ASSOCIATION OF COLLABORATIVE CARE MODEL AND QUALITY OF LIFE IN SCHIZOPHRENIA

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ABSTRACT

The institutionalization of psychiatric care models focused on collaborative care model (CCM) as a bedrock improving quality of life. This study measures the association of CCM and quality of life in schizophrenia. Schizophrenia receiving CCM and usual care (UC), each group was 41 and chosen by systematic random sampling follow this cohort retrospective study in Denpasar and Badung, Bali Province on April-November 2020. The outcomes are QoL (assessed by WHOQOL-BREF), socio-demographic, clinical characteristic, family support using Friedman questionnaire, stressor using PSS, coping using BRIEF-COPE, and medical adherence using MARS. Data was analyzed using alpha 5%. The mean age was 40.43 years. Beside for marital state (p=<0.000), the two groups did not differ of other socio-demographic domains. There was difference in all domain of QoL except for physical health (p=0.219) in which CCM have quality of life 1.557 times than usual care (RR=1.577;95%CI 1.250-1.990, p0.001). There was difference of QoL in both group (p<0.000) especially on social well-being (p<0.000), environmental well-being (p<0.000) and psychological health (p=0.026), relapse episode (0.049), medical adherence (p0.000) and family support (p0.026) especially informational support (p0.007) and appraisal support (p0.003). The component of CCM associated with good QoL were no relapse episode within a year (RR=1.264; 95%CI 0.960-1.663,p=0.046), informational support (RR=1.722; 95%CI 0.920-3.223,p=0.016), and appraisal support (RR=1.813;95%CI 1.134-2.896,p<0.001). CCM is associated with a good QOL in schizophrenia, especially in psychological health and social/environmental well-being. Schizophrenia could be well managed comprehensively at community psychiatric center as CCM.

Keywords: *collaborative care model, usual care, quality of life, schizophrenia*

ABSTRAK

Hubungan Model Terapi Collaborative Care Model dengan Kualitas Hidup Skizofrenia Perawatan skizofrenia rawat jalan selama ini masih menggunakan model terapi konvensional, yaitu perawatan di rumah sakit jiwa sedangkan perawatan komunitas dengan mengkolaborasikan semua pendukung belum pernah diterapkan. Salah satu metode terapi

komunitas pada skizofrenia adalah collaborative care model (CCM) yang diharapkan mampu meningkatkan kualitas hidup. Penelitian ini bertujuan untuk mengetahui hubungan antara CCM dengan kualitas hidup skizofrenia. Studi ini menggunakan desain cohort retrospektif dengan kelompok penderita skizofrenia rawat jalan dengan CCM sebagai kelompok intervensi dan kelompok terapi konvensional (masing-masing kelopok 41 orang). Data kualitas hidup diukur Bulan April-November 2020 menggunakan WHOQOL-BREF. Data berupa sebaran frekuensi sosiodemografi, karakteristik klinis, dukungan keluarga menggunakan Friedman, stresor menggunakan PSS, koping menggunakan BRIEF-COPE, dan kepatuhan berobat menggunakan MARS. Rerata usia semua responden adalah 40.43 tahun dan kedua kelompok tidak berbeda secara statistik kecuali status pernikahan (p=<0.000). Terdapat perbedaan pada semua domain kualitas hidup, kecuali domain kesehatan fisik (p0.219). Penderita dengan pendekatan CCM memiliki QoL 1.557 kali dibandingkan terapi konvensional (RR=1.577;95%CI 1.250-1.990, p=0.001). Terdapat perbedaan perbedaan QoL pada kedua kelompok (p<0.000), terutama domain kesejahteraan sosial (p<0.000), kesejahteraan lingkungan (p<0.000) dan kesehatan psikis (p=0.026); kekambuhan (p0.049), kepatuhan berobat (p0.000) dan dukungan keluarga (p0.026) terutama domain dukungan informasi (p0.007) dan dukungan penghargaan (p0.003). Komponen CCM yang diasosiasikan dengan kualitas hidup baik antara lain: tidak ada kekambuhan (RR=1.264; 95%CI 0.960-1.663,p=0.046), dukungan informasi (RR=1.722; 95%CI 0.920-3.223,p=0.016) dan dukungan penghargaan (RR=1.813;95%CI 1.134-2.896,p<0.001).Terdapat hubungan antara metode CCM dengan kualitas hidup. Metode ini mampu meningkatkan kualitas hidup penderita melalui dukungan keluarga (dukungan informasi dan dukungan penghargaan), serta mampu mengontrol kejadian relaps pada pasien.

