



# Predictors of personal recovery for persons with psychiatric disabilities: An examination of the Unity Model of Recovery



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## ABSTRACT

This study examined a comprehensive set of potential correlates of recovery based on the Unity Model of Recovery. Thirty-two community psychiatric rehabilitation centers in Taiwan agreed to participate in this study. A sample of 592 participants were administered the questionnaires. Five groups of independent variables were included in the model: socio-demographic variables, illness variables, resilience, informal support, and formal support. The results of regression analysis provided support for the validity of the Unity Model of Recovery. The independent variables explained 53.5% of the variance in recovery for the full sample, and 55.5% for the subsample of the consumers who have been ever employed. The significance of the three cornerstones (resilience, family support, and symptoms) for recovery was confirmed. Other critical support variables, including the extent of rehabilitation service use, professional relationship, and professional support were also found to be significant factors. Among all the significant correlates, resilience, family support, and extent of rehabilitation service use ranked in the top three. The findings could shed light on paths to recovery. Implications for psychiatric services were discussed and suggested.

## 1. Introduction

Recovery has been accepted as a treatment orientation and the goal for psychiatric services over the past two decades. Recovery is a word with two meanings: clinical recovery and personal recovery (Slade, 2009). Clinical recovery is characterized by clinical outcomes, such as symptom remission, diagnosis, etc., intended to lead to a cure (Lieberman and Kopelowicz, 2002). Personal recovery means moving beyond the role of a patient with a mental illness and regaining hope, identity, meaning, and personal responsibility (Andersen et al., 2003; Slade, 2009). In recent years, personal recovery has been the focus of many related studies, as it is close to the personal experiences of persons with psychiatric disabilities (hereinafter called consumers).

With personal recovery being the ultimate goal, efficacious ways to facilitate recovery have become the central topic of concern (Lieberman and Kopelowicz, 2002). We also need to understand the correlates of personal recovery for developing effective treatment programs. The Unity Model of Recovery is a conceptual model that integrates the recovery process, outcomes, stages, and correlates of personal recovery (Song and Shih, 2009). All these concepts and components link together to depict the journey of personal recovery. In the model, personal recovery is treated as both the process and the outcome. The three essential process components include sense of self, management of disability, hope, willingness, and responsible action. The outcome

indicators cover both subjective evaluation of self-efficacy, quality of life, and life satisfaction, as well as objective skill attainment, role performance, establishment of reciprocal relationships, etc. Based on the different functional statuses of both process components and outcome indicators, four distinct stages of personal recovery among the consumers were identified: overwhelmed by disability, struggling with disability, living with disability, and living beyond disability.

The model encompasses broad and comprehensive factors of personal recovery. The factors related to recovery include: (1) the three cornerstones (symptom remission, mental strengths (e.g., resilience), and family support) that integrate the biological, psychological, and social systems of a recovered person; and (2) the environmental factors, including both informal and formal social networks.

The Unity Model was included in the systematic review article by Leamy et al. (2011). The review and synthesis revealed five categories of the recovery process: (1) connectedness, (2) hope, optimism about the future, (3) identity, (4), meaning in life, and (5) empowerment (CHIME). CHIME has gained consensus among experts on recovery. It seems that the CHIME encompasses the essential process components and outcome indicators of the Unity Model. The uniqueness of the Unity Model is that it differentiates the process, outcomes, and correlates of recovery and illustrates the relationship between them.

The correlates depicted in the Unity model concur with the findings in the literature. Based on meta-analyses, studies have revealed that the

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consistent factors related to personal recovery are family support (Chou and Chronister, 2012; Corrigan and Phelan, 2004; Mancini et al., 2005; Pernice-Duca, 2010) and professional support (Horvath et al., 2011; Martin et al., 2000). From the consumers' point of view, family provided support through "unwavering" belief in the consumers' ability to recover was crucial in fostering consumer optimism, positive self-image, and self-confidence (Mancini et al., 2005). With regard to formal support, the working alliance constitutes the emotional bond between the consumer and professionals, and the partnership between them that facilitates pursuing goals and accomplishing tasks.

Anthony et al. (2002) has maintained that recovery can occur even though symptoms reoccur. Law et al. (2015) found psychiatric symptoms were a longitudinal predictor of subjective recovery, however it was not the strongest one. Another study revealed that when symptoms are perceived as less distressing, consumers are better able to progress toward their goals, which in turn facilitates psychological recovery (Clarke et al., 2009).

Resilience refers to the ability to bounce back, resist illness, adapt to stress, or thrive in the face of adversity (Smith et al., 2008). Resilience is a process whereby risk is successfully engaged and outcomes of adaptation and competence are fostered (Anderson, 1997; Cohler, 1987). Thus, it is an inner mental strength that is conducive to recovery. The retrospective longitudinal study by Torgalsbøen and Rund (2010) found that permanent clinical recovery from schizophrenia is, to a great extent, dependent on the person's shaping of his/her own recovery process, which is dependent on resilience. For a subgroup of schizophrenia characterized by high resilience, a sustained full recovery without medication seems possible (Torgalsbøen, 2012).

