

OBSESSIVE COMPULSIVE SYMPTOMS IN SCHIZOPHRENIA: THE
PREVALENCE, ASSOCIATED FACTORS AND CLINICAL
OUTCOMES AT UNIVERSITY MALAYA MEDICAL CENTRE

BY

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2016

CERTIFICATION

This is to certify that the candidate, Dr. Ng Boon Seng, had carried out this research project, and to the best of my knowledge, the dissertation is entirely his work.

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ACKNOWLEDGEMENT

I would like to express my deepest gratitude to my research supervisors, Associate Prof. Dr. Stephan Thevananthan Jambunathan and Associate Prof. Dr. Anne Yee Hway Ann for their endless efforts to guide me from the very beginning of the research until its completion.

Appreciation also directed to Associate Prof. Dr. Ng Chong Guan, consultant psychiatrist and senior lecturer in UMMC for his constructive advice and guidance in methodological and statistical analysis.

My warmest regards and appreciation to all the study participants for their willingness in term of their time and effort to make this research a success.

Finally, I would like to extend my appreciation to my clinical supervisor, Dr. Norhayati binti Nordin, and my academic supervisor, Associate Prof. Dr. Muhd. Muhsin, Dr. Joni Teoh Bing Fei, Dr. Angelvene Wong and Dr. Akramul Zikri bin Abdul Malek for their support and motivation throughout the study.

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ABBREVIATIONS

OCS	Obsessive compulsive symptoms
OCD	Obsessive compulsive disorder
YBOCS	Yale-Brown Obsessive Compulsive Scale
PANSS	Positive and Negative Symptoms Severity Scale
CDSS	Calgary Depression Rating Scale for Schizophrenia
C-SSRS	Columbia Suicide Severity Rating Scale
WHOQOL BREF	World Health Organization Quality of Life Scale Brief Version
OR	Odd Ratio
SD	Standard Deviation
N	Number of participants

ABSTRACT (ENGLISH)

Background

There is a growing interest on the impact of comorbid obsessive compulsive symptoms on the course and severity of Schizophrenia in recent years. However, to date, there is no study on the prevalence of obsessive compulsive symptoms in Schizophrenia in Malaysia, and no study was done on their impacts. Existing literatures elsewhere showed conflicting evidences on the clinical outcomes of this comorbidity. In line with holistic care for people with chronic mental illness, recognition of the impacts of OCS on Schizophrenia would help to reduce the devastating burden on the sufferer and the family.

Objectives

This study is to determine the prevalence of obsessive compulsive symptoms in Schizophrenia patients receiving their treatment in University Malaya Medical Centre and the clinical outcomes of the comorbidity.

Methodology

This is a cross sectional study conducted in Psychiatric Clinic, UMMC from August 2014 until July 2015. A total of 220 participants were recruited for this study. Participants' demographic data were obtained and completed Structured Clinical Interview for Positive and Negative Syndrome Scale (SCI-PANSS), Yale-Brown Obsessive Compulsive Scale Symptoms Checklist (YBOCS-CL), (Yale-Brown Obsessive Compulsive Scale) YBOCS, Calgary Depression Scale Schizophrenia

(CDSS), Columbia Suicide Severity Rating Scale (C-SSRS) and World Health Organization Quality of Life Brief Version (Malay) (WHOQOL BREF Malay Version). Participants were further divided into Schizophrenia with obsessive compulsive symptoms and without obsessive compulsive symptoms. Comparison on their demographic data and clinical outcomes were analysed using statistical analysis methods in Statistical Package for Social Sciences (SPSS) Version 22.0.

Results

The prevalence of obsessive compulsive symptoms in the participants was 21.8% (N = 48) when YBOCS score cut off point of 8 and above were taken as clinically significant OCS. There were no significant difference in age, gender, race, marital status, education level, employment, family history of any mental illness, duration of illness, class of antipsychotics prescribed and other other prescribed psychotropics. However, significantly higher number of patients with obsessive compulsive symptoms were taking Clozapine ($p = 0.023$) and antidepressants ($p = 0.013$). In term of clinical variables, Schizophrenia patients with OCS showed more severe positive ($p < 0.001$) and general symptoms ($P = 0.001$) of Schizophrenia, higher depressive symptoms ($p = 0.013$), higher suicidality ($p < 0.001$) and more hospitalization ($p = 0.044$) after adjusting for duration of illness and used of clozapine. No significant difference in term of negative symptoms and quality of life. Correlation analysis showed small positive correlation between obsession and compulsion with delusion, hallucinatory behaviours, suspiciousness and stereotypies behaviours.

