BMC Psychiatry

RESEARCH

Open Access

The internalized stigma, self-efficacy, occupational competence and employment outcome among persons with severe mental illness under one-to-one peer support services in Taiwan

Kan-Yuan Cheng[1*], Yi-Lin Wang[2], Wen-Chun Hung[3] and Chia-Feng Yen[4]

Abstract

Background In non-Western countries, the provision of services by peer support workers (PSWs) for individuals with severe mental illness (SMI) has increased in recent years. However, the psychological and employment outcomes for both PSWs and service users remain underexplored.

Methods In 2018 and 2019, a 28-hour PSW training curriculum was conducted at a community rehabilitation center in eastern Taiwan. Following the training, PSWs provided one-on-one support services to service users for 1 to 1.5 h per week over eight internship sessions, with a case-load ratio of 1:2 to 1:3. Internalized stigma, self-efficacy, and occupational competence were assessed using the Internalized Stigma of Mental Illness Scale–Chinese (ISMI–C), General Self-Efficacy Scale–Chinese (GSS–C), and Traditional Chinese–Occupational Self-Assessment Scale (TC–OSA). Employment and work training data were also collected.

Results A total of 11 PSWs and 31 service users participated in the program, with a mean age of 48.9 ± 8.8 years. More than half were female ($n = 18$, 58.1%), the majority lived in halfway houses ($n = 27$, 87.1%), and most were diagnosed with schizophrenia ($n = 29$, 93.1%). By the end of the program, PSWs showed a significant improvement in the TC–OSA my environment subscale score (89.1 ± 16.0 vs. 92.2 ± 13.7, df = 28, t = 1.25, $p = 0.22$). Among the 29 service users who completed the program, weekly income significantly increased (USD 25.7 ± 32.7 vs. USD 47.9 ± 42.6, df = 28, Z = 3.02, $p < 0.01$). However, no significant changes were observed in other measured outcomes for either PSWs or service users.

Conclusions Participation in the program enhanced PSWs' ability to manage environmental challenges, while service users experienced an improvement in income following one-on-one peer support services. Future large-scale studies are needed to validate these findings. Training programs for PSWs in Taiwan could emphasize sharing experiences of overcoming stigma to enhance self-competence in community life. Clinical Trial Registration: Not applicable.

*Correspondence:
Kan-Yuan Cheng
limbic.cheng@gmail.com

Full list of author information is available at the end of the article

Background

Impairments in social and occupational functioning among individuals with severe mental illness (SMI) are influenced by the course of illness, psychopathology disturbances [1], neurocognitive deficits, and social cognition impairments [2]. Additionally, limited opportunities for social participation, discrimination within communities [3], and insufficient social support contribute to social isolation among individuals with SMI [4]. To address these challenges, multidisciplinary service teams provide psychiatric treatment and rehabilitation services aimed at reducing psychiatric symptoms [5] and enhancing daily living skills [6]. Furthermore, community advocacy, resource facilitation, and caregiver support are essential in fostering a supportive environment for individuals with SMI [7]. Promoting independence and eliminating barriers to community integration remain central objectives of psychiatric care services [8, 9].

In modern psychiatric care, the recovery journey for individuals with SMI is characterized by their efforts to overcome mental health challenges and improve their quality of life based on personal values and preferences, with support from professionals, caregivers, and other stakeholders [10]. Recovery-oriented services offer opportunities for growth and instill hope in individuals with SMI through peer support programs [11]. These programs can also address key barriers to recovery, such as internalized stigma, low self-efficacy, and limited competence [12, 13]. Professionals may employ cognitive-behavioral approaches, group dynamics, skills training, or problem-solving skills to help individuals with SMI reduce internalized stigma and enhance self-efficacy and competence in community life [14]. However, professional authority may sometimes constrain the autonomy of individuals with SMI during their recovery process. In contrast, peer support workers (PSWs) can provide support in a non-hierarchical and nonjudgmental manner. Previous studies have demonstrated that peer-led supportive services can reduce internalized stigma and enhance self-efficacy among individuals with SMI [12, 15]. However, the impact of one-on-one peer support services on employment outcomes has been less explored [11].

In Taiwan, the People with Disabilities Rights Protection Act mandates that both local and central governments provide social care and employment services for individuals with disabilities, including peer support services [16]. While local governments offer PSW training programs accessible to individuals with all types of disabilities, these programs lack specific training tailored to individuals with cognitive impairments or psychiatric symptoms. As a result, relatively few individuals with SMI have participated in these training programs. To address this gap, we recently developed and implemented a pilot PSW training program specifically designed for individuals with SMI. This program was evaluated and deemed feasible earlier than expected [17].