To date, we have gained some knowledge concerning the factors related to recovery. This study aimed to go further and examine a comprehensive set of recovery correlates based on the Unity Model in a large sample (see Fig. 1), with the intention of providing suggestions for psychiatric services.

In the operationalization of personal recovery, the investigator followed the factor structure of the Stage of Recovery Scale (Song and Hsu, 2011), which was developed based on the conceptualization of recovery in the Unity model (see Fig. 1). The scale measures three process indicators (regaining autonomy, management of disability, and sense of hope) and three outcome indicators (social functioning/role performance, overall well-being, and helping others), respectively. Moreover, the tested model covers four groups of potential correlates: illness variables, resilience, informal support, and formal support.

## 2. Methods

A survey was conducted to collect the data from consumers in community psychiatric rehabilitation centers. In addition to the independent variables in the tested model, data on socio-demographic variables were also collected (see Table 1). The potential effects of socio-demographic variables were explored, and those that were significant were treated as control variables. This study has been approved by the Institutional Review Board of the National Chengchi University in Taiwan for quality and research ethics.

### 2.1. Participants

Participants were drawn from community psychiatric rehabilitation centers in Taiwan. These centers needed to have been in operation for at least one year to be included in this study. Criteria for the selection of participants were: 1) consumers must have a severe mental illness other than substance abuse, personality disorder, or dementia due to any cause; 2) consumers must have been hospitalized at least once since the onset of a mental illness; and 3) consumers have used the services in the center for at least three months.

Based on the information provided by the Ministry of Health and Welfare in Taiwan, there were 44 rehabilitation centers in 2015, and 32

of them agreed to collaborate with the investigators. They requested willing attendees to fill in the questionnaires and provide informed consent. They also helped arrange the time for data collection in the center. There were 1143 attendees among the 32 centers, and 732 (64.04%) of them agreed to participate in this study. Self-administered questionnaires were mailed to the centers with follow-up calls to answer any questions. The staff at the centers handed out and guided the data collection. The questionnaire was anonymous to ensure privacy. The coordination of data collection was done by phone calls, mail, and email. The entire process took approximately two months (from October to November 2015) to accommodate the time schedule of each center and the pace of consumers in filling out the questionnaire. As a result, 632 questionnaires (86.34% out of 732, 55.3% out of 1143) were returned. The response rate (number of response/total attendees) at each center ranged from 8.33% to 100% (mean=57.51%, Sd=25.04). The variance of the response rates was large. The cutoffs for the quartiles of the response rates were 40%, 56.9%, and 76.7%. Forty questionnaires were excluded due to too much missing data or response patterns, leaving 592 usable cases (80.87% out of 732, 51.8% out of 1143). Each subject was given a voucher (worth US \$6.30) to a convenience store as payment.

