Relationship between subjective quality of life and perceptions of recovery orientation of treatment service in patients with schizophrenia and major depressive disorder

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Number of tables: 4

Manuscript word count: 2970

Abstract word count: 242

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Abstract

Objective: This study aimed to investigate the relationship between subjective quality of life (QOL) and the specific domains of perceptions of recovery orientation of treatment services in patients with schizophrenia and major depressive disorder (MDD).

Methods: One hundred and seventy-nine patients with schizophrenia spectrum disorders and fifty-seven patients with MDD were recruited. Patients were assessed on subjective QOL, self-reported depressive symptoms, illness severity, functioning, and perception of recovery orientation of the service environment (RSA). A multiple linear regression model was used to assess the relationship between QOL and RSA score, controlling for all other factors. Spearman correlation analysis was used to examine the relationship between RSA domains and total QOL in each diagnostic group separately.

Results: The regression model explained 47.4% of the variance observed in total QOL. Depressive symptoms, functioning and RSA were significantly associated with total QOL in the model. Domains one (life goals) and five (individually tailored services) of the RSA were associated with QOL in both groups. Domains two (patient involvement) and three (diversity of treatment options) were associated with total QOL only in patients with schizophrenia.

Conclusion: Our findings highlight that perceptions of recovery orientation of service, depressive symptoms and functioning significantly affected the subjective QOL of patients with serious mental illness. The differential relationship observed between QOL and domains of RSA in patients with MDD and schizophrenia suggests that targeted interventions meeting the needs of different patient groups may be crucial to improve QOL of patients.

Keywords: Quality of life; Schizophrenia; Major Depressive Disorder; Perceptions of recovery orientation of service

1. Introduction

There has been a paradigm shift regarding the concept of recovery for patients with mental illness, with the focus broadening to incorporate a more personal form of recovery, on top of the traditional concept of symptoms alleviation and restoration of social and occupational functioning (Anthony, 1993; Davidson et al., 2005; Jacobson and Curtis, 2000; Leamy et al., 2011; Schrank and Slade, 2007). Personal recovery is a subjective and process-oriented form of recovery that is mainly derived from the personal accounts of the patients themselves and occurs when a patient can both contribute and express satisfaction and hopefulness towards their daily lives (Anthony, 1993; Braslow, 2013; Horsfall et al., 2018; Slade et al., 2017). Hence, on top of symptom reduction and functioning improvement, quality of life is also considered to be a crucial outcome measure of recovery-oriented services (Gladis et al., 1999; Hsiao et al., 2018). QOL refers to one's satisfaction with life in general, as well as with life domains including social relationships, physical and mental health, and leisure activities (Fitzgerald et al., 2001). It is a multidimensional concept that includes general functioning and subjective sense of wellbeing (Brissos et al., 2008; Holubova et al., 2016), and provides insight on the subjective experiences of coping in daily lives of patients with mental illness.

Mental illnesses such as schizophrenia, bipolar disorder and major depressive disorder (MDD) have been found to share common susceptibility genes, and have overlaps in their neurobiological features, cognitive impairments, clinical manifestations and symptoms (Benazzi, 2005; Goodkind et al., 2015; Huang et al., 2010; Kuswanto et al., 2013; Pearlson, 2015; Zhu et al., 2019). Schizophrenia and MDD are also categorized as serious mental illnesses (SMI) as patients with these conditions tend to have significant functional impairments (Kamenov et al., 2016; Kennedy et al., 2014; Lepine and Briley, 2011). This in turn negatively impacts on their QOL (Holubova et al., 2016; Sum et al., 2015; Tan et al., 2019). Lower levels of subjective QOL has consistently been observed in patients with MDD and schizophrenia when compared with healthy controls (Brissos et al., 2008; Sum et al., 2018; Woon et al., 2010; Zeng et al., 2013). However, cross-diagnostic comparisons of subjective QOL between the two patient groups are few and scales used to assess subjective QOL differ between studies. These studies yield inconsistent findings, with one reporting better

QOL in patients with schizophrenia (Tan et al., 2019), and the other reporting no difference in QOL between the two groups (Holubova et al., 2016).

