*, 40, 561-569.
- Watson, A., & Corrigan, P. (2001). The impact of stigma on service access and participation. *A guideline developed for the behavioral health recovery management project*, University of Chicago Center for Psychiatric Rehabilitation.
- Weiner, B. (1995). *Judgements of responsibility: A foundation for a theory of social conduct*. New York: Guilford Press.
- Weiss, M. G., & Ramakrishna, J. (2001). Intervention: Research on reducing stigma. *Stigma and global health: Developing a research agenda*, An International Conference.
- Wong, D. F. K. (2000). Stress factors and mental health of carers with relatives suffering from schizophrenia in Hong Kong: Implication for culturally sensitive practices. *British Journal of Social Work*, 30, 365-382.
- World Health Organization. (2001). *World Health Report 2001*. Geneva: World Health Organization, 2001.
- Zygmunt, A., Olfson, M., Boyer, C. A., & Mechanic, D. (2002). Interventions to improve medication adherence in schizophrenia. *American Journal of Psychiatry*, 159, 1653-1664.

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