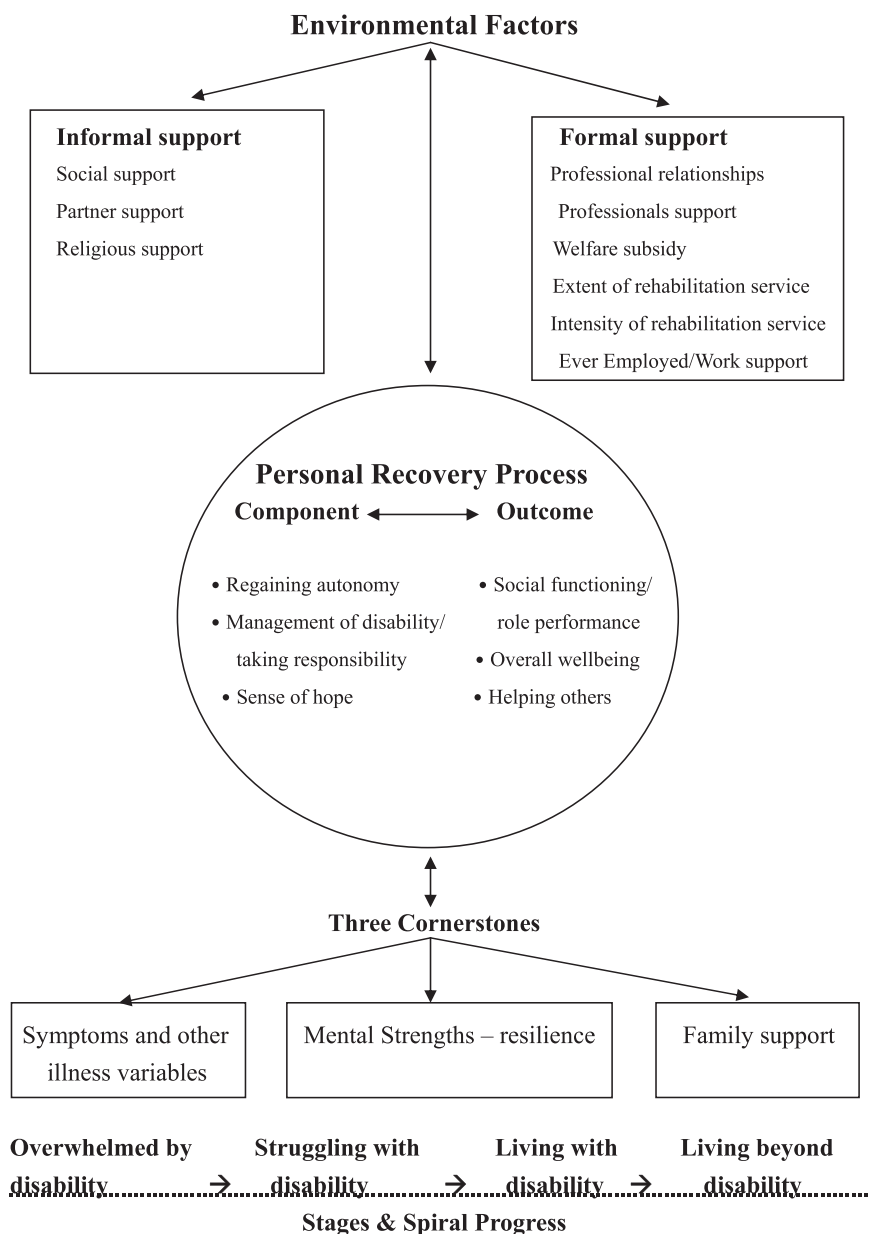
### 2.2. Variables and instruments

"Recovery" was measured by Stage of Recovery Scale (SRS), which is a 45-item scale developed in Taiwan by Song and Hsu (2011). Some of the items in the existing three scales, such as STORI (Andersen et al., 2003), RAS (Corrigan et al., 2004), and MHRM (Bullock, 2005), were adopted in the SRS. The SRS has sound psychometric properties and covers both the processes and the outcomes of recovery. The four-point response category includes: never (0), seldom (1), sometimes (2), and often (3). The SRS has very good internal consistency for the entire scale ( $\alpha=0.97$ ). It could significantly differentiate the rehabilitation sample and the improved functioning sample (discriminant validity). It also has internal and external construct validity (Song and Hsu, 2011). The norm for stages of recovery is as follows: overwhelmed by disability (0–57), struggling with disability (58–90), living with disability (91–119), and living beyond disability (120–135). The stage differentiation on recovery also has discriminant and external validity. Different stage groups reach significant differences on empowerment, social functioning, and life satisfaction. The internal consistency in this study was 0.97.

"Symptoms" were evaluated by the Mental Health Inventory (MHI-5) (Berwick et al., 1991), which is a six-point Likert scale with five items assessing the extent of symptoms (anxiety, depression, and behavioral/emotional control) and positive affect during the past month. The response category ranges from never (1) to always (6). As a screening test, MHI-5 was as good as the MHI-18 and the General Health Questionnaire (GHQ-30), and better than the Somatic Symptom Inventory (SSI-28), for detecting most significant DIS disorders, including major depression, affective disorders, and anxiety disorders. Areas under curve for the MHI-5 ranged from 0.739 (for anxiety disorders) to 0.892 (for major depression). The summation score was used in the analysis, with the greater score indicating more symptoms. In this study, the Cronbach's alpha of MHI-5 was 0.56, which was acceptable given a five-item scale.<sup>1</sup>

"Resilience" was measured by the Brief Resilience Scale (BRS) (Smith et al., 2008). The scale is a reliable means of assessing resilience as the ability to bounce back or recover from stress. It has six items with five response categories ranging from strongly disagree (1) to strongly agree (5). The BRS was tested on four samples, consisting of undergraduate students, cardiac rehabilitation patients, and women

<sup>1</sup> Based on Nunnally's formula (1978), to achieve  $r \geq 0.8$ , the number of items needs to be increased to 16 for the MHI-5 scale. His formula is as follows:  $K = r_{kk} (1 - r_{ii}) / r_{ii} (1 - r_{kk})$ .



**Fig. 1.** The study framework based on the Unity Model of Recovery. Source: Song and Shih (2009)

who either had fibromyalgia or were healthy controls (Smith et al., 2008). The data resulted in good internal consistency, with Cronbach's alphas ranging from 0.80–0.91. The construct validity and test-retest reliability are also sound, 0.69 for one month and 0.62 for three months. The scale has been used to examine the association between trauma exposure, resilience, and mental health (Harville et al., 2011). In this study the Cronbach's alpha of BRS was acceptable (0.60) given the six-item scale.<sup>2</sup>

“Family support” was measured by six items pertaining to the extent of instrumental or tangible support (e.g., providing assistance on work, lending money, etc.) and emotional support (e.g., doing things together and chatting) provided by family members and relatives during the past six months (Song et al., 2006). Each item has the following response categories: never (0), seldom (1), sometimes (2), and often (3). The internal consistency was satisfactory (alpha=0.81) in

this study.