This study aimed to assess changes in internalized stigma, self-efficacy, occupational competence, and employment status among PSWs in Taiwan following their participation in a comprehensive training program, which included lectures, practical sessions, and an internship. Additionally, the same outcome measures were examined among service users with SMI before and after receiving one-on-one peer support services during the internship period.

Methods

Study participants

This pilot study was conducted in two phases from January 2018 to December 2019. Phase I consisted of 13 h of lectures and 15 h of practical training, designed to equip peer support workers with severe mental illness to assist other residents in developing independent living skills [17]. Phase II was an internship program in which PSWs provided one-on-one peer support services to service users under the supervision and guidance of senior professionals [17].

Participants were recruited from halfway houses and supported housing services in Yuli, Taiwan. Recruitment posters were displayed on halfway house bulletin boards, and case managers personally invited individuals receiving supported housing services to participate. The inclusion criteria for both phases were as follows: (i) Possession of a disability certification with a diagnosis of SMI under the social welfare system or classification as a mentally catastrophic illness under the health insurance system. (ii) Residency in a halfway house with a stable course of illness. (iii) Age of 20 years or older. (iv) A reading ability equivalent to at least six years of formal education. The exclusion criteria were: (i) Comorbidity of physical illnesses requiring hospitalization. (ii) Acute exacerbation of psychosis. (iii) Legal incompetency.

For Phase I, an additional inclusion criterion was motivation to become a peer support worker. Given that willingness to support or help others is a core element of peer support services [10, 11], we thoroughly explained the objectives and processes of Phase I and Phase II study before recruiting candidates of PSW. To ensure genuine motivation among candidates, we provided only appropriate compensation in the entire training course.

In accordance with the inclusion and exclusion criteria for Phase II, the occupational therapist (MPK) invited individuals who had signed the registration forms—either through poster advertisements or oral recruitment—to attend a briefing session. During this session, the process one-on-one peer support service for service users were explained in detail. It was also explicitly stated

that compensation would be provided solely for completing questionnaires, applicable to the service users.

This study was approved by the Institutional Review Board (IRB) of Antai Tian-Sheng Memorial Hospital (#19-036-A in 2019; #20-020-A in 2020). All participants provided written informed consent, allowing the research team to use their study data. The study adhered to Taiwan's human research regulations and the principles outlined in the Declaration of Helsinki. The study did not require clinical trial registration.

Training program for peer support workers

The Phase I training course consisted of one to two classes per week over 16 weeks, totaling 13 h of lectures and 15 h of practical training. The curriculum focused on five key themes: "We Need Peer Support," "Well-being First," "Recovery First," "Recovery Together," and "Working Together" [17]. Participants who passed the final exam in Phase I advanced to the Phase II internship.

During Phase II, PSWs provided one-on-one peer support services for one hour per week over eight sessions, with a case-load ratio of 1:2 to 1:3. Each PSW was supervised by professional teachers at least four times during the internship. The professional supervisors included one psychiatrist, two clinical psychologists, one psychiatric nurse, one social worker, one occupational therapist, and one senior case manager, all of whom had more than seven years of experience in community mental health care. These seven senior professionals, who had also completed training in recovery-oriented services within community mental health facilities, additionally supervised case managers working in halfway houses or supported housing programs.

PSWs and service users collaboratively developed independent living plans under mutual agreement. Professional supervisors assisted PSWs in coordinating with case managers to facilitate community resource connections. The core service during internship components included: (i) Initial interviews to build rapport and understand each other. (ii) Storytelling to inspire and set goals for independent living. (iii) Collaborative planning to develop daily life strategies through mutual agreement, companionship, support, and tangible help.

To ensure service quality, checklists were used to summarize peer support service requirements during supervision sessions. Supervisors directly observed service delivery, evaluated the process, provided post-session discussions, and offered constructive feedback after each session.

Measurements

Internalized stigma of mental illness

The Internalized Stigma of Mental Illness Scale– Chinese (ISMI-C) was used to assess internalized stigma related to mental health among all study participants. The ISMI-C demonstrated good internal consistency, with a Cronbach's alpha coefficient of 0.87 in a psychosis sample [18]. Lower scores indicate lower levels of internalized stigma.

Self-Efficacy

The General Self-Efficacy Scale– Chinese (GSS-C) was used to evaluate self-efficacy among both service users and PSWs. The GSS-C has been validated in a Chinese subpopulation with schizophrenia, demonstrating strong internal consistency (Cronbach's $\alpha = 0.92–0.93$) and test-retest reliability ($r = 0.75–0.94$) [19]. Higher scores indicate greater self-efficacy.