Discussion

From this study, the prevalence of Obsessive Compulsive Symptoms in Schizophrenia was lower compared with that was found in meta analysis. Various methodological differences may be explained this discrepancy. Clozapine was consistently found to be associated with presence of obsessive compulsive symptoms in Schizophrenia. Comorbid Schizophrenia with obsessive compulsive symptoms were associated with more severe psychopathology, higher depressive symptoms and higher suicidality after adjusting for confounders which highlight the worse clinical course of the illness according to double jeopardy effects of comorbidity and the possible existence of Schizo-obsessive disorder.

Conclusion

High prevalence of obsessive compulsive symptoms in Schizophrenia was found in this study in line with previous research findings. The comorbid was shown to have more severe psychopathology and higher suicidality. Recognition of obsessive compulsive symptoms in Schizophrenia and early initiation of effective treatment may be able to reduce the burden for people with chronic mental illness. Future research may be recommended to focused on the treatment strategies for this comorbidity and the standardized criteria for obsessive compulsive symptoms should be made available.

ABSTRAK (BAHASA MELAYU)

Pendahuluan

Terdapat minat yang semakin meningkat mengenai kesan gejala obsesif kompulsif ke atas riwayat dan keterukan Skizofrenia pada tahun-tahun kebelakangan ini. Walau bagaimanapun, setakat ini, tidak ada kajian tentang kelaziman gejala obsesif kompulsif di kalangan pesakit Skizofrenia di Malaysia, dan tiada kajian telah dilakukan ke atas kesan gejala obsesif kompulsif terhadap profil klinikal pesakit Skizofrenia. Kajian terdahulu di negara lain menunjukkan bukti-bukti yang bercanggah berkaitan kesan gejala obsesif kompulsif di kalangan Skizofrenia. Selaras dengan penjagaan holistik bagi orang-orang dengan penyakit mental kronik, pengesanan gejala obsesif kompulsif pada peringkat awal akan membantu mengurangkan beban kepada yang pesakit dan keluarga.

Objektif

Kajian ini bertujuan untuk menentukan prevalen gejala obsesif kompulsif di kalangan pesakit Skizofrenia yang menerima rawatan di Pusat Perubatan Universiti Malaya (PPUM) dan kesan-kesan gejala tersebut terhadap riwayat dan keterukan penyakit Skizofrenia.

Metodologi

Kajian ini dijalankan di Klinik Psikiatri, PPUM dari Ogos 2014 hingga Julai 2015. Seramai 220 peserta telah ditemuramah untuk kajian ini. Data demografi peserta telah diperolehi dan soal selidik menggunakan Positive and Negative Syndrome Scale (SCI-PANSS), Yale-Brown Obsessive Compulsive Scale Symptoms Checklist (YBOCS-CL), (Yale-Brown Obsessive Compulsive Scale) YBOCS,

Calgary Depression Scale Schizophrenia (CDSS), Columbia Suicide Severity Rating Scale (C-SSRS) dan World Health Organization Quality of Life Brief Version (Malay) (WHOQOL BREF Malay Version) dijalankan oleh penyelidik utama. Para peserta telah dibahagikan kepada Schizophrenia dengan gejala obsesif kompulsif dan tanpa gejala obsesif kompulsif. Perbandingan data demografi mereka dan hasil klinikal dianalisis dengan menggunakan kaedah analisis statistik dalam SPSS Versi 22.0.

Keputusan

Prevalen gejala obsesif kompulsif di kalangan pesakit Skizofrenia adalah 21.8% (N = 48) apabila markah YBOCS bersamaan 8 dan ke atas telah diambil sebagai markah rujukan yang menunjukkan wujudnya gejala obsesif kompulsif. Tiada perbezaan yang signifikan dari segi umur, jantina, bangsa, status perkahwinan, tahap pendidikan, pekerjaan, sejarah penyakit mental dalam keluarga, tempoh penyakit, golongan antipsikotik dan ubat psikotropik lain yang diterima oleh peserta kajian. Walau bagaimanapun, lebih banyak pesakit Skizofrenia yang turut mempunyai gejala obsesif kompulsif sedang menerima rawatan antipsikotik Clozapine ($p = 0.023$) dan anti-depresi ($p = 0.013$). Dari segi pembolehubah klinikal, pesakit Skizofrenia yang turut mempunyai gejala obsesif kompulsif menunjukkan gejala positif Skizofrenia ($p < 0.001$) dan gejala-gejala umum ($P = 0.001$) yang lebih teruk, gejala kemurungan yang lebih tinggi ($p = 0.013$), kejadian membunuh diri yang lebih tinggi ($p < 0.001$) dan lebih banyak kali dimasukkan ke hospital ($p = 0.044$) selepas pelarasan bagi tempoh penyakit dan penggunaan clozapine. Tiada perbezaan yang signifikan dari segi gejala negatif Skizofrenia dan kualiti hidup. Analisis korelasi menunjukkan korelasi positif yang kecil antara obsesi dan kompulsif dengan delusi, tingkah laku hallusinasi, syak wasangka dan tingkah laku berulang.

