



# Brief Psychoeducation Program to Enhance Recovery Knowledge and Attitudes of Mental Health Service Providers and Users: Randomized Controlled Trials

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## Abstract

Recovery-oriented transformation of mental health service systems not only necessitates changes in mental health policies and practices, it also requires an adoption of recovery-oriented mindset, which includes knowledge and attitudes, among service providers. It is also important that service users are informed about the changes and can fully participate in the process. The present study developed and evaluated the efficacy of a recovery psychoeducation program in enhancing recovery-oriented knowledge and attitudes among mental health service providers and users in Hong Kong. In study 1, 111 service providers were randomly assigned to 2-day psychoeducation group or control group. Results showed that participants in psychoeducation group had significantly better recovery knowledge and more positive attitudes towards recovery after the intervention than the control counterparts. The effect of the recovery psychoeducation program on recovery attitudes was fully mediated by the improvement in recovery knowledge. In study 2, 93 people with mental illness were randomized into 2-week psychoeducation group or control group. Participants in the psychoeducation group had a significant improvement in the level of recovery-oriented knowledge immediately after the workshops, but the effect could not be sustained at follow-up. To transform into a recovery-oriented service system, having an effective program to orient service providers and users to recovery is essential. This study provided initial support to the use of a brief psychoeducational program for recovery-oriented knowledge enhancement. Given the short-term efficacy and feasibility of the interventions, service leaders and managers in different clinical and social service settings should consider implementing the programs as part of staff and users' service orientation to build a recovery-supporting workforce and empower their service users early in the recovery process.

**Keywords** Mental health · Personal recovery · Brief psychoeducation · Recovery knowledge · Attitudes towards recovery

In the past few decades, the consumer model of recovery has become increasingly prominent in the field of mental

health care, serving as a key service philosophy and guiding principles in its practices (Davidson and Roe 2007). Unlike the medical and rehabilitation models of recovery, personal recovery emphasizes the importance of people with mental illness to develop a satisfying and meaningful life irrespective of their persisting symptoms or impairments associated with their illness (Anthony 1993). It stresses on personal experience of people living with mental illness and support their active participation in service planning and development (SAMHSA 2005).

To enable recovery, it is essential to equip service providers in the service system with knowledge in personal recovery and transform their attitudes in favor of adopting the recovery-oriented practices. Earlier studies have shown that recovery orientation of mental health services (e.g., individually tailored care) was positively related to recovery process and outcomes among the service users, including

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greater service engagement, fewer psychiatric symptoms, reduced hospitalization, increased employment, higher life satisfaction, and better personal recovery (Chang et al. 2018; Kidd et al. 2011; Mak et al. 2017). Malinovsky and colleagues (2013) evaluated a system-wide recovery-oriented transformation in a psychiatric rehabilitation organization serving people with mental illness and found that it significantly improved working alliance between service providers and users, reduced rates of overnight hospitalization and enhance community functioning among service users. Apart from equipping service providers with necessary knowledge and attitudes for successful implementation of recovery-oriented services, it is also important to create a corresponding change in recovery-oriented knowledge and attitudes among the service users so that they can be fully involved in the recovery process (Repper 2000).

## Recovery in Hong Kong

Despite the increasing recognition of the importance of personal recovery in community-based rehabilitation services, the recovery movement in Hong Kong is still in the developing stage. Local research showed that mental health service providers in Hong Kong have insufficient knowledge and attitudes towards personal recovery (Tsoi et al. 2014). They were heavily influenced by the traditional medical model of recovery, which focused on symptom control and relapse prevention (Ng et al. 2008a). A previous study surveying 644 staff at a local mental health service organization found that they had a relatively poor understanding about personal recovery (Mak et al. 2010), compared with the service providers in the USA (Bedregal et al. 2006) and Australia (Meehan and Glover 2009). Although a noticeable change in recovery attitudes was observed in local service providers and a service reorientation has been advocated in the Mental Health Services Plan for Adults 2010–2015 by the Hospital Authority, the development of recovery-based mental health care in Hong Kong is still clearly inadequate (Tsoi et al. 2014).