Occupational competence

Occupational competence was assessed using the Traditional Chinese-Occupational Self-Assessment Scale (TC-OSA), which includes four domains: self-performance (11 items), self-habituation (5 items), self-volition (5 items), and my environment (8 items). The TC-OSA has demonstrated good internal consistency, with a Cronbach's alpha of 0.93 for the total scale and values ranging from 0.81 to 0.86 for the four subscales [20]. The goodness-of-fit statistics for the four subscales were also acceptable. In this study, scores from the first three domains were combined into self subscale score, with higher scores indicating greater occupational competence.

Assessment and statistical analysis

Before participants completed the self-report questionnaires (ISMI-C, GSS-C, and TC-OSA), an occupational therapist (MPK) provided explanations for all questionnaire items. An assistant was available to help participants with any difficulties encountered during the assessment. Both the assistant and investigator were part of the intervention team. This pilot study did not include a control group or blinding procedures.

To analyze the study results, independent t-tests were used to compare continuous variables between groups, while chi-square tests were applied to categorical variables. Pearson correlation coefficients were calculated to examine the linear relationships between pre-intervention outcome measures. To assess changes before and after the intervention, paired t-tests were conducted. For continuous variables that did not meet normality assumptions, non-parametric tests were used. Statistical analyses were performed using IBM SPSS Statistics 16.0.

Results

Initial characteristics and baseline measurements

A total of 13 PSWs initially participated in the Phase I training course. However, two withdrew after passing the final exam, as they were unwilling to proceed with the internship. In Phase II, 31 service users enrolled in the

one-to-one peer support internship, but two later discontinued their participation. By the end of the study, no incidents of acute psychosis, suicidal behavior, or homicidal behavior were reported. All participants remained in the community throughout the study period.

Table 1 presents the baseline characteristics and measured outcomes prior to the intervention. Both PSWs and service users were middle-aged, with a slightly higher proportion of female participants. The majorities were unmarried, resided in halfway houses, and

Table 1 Characteristics, psychiatric history, employment status, and measured psychological outcomes among peer support workers and service users

	Peer support workers (*N* = 13)		Service users (*N* = 31)		Comparisons		
	n	(%)	*n*	(%)	Statistics	df	*P* value
Demographics							
Age (Mean ± SD)	51.1	± 11.5	48.9	± 8.8	t = 0.69	42	0.49
Sex							
Male	6	(46.2)	13	(41.9)	$\chi^2 = 0.07$	1	0.80
Female	7	(53.8)	18	(58.1)			
Education years (Mean ± SD)	15.7	± 2.9	12.5	± 4.0	t = 2.94	30.4	< 0.01
Marriage							
Unmarried	13	(100)	27	(87.1)	$\chi^2 = 1.86$	2	0.40
Married	0	(0)	2	(6.5)			
Divorced	0	(0)	2	(6.5)			
Housing							
Halfway house	10	(76.9)	27	(87.1)	$\chi^2 = 0.71$	1	0.40
Supported housing services	3	(23.1)	4	(12.9)			
Psychiatric diagnoses							
Schizophrenia	12	(92.3)	29	(93.5)	$\chi^2 = 0.82$	2	0.66
Bipolar disorder	1	(7.7)	1	(3.2)			
Organic mental illness	0	(0)	1	(3.2)			
Onset age (Mean ± SD)	24.2	± 9.6	25.0	± 9.8	t=-0.25	42	0.80
Duration of hospitalization (Mean ± SD)	10.4	± 10.3	15.8	± 9.7	t=-1.65	42	0.11
Duration of mental illness (Mean ± SD)	26.9	± 11.5	23.9	± 9.9	t = 0.88	42	0.38
History of suicide or homicide	7	(53.8)	12	(38.7)	$\chi^2 = 0.86$	1	0.36
Employment status							
Under work training	3	(23.1)	9	(29.0)	$\chi^2 = 1.21$	2	0.55
Shelter employment	6	(46.2)	17	(54.8)			
Supported employment	4	(30.8)	5	(16.1)			
Category of work							
Chef assistant	1	(7.7)	6	(19.4)	$\chi^2 = 12.04$	8	0.15
Care attendant	1	(7.7)	0	(0)			
Cleaner	3	(23.1)	8	(25.8)			
Clerk	1	(7.7)	1	(3.2)			
Culture creation	0	(0)	2	(6.5)			
Manpower dispatch	3	(23.1)	4	(12.9)			
Sales	1	(7.7)	1	(3.2)			
Under work training	1	(7.7)	9	(29.0)			
Volunteer	2	(15.4)	0	(0)			
Weekly income USD (Mean ± SD)#	47.3	± 47.8	26.7	± 32.9	Z = 1.53	42	0.13
Weekly work hour (Mean ± SD)#	22.9	± 12.9	18.2	± 11.7	Z = 1.10	42	0.26
Psychosocial wellness							
Internalized Stigma of Mental Illness Scale–Chinese (Mean ± SD)	56.5	± 13.6	60.1	± 11.9	t=-0.86	42	0.40
General Self-efficacy Scale–Chinese (Mean ± SD)	29.2	± 6.5	28.9	± 4.4	t = 0.21	42	0.83
Traditional Chinese–Occupational Self-assessment Scale– Total (Mean ± SD)	90.5	± 19.1	88.9	± 16.6	t = 0.27	42	0.79
Traditional Chinese–Occupational Self-assessment Scale– Self (Mean ± SD)	64.7	± 15.4	63.2	± 12.4	t = 0.35	42	0.73
Traditional Chinese–Occupational Self-assessment Scale– My environment (Mean ± SD)	25.8	± 4.2	25.7	± 5.4	t = 0.02	42	0.99