Perbincangan

Daripada kajian ini, kelaziman gejala obsesif dan kompulsif di kalangan pesakit Skizofrenia adalah lebih rendah berbanding dengan kelaziman yang terdapat dalam kajian sebelum ini. Pelbagai perbezaan metodologi boleh menjelaskan percanggahan ini. Clozapine telah didapati berkaitan dengan kewujudan gejala obsesif kompulsif di kalangan Skizofrenia. Skizofrenia dan gejala obsesif dan kompulsif dikaitkan dengan psikopatologi yang lebih teruk, gejala kemurungan dan kejadian membunuh diri yang lebih tinggi selepas pelarasan faktor pembaur yang mungkin menunjukkan teori “double jeopardy”. Ia mungkin dapat menerangkan riwayat penyakit yang lebih teruk di kalangan pesakit, seterusnya menimbulkan kemungkinan kewujudan penyakit Skizo-obsesif.

Kesimpulan

Kelaziman yang tinggi bagi gejala obsesif kompulsif di kalangan pesakit Skizofrenia telah ditemui dalam kajian ini selaras dengan dapatan dari kajian sebelumnya. Gejala ini berkaitan dengan psikopatologi Skizofrenia yang lebih teruk serta kejadian membunuh diri yang lebih tinggi. Pengesanan awal gejala obsesif kompulsif di kalangan pesakit Skizofrenia dan rawatan yang berkesan mungkin dapat mengurangkan beban bagi pesakit mental yang kronik. Kajian akan datang adalah disyorkan untuk memberi fokus kepada strategi rawatan untuk gejala ini dan kriteria yang berpiawai untuk gejala obsesif kompulsif perlu disediakan.

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CHAPTER 1.0 INTRODUCTION

Schizophrenia is a chronic and debilitating mental illness with relapsing and remitting course of illness. According to World Health Organization (WHO), Schizophrenia was estimated to affect more than 21 million people worldwide. The median morbid risk of Schizophrenia was estimated to be 7.2 per 1,000, which mean about seven person per 1,000 will be affected (McGrath, Saha, Chant, & Welham, 2008). Schizophrenia is a heterogenous psychiatric disorder with various manifestations of psychopathology. The prodromal phase of the disorder can be barely recognized. It ranged from merely negative symptoms or loss of functions to major psychiatric disorders such as depression, anxiety and obsessive compulsive disorder. Despite of the advance in the pharmacological and non-pharmacological treatments for Schizophrenia, it has never failed to jeopardise the sufferer's quality of life due to its deleterious effects. Patients with more severe psychopathology have been found to have greater degree of functional impairment and poorer quality of life (Haro et al., 2015).

Obsessive compulsive disorder (OCD) is another chronic mental illness that incurred significant impact on patients' life with the lifetime prevalence of 2% (Stein et al., 2009). The fifth edition of Diagnostic and Statistical Manual of Mental Disorder (DSM-5) defined obsession as recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted; whereas compulsion are repetitive behaviours and mental acts that an individual feels driven to perform to ease the anxiety caused by the obsession according to the rules that must be applied rigidly (American Psychiatric Association, 2013). Common obsessional theme are aggression, contamination, orderliness and symmetrical, religious and somatic obsession. The

common accompanied compulsive rituals are cleaning, checking, repetitive behaviours, counting and arranging compulsion. Obsessive compulsive symptoms (OCS) are the presence of OCS which does not fulfilled the criteria of OCD according to the operational definition in DSM-5. Communities studies has found that OCS occurred at the rate of around 25% (Gorman & Abi-Jaoude, 2014). The onset of OCD in general population has the bimodal peaks at 11 years and 23 years of age.

It is well known that OCS are commonly present in patients with Schizophrenia. To date, there were many studies which designed to study the prevalence of OCS/OCD in the general population. However, these studies were limited by the heterogeneity of methodology and sample they used. Meta-analysis regarding Obsessive Compulsive Disorder (OCD) and Obsessive Compulsive Symptoms (OCS) among patients with Schizophrenia revealed the prevalence of OCS was around 30% of the studied populations, whereas the prevalence of OCD was 12% (M. Swets et al., 2014). These findings were crucial as the prevalence of OCS/OCD in general population was only 0.8 – 2.5%, with difference between countries (Crino, Slade, & Andrews, 2005), which informed that the comorbidities were beyond the reason of chance.