“Social support” was measured using the adapted Interpersonal Support Evaluation List (ISL, Cohen et al., 1985) by Biegel et al. (1994), which is a 16-item scale including four response categories, which range from absolutely true (0) to absolutely wrong (3). A lower score indicates greater support. The internal consistency was good (0.83–0.85). In this study, the Cronbach's alpha was 0.75.

“Intimate partner support” was measured by one item. We asked the participant to rate whether their partner had provided them adequate support during past six months when they needed help. The response categories included: very inadequate (1), inadequate (2), almost adequate (3), adequate (4), and very adequate (5). The same question was asked to measure religious support and professional support. Those who were without any religious belief were coded 0 (no support).

The Recovery Promoting Relationship Scale (Russinova et al., 2006) was used to measure professional relationships. The 24-item instrument provides scores on the level of a given practitioner's core

<sup>2</sup> Based on Nunnally's formula (1978), to achieve  $r \geq 0.8$ , the number of items needs to be increased to 16 for a six-item resilience scale.

**Table 1**  
Descriptive statistics of the variables in this study (N=592).

Statistics Variables	Mean (SD) or N (%)	Statistics Variables	Mean (SD) or N (%)
<b>Socio-demographic variables</b>		<b>Illness variables</b>	
Age	41.15 (9.87)	# of hospitalizations since onset	4.01 (4.74)
Sex		# of hospitalizations past two years	0.73 (1.19)
Male	297 (50.6)	Length of hospitalization past two years (by months)	1.77 (4.23)
Female	290 (49.4)	Symptoms	16.33 (4.12)
Marital Status		On medication the past six months	
Not married	446 (75.7)	Yes	573 (97.1)
Married or cohabitated	44 (7.5)	No	17 (2.9)
Divorced	75 (12.7)	Other medical disease	
Separated	13 (2.2)	Yes	211 (37.6)
Widower	11 (1.9)	No	350 (62.4)
Education		<b>Dependent variable: Recovery</b>	89.84 (27.37)
Elementary school	25 (4.2)	<b>Resilience</b>	18.51 (3.60)
Junior high	115 (19.5)	<b>Informal support variables</b>	
High school	303 (51.3)	Family support	9.03 (4.27)
College or above	148 (25.0)	Social support	19.58 (6.96)
Religion		Partner support	
No	138 (23.4)	Very inadequate	10 (9.0)
Buddhism	165 (27.9)	Inadequate	13 (11.7)
Taoism	70 (11.8)	Fair	40 (36.0)
Folk belief	45 (7.6)	Adequate	31 (27.9)
I-Kuan Tao	23 (3.9)	Very adequate	17 (15.3)
Protestant	93 (15.7)	Religious support	
Catholic	18 (3.0)	Very inadequate	32 (7.2)
Muslim	1 (0.2)	Inadequate	55 (12.3)
other	38 (6.4)	Fair	193 (43.3)
Live with		Adequate	106 (23.8)
Family members or relatives	421 (71.1)	Very adequate	60 (13.5)
Halfway house	124 (20.0)	<b>Formal support variables</b>	
Alone	47 (7.9)	Professional relationships	74.39 (12.25)
Intimate partner		Professional support	
Yes	115 (20.2)	Very inadequate	16 (2.7)
No	455 (79.8)	Inadequate	43 (7.3)
Ever employed		Fair	189 (32.0)
Yes	392 (66.2)	Adequate	223 (37.8)
No	200 (33.8)	Very adequate	119 (20.2)
<b>Illness variables</b>		Welfare subsidy	1.96 (1.30)
Age of onset	23.47 (8.02)	Extent of rehabilitation service	17.31 (4.72)
Diagnosis		Intensity of rehabilitation service	35.22 (13.74)
Schizophrenia	442 (74.7)	Work support	5.26 (4.42)
Affective disorders	108 (18.2)		
Other	42 (7.1)		
Length of illness (years)	17.60 (8.99)		

Note: a: In this study affective disorder covered the following diagnosis: depression, mania, and bipolar disorder.

interpersonal skills and skills to utilize recovery-promoting strategies as manifested in a specific provider-client relationship. The scale has demonstrated a high level of internal consistency (0.98), good test-retest reliability (0.72), acceptable concurrent criterion, and known group validity. It is a four-point scale with response categories ranging from strongly disagree (1) to strongly agree (4). The internal consistency in this study was 0.97.