#Mann-Whitney U test

Table 2 Linear correlations of employment outcomes and measured psychosocial wellness in study sample ($N=44$)

	Work hours	Internalized Stigma of Mental Illness Scale–Chinese	General Self-efficacy Scale–Chinese	Traditional Chinese–Occupational Self-assessment Scale– Total	Traditional Chinese–Occupational Self-assessment Scale– Self	Traditional Chinese–Occupational Self-assessment Scale– My environment
Weekly income	0.691**	−0.125	−0.041	0.224	0.210	0.213
Weekly work hours		−0.175	−0.064	0.115	0.128	0.060
Internalized Stigma of Mental Illness Scale–Chinese			−0.472**	−0.560**	−0.532**	−0.517**
General Self-efficacy Scale–Chinese				0.666**	0.644**	0.584**
Traditional Chinese–Occupational Self-assessment Scale– Total					0.979**	0.848**
Traditional Chinese–Occupational Self-assessment Scale– Self						0.722**

** $P<0.01$

Table 3 Employment outcomes and measured psychosocial wellness among peer support workers before and after the whole training course ($n=11$)

	Before		After		df	Statistics	*P* value
	Mean	±SD	Mean	±SD			
Weekly income USD#	43.7	±41.7	41.7	±43.7	10	Z=-0.49	0.63
Weekly work hours#	25.2	±11.8	21.1	±11.1	10	Z=-1.12	0.26
Internalized Stigma of Mental Illness Scale–Chinese	55.3	±14.6	54.7	±15.5	10	t=-0.44	0.66
General Self-efficacy Scale–Chinese	29.3	±7.2	28.6	±6.9	10	t=-0.39	0.70
Traditional Chinese–Occupational Self-assessment Scale– Total	89.8	±20.8	92.1	±18.9	10	t=0.51	0.62
Traditional Chinese–Occupational Self-assessment Scale– Self	63.8	±16.6	63.9	±14.8	10	t=0.02	0.98
Traditional Chinese–Occupational Self-assessment Scale– My environment	26.0	±4.6	28.2	±4.8	10	t=2.39	0.04

#Wilcoxon sign's rank test

were diagnosed with schizophrenia. Among all baseline factors, PSWs had significantly more years of education than service users (15.7 ± 2.9 vs. 12.5 ± 4.0 years, df = 40.3, t = 2.94, $p<0.01$). No significant differences were found between the two groups in other demographic characteristics or psychiatric history (Table 1).

Regarding employment status, sheltered employment was the most common among both PSWs ($n=6$, 46.2%) and service users ($n=17$, 57.8%). Among various job categories, the most frequently reported occupation was cleaner (PSWs: $n=3$, 23.1%; service users: $n=8$, 25.8%). While PSWs had higher initial weekly incomes and longer work hours than service users, these differences were not statistically significant (Table 1). Additionally, both groups exhibited similar levels of psychosocial wellness across all measured scales (Table 1).

Correlations between measured outcomes

As shown in Table 2, weekly income and work hours were strongly correlated ($\gamma=0.691$, $p<0.01$). The ISMI-C scores were negatively correlated with GSS-C, TC-OSA total, self, and my environment subscale scores (γ = -0.472 to -0.560, all $p<0.01$), indicating that higher levels of internalized stigma were associated with lower self-efficacy and occupational competence. In contrast, GSS-C, TC-OSA total, self-functioning, and my environment scores were all positively correlated ($\gamma=0.584$ to 0.848, all $p<0.01$), suggesting that improvements in self-efficacy were associated with enhanced occupational competence.

