Assessment of Social Support, Expressed Emotion and Compliance to Treatment among Hospital Admitted Schizophrenic Patients in Malaysia

Radeef AS[1], Musa R[1], Ali SM[2], Abu Bakar AZ[3]*

1. Department of Psychiatry, Kulliyyah (faculty) of Medicine, International Islamic University Malaysia.
2. Forensicare mental health care, Lucas, Victoria, Australia.
3. Department of Psychiatry, Hospital Tengku Ampuan Afzan, Kuantan, Malaysia.

Abstract

One of the important factors that may predict the relapse in schizophrenia is having poor social support, high Expressed Emotion (EE)and poor compliance. The family is an important factor that affects the patient's mental well-being and outcome, this study aimed to assess the social support, expressed emotion and treatment compliance among hospital admitted schizophrenic patients.
A cross sectional study conducted among a sample of 162 patients diagnosed with schizophrenia admitted in psychiatric ward.

Various factors were being assessed including age, gender, ethnicity monthly income, duration of the illness, number of admissions to the psychiatric ward, assessment of expressed emotion and compliance with treatment. The multidimensional scale of perceived social support (MSPSS) was used to measures perceived social support.

Although there was no significant association between males and female in total scale social support, only the friend subscale social support was found significantly higher in males (p=0.038). Males have significant better compliance to medication than females (p=0.000). The prevalence of concurrent substance abuse was 14.8 % and it is significantly higher among male schizophrenic patients than female patients (p=0.000). There was no significant association between gender and high EE level. Having no history of co-morbid drug misuse (mean=4.39; p=0.039), and having high level of psychoeducation within the family (mean=4,48; p=0.004) were significantly associated with higher mean scores in total scale social support.

Efforts to improve social support are essential in managing patients with schizophrenia competently. The level of psychoeducation within the family is a very important factor in relation to patients' social support. Early detection and intervention toward co-morbid substance use disorder among schizophrenic patients is vital as it has been associated with poor social support. There is no difference between male or female patients in relation to high EE and family intervention should include steps to reduce it in both genders.

Clinical article (J Int Dent Med Res 2017; 10: (1), pp. 179-185)

Keywords: Social support, schizophrenia, expressed emotion, compliance, Malaysia.

Received date: 01 January 2017 **Accept date:** 17 January 2017

Introduction

Schizophrenia is a term used to describe a major and serious psychiatric disorder that is characterized by impaired reality testing and alteration in individual's perception, thought, affect and behavior. The expression of these manifestations varies across patients and over time but the effect of the illness is always severe and is usually long lasting.[1] There is variation in the distribution of schizophrenia around the world leading to heterogeneity in schizophrenia prevalence and incidence rates.[2] The lifetime prevalence of schizophrenia in the United States is about 1 percent and about 0.05 percent of the total population is treated for schizophrenia in any single year, and only about half of all patients with schizophrenia obtain treatment, despite the severity of the disorder.[1] In Malaysia, a systematic review of the incidence of schizophrenia done by the National Mental

****Corresponding author:***
Dr. Ali Sabri Radeef
Assistant Professor& Psychiatrist
Department of Psychiatry, Kulliyyah (Faculty) of Medicine,
International Islamic University Malaysia.
Jalan Hospital Campus 25150, Kuantan, Pahang, Malaysia
E-mail: alisabri1973@yahoo.com

Health Registry (NMHR) found that the median incidence rate was 15.2 per 100,000 (range of 7.7 to 43.0 per 100,000)[3]

In schizophrenia, there is a progressive impairment of previous functions in relation to employment, social relationships, and inability to care for others and themselves. Although about one-third of all schizophrenia patients have some marginal or integrated social existence, most have lives characterized by aimlessness; inactivity; frequent hospitalizations; and, in urban settings, homelessness and poverty.[1,4]