Similarly, earlier studies revealed that people with mental illness in Hong Kong were socialized to focus on the clinical definition of recovery (i.e., symptom remission and cessation of psychiatric medication) (Ng et al. 2008b). Lam and colleagues (2011) also found that local mental health service users related recovery to the restoration to the level of cognitive and social functioning prior to the onset of mental illness, which corresponds to functional recovery. Given the limited awareness and understanding of personal recovery in the local population, there is a strong need to develop an evidence-based psychoeducation program to enhance the knowledge and attitudes towards personal recovery among people with mental illness in Hong Kong.

## Existing Approaches to Enhance Recovery Knowledge and Attitudes

To promote recovery-oriented knowledge and attitudes in service providers and users, an array of educational and intervention programs has been developed, including Collaborative Recovery Training Program (Crowe et al. 2006), Illness Management and Recovery (Tsai et al. 2011), consumer-led training (Meehan and Glover 2009), and Wellness Recovery Action Planning (Higgins et al. 2012). Nevertheless, personal recovery should take the critical role of culture into account, and recognize how every individual is contextualized within the local environment. Thus, direct adoption of recovery-oriented interventions from the West may not adequately address the needs of the local population, and it is important to develop a culturally appropriate intervention program that is consistent with personal recovery in the context of the Chinese community (Tse et al. 2013). In addition, health care workers in Hong Kong were notorious for having very long working hours and heavy work demands due to perennial shortage of staff and with much larger user-provider ratio than other mental health systems in the USA, Australia, and the UK (WHO 2011). Compared with programs developed in other contexts, intervention for local health care service providers should be more concise and in shorter duration to accommodate their working situation and enable more of them to attend.

In light of the significance of service providers and users in the recovery process and their lack of opportunity to master personal recovery in Hong Kong, the present study filled in the gap by (1) developing a culturally responsive and contextually appropriate brief psychoeducation program for mental health service providers and users in Hong Kong, and (2) evaluating its efficacy in promoting the knowledge of and attitudes towards recovery.

## Study 1: Brief Recovery Psychoeducation Program for Service Providers

To prepare for a system-level recovery-oriented transformation in the largest non-governmental organization providing community-based psychiatric rehabilitation services in Hong Kong, a brief recovery psychoeducation program was designed and delivered to the service providers at the organization.

## Method

### Participants

A sample of 111 mental health service providers (64.5% female,  $n = 71$ ) were recruited from a non-governmental organization specializing in community-based mental health services. They had a mean age of 34.86 years ( $S.D. = 8.29$

years, range 22–54). Nearly half of the participants (47.7%,  $n = 53$ ) had bachelor's degree or higher levels of education. They were either professional staff (e.g., social workers, nurses, and occupational therapists) (57.7%,  $n = 64$ ) or frontline staff (e.g., program workers, care assistants, and health workers) (42.3%,  $n = 47$ ). The average length of working experience in mental health field was 7.05 years (S.D. = 6.13 years).

## Procedure

The participants were randomly assigned either to intervention ( $n = 62$ ) or waitlist control groups ( $n = 49$ ). A 2-day recovery psychoeducation program was offered to the participants in intervention group, while the waitlist control group was discouraged from accessing any recovery-related information during these two days. They were asked to complete a questionnaire before (T1) and after the 2-day period (T2).

The recovery psychoeducation program was designed to promote recovery knowledge and attitudes among service providers and users in the mental health care system. It was developed by a cross-disciplinary team that includes people with mental illness, mental health researchers, clinical psychologists, social workers, and frontline service staff from the collaborating service organization. To ensure conceptual validity and cultural relevance, the content of the program was derived from the recovery model proposed by the Substance Abuse and Mental Health Services Administration (SAMHSA 2005) and the results of focus group interviews with local key stakeholders (Mak et al. 2018). Specifically, six focus groups were conducted to elicit the views of recovery in the local context, with each focus group consisting of three service users, three family carers, and three service providers recruited at the collaborating organization. They were asked to share their understanding and experiences of recovery. Details of the findings of the focus groups were described in an earlier study (Mak et al. 2018). Notably, family involvement emerged as an important local component of recovery that was emphasized in the focus groups.