Changes in measured outcomes among peer support workers

Following the training program, PSWs who completed the full course did not exhibit statistically significant changes in ISMI-C, GSS-C, TC-OSA total, or self subscale scores (Table 3). However, there was a significant improvement in the TC-OSA my environment subscale after training (26.0 ± 4.6 vs. 28.2 ± 4.8, df = 10, t = 2.39, $p=0.04$), suggesting that PSWs became more adept at managing environmental challenges.

Changes in measured outcomes among service users

Among service users who completed the one-to-one peer support intervention, no significant changes were observed in psychosocial wellness scales (Table 4). However, employment outcomes improved, particularly in terms of weekly income, which increased significantly after the internship period (USD 25.7 ± 32.7 vs. USD 47.9 ± 42.6, df = 28, Z = 3.02, $p<0.01$) (Table 4).

Table 4 Employment outcomes and measured psychosocial wellness among service users before and after the internship services ($n=29$)

	Before		After		df	Statistics	*P* value
	Mean	±SD	Mean	±SD			
Weekly income USD#	25.7	±32.7	47.9	±42.6	28	Z = 3.02	< 0.01
Weekly work hours#	18.0	±12.0	22.1	±10.8	28	Z = 1.86	0.06
Internalized Stigma of Mental Illness Scale–Chinese	60.5	±11.7	58.8	±10.6	28	t = 0.91	0.37
General Self-efficacy Scale–Chinese	29.0	±4.4	28.7	±5.4	28	t = 0.33	0.74
Traditional Chinese–Occupational Self-assessment Scale– Total	89.1	±16.0	92.2	±13.7	28	t = 1.25	0.22
Traditional Chinese–Occupational Self-assessment Scale– Self	63.2	±11.9	65.4	±10.9	28	t = 1.09	0.29
Traditional Chinese–Occupational Self-assessment Scale– My environment	25.9	±5.4	26.8	±4.8	28	t = 0.91	0.37

#Wilcoxon sign's rank test

Discussion

Significant correlations between psychosocial wellness variables

This study found significant correlations among internalized stigma, self-efficacy, and occupational competence in participants, most of whom were middle-aged, diagnosed with schizophrenia, living in halfway houses, and engaged in sheltered employment (Table 2). These findings align with previous research. In the United States, Jahn et al. (2016) examined the effects of stigma on recovery outcomes, including perceived quality of life and social withdrawal, in 516 individuals with SMI [21]. Their mediation model demonstrated that internalized stigma influenced self-esteem and self-efficacy, which subsequently impacted recovery. Similarly, an earlier study in Iran found significant negative correlations between self-stigma and self-efficacy (r = -0.64, $p<0.01$), hope (r = -0.66, $p<0.01$), and self-esteem (r = -0.67, $p<0.01$) among 126 individuals with SMI [22]. Notably, the mean internalized stigma score in the Iranian study (61.0 ± 18.4) was relatively higher than that of PSWs in our study (55.3 ± 14.6) but comparable to that of service users (60.5 ± 11.7).

Impact of peer support on internalized stigma and self-efficacy

Contrary to findings from previous studies, our pilot study did not demonstrate significant changes in internalized stigma or self-efficacy for either PSWs or service users following one-to-one peer support interventions. In contrast, a study conducted in Hong Kong found that positive engagement with PSWs was significantly associated with reduced self-stigma among 159 individuals with SMI [23]. Similarly, a UK study involving 147 peer supporters reported improvements in mental health and well-being, including empowerment, hope, recovery, and reductions in internalized stigma [24]. However, our findings align with a previous study conducted in Chicago, where Corrigan et al. found no significant relationship between peer support interventions and internalized stigma among 85 individuals with schizophrenia or other psychiatric disorders [25]. Nevertheless, program engagement and internalized stigma were both significantly associated with quality of life.

A study from Poland, which assessed 72 individuals seeking peer worker training, found that higher wellness scores were associated with greater self-efficacy, a stronger tendency to use positive reframing strategies, and better coping behaviors for stress [26]. Additionally, a review by Burke et al. highlighted that peer-facilitated group interventions—as opposed to one-to-one interventions—resulted in modest but significant improvements in empowerment and self-efficacy [12]. The effectiveness of peer support interventions in addressing internalized stigma and self-efficacy remains inconclusive [27]. Indeed, changes in these domains may depend on an individual's ability to reflect on and internalize the impact of peer interactions [28]. Peer-facilitated group interventions, which offer diverse strategies to address internalized stigma, may be more effective than one-to-one interventions [12, 29]. Moreover, the frequency of peer contacts and the service users' awareness of personal change play crucial roles in determining the benefits of peer support [30].