Previous studies reported extensive social dysfunction in people with severe mental illness including schizophrenia[5,6] as patients with schizophrenia have impairment in areas of intimate relationships, occupational activity, living situation, qualifications and specialist mental health service use despite evidence-based pharmacological treatment.[7] Their interactions with others and social networks can be quite limited and they spent most of their time alone that is provoked by the feelings of loneliness and being socially isolated which as a result make them dissatisfied with social support they received.[8, 9]

Schizophrenic patients have numerous needs concerning social support, welfare benefits, education about the illness, and psychiatric distress. Also, they have deteriorating relations and careers resulting in increased isolation and loss of social support and high pressure such as changing of jobs, and interpersonal conflicts were found to be associated with lower quality of life.[10,11]

Family is the essential element in maintaining the integrity for its members by providing emotional, financial and social support to them. A high functioning family helps in maintaining the dimensions of communication, emotional and behavior control, and also helps in problem solving and coping behaviors of its members. Research has shown that a family with a schizophrenic patient does suffer from network contraction and condensation, which in turn, increases the vulnerability of the family to stressors due to lack of social support.[11,12]

In addition to family support, the patient's social support may be provided by several other sources for example friends, residential or daycare providers, shelter operators, roommates, and others.[9,13] One of the important factors that may predict the relapse in schizophrenia is having high Expressed Emotion (EE), which is defined as the critical, hostile, and emotionally over-involved attitude that relatives have toward a family member with a disorder.[1,14]

Based on that, the family is an important factor that affects the patient's mental well-being and outcome, so this study aimed to assess the social support, expressed emotion and treatment compliance among hospital admitted schizophrenic patients.

Materials and methods

This is a cross sectional study that was conducted among a sample of patients diagnosed with schizophrenia and were admitted by a specialist psychiatrist to the psychiatric ward at the Hospital Tengku Ampuan Afzan, Pahang state, Malaysia over a period of 6months. The selection of the subjects was based on stratified quota sampling. Raosoft sample size calculator was used to get expected sample size. Margin of error was expected 5%, whereas confidence level was 95%.Estimated number of admission was about 40patients per month.

The inclusion criteria for the participants were patients who fulfilled the DSM-IV-TR criteria for schizophrenia admitted to psychiatric ward by specialist psychiatrist, aged between 18-65 years, and who were able to give valid written consent. Those who were not conversant either in Malay or English language were excluded from this study.

An ethical approval from relevant authorities was obtained before the study started. The researchers introduced themselves to the patients/care givers and informed them about the aim and the methodology. Informed consent was obtained from the participants after the nature of the procedure was fully explained to the patients/care givers. All participants were ensured of the confidentiality and they were able to understand that the information gathered will only be used for research purposes. The patients were informed that the data will be collected for one time only. Various factors were being assessed including age, gender, ethnicity monthly income, duration of the illness, number of admissions to the psychiatric ward, assessment of expressed emotion and compliance with treatment.

The multidimensional scale of perceived social support (MSPSS) was developed by Zimet et al[15] as a self-administered tool that measures

perceived social support. It addresses the subjective assessment of social support adequacy. It was designed to assess the perception of social support adequacy from three different sources: Family, Friends and Significant Others. The MSPSS contains 12 items, therefore it is simple to use and can be quickly administered and scored. Items Are scored on a7-point ratingscalerangingfrom1(very strongly disagree to 7(very Strongly agree) with possible scores ranging from 12 To 84.The reliability, validity and factor structure of the MSPSS have been demonstrated across a number of different samples.[16,17]

Statistical Analysis: We used the statistical package for social science program, version 22.0 (SPSS 22.0) for analyzing the data. The analysis of the variables such as age group, gender, race, monthly household income, marital status, level of education, duration of illness, frequency of admissions to psychiatric ward were presented in numbers and percentages. The association between gender and perceived social support, expressed emotion, compliance with treatment, comorbid substance use, and level of psychoeducation within the family were assessed using Pearson Chi-squared test followed by Fisher's exact test. Mann-Whitney U test and Kruskal-Wallis test were used to determine the association of the important socio-demographic characteristics with the perceived social support. A P-value of less than 0.05 was considered statistically significant.