The recovery psychoeducation program was a two-session intervention with three hours for each session. Grounded on the recovery model by the SAMHSA (2005) and the findings of the focus groups (Mak et al. 2018), three different aspects of recovery, including personal (i.e. individualized and person-centered, self-direction, participation/empowerment, and responsibility), support (i.e. respect and stigma, strengths-based, peer support, and family involvement), and holistic (i.e. hope, holistic, and non-linear) were identified and covered in the program. To illustrate these recovery elements and how they can be applied, the program combined didactic teaching, interactive activities, demonstration of good practices in local settings, discussion of possible challenges and dilemmas, and sharing by people with mental

illness and family carers. Local examples and knowledge about the implementation of recovery were also incorporated in the program. The format of the program was experiential and dynamic in nature with small-group discussions, games, and video sharing included in each session. Group presentation and quizzes were also utilized to consolidate the learning experience. The program was delivered by senior social workers who had extensive experience working with people with mental illness at the organization. Table 1 describes the structure and content of the program.

## Measures

**Recovery-Oriented Knowledge** The Recovery Knowledge Inventory (RKI) was a 20-item scale used to assess the staff's knowledge about the personal recovery before and after the intervention (Bedregal et al. 2006). A sample item includes "There is little that professionals can do to help a person recover if he/she is not ready to accept his/her illness/condition or need for treatment" (reverse coded). The full scale is presented in the online supplementary file 1. Participants rated the items on a Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating better recovery knowledge. The scale was translated and back-translated from English into Chinese and vice versa by a group of bilingual graduate students in psychology. To ensure the linguistic and face validity of the scale, the translated items were then evaluated and verified by a clinical psychology professor with solid background in recovery. The scale has been used in prior research with mental health and other medical professionals in Hong Kong (Mak et al. 2015, 2010). The internal consistency (Cronbach's alpha) of the scale was 0.78 at T1 and 0.88 at T2 in this study.

**Recovery Attitudes** The Attitudes towards Recovery Questionnaire (ARQ) is a 18-item scale used to measure the extent to which the participants believe that different aspects of recovery were important to people with mental illness (Mak et al. 2018). The scale was developed and validated among people with mental illness, family carers, and mental health service providers in Hong Kong (Mak et al. 2018). The items of the ARQ were constructed in Chinese, and the content of the items was based on an extensive review of existing measures of recovery and focus groups with key stakeholders. A sample item includes "People in recovery of mental illness make decisions on their own recovery plan." The full scale is presented in the online supplementary file 1. Participants rated the scale on a 5-point Likert-scale, ranging from 1 (not important at all) to 5 (very important). Higher scores indicated more positive attitudes towards recovery. The scale had good convergent validity with the subjective perception of recovery and empowerment among service users, as well as with the recovery orientation of

**Table 1** Overview of the recovery psychoeducation program

Component	Content
Didactic teaching	Introduction to different aspects of recovery Personal (i.e., individualized and person-centered, self-direction, participation/empowerment, and responsibility) Support (i.e., respect and stigma, strengths-based, peer support, and family involvement) Holistic (i.e., hope, holistic, and non-linear) Comparison of the medical and rehabilitation models of recovery with consumer-oriented recovery using skill training, symptom management and medication as examples Perspectives of people with mental illness and family carers from previous focus group findings <sup>a</sup> Action to be done by various parties (i.e., service users and service providers) <sup>a</sup> Existing good practices of recovery-oriented care <sup>a</sup> Possible challenges and dilemmas <sup>a</sup>
Interactive games / videos	Debriefing after each activity to clarify the idea being introduced
Sharing	Service users and family carers shared their pathways of recovery
Discussion	Reflection about the understanding and meaning of recovery Discussion on how recovery elements can be applied in different scenarios Identified the potential challenges and barriers to the implementation of recovery-oriented care (e.g., service provision, program design, and policy formulation) <sup>a</sup>
Presentation (only for service providers)	Presentation on the summary of group discussion regarding the adoption of recovery-oriented care for people with different backgrounds and needs <sup>a</sup> Feedback and suggestions to address the concerns about implementing recovery-oriented practices <sup>a</sup>
Quiz	Short quiz to revisit recovery concepts being introduced

<sup>a</sup>Components related to the implementation of recovery-oriented care were only included in the psychoeducation program for service providers

mental health care among service providers (Mak et al. 2018). The internal consistency (Cronbach's alpha) of the scale was 0.89 at T1 and 0.90 at T2 in this study.