Notably, supervision records from this pilot study revealed that while PSWs were able to describe their successful experiences in managing mental illness, they rarely discussed coping strategies for negative thoughts related to internalized stigma. Moving forward, training programs for PSWs should incorporate discussions on overcoming negative self-perceptions, influenced by mental illness in daily life.

Changes in occupational competence and employment outcomes

Following the training program, PSWs demonstrated improved subjective capacity to manage environmental challenges (Table 3). This aligns with previous research, which found that PSWs benefit from coworker support, organizational support, supervisor encouragement, and job empowerment, as observed in a study involving 645 participants in the U.S [31]. Furthermore, the

development of occupational competence, awareness of the recovery process, and problem-solving skills—which are emphasized in various PSW training programs—aligns with the Occupational Therapy Practice Framework [32]. These findings support our results, which indicate enhanced environmental adaptation among PSWs in this pilot study.

For service users, weekly income significantly increased after participation in one-to-one peer support services (Table 3). A qualitative study on vocational peer support emphasized that PSWs' lived experiences were key to supporting vocational goals [33]. Additionally, a U.S.-based randomized controlled trial involving 166 individuals with psychiatric disabilities over a 12-month period found that vocationally oriented peer support services were more effective than standard peer services in improving quality of life and work-related hope [34]. In our study, work-related support was the second most frequently discussed topic during one-to-one peer support sessions, following conversations about managing mental illness in daily life. Specifically, 92 out of 236 sessions (39.0%) focused on work training and employment, while 105 sessions (44.5%) addressed coping with mental illness in everyday activities. The training program for PSWs emphasized goal-setting under mutual agreement and appropriate self-disclosure, which likely contributed to the positive employment outcomes observed among service users.

Interestingly, no significant improvements in occupational competence were observed among service users, contradicting previous findings. One qualitative study suggested that occupational competence is influenced by an individual's sense of achievement and personal preferences when engaging in individual support and placement programs [35]. Another exploratory study found that occupational competence in young individuals with schizophrenia is shaped by personal characteristics (e.g., motivation, coping strategies) and activities with positive (e.g., social skills) or negative (e.g., schizophrenia symptoms) influences [36]. Future peer support programs should encourage PSWs to share their experiences related to social skills development, rather than focusing solely on symptom management, to better enhance service users' occupational competence.

Study limitations

This study had several strengths. Notably, low dropout rates allowed for the complete collection of psychosocial wellness and employment outcomes for both PSWs and service users. Additionally, all self-reported questionnaires were validated in Traditional Chinese, and employment data were directly retrieved from supported employment or work training records, ensuring measurement accuracy. However, the study was limited by its small sample size and single-arm design, which restricts the generalizability of the findings.

Conclusion

This pilot study suggests that one-to-one peer support services enhance PSWs' occupational competence in adapting to their living environments and increase weekly income for service users. The role transition and practical application of learned skills during internship training may have contributed to the observed improvements in environmental adaptation among PSWs. Additionally, goal-oriented peer support services may have facilitated job-seeking efforts and income growth among service users. However, no significant improvements were found in internalized stigma or self-efficacy for either group. Future studies should employ randomized controlled designs with larger sample sizes to confirm these findings. Additionally, training programs for PSWs should emphasize storytelling skills that highlight self-competence and strategies for overcoming internalized stigma, particularly in the context of severe mental illness in Taiwan.

Abbreviations

SMI	Severe Mental Illness
PSW	Peer Support Worker
ISMI–C	Internalized Stigma of Mental Illness Scale–Chinese
GSS–C	General Self-efficacy Scale–Chinese
TC–OSA	Traditional Chinese–Occupational Self Assessment scale

Acknowledgements

The authors would like to thank Meng-Ping Kao for assisting in whole study process. Po-Yu Chen for collecting the employment data. We also deeply appreciate Huey-Hwa Jiang, Wen-Fa Chen, Yue-Mei Wu, and Sue-Ling Yang for training and supervising the peer support workers.

Author contributions

CKY conceived the phase I and phase II study, collected and analyzed data, and wrote the manuscript. YLW and HWC collected data and prepared tables, and discussed in the study process. YCF supervised the study process and reviewed the whole manuscript. All authors read and approved the final manuscript.