Results

A total number of 162 participants who fulfilled the inclusion criteria were recruited in the study. About 62.3% of the patients aged 30-50 years and the mean age of total patients was 38.46 and male patients had significant lower mean of age than females (p= 0.010). The majority of the patients were males (55.6%), Malay (76.5%), unmarried (66.7%), unemployed (79%), about 58.3% were with educational level up to secondary school, low monthly income (95.3%), and about 95.3% were having the illness more than 5 years (mean was 9.58). (Table 1)

Regarding the assessment of total scale social support, about 29.6% (N=48) were found to have good support. In further assessment of each subscale, this study revealed that good support in family, friends, and other subscales were 42.6% (N=69), 32.1% (N=52) and 38.9% (N=63) respectively. (Table 2)

Gender			
Male		90	55.6
Female		72	44.4
Age of all patients (years)	38.46 (10.55)		
Age of male patients	36.54 (9.4)		
Age of female patients	40.86 (11.5)		
<30		33	20.4
30-50		101	62.3
51-65		28	17.3
Duration of illness (years)	9.58 (7.17)		
< 1 year		21	13.0
1-5 years		39	24.0
>5 years		102	95.3
No. of admissions			
First admission		22	13.6
Second admission		34	21.0
3-5		22	13.6
>6		84	51.8
Race			
Malay		124	76.5
Chinese		20	12.3
Indians/others		18	11.2
Marital status			
Married		54	33.3
Single		108	66.7
Level of education		58	35.8
Illiterate/Primary school		96	58.3
Secondary school		8	4.9
Tertiary education			
Occupation			
Employed		34	21.0
Unemployed		128	79.0
Monthly income			
< RM1500		155	95.3
≥ RM 1500		7	4.7

Table 1. Socio-demographic data of the diabetic patients.

	Good support N (%)	Poor support N (%)	Mean score (SD)
Total scale social support	48 (29.6)	114 (70.4)	4.32 (0.97)
Family subscale	69 (42.6)	93 (57.4)	4.51 (1.08)
Friends subscale	52 (32.1)	110 (67.9)	4.12(1.23)
Others subscale	63 (38.9)	99 (61.1)	4.34 (1.16)

Table 2. Assessment of social support among hospitalized schizophrenic patients.

Although there was no significant association between males and female in total scale social support, only the friend subscale social support was found significantly higher in males (p=0.038). Males have significant better

compliance to medication than females (p=0.000). The prevalence of concurrent substance abuse was 14.8 % and it is significantly higher among male schizophrenic patients than female patients (p=0.000).

In the assessment of EE, although the rates of patients who responded positively to domains including hostility, overt criticism (critical comments) and emotional over involvement toward a person with schizophrenia were 7.4%, 6.2%, and 73.5% respectively, about 39.5% of the patients were exposed to high EE level and further assessment reveled that there was no significant association between gender and high EE level.

There was no significant difference in gender with both frequency of hospital admissions and level of psychoeducation within the family. (Table 3, 4)

	Males N (%)	Females N (%)	P-value
Total scale social support			
Good	31 (34.4)	17 (23.6)	0.133
Poor	59 (65.6)	55 (76.4)	
Family subscale			
Good	39 (43.3)	30 (41.7)	0.831
Poor	51 (56.7)	42 (58.3)	
Friends subscale			
Good	35 (38.9)	17 (23.6)	0.038*
Poor	55 (61.1)	55 (76.4)	
Others subscale			
Good	34 (37.8)	29 (40.3)	0.746
Poor	56 (62.2)	43 (59.7)	
Expressed emotion			
High	37 (41.1)	27 (37.5)	0.640
Low	53 (58.9)	45 (62.5)	
Compliance to medication			
Good	69 (76.7)	36 (50.0)	0.000*
Poor	21 (23.3)	36 (50.9)	
Co-morbid substance abuse (other than tobacco)			
Abusers	22 (24.4)	2 (2.8)	0.000*
Non-abusers	68(75.6)	70 (97.2)	
No. of admissions			
Less than 3 times	28 (31.1)	28 (38.9)	0.301
3 and more admissions	62 (68.9)	44 (61.1)	
Level of psychoeducation within the family			
Good	62 (68.9)	45 (62.5)	0.393
Poor	28 (31.1)	27 (37.5)	