### Data Analysis

Independent-sample *t*-test, Chi square tests and Fisher's exact tests were performed to have baseline comparison of demographic and outcome measures between intervention and control groups, as well as between the participants who completed and dropped out of the trial. For all analyses, intention-to-treat approach was adopted. Linear mixed models (LMMs) were conducted to examine the effect of brief recovery psychoeducation program on recovery-oriented knowledge and attitudes. LMM used all available data and accommodated missing data in the analysis using maximum likelihood estimation (Krueger and Tian 2004). For each of the models, group (psychoeducation or waitlist control), time, and the group-by-time interaction were included as the fixed effects, while participant was included as the random effect. Pairwise comparisons with Bonferroni adjustment were conducted to examine the effect of time within both groups. Within-group effect sizes were computed to estimate change of outcome variables over time. Cohen's calibration for effect size interpretation was used: small ( $d=0.20$ ), medium ( $d=0.50$ ), and large ( $d=0.80$ ). All data were analyzed using SPSS version 22.0 software.

Upon observing significant improvement in recovery knowledge and attitudes among participants in intervention group, mediation analysis was conducted to examine

if the effect of recovery psychoeducation program on recovery attitudes would be mediated by recovery knowledge with the PROCESS macro using 5000 bootstrap samples (Hayes 2013). We tested whether post-program change score of recovery knowledge would mediate the effect of the intervention on the post-program change score of recovery attitudes. Significance of mediation effect was assessed using 95% bias corrected bootstrap confidence intervals.

## Results

### Preliminary Analyses

Results of Chi square tests and independent-sample *t*-tests showed that participants in the two conditions had no significant differences in demographics (i.e., gender, age, education level, type of job position, and length of working experience in the mental health field), recovery-oriented knowledge, and recovery-oriented attitudes at baseline. Of the 111 participants who participated in the study, 62 participants were in the psychoeducation group and 49 were in the control group. Ninety-three of them completed the assessment at both time points (i.e., psychoeducation: 91.9%, control: 73.5%). There were no significant differences in demographics and outcome variables between participants completed the entire study and those who dropped out of the study.

### Intervention Effects on Recovery-Oriented Knowledge and Attitudes

As shown in Table 2, results revealed that a significant group by time interaction on recovery-oriented knowledge,  $F(1, 97.03) = 35.19, p < 0.001$ . Specifically, participants who received the psychoeducation program showed a significant increase in recovery-oriented knowledge ( $\Delta = 0.42, p < 0.001$ , Cohen’s  $d = 1.06$ ), whereas control group participants did not have any changes in recovery-oriented knowledge between the two time points ( $\Delta = 0.01, p > 0.05$ , Cohen’s  $d = 0.03$ ).

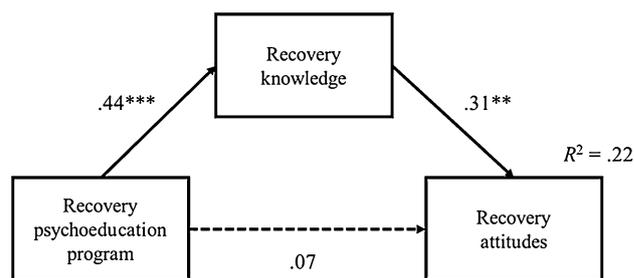
A significant difference for change in recovery attitudes from baseline to post-program was found for participants in intervention group compared with their counterparts in control group,  $F(1, 94.72) = 8.41, p = 0.005$ . The participants in intervention group had a significant improvement in recovery attitudes ( $\Delta = 0.14, p = 0.001$ , Cohen’s  $d = 0.38$ ). No significant changes on recovery attitudes were observed in the participants in control group ( $\Delta = -0.04, p > .05$ , Cohen’s  $d = 0.11$ ).