Funding

This study was supported by the grant from the Research Foundation of Taipei Veterans General Hospital Yuli Branch.

Data availability

The data used and/or analyzed in this study are available upon request from the first author.

Declarations

Ethics approval and consent to participate

The study team applied for approval from the Institute Review Board of the Antai Tian-Sheng Memorial Hospital (#19-036-A in 2019; #20-020-A in 2020) and got informed consents from all study participants.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.
None.

Author details
[1]Department of Psychiatry, Taipei Veterans General Hospital Yuli Branch, Yuli Township, Hualian City 98142, Taiwan
[2]Department of Clinical Psychology, Taipei Veterans General Hospital Yuli Branch, Yuli Township, Hualian City 98142, Taiwan
[3]Department of Rehabilitation, Taipei Veterans General Hospital Yuli Branch, Yuli Township, Hualian City 98142, Taiwan
[4]Department of Public Health, Tzu-Chi University, Hualian City 97071, Hualian County, Taiwan

Received: 31 December 2024 / Accepted: 11 April 2025
Published online: 22 April 2025

References

1. Blanchard JJ, Mueser KT, Bellack AS. Anhedonia, positive and negative affect, and social functioning in schizophrenia. Schizophr Bull. 1998;24:413–4.
2. Dickinson D, Bellack AS, Gold JM. Social communication skills, cognition, and vocational functioning in schizophrenia. Schizophr Bull. 2007;33:1213–20.
3. Thornicroft G, Brohan E, Rose D, Sartorius N, Leese M. Global pattern of experienced and anticipated discrimination against people with schizophrenia: a cross-sectional survey. Lancet. 2009;373:408–15.
4. Sheridan AJ, Drennan J, Coughlan B, O'Keeffe D, Frazer K, Kemple M, et al. Improving social functioning and reducing social isolation and loneliness among people with enduring mental illness: report of a randomised controlled trial of supported socialisation. Int J Soc Psychiatry. 2015;61:241–50.
5. Schennach-Wolff R, Jäger M, Seemüller F, Obermeier M, Messer T, Laux G, et al. Defining and predicting functional outcome in schizophrenia and schizophrenia spectrum disorders. Schizophr Res. 2009;113:210–7.
6. Heinssen RK, Liberman RP, Kopelowicz A. Psychosocial skills training for schizophrenia: lessons from the laboratory. Schizophr Bull. 2000;26:21–46.
7. Fleischhacker WW, Arango C, Arteel P, Barnes TR, Carpenter W, Duckworth K, et al. Schizophrenia—time to commit to policy change. Schizophr Bull. 2014;40(Suppl 3):165–94.
8. Killaspy H, Harvey C, Brasier C, Brophy L, Ennals P, Fletcher J, et al. Community-based social interventions for people with severe mental illness: a systematic review and narrative synthesis of recent evidence. World Psychiatry. 2022;21:96–123.
9. Warner R, Mandiberg J. Changing the environment of schizophrenia at the community level. Australa Psychiatry. 2003;11(Suppl 1):58–64.
10. Jääskeläinen E, Juola P, Hirvonen N, McGrath JJ, Saha S, Isohanni M, et al. A systematic review and meta-analysis of recovery in schizophrenia. Schizophr Bull. 2013;39:1296–306.
11. Høgh Egmose C, Heinsvig Poulsen C, Hjorthøj C, Skriver Mundy S, Hellström L, Nørgaard Nielsen M, et al. The effectiveness of peer support in personal and clinical recovery: systematic review and Meta-analysis. Psychiatr Serv. 2023;74:847–58.
12. Burke E, Pyle M, Machin K, Varese F, Morrison AP. The effects of peer support on empowerment, self-efficacy, and internalized stigma: A narrative synthesis and meta-analysis. Stig Health. 2019;4:337.
13. Vayshenker B, Mulay AL, Gonzales L, West ML, Brown I, Yanos PT. Participation in peer support services and outcomes related to recovery. Psychiatr Rehabil J. 2016;39:274.
14. Jagan S, Mohd Daud TI, Chia LC, Saini SM, Midin M, Eng-Teng N, et al. Evidence for the effectiveness of psychological interventions for internalized stigma among adults with schizophrenia spectrum disorders: A systematic review and meta-analyses. Int J Environ Res Public Health. 2023;20:5570.
15. Pyle M, Pilling S, Machin K, Allende-Cullen G, Morrison AP. Peer support for internalised stigma experienced by people with psychosis: rationale and recommendations. Psychosis. 2018;10:146–52.