The introduction of Diagnostic and Statistical Manual of Mental Disorder (DSM), fifth edition, DSM 5 has again created much debates in the field of psychiatry. Relevant to the intended topic, Obsessive Compulsive Disorder, which was previously under Anxiety and Related Disorder had been removed, and was classified under different chapter, called Obsessive Compulsive and related disorder. In addition, specifier for OCD had been reclassified to include “with absent insight/delusional

belief”, which means at the most severe end of the OCD, psychosis (delusion) may be present. Obsession in OCD and delusion in Schizophrenia has a strong positive correlation, where as auditory hallucination and compulsion also showed similar relationship (Guillem, Satterthwaite, Pampoulova, & Stip, 2009). These relationship may suggest that obsession and delusion, auditory hallucination and compulsion may have similar etiopathology and neuroendocrinological pathology. The presence of OCS/OCD may also confers some protective effects on Schizophrenia. Poyurovsky, Fuchs, & Weizman (1999) found that patients with Schizophrenia and OCD have lower formal thoughts disorder and lesser affective blunting as compared to patient with non-OCD Schizophrenia (Poyurovsky, Fuchs, & Weizman, 1999). In addition, Guillem et al. (2009) found that somatic obsession and disorganization, together with hoarding compulsion with delusion or auditory hallucination, which showed inverse correlation between them (Guillem et al., 2009).

OCS/OCD can occurred in different stages during the course of illness of Schizophrenia. Much of the studies had concentrated on the risk of developing psychosis in patient with a diagnosis of OCD. Many studies had consistently revealed that OCD or OCS preceded the onset of Schizophrenia (Jordan E. DeVlyder et al., 2012; Masayuki Ohta, Masahiro Kokai, & Yoshio Morita, 2003; Poyurovsky, Faragian, Shabeta, & Kosov, 2008). A 7 years follow up of a group of ultra-high risk for psychosis (UHRP) patients with different stages of OCD (remitting, incident or de novo, control) found that those with de novo OCD (OCD developed during follow up) had greater likelihood of developing psychotic disorder as compared to other 2 groups (Jordan E DeVlyder et al., 2012; Fontenelle et al., 2011). A few other studies had found that OCD/OCS occurred at a higher rates among patients who has been under long term

follow up, compared to those first episode psychosis and UHR for psychosis (Craig, Hwang, & Bromet, 2002; Marije Swets, Jack Dekker, Katelijne van Emmerik-van Oortmerssen, Geert E Smid, et al., 2014). This discrepancy may be resulted from the different in methodologies, or may be due to the effects of antipsychotics on the course of Schizophrenia (Kim et al., 2015). These finding may provide reminders for the psychiatrist to look for development of psychotic disorder in the course of treatment of Schizophrenia.

Atypical antipsychotics were reported to have more pro-obsessive properties than typical antipsychotics. Case reports had showed that treatment with some atypical antipsychotics induced OCS in patient with Schizophrenia (Khullar, Chue, & Tibbo, 2001; Lykouras, Alevizos, Michalopoulou, & Rabavilas, 2003; Mahendran, Liew, & Subramaniam, 2007). Of interesting, Clozapine was the most studied. Cross-sectional studies showed that Olanzapine and Clozapine had more likelihood to induce OCS as compared to other atypical antipsychotics (Mahendran et al., 2007; Schirmbeck et al., 2011). However, other studies had showed that prevalence of OCS in Schizophrenia were 10.6% (K. Hagen, B. Hansen, I. Joa, & T. K. Larsen, 2013) and 14% (Poyurovsky et al., 1999). These are psychotropic naïve group which never exposed to any antipsychotics. These finding put the notion of atypical antipsychotics induced OCS in doubt. Thus actual causality still needed to be ascertained with bigger sample size and better study designs, such as prospective studies.

Another theory regarding the association between OCD and Schizophrenia was in term of neuroendocrine factor. Neurotransmitter Serotonin and Dopamine were

known to play important role in OCD and Schizophrenia. Patients with OCD responded to SSRIs or Tricyclic Antidepressant (Clomipramine), which indicated that there was a reduced serotonin in the brain. Furthermore, OCD patients were also found to have excessive Dopamine in the basal ganglia (Thomas & Tharyan, 2011). On the contrary, patients with Schizophrenia were consistently found to have more dopamine in mesolimbic and mesocortical areas, with serotonin relatively in excess in other part of the brain. It can be concluded that both OCD and Schizophrenia did not share the same neuroendocrinological dysfunction, but probably much higher level of interaction between these neurotransmitter. To further complicate this relationship, the addition of antipsychotics into the conventional serotonin based pharmacotherapy had showed significant improvement in patients with treatment resistance OCD, especially Risperidone, Aripiprazole and Haloperidol (Dold, Aigner, Lanzenberger, & Kasper, 2013).