Various sociodemographic and clinical factors were found to be associated with subjective QOL in patients with SMI. These include age, gender, years of education, negative symptoms, severity of illness, and level of functioning (Caron et al., 2005; Choo et al., 2019; Folsom et al., 2009; Sum et al., 2015; Tan et al., 2019; Woon et al., 2010). Patients' subjective experiences with psychiatric services have also been suggested to be crucial in affecting their QOL (Ådnanes et al., 2019; Petkari and Pietschnig, 2015). Most studies explored the link between QOL and satisfaction with service. A meta-analysis conducted by Petkari and Pietschnig (2015) suggested that service satisfaction is consistently associated with subjective QOL, in both cross-sectional and longitudinal studies in patients with schizophrenia. However, only in- and outpatient settings were included without exploring the role of the specific components of the services. It was suggested that higher levels of community participation within intervention programs will improve the QOL of patients (Burns-Lynch et al., 2016). A more recent study also found that QOL of patients with SMI was specifically associated with one particular aspect of service satisfaction; patient's perception of continuity of care (Ådnanes et al., 2019). The two aspects of service satisfaction found to be associated with QOL are elements important to recovery-oriented services (Biringer et al., 2017; Gammon et al., 2017).

Studies exploring the relationship between the perceptions of recovery orientation of psychiatric services and QOL are limited, and the relationship between components of perceptions of recovery orientation of these services and QOL have not been examined. Based on the questionnaire, Recovery Self-Assessment (RSA) developed by O'Connell and colleagues (2005), there are five domains of subjective recovery orientation of psychiatric services for service users. They include life goals, involvement of patients in their recovery process, availability of treatment options, choice or autonomy, and individually tailored services. Studies have found a strong relationship between RSA with personal recovery as well as higher levels of service engagement (Leamy et al., 2016; Livingston et al., 2012). A randomized controlled trial evaluating an intervention program on self-management of symptoms with focusing on recovery-oriented service also found that patients with severe mental illness in the intervention group displayed better QOL, hope and symptom

profile compared with the standard care group (Cook et al., 2012). However, these three studies only examined the overall perception of recovery orientation of service using RSA but not the specific domains of recovery orientation of services and how they relate to patient outcomes. Also, these studies have examined patients with various diagnoses of mental illness as a group, without exploring the differences between diagnostic groups.

The current study aimed to examine the relationship between QOL and perceptions of recovery orientation of the services attended by patients with MDD and those with schizophrenia. Relationship between QOL and individual domains of perceptions of recovery orientation of the services was examined. Results will provide insights on the impact of recovery-oriented services on quality of life and support for development of treatment services that cater to the specific needs of the patient groups.

2. Methods

2.1. Study Design and Procedures

Participants above the age of 18 diagnosed with either MDD or schizophrenia spectrum disorders were recruited from public general psychiatric outpatient services, an early intervention service for psychosis (Chan et al., 2015), and community-based mental health services between February 2017 and February 2018 using convenience sampling. Diagnoses were confirmed by treating clinicians using the 10th revision of the Internal Statistical Classification of Diseases and Related Health Problems (ICD-10). Patients were only recruited if they fulfilled the inclusion criteria, and were capable to provide informed consent. The Institutional Review Board of the University of Hong Kong/Hospital Authority Hong Kong West Cluster (Reference number: UW 16-347) and the Kowloon Central/Kowloon East Cluster Research Ethics Committee (Reference number: KC/KE-16-0113/ER-1) have approved the study and all participants provided signed, written informed consent before administration of study procedures.

2.2. Assessments

Sociodemographic details and clinical information of participants including age, gender, years of education, duration of illness and diagnosis were collected.

Subjective quality of life was assessed using the Chinese validated version of the World Health Organization Quality of Life-Brief Form, WHOQOL-BREF (Leung et al., 2005; The WHOQOL Group, 1998). The WHOQOL-BREF is a 26-item, five-point self-rated scale measuring four domains of quality of life, including physical health, psychological health, social relationships and environment. Items within each domain were summed up to obtain domain scores. A total QOL score was obtained by adding up ratings on all 26 items within the WHOQOL-BREF. Higher score indicates better subjective QOL.