“Welfare subsidy” was measured by asking if they had received any of the following five types of benefits: medical subsidy, income subsidy, work-related welfare, insurance subsidy, and educational subsidy. The items checked “yes” were counted as the score for this variable.

Two variables were designed to measure *Rehabilitation service utilization: intensity and extent of rehabilitation*. The former indicated the hours spent in rehabilitation every week. The latter was the summation of eight kinds of service, including independent living and self-care training, interpersonal and social skills training, daily life arrangement and community life rehabilitation, physical activities, symptom management training, occupational therapy, sheltered workshops, and vocational training. Each item was measured on a four-point scale: no (0), seldom (1), sometimes (2), and often (3). *The internal consistency was satisfactory (0.84).*

“Ever employed” was measured by asking if the consumers have ever had a supportive or competitive employment situation.

“Work support” was measured by four items. Those who had ever been employed were asked to rate the extent to which the employer recognized his/her performance, the co-workers recognized his/her

performance, the employer supported him/her when needed, and the co-workers supported him/her when needed. Each item had four response categories: no (0), seldom (1), sometimes (2), and often (3).

### 2.3. Data analysis

In addition to the descriptive analysis, the following analyses were performed:

*Reliability test.* Cronbach's alpha was calculated to test the internal consistency of the scales.

*Bi-variate analyses* between each independent variable (IV) and recovery were conducted in accordance with the measurement of each, including *t*-test, ANOVA, and Pearson's correlation.

*Multiple regression analysis.* This method was used for testing the multiple correlations among the IVs and the recovery. These IVs were simultaneously entered into the equation. Dummy variables were created for the IVs with nominal or ordinal level of measurement. Since the data on work support was only available for those who had ever worked, to examine the effects of work experiences on recovery, the investigator first examined the multiple associations of “ever employed” and other IVs with recovery. Second, only the subsample of those who ever worked was analyzed to examine the effects of “work support” and other IVs on recovery.

### 3. Results

#### 3.1. Descriptive analysis

The descriptive statistics of all the variables in question are presented in Table 1. The mean score (89.84) of recovery fell within the range of struggling with disability. Most (37.5%) of them were in the stage of struggling with disability, followed by living with disability (32.6%), living beyond disability (16.6%), and overwhelmed by disability (13.3%).

Concerning the intensity of rehabilitation service use, on average, consumers participated in the related activities for 35.22 h per week. The mean level of each type of service fell around the level of “sometimes”, with symptom management training being the most participated in service (mean level=2.36), followed by independent living/self-care training (mean level=2.30), occupational therapy (mean level=2.29), and interpersonal/social skill training (mean level=2.22).

#### 3.2. Bi-variate analyses

Among the socio-demographic variables, sex, age, marriage, living status, and ever employed each had significant association with recovery ( $p \leq 0.05$ ). Females (Mean=92.74, Sd=26.88) tended to have higher recovery scores than males (Mean=87.03, Sd=27.69). The overall group difference among marital status was significant ( $p=0.05$ ); however, the post-hoc group comparisons using Scheffe's method did not reveal any specific differences between groups ( $p > 0.05$ ). It is noteworthy that those who were living with family/relatives (Mean=87.89, Sd=27.01) had lower recovery scores than those in halfway houses (Mean=95.72, Sd=26.95) than those living alone/with friends (Mean=91.74, Sd=29.76). The difference between the first two groups was significant ( $p \leq 0.05$ ). Consumers who had ever been employed (Mean=92.58, Sd=27.55) had higher recovery scores than their counterparts (Mean=84.46, Sd=26.25). The older consumers had better recovery status than the younger ones ( $r=0.12$ ,  $p=0.004$ ).

Concerning the illness variables, psychiatric diagnosis was not a significant correlate of recovery ( $p > 0.05$ ). The significant variables ( $p \leq 0.05$ ) included other medical diseases, number of hospitalizations since onset ( $r=0.09$ ), and symptoms ( $r=-0.38$ ). The consumers with other medical diseases (Mean=94.55, Sd=25.31) tended to have higher recovery scores than their counterparts (Mean=87.35, Sd=28.12). Number of hospitalizations had a positive but weak correlation with recovery. As expected, having more symptoms was associated with lower recovery scores.

Resilience ( $r=0.45$ ), family support ( $r=0.43$ ), professional relationships ( $r=0.41$ ), intensity of rehabilitation service use ( $r=0.10$ ), extent of rehabilitation service use ( $r=0.46$ ), and work support ( $r=0.38$ ) each had a significant ( $p \leq 0.05$ ) and positive correlation with recovery. In addition, both religious support and professional support were significant correlates ( $p \leq 0.05$ ). Those who had very adequate religious support (Mean=102.65, Sd=28.08) had higher recovery scores than those without religious belief (Mean=84.24, Sd=26.44) or with inadequate religious support (Mean=87.45, Sd=22.16). Similarly, consumers with very adequate professional support (Mean=100.97, Sd=27.89) had higher recovery scores than others (Mean=75.94, 79.81, 86.68, 89.52 for the other four groups).