#### Mediation of Intervention Effects

Mediation analysis was conducted to examine if the effect of the recovery psychoeducation program on recovery attitudes would be mediated by the improvement in recovery knowledge. Results showed that recovery knowledge fully mediated the effect of the intervention on recovery attitudes,  $B = 0.14, 95\% \text{ CI } [0.06, 0.24]$ . Figure 1 shows the unstandardized coefficients of the mediation model.

### Study 2: Brief Recovery Psychoeducation Program for Service users

To enable service users to fully participate in the recovery-oriented services, a recovery psychoeducation program was delivered to service users in conjunction to the program



**Fig. 1** Results of the mediation analysis with unstandardized coefficients. \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

provided for service providers from the same community-based mental health service organization.

### Method

#### Participants

Participants were recruited from the organization described in study 1. Inclusion criteria were as follows: age 18 years or above, able to understand and read Chinese, and a DSM-IV-TR diagnosis of an Axis I disorder. They were excluded from the study if they had an organic brain disorder or had a known history of intellectual disability. A total of 93 people with mental illness (62.4% male,  $n = 58$ ) participated in the program. They had a mean age of  $41.02 \pm 11.14$  years (range 19–69). Over two-thirds of them had secondary education as the highest level of education (71.4%,  $n = 65$ ) and were single (74.7%,  $n = 68$ ). Most of them were either diagnosed with (56.2%,  $n = 50$ ) or a dual diagnosis (3.4%,  $n = 3$ ) with schizophrenia, followed by major depressive disorder (20.2%,  $n = 18$ ) and bipolar disorder (10.1%,  $n = 9$ ). The diagnosis was based on self-report of the participants and was then cross-checked with the clinical record given by their service providers. If the diagnosis reported by the two parties were inconsistent, we reported the diagnosis provided by the service providers. Nearly all of the participants

**Table 2** Study 1: psychoeducation ( $n = 62$ ) and waitlist control ( $n = 49$ ) group means and SE of outcome measures at baseline and post-program

Outcome	Baseline		Post-program		From baseline to post-program Effect size (Cohen’s $d$ )	LMM analysis: group-time interaction		
	Mean	SE	Mean	SE		F	df	p
<b>Recovery knowledge</b>								
Psychoeducation	3.34	0.05	3.76	0.05	1.06	35.37	1, 97.03	<0.001
Waitlist control	3.19	0.06	3.17	0.06	0.03			
<b>Recovery attitudes</b>								
Psychoeducation	4.15	0.05	4.29	0.05	0.38	8.36	1, 94.72	0.005
Waitlist control	4.04	0.06	4.00	0.06	0.11			

Mean = estimated marginal mean; SE = standard error of estimated marginal mean

were taking psychiatric medications (94.4%,  $n = 85$ ) and their average age of onset was  $26.01 \pm 9.29$  years.

## Procedure

The participants were randomly assigned either to intervention ( $n = 49$ ) or waitlist control groups ( $n = 44$ ). The participants in the intervention group received the two-session recovery psychoeducation program, while those in the waitlist control group were spared from any knowledge related to recovery during the study period.

The content and format of the psychoeducation program for service users were similar to the one delivered to service providers in study 1 (see Table 1), except that components related to the implementation of recovery-oriented services in existing mental health service system were not included in the psychoeducation program for service users. With less content covered in the program, the duration of each session was reduced from 3 to 2 h. To enable service users to internalize the materials delivered, the training was modified from a 2-day program to a 2-week program that were held in consecutive weeks, so that service users can have more time to review and consolidate the knowledge acquired in the program.

## Measures and Data Analysis

Same measures of recovery knowledge and attitudes were used as in study 1 (Bedregal et al. 2006; Mak et al. 2018). The Cronbach's alpha for the RKI in this study was 0.51 at baseline, 0.70 at post-program, and 0.77 at follow-up. A potential reason for low internal consistency of the RKI at baseline was the low level of prior knowledge in recovery. The participants did not respond to the items consistently and lacked a systematic response pattern. The internal consistency of the ARQ in this study was 0.92 at baseline, 0.94 at post-program, and 0.94 at follow-up. Preliminary

and primary data analyses were conducted in the way laid out in study 1.