Kata Kunci: collaborative care model, usual care, kualitas hidup, skizofrenia

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INTRODUCTION

Schizophrenia is a chronic and critical mental disorder whose contain of an interference of cognitive, thinking and perception affect and also social behavior.[1] WHO reported that schizophrenia affecting over 20 million people worldwide. People with schizophrenia are likely 2-3 times to die early than general population with reduced life expectancy 10-20 years and associated with consider disability, low education, poor social functioning, high unemployed rate, low income and metabolic syndrome disease. This group

also identically with negative stigma, discrimination and violation. Both make it as a double burden disease in health, economy and social.[2]

The median annual rate of treatment for schizophrenic disorders in mental health service was 128 cases per 100.000 population. The median treatment gap was 69% and more than 69% this vulnerable group are not receiving appropriate care, in which 80% were treated in outpatient facilities.[3] Study report in America showed that the treatment gap of schizophrenia was over 50% of the indigenous population in United States and 80% in Latin America had not received treatment. The treatment of this population mostly in major psychiatric intensive care hospital in all developing country, meanwhile psychiatric hospital as primary care is not capable in screening for mental health as a stand-alone intervention or to establish comprehensive care, beside medicine. Intervention should be established comprehensive and holistic management care strategy to provide health benefit in global quality of life for the patients.[4,5]

Schizophrenia is treatable disease which medicine and psychosocial support treatment is effective to managed. In an attempt to achieving essential role of mental health, WHO launched the Comprehensive Mental Health Action Plan 2013-2020 for providing comprehensive, integrated, and responsive mental health strategies and social services in community based settings. Some study also showed that social therapy for rehabilitation of schizophrenia patient collaborated with primary care is presented as an example of how communities support can be built to promote mental health, quality of life and psychosocial well-being.[6]

Collaborative Care Model is an alternative model strategy that encompasses a number of primary health care intervention that are fundamentally in an approach to patient-centered care that emphasizes secondary evidentiary support include patient, family, professionals, community, and government support.[7] This intervention managed by supported health management, psycho-education (individual, family, or group based), prompt to provider, rehabilitation and social support which is limited by practitioner.[8,9] A key component of CCM is the involvement of patients and families in treatment choices and execution. CCM with its arrangement seems to have a potential role to promote mental well-being and enhance quality of life.[10]

Quality of life is described as an indicator and an important goal treatment of schizophrenia. World Health Organization (WHO) defined QoL as individual perception of their position in life in the context of culture and value system in

which they live and in relation to their goals, expectation, standards, and concern. In clinical domain, the QoL coalesce of patient's feeling physically, psychic, environment and opinion of desire in their needs on health care for settling goals of therapy.[11,12]

In clinical practice and research, assessing QoL is important to evaluate schizophrenia"s outcome. Most research focuses in medication adherence, relapse, symptoms and cost-effectiveness and lack evidence of the applicability of CCM for schizophrenic patients in QoL. In this study, we hypothesized that patient managed in CCM would be significantly have a good QoL than those treated with usual care. This study purpose to know the association the QoL of schizophrenia who is managed with CCM.

SUBJECT AND METHODS

This is a cohort-retrospective study of the QoL of schizophrenia. This study is being conducted at an out-patients Schizophrenia health center and the patients in usual care in Badung Regency randomly. All out-patients age is between 18-60 years old, good orientation and no disturbances on thought process. Comorbid clinical conditions or other comorbid psychiatric were excluded within their diagnoses. A sample size of 41 was estimated for each group. Quality of Life was measured using the short version of the World Health Organization Quality of Life (WHOQOL)-BREF which has four domains: physical health, psychological health, social relationships, and environment. Univariate analysis conducted to show frequency of clinical and socio-demographic domains. The mean WHOQOL-BREF item scores of the two respondent from two group, were compared using a t-test for quantitative and chi-square for qualitative variables. Bivariate analysis is used to explore the relationship between CCM and QoL.