Despite of numerous researches have been done to assess the impacts of OCS/OCD on Schizophrenia, such as severity of psychosis, depression, suicidality and quality of life. These studies were limited by the definition and criteria used to diagnosed OCS, especially the different cut off point used, the difference in the sample obtained (inpatient, outpatient versus community sample), as well as the difference in assessment scale used to assess each clinical variables.

CHAPTER 2.0 LITERATURE REVIEW

The presence of OCS/OCD in patients with primary psychotic disorder, mainly schizophrenia had generated interest among researchers in psychiatry field as early as 19th centuries (Berrios, 1989). However, there was no proper nosology and diagnostic criteria which are universally accepted at that time, until the development of Diagnostic and Statistical Manual for Mental Disorder (DSM) by the American Psychiatric Association (APA), which has operationalized the diagnostic criteria for OCD and enabled researcher to identify or diagnosed OCD according to the criteria more precisely.

Researches on the comorbidity between Schizophrenia and OCD/OCS has encompassed all stages of Schizophrenia course of illness. Earlier researches had focused on the prevalence and the impact of OCD/OCS towards the course of Schizophrenia. The prevalence of OCS ranged from 10% to as high as 60%, with differences in diagnostic instruments used for the diagnosis of Schizophrenia as well as the population obtained for interpretation, i.e. inpatient, outpatient, community samples as well as patients with high risk for psychosis or at risk mental state. Using the Yale-Brown Obsessive Compulsive Scale (YBOCS) to determine the presence of OCS, with the cut-off score of 10 and above, the prevalence of OCS was 18.4% (Kim et al., 2015). The sample (N=163) were obtained from a group of inpatients and outpatients in Korea who were on Risperidone monotherapy to control for the effect of antipsychotic. This prevalence was comparable with earlier research (17.6%) using a different criteria for OCS, where OCS was ascertained by the presence of obsessive compulsive symptoms in at least two areas of obsession and/or compulsion using the YBOCS Checklist (Üçok

et al., 2011). Similarly, by using any YBOCS score of less 16 as the criteria for OCS, Devi et al. (2015) had found that the prevalence of OCS was 24% (Devi, Rao, Badamath, Chandrashekhar, & Janardhan Reddy, 2015). Less stricter criteria has also been used to ascertain the presence of OCS in other studies around the world. They have yielded higher prevalence of OCS (Kayahan, Ozturk, Veznedaroglu, & Eraslan, 2005; Nolfé et al., 2010; T. Owashi, A. Ota, T. Otsubo, Y. Susa, & K. Kamijima, 2010; Ahmet Tiryaki & Özkorumak, 2010). The above cited studies were done in adult patients with Schizophrenia with different criteria for OCS been used. In 2014, a metaanalysis by Swets et al. (2014) had reviewed a total of 43 studies which included 3978 subjects. The criteria used for OCS was any obsession and compulsion. This metaanalysis had found that the prevalence of OCS was 30.7% and OCD was 12.3% (Marije Swets, Jack Dekker, Katelijne van Emmerik-van Oortmerssen, Geert E. Smid, et al., 2014).

OCS has also been investigated in patients with prepsychotic and those presented with first episode of Schizophrenia. The aims for studying this group of individual were to eliminate the pro-obsessive effects of certain second generation antipsychotics such as Clozapine, Risperidone and Olanzapine. In addition, they also sought to determine whether OCS occurred before, during or after the onset of Schizophrenia. Study by de Haan et al. (2012) in patients with first episode psychosis (FES) found that the prevalence of OCS was 12% in 198 patients consecutively admitted (Lieuwe de Haan, Bouke Sterk, & Renate van der Valk, 2013). Similar authors reduplicated the study and found that the prevalence was slightly higher compared to initial survey, which was 15.1% of the study samples (Lieuwe de Haan, Bouke Sterk, Luuk Wouters, & Don H. Linszen, 2013). In addition, authors who study the prevalence of OCD as the comorbidity in FES revealed that 10.6% of the study sample fulfilled

criteria for OCD (Kristen Hagen, Bjarne Hansen, Inge Joa, & Tor Ketil Larsen, 2013). These findings indicated that OCS/OCD occurred before the onset of the psychotic disorder, specifically drug-naïve Schizophrenia. Systematic review also found that there was a strong trend exist that OCS occurred before Schizophrenia (Devulapalli, Welge, & Nasrallah, 2008). The data in the literatures also suggested that OCS/OCD have higher prevalence in patient with longer duration of illness as compared to early phase of the debilitating psychiatric disorder (Marije Swets, Jack Dekker, Katelijne van Emmerik-van Oortmerssen, Geert E Smid, et al., 2014).