#### 3.3. Multiple regression analysis on recovery

In the multiple regression analyses, the investigator included only the variables with significant bi-variate effects to avoid dropping cases with missing data. Dummy variables were created for categorical and ordinal variables to be used in the analysis (see Table 2). The category “not married” was used as the reference group for “marriage”, “living with family members/relatives” for “living status”, and “very adequate”

**Table 2**

Regression analysis on recovery (Valid N=548).

I.V.		$\beta$	Beta	T value	P value
Constant		-23.259		-2.014	0.045
Sex	(Male=0, Female=1)	5.063	0.094	3.054	<b>0.002</b>
Age		0.217	0.080	2.230	<b>0.026</b>
Marriage	Married (1)	0.566	0.005	0.171	0.864
	Divorced (1)	-2.682	-0.033	-1.016	0.310
	Separated (1)	-3.540	-0.019	-0.640	0.522
	Widowed (1)	2.985	0.012	0.382	0.703
Living status	Halfway house (1)	4.012	0.059	1.824	0.069
	Alone (1)	0.707	0.007	0.232	0.817
Symptoms		-0.825	-0.125	-3.665	<b>0.000</b>
# of hospitalizations since onset		0.127	0.021	0.694	0.488
Other medical disease	Yes (1)	-1.981	-0.036	-1.144	0.253
Resilience		2.188	0.287	8.268	<b>0.000</b>
Family support		1.711	0.272	8.418	<b>0.000</b>
Religious support	No support (1)	-5.991	-0.095	-2.019	<b>0.044</b>
	Very inadequate (1)	0.091	0.001	0.019	0.985
	Inadequate (1)	-2.619	-0.028	-0.695	0.487
	Fair (1)	-0.437	-0.008	-0.149	0.882
	Adequate (1)	0.308	0.004	0.098	0.922
Professional support	Very inadequate (1)	-3.047	-0.018	-0.543	0.587
	Inadequate (1)	0.856	0.008	0.214	0.830
	Fair (1)	-1.267	-0.022	-0.489	0.625
	Adequate (1)	-5.100	-0.092	-2.110	<b>0.035</b>
Professional relationships		0.461	0.207	5.874	<b>0.000</b>
Extent of rehabilitation service use		1.209	0.208	5.908	<b>0.000</b>
Intensity of rehabilitation service use		0.075	0.038	1.233	0.218
Ever employed	Yes (1)	3.927	0.069	2.278	<b>0.023</b>
<b>R<sup>2</sup> (adjusted)=0.535; F(26, 521)=25.20; p=0.0000</b>					

for “religious support” and “professional support”. The selection of reference group was based on the results of one-way ANOVA.

At first, the analysis was conducted on the full sample and included “ever employed” and other IVs in the model. The initial analysis revealed three outliers. After the deletion, 548 cases were retained for analysis. No serious multicollinearity existed among the independent variables with the tolerance coefficients ranging from 0.33 to 0.95.

As shown in Table 2, the model was significant. The independent variables explained 53.5% of the variance in recovery, which was relatively large. The results revealed ten significant IVs, including two control variables (sex and age) and eight IVs in question (symptoms, resilience, family support, religious support, professional support, professional relationship, extent of rehabilitation service use, and ever employed). The direction of correlation of each was as described above. Based on the standardized regression coefficient (beta, the unique contribution), when other variables were taken into account, the five most important correlations were: resilience (0.287), family support (0.272), extent of rehabilitation service use (0.208), professional relationship (0.207), and symptoms (-0.125). “Ever employed” was a significant predictor, but was found to be the least important factor.

The investigator went further to examine if work support was a predictor of recovery within the subsample of consumers who worked. The results were similar to the full sample, with adjusted R<sup>2</sup> being 0.555 ( $F_{(26, 337)}=18.44$ ;  $p=0.0000$ ) (see Table 3). Work support was not a significant predictor ( $p=0.092$ ). The sequence of relative importance among the significant predictors was similar to the analysis on the full sample. However, professional support became more important within this subsample. Evidently, for those who worked, professional support