The Chinese translated version of Recovery Self-Assessment (RSA) was used to assess patients' perceptions of recovery orientation of the services they attend (O'Connell et al., 2005; Ye et al., 2013). The Chinese translated version of the RSA is a self-rated questionnaire consists of 32 items scored on a five-point scale (Ye et al., 2013). The RSA has five domains to assess patients' perceptions of how well the services they attend provide a recovery environment. These include achievement of life goals, involvement in the service, diversity of treatment options, choice and individually tailored services (Yale Program for Recovery and Community Health, 2019). An overall score was obtained by summing up the ratings on all items of the scale, and domain scores were calculated by summing up the items belonging to their respective domains. Higher scores indicate a higher level of perception of recovery-orientation of the services.

The short form of the Center for Epidemiologic Studies Depression Scale, CESD-10 (Andresen et al., 1994) consisting of 10 items was used to assess the level of depressive symptoms. Items are self-rated on a four-point scale, and ratings from individual items were summed up to obtain a total score after reverse scoring for two items. The Chinese version of the scale used in this study was validated in Hong Kong (Cheung and Bagley, 1998).

Illness severity was assessed using the Clinical Global Impression scale, CGI (Guy, 1976), while functioning was assessed using the Social and Occupational Functioning Assessment Scale, SOFAS (Goldman et al., 1992). The CGI includes three observer-rated items that measure illness severity, global improvement and response to therapy. The first two sections are rated on a seven-point scale, and the third on a four-point

scale (Guy, 1976). The SOFAS is observer-rated and measures functioning on a continuum with scores ranging from zero to 100 with higher scores indicating better functioning (Goldman et al., 1992). Both measures were rated by attending clinicians.

2.3. Statistical Analyses

Clinical and sociodemographic characteristics, as well as scale scores of the study sample were assessed and compared between the two groups using Mann-Whitney U test and chi-square test as appropriate. Normality of data was assessed using the Kolmogorov-Smirnov test. Associations between total QOL and all other variables were assessed in each diagnostic group using Spearman correlation for continuous variables, and Mann-Whitney U test for gender. Multiple linear regression was used to investigate the relationship between QOL and perceptions of recovery environment (total RSA), controlling for sociodemographic, clinical and other factors. Finally, associations between total QOL and the five domains of RSA was assessed using Spearman correlation. All analyses were conducted using SPSS version 25.0 (IBM Corp, Armonk, New York). Statistical significance was set a priori at an alpha of $p<.05$ (two-tailed).

3. Results

One hundred and seventy-nine patients with schizophrenia spectrum disorders and fifty-seven patients with MDD were recruited. Clinical and sociodemographic details of the study sample are presented in Table 1. The two diagnostic groups differ significantly on age, duration of illness, and years of education. Patients with schizophrenia had higher self-reported QOL and perceptions of recovery orientation of service (RSA) than those with MDD in the Mann Whitney U test, while patients with MDD had higher ratings on self-reported depressive symptoms and severity of illness (Table 1). However, diagnosis was not significantly associated with self-reported QOL in the regression model, which was conducted to examine the relationship between RSA and QOL (Table 3).

Illness severity, depressive symptoms, level of functioning, and the RSA score were significantly associated with total QOL in both diagnostic groups but not duration of illness and sociodemographic variables

(Table 2). Regression analysis found depressive symptoms, functioning and the RSA score were significantly associated with total QOL after controlling for all other variables including diagnosis (Table 3). The model explained 47.4% of the variance observed in total QOL. Total QOL was positively correlated with domains one and five of the RSA in patients with MDD. For patients with schizophrenia, total QOL was positively correlated with domains one, two, three and five of the RSA (Table 4).