RESULTS

The mean age for all participants was 40.43 years between 20-40 years. Most of the participant were at least secondary education level, never married in usual care and being married in CCM group and no significant difference statistically on the mean age of participants in both group ($p=0.161$). Except for marital status ($p<0.000$), the two groups did not significantly different.

The characteristic of QoL in both group is showed in Table 1.

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Table 1. Characteristic of Quality of Life

Variables	Model		Total (n=82)	p-*value*
	Collaborative Care Model (n=41)	Usual Care Model (n=41)		
Quality of Life				<0.000*
High	41 (100%)	26 (63.4%)	67 (81.7%)	
Low	0 (0%)	15 (36.6%)	15 (18.3%)	
Physical health				0.219
High	32 (78.0%)	27 (65.9%)	59 (72.0%)	
Low	9 (22.0%)	14 (34.1%)	23 (28.0%)	
Psychological health				0.026*
High	41 (100%)	35 (85.4%)	76 (92.7%)	
Low	0 (0%)	6 (14.6%)	6 (7.3%)	
Social well-being				<0.000*
High	39 (95.1%)	11 (26.8%)	50 (61.0%)	
Low	2 (4.9%)	30 (73.2%)	32 (39.0%)	
Environmental well-being				<0.000*
High	34 (82.9%)	16 (32.0%)	50 (61.0%)	
Low	7 (17.1%)	25 (61.0%)	32 (39.0%)	

* statistically significant

The characteristic of QoL component's in both group is showed in Table 2.

Table 2. Characteristic of Quality of Life

Variables	Model		Total (n=82)	p-value
	Usual Care Model (n=41)	*Collaborative Care Model* (n=41)		
A. Clinical characteristic				
Onset of disease (mean ±SD)	23.44 ±6.384	23.93±6.278		0.728
Genetic				
No	31 (37.8%)	29 (35.4%)	60 (73.2%)	0.618
Yes	10 (12.2%)	12 (14.6%)	22 (26.8%)	
Relapse within 1 year				0.058
No	24 (29.3%)	32 (39.0%)	56 (68.3%)	
Yes	17 (20.7%)	9 (11.0%)	26 (31.7%)	
Relapse episode within 1 year				0.049*
1x	13 (15.9%)	4 (4.9%)	17 (20.7%)	
≥2x	4 (4.9%)	5 (6.1%)	9 (11.0%)	
Hospitalized				0.532
No	36 (43.9%)	34 (41.5%)	70 (85.37%)	
Yes	5 (6.1%)	7 (8.5%)	12 (14.63%)	
Medical adherence				0.000*
High (n,%)	20 (36.4%)	35 (63.6%)	55 (67.1%)	
Low (n,%)	21 (77.8%)	6 (24.4%)	27 (32.9%)	
B. Stressor				
Stressor				0.077
High (n,%)	24 (58.5%)	16 (39.0%)	40 (48.8%)	
Low (n,%)	17 (41.5%)	25 (61.0%)	42 (51.2%)	
C. Coping Mechanism				
Coping Mechanism				0.785
High (n,%)	9 (22.0%)	8 (19.5%)	17 (20.7%)	
Low (n,%)	32 (78.0%)	33 (80.5%)	65 (79.3%)	
D. Family Support				

Family support				0.026*
High (n,%)	35 (85.4%)	41 (100%)	76 (92.7%)	
Low (n,%)	6 (14.6%)	0 (0%)	6 (7.3%)	
Emotional support domain				0.201
High (n,%)	5 (12.2%)	1 (2.4%)	6 (7.3%)	
Low (n,%)	36 (87.8%)	40 (97.6%)	76 (92.7%)	
Instrumental support domain				0.116
High (n,%)	37 (90.2%)	41 (100%)	78 (95.1%)	
Low (n,%)	4 (9.8%)	0 (0%)	4 (4.9%)	
Informational support domain				0.007*
High (n,%)	32 (78.0%)	40 (97.6%)	72 (87.8%)	
Low (n,%)	9 (22.0%)	1 (2.4%)	10 (12.2%)	
Appraisal support domain				0.003*
High (n,%)	26 (63.4%)	38 (92.7%)	64 (78.0%)	
Low (n,%)	15 (36.6%)	3 (7.3%)	18 (22.0%)	

The mean age onset of the illness among CCM respondents was 23.4 (6.38) and years, while for those usual care is similar which was 23.9 (6.28) years (t=-0.349, p=0.728). There was a statistically significant difference in frequency of relapse within a year, medical adherence and family support (p≤0.05).