Studies regarding the prevalence of OCS have also been done on adolescent patients with Schizophrenia. Nechmad et al. (2003) investigated a small group of adolescents with the diagnosis of Schizophrenia had found that the prevalence of OCD diagnosed with DSM-IV was 26% (Nechmad et al., 2003). The prevalence was comparable with the prevalence of the adult counterpart. This showed that regardless of the age of the patients, the disorder itself is associated with higher prevalence of OCD compared to general population. Subsequent study by Niendam et al. (2009) on adolescents follow up for UHR for psychosis also revealed high prevalence of OCD, which was 20% in the sample consisted on 64 adolescent (Tara A. Niendam, Jodi Berzak, Tyrone D. Cannon, & Carrie E. Bearden, 2009). In addition, a study to investigate the prevalence of comorbid OCS/OCD in elderly Schizophrenia patients showed that prevalence of OCS was around 16% (Poyurovsky, Bergman, & Weizman, 2006). This findings were limited by the fact that the sample size were small to be generalized into the actual population of Schizophrenia.

In Asian countries, Sim et. al. (2006) studied the psychiatric comorbidities among 142 patients admitted for first episodes psychosis in the psychiatric centre in Singapore. They found that the prevalence of OCD was only 6.3% using Structured Clinical Interview DSM IV (SCID) Criteria (Sim, Chua, Chan, Mahendran, & Chong, 2006). However, the study did not specifically look into the prevalence of OCD/OCS in the study population. Thus, authors might not have spent adequate time to explore on the symptomatology. Korean researchers had look into the prevalence of OCD/OCS among patients with Schizophrenia using the same SCID, in their studies, they had found the prevalence of OCD was 37% (Lee et al., 2009) and OCS was 21.1% (Lim, Park, Kwon, Joo, & Hong, 2007). These studies were limited by the minimal sample size. In Malaysia, the prevalence of OCD was studied by Hamid and Razak (2010) in one of the major teaching hospital with the sample size of 100 outpatient. The study also looked into the neurocognitive correlates. The prevalence of OCD diagnosed with Mini International Neuropsychiatric Interview (MINI) was 15%. The current study is the first study using dimensional approach to ascertain the prevalence of obsessive compulsive symptoms in Schizophrenia.

Studies regarding the impacts OCS in Schizophrenia had been inconsistent. Majority of the authors aimed at investigating the presence of Schizo-Obsessive Disorder as a distinct subtype of the Schizophrenia. Before the introduction of DSV-5, a few authors have proposed criteria for Schizo-Obsessive Disorder. Poyurovsky et al. (2012) have the proposed diagnostic criteria for Schizo-Obsessive Disorder in their review. They proposed that this possible distinct subtype of Schizophrenia must also fulfilled criteria A for OCD in some point of Schizophrenia; obsessive compulsive symptoms must present in substantial portion of the course of illness; the obsessive

compulsive symptoms must be time consuming and lastly if obsessive compulsive symptoms are related to delusion of Schizophrenia, additional obsessive compulsive symptoms must be present. However, this subtype was not accepted in the latest DSM-5 due to conflicted empirical evidence regarding the distinctive features of Schizo- Obsessive Disorder.

There are numerous studies which looked into the impact of OCS on psychopathology of Schizophrenia. Some of the study found that OCS worsen the Schizophrenia psychopathology; some found Schizo-Obsessive Disorder have milder psychopathology and some others found there were no difference when comparing Schizophrenia with OCS and Schizophrenia alone. Those studies has been using the measurement including Positive and Negative Syndrome Scale for Schizophrenia (PANSS), Scale for Assessment of Positive Symptoms (SAPS), Scale for Assessment of Negative Symptoms (SANS) and Brief Psychiatric Rating Scale (BPRS). Authors determined to study the association of positive, negative and general symptoms of Schizophrenia with their severity and of OCS/OCD. Most of the studies has also used Yale-Brown Obsessive Compulsive Scale (YBOCS) Padua Inventory (PI) to study the severity of OCS/OCD.

Kayahan et al. (2005) in his comparative study between Schizo-OCS and Schizophrenia alone has revealed that the former group's YBOCS total score was significantly correlated with all subscales (positive, negative and general) of PANSS as well as total score for depression, measured by Calgary Depression Scale for Schizophrenia (CDSS) (Kayahan et al., 2005). Korean researchers recruited higher