16. Social and Family Affair Administration, Taiwan. Welfare for People with Disability. 2018. https://www.sfaa.gov.tw/SFAA/Pages/VDetail.aspx?nodeid=237&pid=3792. Accessed 28 Sept 2024.
17. Cheng KY, Yen CF. The feasibility of a training program for peers with severe mental illness to provide one-to-one services in Taiwan: a pilot study. Int J Environ Res Public Health. 2022;19:9124.
18. Lien YJ, Kao YC, Liu YP, Chang HA, Tzeng NS, Lu CW, et al. Internalized stigma and stigma resistance among patients with mental illness in Han Chinese population. Psychiatr Q. 2015;86:181–97.
19. Chiu FP, Tsang HW. Validation of the Chinese general self-efficacy scale among individuals with schizophrenia in Hong Kong. Int J Rehabil Res. 2004;27:159–61.
20. Pan AW, Chung L, Chen TJ, Hsiung PC. The study of the validity and reliability of the occupational Self-Assessment-traditional Chinese version. Hong Kong J Occup Ther. 2020;33:18–24.
21. Jahn DR, Leith J, Muralidharan A, Brown CH, Drapalski AL, Hack S, et al. The influence of experiences of stigma on recovery: mediating roles of internalized stigma, self-esteem, and self-efficacy. Psychiatr Rehabil J. 2020;43:97.
22. Hosseini S, Ranjbaran F, Shahmoradi Z, Omidi F, Rezaie M, Mohamadi Z, et al. The role of internalized stigma in modulating hope, Self-esteem, and Self-efficacy among outpatients with mental illness. Iran J Psychiatry Behav Sci. 2024;18:e139613.
23. Li XH, Zhang TM, Yau YY, Wang YZ, Wong YLI, Yang L, et al. Peer-to-peer contact, social support and self-stigma among people with severe mental illness in Hong Kong. Int J Soc Psychiatry. 2021;67:622–31.
24. Burke EM, Pyle M, Machin K, Morrison AP. Providing mental health peer support 2: relationships with empowerment, hope, recovery, quality of life and internalised stigma. Int J Soc Psychiatry. 2018;64:745–55.
25. Corrigan PW, Sokol KA, Rüsch N. The impact of self-stigma and mutual help programs on the quality of life of people with serious mental illnesses. Community Ment Health J. 2013;49:1–6.
26. Chudzicka-Czupała A, Zalewska-Łunkiewicz K. Subjective well-being, general self-efficacy and coping with stress in former psychiatric patients Preparing for the peer support role: an exploratory study. Health Qual Life Outcomes. 2020;18:1–10.
27. White S, Foster R, Marks J, Morshead R, Goldsmith L, Barlow S, et al. The effectiveness of one-to-one peer support in mental health services: a systematic review and meta-analysis. BMC Psychiatry. 2020;20:1–20.
28. Dubreucq J, Plasse J, Franck N. Self-stigma in serious mental illness: A systematic review of frequency, correlates, and consequences. Schizophr Bull. 2021;47:1261–87.
29. Sun J, Yin X, Li C, Liu W, Sun H. Stigma and peer-led interventions: a systematic review and meta-analysis. Front Psychiatry. 2022;13:915617.
30. Maunder RD, White FA. The relationship between contact with peers and self-stigma in people with mental illness. Couns Psychol Q. 2022;35:880–96.
31. Edwards JP, Solomon PL. Explaining job satisfaction among mental health peer support workers. Psychiatr Rehabil J. 2023;46:223–31.
32. Cano Prieto I, Simó Algado S, Prat Vigué G. Peer interventions in severe mental illnesses: a systematic review and its relation to occupational therapy. Occup Ther Ment Health. 2023;39:99–136.
33. Balogun-Mwangi O, Rogers ES, Maru M, Magee C. Vocational peer support: results of a qualitative study. J Behav Health Serv Res. 2019;46:450–63.
34. Maru M, Rogers ES, Nicolellis D, Legere L, Placencio-Castro M, Magee C et al. (2021). Vocational peer support for adults with psychiatric disabilities: Results of a randomized trial. Psychiatr Rehabil J. 2021;44:327.
35. Nygren U, Sandlund M, Bernspång B, Fisher AG. Exploring perceptions of occupational competence among participants in individual placement and support (IPS). Scand J Occup Ther. 2013;20:429–37.
36. Goulet C, Rousseau J, Fortier P, Mottard JP. Factors influencing occupational competence in schizophrenia: client and therapist perspectives. Occup Ther Ment Health. 2008;24:5–30.

Publisher's note