4. Discussion

Perceptions of recovery orientation of psychiatric services (RSA) along with depressive symptoms and social functioning were associated with QOL in patients with major depressive disorders and schizophrenia, after controlling for clinical and sociodemographic variables. Overall RSA and all five domains of the RSA were found to be significantly lower in the MDD group. Further analysis found that while domains one, two, three and five of RSA (life goals, involvement, diversity of treatment options, and individually tailored services) were positively correlated with QOL in patients with schizophrenia, only domains one and five were associated with QOL in patients with MDD.

Patients with schizophrenia reported significantly higher scores on total RSA and all five domains of the RSA than patients with MDD. One possible explanation is that the psychiatric services available for patients with different diagnoses of mental illness in Hong Kong are different. More diverse service types have been implemented locally to improve the outcomes of patients with schizophrenia in recent years. In particular, the development of early intervention service that advocates intensive care-management approach with individualized psychosocial enhancement along with medical follow-ups for patients with first-episode psychosis (Tang et al., 2010). Its long-term benefit on functional outcomes have been reported (Chan et al., 2015; Chan et al., 2019). Furthermore, patients with schizophrenia have various options of psychiatric services throughout their course of illness, including the rehabilitation services provided by the non-government organizations (Chan et al., 2003; Tang et al., 2010). On the other hand, it has been found that more than 50% of patients with MDD have their conditions managed by medication, and only a small percentage (<10%) of patients with MDD were referred to psychological services due to limited service availability in Hong Kong

(Chin et al., 2014). The lower RSA among patients with MDD and the relationship between the RSA domains and QOL of the MDD group suggests that further development of specific recovery-oriented service tailored to patients with MDD are needed and would be important to their outcomes.

Our findings extended results of previous studies on the relationship between service satisfaction and subjective QOL in patients with psychotic disorders (Ådnanes et al., 2019; Burns-Lynch et al., 2016; Petkari and Pietschnig, 2015) to specifically indicate that subjective QOL was positively associated with perceptions of recovery orientation of services in patients with MDD and schizophrenia. This is also in line with results of an earlier intervention study, which suggested that patients have higher service satisfaction and subjective QOL when receiving a recovery-focused community mental health services (Priebe et al., 2007). These results highlight that it is important for services to focus on patients' personal experience, specifically their perceptions of the recovery orientation of the services, to achieve better QOL (Petkari and Pietschnig, 2015; Priebe et al., 2007).

Further analysis on the relationship between domains of RSA and QOL in each diagnostic group found that only life goals and individually tailored services were associated with total QOL in patients with MDD, whilst these two domains along with involvement and diversity of treatment options were associated with QOL in patients with schizophrenia. These suggest that different domains of the recovery orientation of psychiatric services may have different levels of importance towards the subjective QOL of patients with different conditions, highlighting the need for tailored services for patients with different psychiatric conditions. This difference in the relationship between domains of RSA and QOL between the two diagnostic groups could also be due to the differences in treatment options available for patients with different diagnosis of mental illness in Hong Kong. Patients with MDD have relatively more limitations in terms of the treatment services that are provided for them, as majority of these patients have their conditions managed by the use of medications, rather than psychosocial services (Chin et al., 2014), hence they may have low levels of sense of involvement and feel less empowered in their recovery process. However, the lack of relationship of other domains of RSA and QOL in patients with MDD may be due to small sample size and lack of study power (Button et al., 2013). Therefore, further examination with a larger sample size would be needed.

There was no significant relationship between diagnosis and QOL in the regression model. Findings from the model highlighted that RSA, depressive symptoms and functioning may have played more important roles in influencing patients' QOL. This is consistent with earlier findings of higher levels of service satisfaction being associated with QOL in patients with mental illness irrespective of diagnosis (Ådnanes et al., 2019). Furthermore, previous studies have found a strong association between affective symptoms and QOL in patients with schizophrenia, as well as those with MDD (Fervaha et al., 2016; Renwick et al., 2012; Tan et al., 2019). This suggests that apart from providing a recovery-oriented service, it is also important to target depressive symptoms and functioning of patients for interventions to improve QOL.