Table 3. Assessment of different factors such social support, expressed emotion, compliance with treatment and other important socio-demographic factors based on gender.
Chi-squared test and Fischer's exact tests were used to test the association of different factors with gender. Significance was set at p< 0.05.

Comparisons between the mean scores of various variables with total scale social support, our study showed that factors include having no history of co-morbid drug misuse (mean=4.39; p=0.039), and having high level of psychoeducation within the family (mean=4,48; p=0.004) were significantly associated with higher mean scores in total scale social support.

	Total Scale Social Support Mean (SD)	P-value
History of Co-morbid drugabuse	3.95 (1.21)	0.039*
No history of co-morbid drug abuse	4.39 (0.91)	
Compliance to medication		
Good	4.4 (1.0)	0.080
Poor	4.18 (0.9)	
Employment		
Employed	4.41 (1.16)	0.576
Unemployed	4.30 (0.92)	
No. of admissions		
Less than 3 times	4.27 (1.09)	0.224
3 and more admissions	4.36 (0.91)	
Level of psychoeducation within the family		
High	4.48 (0.95)	0.004*
Low	4.03 (0.96)	
Race		0.515
Malay	4.27 (0.94)	
Non-Malay	4.49 (1.05)	
Marital status		
Single	4.24 (0.93)	0.125
Married	4.49 (1.05)	
Duration of Illness		
<1 year	4.53 (1.0)	0.545
1-5 years	4.19 (1.01)	
>5 years	4.33 (0.95)	
Level of education		
Illiterate / Primary education	4.33 (1.03)	0.830
Secondary school	4.32 (0.92)	
Higher education	4.41 (1.19)	

Table 4. Factors determining significant social support among schizophrenic patients.
Data was analyzed using Mann–Whitney U test for two independent variables and Kruskal–Wallis one-way analysis of variance for more than two independent variables. P values less than 0.05 was considered statistically significant.

Discussion

In this study, more male schizophrenic patients were admitted than females, this was consistent with the finding of the NMHR in which more than 60% schizophrenia cases in Malaysia were males[18] also it may be contributed to previous findings that females have milder course with fewer number of rehospitalizations.[19] In addition to that, it may be related to cultural factors as one probable reason for the discrepancy in gender ratio is that culture wise, males are more aggressive and unmanageable in their home environment or community they tend to present more to mental health facilities compared to females which warranted them to be admitted while families tend to be more tolerant to females who are less aggressive.[3,18] also male patients had significantly lower mean age than females which was consistent with previous study done in Malaysia. However the mean of age of total patients is slightly higher in our

study[3,19], this may be explained by inclusion criteria of our study as only in-patient schizophrenic patients were included. The majority of the patients were Malay followed by Chinese then Indians and others which was consistent with the findings of previous studies.[3,19,20] and this represents the ethnic distribution of the local population in the study area. The majority of the patients were single, attained their education until secondary level, unemployed, with low monthly income with history of frequent re-hospitalizations, this was consistent with past studies[3,19,20,21]

This study investigated the perceived social support among hospitalized schizophrenic patients, the schizophrenic patients did perceive more support from their families as compared to their friends or significant other sources of support, this may be due to the social structure as most of the people rely on their families to solve their problems and also the strength of bonds between family members play an important role in extending emotional, social, and economic support to their members.

Based on our findings, factors that are associated with good total scale social support include having no history of co-morbid drug abuse, this is consistent with previous studies.[22, 23] this may be related to the fact that substance abuse affects health in broad aspects including poor relationships with family members, colleagues, and friends, legal problems, stigma and many other factors, all these factors may make the patients more isolated and dissatisfied with social support they received.