number of both inpatients and outpatients cross sectionally to assess the effects of OCS on the course of Schizophrenia. In the study consisted of 163 participants, they found that Schizo-Obsessive group scored higher in all the PANSS subscale as well as higher depressive score. To control the potential confounding effects of second generation antipsychotic, all the selected participants were taking risperidone monotherapy (Kim et al., 2015). Other studies findings also in line with the two previously mentioned studies where the authors found that Schizo-Obsessive group showed more severe psychotic symptoms. Owashi et al. (2010) found that the presence of OCS was associated higher negative symptoms of Schizophrenia according to BPRS, which was in contrast to the study by Ahmet et al. (2010) whereby higher positive symptoms score was seen in comorbid group. In addition, they found that Schizo-Obsessive group has higher delusion and bizzare behaviours score. Correlation analysis revealed a positive correlation between obsession and delusion and compulsion with bizzare behaviours (Toshimi Owashi, Arimitsu Ota, Tempei Otsubo, Yuko Susa, & Kunitoshi Kamijima, 2010; Ahmet Tiryaki & Özkorumak, 2010), more paranoid delusion and higher number of first rank symptoms (Rajkumar, Reddy, & Kandavel, 2008). The impacts of OCS in ultra-high risk (UHR) for psychosis individuals had also been studied in a large prospective study by Fontenelle et. al. (2011). They recruited around 300 patients with UHR for psychosis patients and group them into different subgroups according to presence of OCS at different point of time during follow ups. They found that higher rate of psychotic disorders emerged in patients with incident OCS, which was OCS appeared during the course of follow up. In addition, this group of patients had greater severity of baseline general psychopathology, alogia and avolition-apathy (Fontenelle et al., 2011). These positive studies served to highlight the distinctive features of Schizo-Obsessive Disorder as proposed by Poyurovsky et al. (2012). Differentiating delusion and obsession can be difficult in clinical practice when patients are acutely psychotic.

Thus, most of the studies chose to investigate this comorbidity in outpatient, where the psychotic symptoms were treated or partially treated. According to the proposed criteria, if the current obsession is related to the psychotic process, another theme of obsession must be present to support the presence of OCS.

Despite of the positive findings, many other researches found lower severity of psychopathology in Schizo-Obsessive group of patients. Devi et al. (2015) studied 200 Schizophrenia patients admitted to psychiatric ward consecutively and compared between and with or without OCS/OCD. The authors found that Schizo-Obsessive group scored lower in the positive symptoms score. No significant association were found in negative symptoms, general symptoms and depressive symptoms severity score. The prevalence of the OCS in the sample was 24% with OCS was diagnosed using YBOCS score of less than 16 and OCD was diagnosed when YBOCS scored more than 16 (Devi et al., 2015). Other smaller studies also study found that Schizo-Obsessive group has lower negative symptoms score, especially affective blunting, and lower formal thoughts disorder, but not others domain of Schizophrenia psychopathology (Nasrollahi, Bigdelli, Mohammadi, & Hosseini, 2012; Poyurovsky et al., 1999; Tibbo, Kroetsch, Chue, & Warneke, 2000). These lower scores may supported the idea that the presence of OCS/OCD are protective against the severity of psychopathology of Schizophrenia, the previous understanding that the obsessions were the defence against psychosis, at least during the early stage of illness.

In fact, there are many studies who against the notion that Schizo-obsessive disorder was not exist with the studies which found that there were no significant difference between Schizophrenia with and without OCS in term of severity of psychopathology. Frias et al. (2014) had examined and compare three groups of patients; Schizophrenia with OCD, Schizophrenia without OCD and patient with OCD only.

Comparing Schizophrenia with and without OCD, there were no statistical difference in term of positive and negative symptoms, although negative symptoms showed higher trend of severity, a finding which was mentioned earlier. All three groups also did not differed in term of clinical variables (A. Frías et al., 2014). This results were supported by subsequent study by Tonna et al. (2015) in a smaller studies comprised of 60 stable Schizophrenia patients. Their finding suggested that the presence of OCS did not associated with the presence of Schizophrenia, which means that OCS were independent of Schizophrenia's psychopathology (Tonna et al., 2015). Early studies also in line with the findings (Ongur & Goff, 2005; Poyurovsky et al., 2006; Tumkaya, Karadag, & Oguzhanoglu, 2012).

Suicidal ideation and attempts were widely reported among patients with Schizophrenia and Obsessive Compulsive Disorder (OCD). Miles (1977) in the review regarding the causes of death among cohorts with different severe mental illnesses (SMI) had reported that percentage of schizophrenia cohort died of suicide was approximately 10% (Miles, 1977). This prevalence was also found in a study by Phillips et. al. (2004) in China population, which reported 9.6% of patients with Schizophrenia, died of suicide. Two other studies found a lower prevalence of only 4% (Inskip, Harris, & Barraclough, 1998) and 4.9% (B. A. Palmer, V. S. Pankratz, & J. M. Bostwick, 2005). A recent systematic review by Hor and Taylor (2010) on 51 studies regarding the rate of suicide in Schizophrenia, they concluded that 5% of lifetime suicide prevalence was more compatible with all the studies been evaluated (Hor & Taylor, 2010). There were no data from Malaysia so far which studied the rate of suicide among Schizophrenia.