Table 3 shows the association of QoL within CCM components. Schizophrenia who were used CCM therapy is most likely 1.577 times have a good QoL. The components of CCM associates of good QoL were relapse, informational support and appraisal support.

Table 3. Collaborative Care Model Related QoL

Variables	Good QoL (n=67)	Low QoL (n=15)	Total N (%)	RR (95%CI)	p-value
Therapy model					
CCM (n,%)	41 (100.0)	0 (0)	41 (100)	1.577 (1.250–1.990)	0.001*
Non-CCM (n,%)	26 (63.4)	15 (36.6)	41 (100)		
Medical adherence					
High (n,%)	46 (68.7)	9 (60.0)	55 (67.1)	1.075 (0.852–1.358)	0.519
Low (n,%)	21 (31.3)	6 (40.0)	27 (32.9)		
Relaps					
No (n,%)	49 (87.5)	7 (12.5)	56 (68.3)	1.264 (0.960–1.663)	0.046*
Yes (n,%)	18 (69.2)	8 (14.3)	26 (31.7)		
Hospitalized					
No (n,%)	59 (72.0%)	11 (13.4%)	70 (85.4)	1.264 (0.837-1.919)	0.145
Yes (n,%)	8 (9.8%)	4 (4.9%)	12(14.6%)		
Stressor					
Low (n,%)	32 (80.0)	8 (20.0)	40 (48.8)	0.960 (0.782–1.179)	0.696
High (n,%)	35 (83.3)	7 (16.7)	42 (51.2)		
Coping					
High (n,%)	16 (94.1)	1 (5.9)	17 (20.7)	1.2 (1.01 – 1.43)	0.137
Low (n,%)	51 (78.5)	14 (21.5)	65 (79.3)		
Family support					
High (n,%)	64 (95.5)	12 (80.0)	76 (92.7)	1.684 (0.752–3.771)	0.071
Low (n,%)	3 (4.5)	3 (20.0)	6 (7.3)		
Emotional support domain					
High (n,%)	63 (82.9)	13 (17.1)	76 (92.7)	1.200 (1.008-1.428)	0.176
Low (n,%)	4 (66.7)	2 (33.3)	6 (7.3)		
Instrumental support domain					

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High (n,%)	65 (83.3)	13 (16.7)	78 (95.1)	1.667 (0.622–4.463)	0,151
Low (n,%)	2 (50.0)	2 (50.0)	4 (4.9)		
Informational support domain					
High (n,%)	62 (86.1)	10 (13.9)	72 (87.8)	1.722 (0.920–3.223)	0.016*
Low (n,%)	5 (50.0)	5 (50.0)	10 (12.2)		
Apraisal support domain					
High (n,%)	58 (90.6)	6 (9.4)	64 (78.0)	1.813 (1.134–2.896)	<0.001*
Low (n,%)	9 (50.0)	9 (50.0)	18 (22.0)		

*statistically significant

DISCUSSION

One main goal of WHO on schizophrenia therapy is increase their QoL for establish in society. The increased of QoL must go beyond the health sector by collaboration of individual, family, society, care giver and government as known as collaborative care model (CCM) in community psychiatric to elaborate an effective community psychiatry service delivery with emphasis on one strategies. This will need to be supported by interdisciplinary and multidisciplinary as first line of their supporting system.

In this study, most of the respondents of the two group were man. The mean of age was 40.43 years-age with 23 years old onset of disease. Most of them were high educated, never married and living with their core family. Some study also reported that most of the schizophrenic patient were man, never married, had at least secondary education level and non-employed.[13,14]Mean onset of disease was 23 years age, means most of the respondent were at least have secondary education level which in Indonesia six years of primary education, 3 year of junior high school, and 3 years of senior high school at age 18, and college at age 22. High educational level in some study is consistent. Most of the schizophrenic patient were diagnoses between ages 15-25 and have higher education. Hakulinen study also reported that schizophrenic have tendency to educated higher than their parents caused by the development of educational units now days. Other study also reported that 20 years age onset is indicated of at least secondary educational level but unemployed, no money, and high risk of divorce.[15,16]