Having high level of psychoeducation within the family is significantly associated with good perceived social support. Family psycho education for schizophrenia based on principle that families can have a significant impact on their relative's recovery and functioning, aiming to improve knowledge and coping skills in families of patients with schizophrenia and to enable them to work together more effectively to address the challenges of living with schizophrenia leading to improve patient-family relationships and decrease the burden of mental illness on family members.[24] Previous studies have shown that the mental state, medication adherence, social engagement and support, employment and relationships with family have all been improved by family psycheducation.[24,25]

Although in our study there was no significant difference in the total social support scale which was consistent with previous study[26], only friends subscale was significantly higher in male schizophrenic patients while other study concluded that females reported higher levels of social support.[27] This discrepancy in gender maybe attributed to the sample size, method of assessment of social support and cultural differences.

In our study, male patients were significantly having better compliance with medication compared to women while other previous studies revealed the reverse as males were significantly morelikelytobenon-compliant.[28]

The better male adherence to treatment was in line with results of previous studies of the first episode of psychosis in both adults and adolescence showing that males received more help from their families, in particular in terms of health, psychotic symptoms, and psychological distress.[29,30]

About 14.8% of the patients in our study had comorbid substance abuse (other than tobacco) which was lower than that of previous studies in which the lifetime prevalence of drug abuse (other than tobacco) was greater than 50%,[1,31] and the prevalence of substances misuse in a study in Malaysia among patients with schizophrenia in general (including alcohol) was 24.7%[32] however, our rate was consistent with other study done in Malaysia in which the co-morbid use of substance was found to be13.4%.[33] The rate was significantly higher in male than female patients which was consistent with the findings in previous studies.[34,35,36]

In our study, the gender of the patients was not significantly associated with high EE level in relatives towards the schizophrenic patients which was consistent with previous study done in United States of America[37] and another study in Italy.[38]

There was no difference in gender in relation to number of rehospitalization in our study. This was not consistent with previous studies in which male patients were found to have more frequent rehospitalization[39,40] while a study in Malaysia revealed that there was no significant association between gender and early readmission.[33]

Conclusions

Efforts to improve social support are essential in managing patients with schizophrenia competently. Level of psychoeducation within the family is very important factor in relation to patients' social support. Early detection and interventions toward co-morbid substance use disorder among schizophrenic patients is vital as it has been associated with poor social support.

There is no difference between male or female patients in relation to high EE and family intervention should include steps to reduce it in both genders.

Acknowledgements

We wish to extend our sincere gratitude to International Islamic University Malaysia for funding this project and also would like to express our appreciations to staff of Psychiatric ward at Hospital Tengku Ampuan Afzan, in Kuantan, Pahang state, Malaysia for their help in conducting this study.

Declaration of Interest

The authors report no conflict of interest.