## Results

### Preliminary Analysis

Participants in psychoeducation ( $n = 49$ ) and waitlist control groups ( $n = 44$ ) were not significantly different on demographics and baseline outcome measures. Of the 93 participants randomised into the trial, 88 of them (i.e., psychoeducation: 95.9%, control: 93.2%) completed post-assessment, while 80 participants (i.e., psychoeducation: 83.7%, control: 88.6%) completed one-month follow-up. Participants who completed three waves of assessment did not significantly differ than their counterparts on demographics and baseline outcome measures.

### Intervention Effects on Recovery-Oriented Knowledge and Attitudes

Results of the LMM analysis on recovery-oriented knowledge revealed a significant group by time interaction effect,  $F(2, 166.98) = 5.50$ ,  $p = 0.005$  (see Table 3). Pairwise comparisons found that participants in psychoeducation group had a significantly higher level of recovery-oriented knowledge after the program than at baseline ( $\Delta = 0.20$ ,  $p < 0.001$ , Cohen's  $d = 0.55$ ), but no significant difference between scores at baseline and one-month follow-up was found ( $\Delta = 0.05$ ,  $p > 0.05$ , Cohen's  $d = 0.13$ ). This result indicated that the psychoeducation program had immediate effect upon completion of the workshops but the knowledge learned in the workshops could not be retained after one month.

A significant interaction group by time effect on recovery attitudes was found,  $F(2, 167.00) = 4.65$ ,  $p = 0.011$ . Post hoc analyses suggested that a significant reduction of

**Table 3** Study 2: Psychoeducation ( $n = 49$ ) and waitlist control ( $n = 44$ ) group means and SE of outcome measures at baseline, post-program, and one-month follow-up assessments

Outcome	Baseline		Post-program		One-month follow-up		Effect size (Cohen's $d$ )		LMM analysis: group-time interaction			
	Mean	SE	Mean	SE	Mean	SE	From baseline to post-program	From baseline to follow-up	$F$	$df$	$p$	
Recovery knowledge												
Psychoeducation	2.78	0.05	2.98	0.05	2.83	0.05	0.55	0.13	5.50	2, 166.98	0.005	
Waitlist control	2.77	0.05	2.76	0.06	2.74	0.06	0.02	0.07				
Recovery attitudes												
Psychoeducation	4.06	0.08	4.05	0.09	4.10	0.09	0.01	0.07	4.65	2, 167.00	0.011	
Waitlist control	4.20	0.09	3.91	0.09	4.01	0.09	0.49	0.32				

Mean = estimated marginal mean, SE = standard error of estimated marginal mean

recovery attitudes from baseline to post-program was found in control group ( $\Delta = -0.29$ ,  $p < 0.001$ , Cohen's  $d = 0.49$ ). No significant time differences on recovery attitudes from baseline to post-program were found in psychoeducation group ( $p > 0.05$ ). The results also showed non-significant changes between scores at baseline and one-month follow-up in the two groups ( $ps > 0.05$ ).

## Discussion

This study evaluated the efficacy of a brief psychoeducation program aiming at promoting recovery-oriented knowledge and attitudes among mental health service providers and users. Consistent with previous studies conducted in the US and Australia (Crowe et al. 2006; Meehan and Glover 2009; Peebles et al. 2009; Salgado et al. 2010), service providers who received intervention had significantly higher recovery-oriented knowledge and more positive attitudes towards recovery compared with their control group counterparts. A large effect size was found for the change in recovery-oriented knowledge among service providers in the intervention group, while their recovery attitudes also showed improvement with a small-to-medium effect size. Results of mediation analysis suggested that increase in recovery-oriented knowledge explained the improvement in attitudes towards recovery following the participation in psychoeducation program. These results are very encouraging, given the low dosage of the program.