4.1. Limitations

The main limitation of this study is the small sample size, particularly for patients with MDD, which might have limited the power of the study. As participants were recruited using convenience sampling, there was a difference in the sample sizes of the two groups. Furthermore, patients were recruited from outpatient clinics of two psychiatric units and other non-governmental organizations, and only Chinese patients were included in the study. All of these might have restricted the generalizability of the study results. The specific diagnosis of patients with schizophrenia spectrum disorders, which could have proffered further insights on the differences between the various diagnoses was not collected in this study. A brief interviewer-rated severity of psychiatric symptoms was used in this study. A detailed assessment of psychiatric symptoms would provide more comprehensive information on the mental status of patients. Also, inclusion of objective measures of QOL, consisting of social indicators reflecting patients' health and life conditions (Diener and Suh, 1997), could allow for a more comprehensive understanding of the concept of QOL as a whole in patients with serious mental illness. The use of subjective assessments may be liable to biases such as social desirability bias. Finally, the cross-sectional design of this study could not provide definitive conclusions on the direction of the relationship, it also did not allow for observation of changes in QOL across time.

4.2. Conclusion

This study is one of the few to report a positive association between patients' perceptions of the recovery orientation (RSA) of treatment service and subjective QOL in both patients with MDD and schizophrenia. Results highlighted the differential relationship between QOL and domains of RSA in patients with MDD and schizophrenia, which suggests that patients with different diagnosis of mental illness have different service needs. The results of this study also provided directions for the development of tailored services for patients with different psychiatric conditions.

Contributors

Miss Min Yi Sum and Dr. Sherry Kit Wa Chan conducted data analysis and prepared the manuscript. Dr. Sherry Kit Wa Chan carried out the study and ensured the quality of the data. Prof Samson Tse and Prof. John Bola provided support with interpretation of the data. Dr. Wing Chung Chang, Dr. Edwin Ho Ming Lee and Dr. Roger Ng were responsible for patient recruitment and interpretation of the results. Dr. Christy Lai Ming Hui was responsible for interpretation of the results. Prof Eric Chen was the principle investigator of the project and responsible for interpretation of the results. All authors have approved the final manuscript.

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Table 1. Sociodemographic and clinical features of sample and mean scale scores

	Depression (n = 57)	Schizophrenia (n = 179)	Between-group differences Test statistic	p
Age (years)	41.63 (12.27)	37.43 (13.07)	$U = 4070.50$	.022
Gender (N, %)			$\chi^2 = 1.783$	.182
Male	12 (21.1)	54 (30.2)		
Female	45 (78.9)	125 (69.8)		
Duration of illness (years)	7.09 (9.49)	11.09 (11.26)	$U = 3956.50$	.011
Years of education	11.00 (3.16)	12.07 (3.22)	$U = 4039.50$	.013
Total QOL	82.75 (17.28)	95.11 (15.63)	$U = 2900.50$	.000
Domain 1 Physical Health	12.15 (2.65)	13.96 (2.30)	$U = 3090.50$	.000
Domain 2 Psychological	11.16 (2.94)	12.99 (2.85)	$U = 3135.00$	.000
Domain 3 Social Relationships	11.98 (3.27)	13.32 (2.78)	$U = 3744.50$	.003
Domain 4 Environment	12.03 (2.75)	13.83 (2.47)	$U = 3081.00$	.000
Total RSA	87.74 (33.60)	109.62 (34.97)	$U = 3163.50$	.000
Domain 1 Life Goals	32.18 (12.34)	38.72 (11.87)	$U = 3442.50$	.000
Domain 2 Involvement	10.84 (7.21)	15.83 (7.45)	$U = 3095.00$	.000
Domain 3 Diversity of Treatment Options	11.77 (6.74)	15.63 (7.07)	$U = 3399.00$	.000
Domain 4 Choice	14.93 (5.29)	17.61 (5.27)	$U = 3495.00$	.000
Domain 5 Individually Tailored Services	10.61 (5.16)	14.09)4.93)	$U = 3056.00$	.000
CGI	2.35 (1.19)	1.91 (1.23)	$U = 3905.00$	.004
CESD10	25.09 (5.99)	19.17 (6.50)	$U = 2526.00$	.000
SOFAS	63.96 (9.59)	66.37 (10.79)	$U = 4421.00$	.127

Abbreviations: CGI, Clinical Global Impression scale; CESD10, Center for Epidemiologic Studies Depression scale; QOL, Quality of Life; SOFAS, Social and Occupational Functioning Assessment Scale; RSA, Recovery Self-Assessment.