References

1. Sadock BJ, Sadock VA,Ruiz P. Schizophrenia Spectrum and Other Psychotic Disorders. Kaplan and Sadock's synopsis of psychiatry. 11th Edn. Wolters Kluwer 2015;7(1):300-323.
2. Goldner EM1, Hsu L, Waraich P, Somers JM. Prevalence and incidence studies of schizophrenic disorders: a systematic review of the literature. Can J Psychiatry. 2002;47(9):833-43.
3. Aziz AA1, Salina AA, Abdul Kadir AB et al. The National Mental Health Registry (NMHR). Med J Malaysia. 2008;63 Suppl C:15-7.
4. Wright P, Kraus JE. Schizophrenia and related disorders. In: Wright P, Stern J, Phelan M, editors. Core psychiatry. 3rd ed. London: Saunders Elsevier; 2012: 259-280.
5. A.R.Mubarak, Ismail Baba, Low Heng Chin, Quah Soon Hoe. Quality of life of community-based chronic schizopherenia patients in Penang, Malaysia. Australian and New Zealand Journal of Psychiatry. 2003; 37:577-585.
6. Goreishizadeh MA, Mohagheghi A, Farhang S, Alisadeh L. Psychosocial disabilities in patients with Schizophrenia. Iranian Journal of Public Health.2012; 4: 116–121.
7. Wheeler A. Sociodemographic, functional and clinical correlates in outpatients with schizophrenia: comparison with affective disorders. Australian and New Zealand Journal of Psychiatry. 2007;41(10):809-818.
8. Green G, Hayes C, Dickinson D etal.The role and impact of social relationships upon wellbeingreported by mental health service users: A qualitativestudy. Journal of Mental Health. 2002; 11(5):565–579.
9. Bengtsson-Tops, A, Hansson L. Quantitative and qualitativeaspects of the social network in schizophrenic patientsliving in the community. Relationship to sociodemographiccharacteristics and clinical factors and subjective quality of life.International Journal of Social Psychiatry. 2001; 47(3): 67–77.
10. Alejandra Caqueo-Urízar, Gutiérrez-Maldonado J, Miranda-Castillo C. Quality of life in caregivers of patients with schizophrenia: A literature review. Health Qual Life Outcomes. 2009; 7(84). DOI: 10.1186/1477-7525-7-84.
11. SawantN S, Jethwani KS. Understanding family functioning and social support in unremitting schizophrenia: A study in India. Indian Journal of Psychiatry. 2010;52(2): 145–149..
12. Lipton FR, Cohen CI, Fischer E, Katz SE. Schizophrenia: A network crisis. Schizophr Bull. 1981;7:144–51
13. Hughes RG, Rockville. Supporting Family Caregivers in Providing Care.Patient Safety and Quality: An Evidence-Based Handbook for Nurses. 2008, chapter 14.
14. Roseliza-Murni A, Oei TP, Fatimah Y, Asmawati D. Schizophrenia relapse in Kuala Lumpur, Malaysia: Do relatives' expressed emotion and personality traits matter?. Comprehensive psychiatry. 2014; 55(1):188-98.
15. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. J Personality Assess. 1988;52:30–41.
16. Ng CG, Siddiq AA, Aida SA, Zainal NZ, Koh OH. Validation of the Malay version of the Multidimensional Scale of Perceived Social Support (MSPSS-M) among a group of medical students in Faculty of Medicine, University Malaya. Asian Journal of Psychiatry. 2010; 3(1):3-6.
17. Vaingankar JA, Abdin E, Chong SA. Exploratory and confirmatory factor analyses of the Multidimensional Scale of Perceived Social Support in patients with schizophrenia. Comprehensive psychiatry. 2012;53(3):286-91.
18. Ministry of Health Malaysia: Schizophrenia report of Malaysia 2003-2005. National Mental Health Registry. 2007, Kuala Lumpur. http://www.crc.gov.my/wp-content/uploads/documents/report/NMHR1stReport.pdf
19. Grossman LS, Harrow M, Rosen C, Faull R. Sex differences in outcome and recovery for schizophrenia and other psychotic and nonpsychotic disorders. Psychiatric Services. 2006; 57 (6):844-850.
20. ZamZam R, Midin M, Hooi LS, Eng JY, Ahmad SN, Azman SF, Borhanudin MS, Radzi RS. Schizophrenia in Malaysian families: A study on factors associated with quality of life of primary family caregivers. International journal of mental health systems. 2011;5(16).
21. Chee KY, Salina AA. A review of schizophrenia research in Malaysia. The Medical journal of Malaysia. 2014;69:46-54
22. Green AI, Drake RE, Brunette MF, Noordsy DL. Schizophrenia and co-occurring substance use disorder. American Journal of Psychiatry. 2007; 164 (3): 402-408.
23. Salyers MP, Mueser KT. Social functioning, psychopathology, and medication side effects in relation to substance use and abuse in schizophrenia. Schizophrenia research. 2001;48(1):109-23.
24. Hayes, L., Harvey, C., &Farhall, J. Family psychoeducation for the treatment of psychosis. Australian Psychological Society. In Psych. 2013; 35(2). http://www.psychology.org.au/Content.aspx?ID=5099 .
25. McFarlane WR, Dixon L, Lukens E, Lucksted A. Family psychoeducation and schizophrenia: A review of the literature. Journal of marital and family therapy. 2003;29(2):223-45
26. Macdonald EM, Jackson HJ, Hayes RL, Baglioni AJ, Madden C. Social skill as a determinant of social networks and perceived social support in schizophrenia. Schizophrenia Research. 1998;29(3):275-86.
27. Willhite RK, Niendam TA, Bearden CE, Zinberg J, O'Brien MP, Cannon TD. Gender differences in symptoms, functioning and social support in patients at ultra-high risk for developing a psychotic disorder. Schizophrenia research. 2008;30;104(1):237-45.
28. Thorup A, Albert N, Bertelsen M, Petersen L, Jeppesen P, Le