**Table 3**  
Regression analysis on recovery-for the subsample of who worked (Valid N=364).

I.V.		$\beta$	Beta	T value	P value
Constant		-5.933		-0.412	0.680
Sex	(Male=0, Female=1)	5.812	0.106	2.771	<b>0.006</b>
Age		0.225	0.077	1.815	0.070
Marriage	Married (1)	-3.200	-0.028	-0.739	0.461
	Divorced (1)	-4.878	-0.061	-1.558	0.120
	Separated (1)	-1.144	-0.006	-0.181	0.856
	Widowed (1)	0.466	0.002	0.054	0.957
Living status	Halfway house (1)	4.805	0.071	1.835	0.067
	Alone (1)	3.110	0.033	0.875	0.382
Symptoms		-1.286	-0.185	-4.605	<b>0.000</b>
# of hospitalizations since Onset		0.083	0.014	0.372	0.710
Other medical disease	Yes (1)	-2.845	-0.051	-1.360	0.175
Resilience		2.135	0.274	6.681	<b>0.000</b>
Family support		1.516	0.242	6.184	<b>0.000</b>
Religious support	No support (1)	-6.742	-0.101	-1.842	0.066
	Very inadequate (1)	-6.131	-0.047	-1.075	0.283
	Inadequate (1)	-2.042	-0.022	-0.453	0.651
	Fair (1)	-1.611	-0.028	-0.464	0.643
	Adequate (1)	0.513	0.007	0.137	0.891
Professional support	Very inadequate (1)	-20.394	-0.116	-2.923	<b>0.004</b>
	Inadequate (1)	4.743	0.045	0.978	0.329
	Fair (1)	-1.625	-0.028	-0.527	0.598
	Adequate (1)	-6.402	-0.113	-2.172	<b>0.031</b>
Professional relationships		0.328	0.146	3.414	<b>0.001</b>
Extent of rehabilitation service use		1.351	0.228	5.373	<b>0.000</b>
Intensity of rehabilitation service use		0.082	0.043	1.137	0.256
Work support		0.681	0.070	1.688	0.092
<b>R<sup>2</sup> (adjusted)=0.555; F<sub>(26, 337)</sub>=18.44; p=0.0000</b>					

was more important than work support.

## 4. Discussion

### 4.1. The validity of the Unity Model of Recovery

The findings of this study supported the validity of the Unity Model of Recovery. As expected, among the three cornerstones, resilience and family support were the most important correlates of recovery. The “symptoms” variable was significant, and yet the effect was smaller. Professional relationships and support were also significant correlates. The results support the findings in the literature. The significance of the extent of rehabilitation use and work experiences in association with recovery were new.

### 4.2. Critical support variables

Family support was the second most important correlate of recovery. Another interesting finding was that those living with family/relatives had lower recovery scores than those living in halfway houses, and the difference was almost significant ( $p=0.069$ ). The investigator went further to examine whether the differences may be due to the fact that the consumers living with family/relatives had higher levels of symptoms. The results showed no significant differences in symptoms among living statuses. However, due to the fact that self-reported symptoms tend to reflect distress, they may not be accurate indicators of psychotic or negative symptoms. The relationship between symptoms, living status, and recovery requires further

investigation.

The current findings might imply that when family members are providing support, and yet not living with the consumers, it would be more conducive to recovery. On the other hand, it could imply that those with lower recovery statuses tended to live with family/relatives. In addition, this finding may only apply to the Chinese society. This hypothesis requires further examination.

In this study, 71.1% of the participants were living with their family members. Obviously, parents provided indispensable care for the consumers in Taiwan. Nevertheless, family members face multiple needs themselves, including caregiving responsibilities, struggling with alienation stemming from social stigma, etc. Therefore, mental health practices need to be “dual focused”, which means working with both the consumers and their caregivers to keep them healthy and strong in order to support the consumers and to enhance the interactions between them. Concerning the working model, since the late twentieth century, the new trend in family work has shifted to a growth-development model, which means an emphasis on assessing and using families’ strengths and resources to reach their desires as well as equal partnership during the work process (Wise, 2005).

Further analysis showed that family support was negatively correlated with the age of consumers, meaning that younger consumers had rated higher family support than older consumers. Since much support for people with severe mental illness comes from parents, as they age (and eventually die), they are less able to provide support over time. Thus, as consumers get older, social network interventions to enhance informal support from different sources are needed to tackle this issue.

Professional relationships and professional support could play an important role in facilitating recovery. Mancini et al. (2005) has indicated the nature of a working alliance that is conducive to recovery. This study further revealed the importance of professionals providing very adequate support. It is necessary that in the interactions with consumers, professionals recognize the personhood of consumers and utilize recovery-promoting strategies (Russinova et al., 2006). This approach requires sufficient manpower and related training for that to happen. In addition, for those who had ever worked, professional support was significant and more important than work support in terms of the association with recovery. Supported employment is a type of professional support that could meet such needs. The individual placement and support (IPS) of supported employment may be especially utilized to facilitate positive work experiences through increasing client-employment fit with respect to co-workers and employers as well as through opportunities to consult with job coaches concerning issues related to interpersonal relationships that occur at work (Bond et al., 2008).