This study finds that only few percent of both group has presented a genetic factor. This result is vary in some other study. Gejman study reported that genetic factor has an important role in schizophrenia.This supported by Kim study which found that the closest their family relationship, the higher the risk of this disease.[17] This finding is different from the other study which found that heredity is not associated with this disease. Schizophrenia is a complex genetic disorders. Genetic factor are clearly important in the etiology but the interaction

between genetic and environment which individual's gens find expression is also crucial to the development of this disease.[18]

Comparability in both group is not different in physic domain, but significantly different in psychological, social, and environmental well-being. In this study, schizophrenia treated with usual care reported have lower psychological, social and environmental well-being, but physically active. These report supported by study which proved that CCM has significantly increase psychological and social of QoL in 3 years follow up.[18] In some study, CCM also proved that this method is constant positively influences psychological and social function than other. These study noted that CCM showed more improvement in overall functioning compare to usual care.[19] Kilbourne study proved different. His study noted that CCM also increase physical domain in contents of daily works, energy and work capacity. This might be caused by excluding the patient who had organic disease.[20,21]

This study found that most of the CCM group have a good family support, such as information and appraisal support. Collaborative Care Model (CCM) known as an approach to secondary care in schizophrenia. This model gives deep communication between individual and their support system to minimalize the communication gap and found their un-meet needs.[22,23] This model is emphasized to increase QoL include: physic, psychological, social and environment which intervention such a medical adherence to reduce relapse and support system.[24]

Some study proved that a good predictor of QoL was family support which their collaboration to others influence their physical, psychological, social and environmental well-being.[25] Care giver is a part of the care system who took on important function as care formerly provide goal therapy. In this CCM method, care giver such as family is elaborate with other support care to increase patient's QoL. A good support system will influence and make change of their behavior, in which their need to closed relationship was full filled, their QoL should be increase.[26,27]

There were difference of relapse episode in the last year, medical adherence and family support. Relapse and hospitalized in last one year on usual care is higher than CCM group. The medical adherence of CCM was higher than UC (63,6%) and had less frequency of relapse episode in last one year (4,9%). We also found that in CCM model, medication adherence is strict to be managed by the mental health practitioner to prevent relapse as proved at this study. This result was supported by other study that proved CCM influences medication adherence and

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controlled relapse of the patients. In this study, CCM improve medication adherence by good communication relationship between individual and therapist to full fill their un-meet need real.[28] In some study, peer family support have potent function as giving positive support and rehabilitation. Positive support was giving by education from practitioner for building a good knowledge and behavior how to giving care for schizophrenia to decrease relapse. [29] Other study also proved that family support have significant effect on relapse and their QoL which CCM method can increase the medication adherence as one of the main factor of relapse. These provoked Collaborative Care Model as tools to increas *cost-effectiveness* and QALY (*Quality Adjusted Life year Lost*) in society.[30,31]

We investigated the association of CCM on QoL in patients with schizophrenia. CCM affect relapse using informational support such as: information about their progress of their disease, education, their medication and appraisal of their achievement in medication, communication and social relation have positive impact on their QoL. This method of CCM giving chances for family and individual to share from other family support about how to giving cares on schizophrenia and achieve the goal of QoL by giving a continue information and appraisal for their achievements event less.[32,33,34]

In this study, we found that CCM can increase the QoL, especially by information and appraisal support. Some study support this founding by resolve communication gap from individual and their support system. Communication gap occurred caused by the different and variation way of each care practitioner to reach the goal, such: information or appraisal support. This one way communication seems to be failed to full fill their unmeet-needs.[35]

In some study, there were many report that out-patients tend their reluctant for making social contacts or being employed caused by their negative stigma and low appraisal and trust from society. This also pursued stressor and play an important role to decrease their QoL. Another study also proved that social environment have negative tendency stigma building out-patients schizophrenia issues. This study noted that social believe that out-patients have tendency to make a commotion that can harm the other persons and being a social threat. The model of CCM elaborate all component support working together in one system agreed upon for one goal.[36,37]

CONCLUSION

In this paper we have suggested that this model of collaborative care is

promising as secondary care to pose challenge for those commission mental health service as a significant role of delivering complex and un-meet needs of schizophrenic. We outline how QoL of schizophrenic out-patients could be increased significantly by changing some aspect, such: psychological, social, environment domain and family support that fundamental on giving a better quality of life which supported by individual, family, society, practitioner, and government on their mental health regulation.

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