Table 2. Associations between total QOL and sociodemographic and clinical variables in each diagnostic group

	Test Statistics	p
Total QOL		
Schizophrenia		
Age	$r_s = 0.070$	.355
Years of Education	$r_s = 0.090$	.232
Duration of illness	$r_s = -0.123$	.102
Gender	$U = 3107.00$	.399
CGI	$r_s = -0.394$	<.001
SOFAS	$r_s = 0.275$	<.001
CESD10	$r_s = -0.634$	<.001
Total RSA	$r_s = 0.234$	<.001
Major Depressive Disorder		
Age	$r_s = 0.241$	.070
Years of Education	$r_s = 0.087$	.519
Duration of illness	$r_s = 0.101$	.454
Gender	$U = 246.50$	.645
CGI	$r_s = -0.333$	<.01
SOFAS	$r_s = 0.269$	<.05
CESD10	$r_s = -0.564$	<.001
Total RSA	$r_s = 0.293$	<.05

Abbreviations: CGI, Clinical Global Impression scale; CESD10, Center for Epidemiologic Studies Depression scale; QOL, Quality of Life; SOFAS, Social and Occupational Functioning Assessment Scale; RSA, Recovery Self-Assessment.

Table 3. Multiple linear regression analysis to identify relationship between perceptions of recovery environment and quality of life (n = 236)

Variables	*B*	*SE*	β	95% Confidence Intervals
RSA	0.076	0.024	0.161**	0.028 – 0.123
Diagnosis[1]	1.775	1.103	0.090	-0.398 – 3.947
Age	0.177	0.090	0.137	-0.001 – 0.355
Gender	0.414	1.840	0.011	-3.211 – 4.039
Duration of illness	-0.161	0.097	-0.105	-0.352 – 0.031
Years of education	-0.117	0.297	-0.022	-0.702 – 0.468
CGI	-0.376	0.772	-0.027	-1.898 – 1.145
CESD10	-1.343	0.149	-0.546**	-1.636 – -1.050
SOFAS	0.204	0.087	0.127*	0.032 – 0.375

*p< .05 level, **p< .01 (2-tailed).

[1]Major depressive disorder and schizophrenia spectrum disorders

Abbreviations: CGI, Clinical Global Impression scale; CESD10, Center for Epidemiologic Studies Depression scale; SOFAS, Social and Occupational Functioning Assessment Scale; RSA, Recovery Self-Assessment.

Table 4. Associations between total QOL and RSA domains in each diagnostic group

	Test Statistics	p
Total QOL		
Schizophrenia		
Domain 1 Life Goals	$r_s = 0.254$	.001
Domain 2 Involvement	$r_s = 0.191$	.010
Domain 3 Diversity of Treatment Options	$r_s = 0.185$	.013
Domain 4 Choice	$r_s = 0.145$	.053
Domain 5 Individually Tailored Services	$r_s = 0.229$	.002
Major Depressive Disorder		
Domain 1 Life Goals	$r_s = 0.305$	.021
Domain 2 Involvement	$r_s = 0.178$	.186
Domain 3 Diversity of Treatment Options	$r_s = 0.228$	.089
Domain 4 Choice	$r_s = 0.245$	.066
Domain 5 Individually Tailored Services	$r_s = 0.334$	.011

Abbreviations: CGI, Clinical Global Impression scale; CESD10, Center for Epidemiologic Studies Depression scale; QOL, Quality of Life; SOFAS, Social and Occupational Functioning Assessment Scale; RSA, Recovery Self-Assessment.