The results indicated that extent of rehabilitation service use was the third most important correlate of recovery. It involved the variety and frequency of service use. The linear association was further confirmed by examining the rehabilitation service used by consumers at different stages of recovery. The result showed that greater service use was associated with a higher stage of recovery in a progressive way. The mean score on the extent of rehabilitation service use for each stage was 12.96, 16.77, 18.33, and 20.18, respectively. The literature (Goyet et al., 2013; Tjornstrand et al., 2013) suggests that rehabilitation leads to the development of social skills, improvement of cognitive functioning, better knowledge about issues and their resolutions, and providing empowering occupations. The frame given by this care helps them toward a more participatory life.

However, such a linear association could apply only to agency-based rehabilitation services. It could not be generalized to mobile community support services, such as supported employment. The community rehabilitation center is a fee-for-service system in Taiwan. The service is paid by the national health insurance. Consumers are expected to participate in the activities held in the center on a daily basis. As the rehabilitation service enhances a consumers’ social function, they are able to participate more. Based

on the investigator's knowledge, when the consumers at higher recovery stage get an opportunity to participate fully in the society (e.g. being employed), they will stop using the service. They might still use case management services from the community resource center or employment services, but perhaps to a lesser degree if they continue to stay at the stage of living with or beyond recovery. After all, the mission of rehabilitation focuses on improvement in functioning while decreasing professional intervention and helping people to live a successful and satisfying life (Anthony et al., 2002).

#### 4.3. Symptoms management

The results revealed a significant but weak effect of symptoms on recovery. Spaniol et al. (2002) found the effectiveness of medication to be one of the factors of recovery. Similarly, symptoms proved to be negatively associated with functioning (Galdnerisi et al., 2014), psychosocial functioning (Kim et al., 2013), or resilience (Torgalsbøen, 2012). Thus, helping consumers to find effective coping methods for their symptoms is a key element of services.

#### 4.4. Resilience played an essential role in recovery

Resilience was the strongest correlate of recovery, which supports the findings of Torgalsbøen (2012). Based on the definition of resilience, it is viewed as a mental strength that is conducive to recovery. Staudinger et al. (1993) maintained that resilience is not a personal trait but a state. Meaning a person can be resilient or not depending on the situations and challenges they are faced with. The resilience demonstrated in a particular aspect might not be able to be generalized to another. Resilience is a form of plasticity, which could be changed for adaptation. Thus, recovery-oriented services need to focus on the protective factors that facilitate and cultivate consumers' resilience (Anderson, 2010). Smith et al. (2002) studied a variety of samples and identified five empirically significant protectors of resilience across samples: mindfulness, mood clarity, purpose in life, optimism, and active coping. These protectors would be helpful in the process of bouncing back from stress that involves three stages: (1) actually confronting an event that is stressful, (2) orienting oneself toward a positive future outcome of the event, and (3) engaging in efforts to cope with the event.

Based on the suggestions of Anderson (2010) and Smith et al. (2002), practitioners could first help consumers to learn and practice mindfulness skills so that they have more awareness of present moment experience, which in turn enables them to confront and fully take in all of the available information related to the stressful event. Second, practitioners can listen, accept, and honor consumers' stories. In addition, by showing empathy, acceptance, and compassion practitioners help consumers to make sense of their emotional experiences and understand how it affects them and what alternatives they have. Third, practitioners can explore with consumers what is most important to them, the meaning of their life, and help them identify their wants so that they gain a sense of purpose in life and find the direction for coping with. Fourth, practitioners can identify and support consumers' strengths, competencies, and resourcefulness to facilitate a sense of hope and possibility and enhance optimism. Such optimism may enable consumers to envision a positive outcome to the stressful event and facilitate confidence to engage in coping efforts. Fifth, practitioners could discuss with consumers their past positive coping experiences to enhance a sense of mastery and set up a coping plan based on the methods of consumers' choice.

#### 4.5. Contributions and limitations

This is the first study that has examined the correlates of recovery using a large sample in Taiwan. However, by using a survey design, this study has the following limitations. First, the findings only imply

association instead of causal relationship between the variables. Second, the recruitment of participants was on a voluntary basis, thus the population representativeness of this availability sample and the external validity of this study is minimized. Nevertheless, the sample was comprised of a large and significant portion (51.8%) of the attendees at the time of survey. Thus, the findings were noteworthy. Third, the concise measure of the type of intimate support, religious support, and professional support were used in this study instead of standardized instruments, which might affect the psychometric properties. This was a decision based on the consideration of the length of the questionnaire. A lengthy questionnaire could lead to fatigue in the participants, further compromising the quality of the responses. Fourth, the self-reported data might be negatively influenced by recall errors on factual questions, such as the number of hospitalizations since onset. Additionally, the participants with lower education might have difficulties understanding some of the questions (Monette et al., 2010). These limitations could affect the validity of measurement. However, professionals or research teams were available to answer the questions they raised, which reduced these negative influences.

These findings provided support for some predictors of recovery revealed in the literature. The additions were the associations between the extent of rehabilitation service use and work support with recovery. These findings could highlight effective pathways to recovery that are within reach of consumers.

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