Quack P, Krarup G, Jørgensen P, Nordentoft M. Gender differences in first-episode psychosis at 5-year follow-up–two different courses of disease? Results from the OPUS study at 5-year follow-up. European Psychiatry. 2014; 29(1):44-51.
29. MBertani, ALasalvia, CBonetto et al.The influence of gender on clinical and social characteristics of patients at psychosis onset: a report from the Psychosis Incident Cohort Outcome Study (PICOS). Psychological Medicine. 2012; 42 (4):769–780.
30. Pérez-Garza R, Victoria-Figueroa G, Ulloa-Flores RE. Sex Differences in Severity, Social Functioning, Adherence to Treatment, and Cognition of Adolescents with Schizophrenia. Schizophrenia Research and Treatment. 2016. http://dx.doi.org/10.1155/2016/1928747.
31. Thoma P, Daum I. Comorbid substance use disorder in schizophrenia: a selective overview of neurobiological and cognitive underpinnings. Psychiatry and clinical neurosciences. 2013;67(6):367-383.
32. Rashid RA, Robson N, Sulaiman AH, Salleh R, Zainal NZ, Said MA, Habil MH. Schizophrenia, Substance Use and Aggressions: What Are The Relationships?.Asean Journal of Psychiatry. 2010;11(1).
33. Ng CG, Loh HS, Yee HA, Zainal NZ. The prevalence and associated factors of psychiatric early readmission in a teaching hospital, Malaysia. Malays J Psychiatry. 2012;21:1-3.
34. Abel KM, Drake R, Goldstein JM. Sex differences in schizophrenia. International Review of Psychiatry. 2010;22(5):417-28.
35. Green AI. Schizophrenia and comorbid substance use disorder: effects of antipsychotics. The Journal of clinical psychiatry. 2005; 66(6):21-26.
36. Talamo A, Centorrino F, Tondo L, Dimitri A, Hennen J, Baldessarini RJ. Comorbid substance-use in schizophrenia: relation to positive and negative symptoms. Schizophrenia research. 2006;86(1):251-5.
37. Keefe JP. Sex differences in expressed emotion among Mexican American and Euro Americans caring for a relative with schizophrenia. University of Southern California; 2011.
38. Carrà G, Cazzullo CL, Clerici M. The association between expressed emotion, illness severity and subjective burden of care in relatives of patients with schizophrenia. Findings from an Italian population. BMC psychiatry. 2012;12(1):1.
39. Lin Chuan-Hsiung, Chen Wen-Ling, Lin Chih-Ming et al. Predictors of psychiatric readmissions in the short- and long-term: a population-based study in Taiwan. Clinics [Internet]. 2010; 65(5): 481-489. http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1807-59322010000500005&lng=en. http://dx.doi.org/10.1590/S1807-59322010000500005
40. Mahendran R1, Mythily, Chong SA, Chan YH.Brief communication: factors affecting rehospitalisation in psychiatric patients in Singapore. Int J Soc Psychiatry. 2005;51(2):101-105.