The brief psychoeducation program was also shown to have promising potential for developing recovery knowledge among people with mental illness with a medium effect size, although their knowledge could not be sustained at one-month follow-up. This is likely because of the fact that the participants were not exposed to any recovery knowledge after attending the workshop. Therefore, review and consolidation of recovery knowledge were not made possible. To sustain knowledge acquisition, future implementation can consider involving homework assignment to prompt reflection on their values and facilitate integration of what have been learned into daily life (Kazantzis and Deane 1999). Another strategy is to increase repeated exposure to the learning target by presenting the recovery components in the participants' surrounding environment, such as residential units (e.g., long stay care homes and halfway houses), community wellness centers, and outpatient clinics. More importantly, if the service users can experience how recovery principles are upheld and practiced in their services and benefit their well-being, they are more likely to embrace and internalize the values themselves.

Mental health service organizations should take an active role to engage their service users in personal recovery, so that the service users can have the opportunity to actualize

what they have learned from the recovery psychoeducation program and recognize that recovery-oriented knowledge and attitudes are valued and reinforced by their service providers and in the organizations. In addition, despite that attitudinal change can be facilitated by providing adequate information for participants to make evaluative judgment, our findings showed that it indeed takes more than two sessions to initiate significant improvement in recovery attitudes among people with mental illness. While improving knowledge on the subject matter is essential, adequate time and relevant experience are necessary for attitudinal change to take place (McGuire 1981).

As noted by Davidson and colleagues (2007), recovery-oriented transformation cannot take place without creating changes in the mindset of the people in the system. Thus, knowledge and attitudes among the service providers and users are important targets of change, so that they can develop the capabilities and share the vision to work collaboratively in facilitating personal recovery among service users. The evidence from the trials supported the utility of implementing a brief recovery psychoeducation to promote recovery-oriented knowledge and attitudes. Service leaders and managers in different psychiatric clinical units and community mental health settings should consider adopting this intervention program as a way to build a workforce that is well equipped and committed to recovery-oriented care, and empower their service users to gain greater control over their care and life (Borg and Kristiansen 2004). Moreover, standard induction training on recovery-oriented practice should be provided for new staff, so that they can acquire skills and competence to incorporate recovery into the services. Refresher workshops and guidelines could also be developed for existing staff to strengthen their commitment to a recovery orientation and facilitate its implementation in the mental health care system with regular feedback and guidance from recovery champions in the organization (Mental Health Commission of Canada 2015).

Despite the contributions, this study has some limitations that should be taken into account when interpreting the findings. First, there are no follow-up assessments in study 1 that tap into the maintenance of recovery-oriented knowledge and attitudes among service providers as well as evaluate their subsequent changes in recovery-oriented behavior in service planning and delivery. Second, this study used the RKI for assessing recovery knowledge that was developed in Western culture (Bedregal et al. 2006). It is noted that RKI at baseline of study 2 showed a low internal consistency. It is plausible that recovery knowledge among service users was limited and thus they were not able to understand the relationships among recovery components, resulting in low internal consistency of RKI at baseline. As they learned the concepts after the intervention, the internal consistency improved at post-program and 1-month follow-up. Future validation is necessary to examine

the psychometric properties of the measure in the local population. Third, the psychoeducation programs of the present study were independently delivered to service providers and users by social workers who had considerable experience in working with people with mental illness. Future intervention should consider adopting the “Recovery College” approach to involve both people with lived experience and health care professionals in the co-production and co-facilitation of the recovery psychoeducation program (McGregor et al. 2014). All individuals should be involved in the same learning environment regardless of their abilities, expertise, and experience.

Notwithstanding its limitations, the present study is one of the first studies in Hong Kong that utilized culturally appropriate conceptualization of personal recovery and measure in promoting recovery-oriented knowledge and attitudes among mental health service providers and users. Adopting a locally developed framework of recovery, the current study provides initial support to the efficacy and feasibility of a brief psychoeducational program aiming at recovery knowledge and attitude enhancement. Adding onto the existing literature, results of this study shed light on the design and delivery of future recovery-oriented psychoeducation. As the development of recovery-oriented services in Hong Kong is still in an evolving stage, more research and policy attention is needed to support the service transformation in the local mental health system.

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## Compliance with Ethical Standards

**Conflict of interest** All authors have no conflicts of interest related to this study.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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