Suicide and suicidal ideation were also reported in patients suffered from Obsessive Compulsive Disorder. Kamath & colleagues (2007) had performed a study to a group of 100 patients suffered from OCD in one of the psychiatric centre in India. Worst ever suicidal ideation and current suicidal ideation was reported to be as high as 59% and 28% respectively. In the study, presence of depression and high hopelessness score were significantly predict suicidal ideation in patients with OCD (Kamath, Reddy, & Kandavel, 2007). A smaller study of 50 participants with OCD in Brazil had found that 46% of the subjects had suicidal ideation, and 10% of them had attempted suicide (Torres et al., 2007). Another study in Spain which explored the longitudinal course of this suicidal ideation among OCD patients had reported that during the follow up, 8.2% of patient persistently harboured suicidal ideation and 5% of the study populations committed suicide during the follow up (Alonso et al., 2010). Among the predictors for suicidal ideation and behaviours were presence of depressive symptoms, anxiety symptoms and severity of the obsessive compulsive symptoms (Hung et al., 2010).

Studies which examine the prevalence of suicidality or suicidal behaviours among Schizophrenia patients with OCD/OCS were limited. In 2007, Sevincok & colleagues had studied a small group of Schizophrenia patients with OCS (N=24) and without OCS (N=36) on their suicidality (ideations, plans and attempts). They had found that there was clinically significant association between the presence of OCS in patient with Schizophrenia and previous history of suicidal attempts and behaviours. There were significant positive correlation between frequencies of suicidal attempts with total YBOCS; with compulsive score was found to be independent predictor of suicidal attempts (Sevincok, Akoglu, & Kokcu, 2007). This study was supported by another study in 2012 who reported that in patient with OCS, greater number of patients

had previous and current suicidal ideation (Jordan E. DeVlyder et al., 2012). These studies were limited by the small number of sample size and cross sectional methodology. De Haan et. al. (2013) had studied a group of patients with first episode Schizophrenia and related disorder with or without obsessive compulsive symptoms. The cohort was followed up for 3 to 5 years to compare the clinical characteristics including suicidality. This prospective study failed to replicate the findings from previous two studies. They found that no significant difference in term of suicidality in patients with or without OCS. However, this study only looked into the occurrence of suicidal attempts, but not into more preventable suicidal ideation and previous attempts, which may predict the future suicidality.

Depression is a common association with both Schizophrenia and Obsessive Compulsive Disorder. It contributes the poorer outcome and higher incidence of suicidal behaviours in both groups of patients. Siris (2000) reported approximately 25% of patients with Schizophrenia developed depression from his systematic review (Siris, 2000), whereas for OCD, the rate of depression among the sufferers were as high as 15% (Lochner et al., 2014), and it was the most commonly seen Axis 1 psychiatric disorder in patients with OCD (Raffray & Pelissolo, 2007). The presence of depressive symptoms or major depressive disorder was studied by many researchers interested in the comorbidity. Using the Calgary Depression Scale for Schizophrenia (CDSS), Kayahan et. al. (2005) found that total score for YBOCs was significantly correlates with total score for CDSS. This significant correlation was duplicated by other authors, which used different scales to assess depressive symptoms such as Montgomery Asberg Depression Rating Scale (MADRS) and Hamilton Depression Rating Scale (HDRS) (L. de Haan, B. Sterk, L. Wouters, & D. H. Linszen, 2013; Gulec, Gunes, & Yenilmez,

2008; Rajkumar et al., 2008). De Haan et al. (2005) had recruited 113 patients consecutively admitted for Schizophrenia and other psychotic disorder and assessed their comorbid obsessive compulsive symptoms (OCS) using DSM IV criteria. Three groups of patients (Schizophrenia, Schizophrenia with OCS and Schizophrenia with OCD) were compared in term of depressive symptoms at admission and 6 weeks later. They found that higher MADRS score at admission in group of Schizophrenia with OCD. However, there was no significant difference in MADRS score in all three groups 6 weeks later. Possible explanation was depressive symptoms occurred worse at time of acute psychosis of psychotic relapses. Following pharmacotherapy intervention, symptoms were better controlled. In fact, the higher rate of depression was also found in a group of adolescents with ultra-high risk (UHR) for psychosis with comorbid OCS. The severity of OCS as assessed by Padua Inventory was associated with more severe depressive symptoms and suicidality (T. A. Niendam, J. Berzak, T. D. Cannon, & C. E. Bearden, 2009; Ongur & Goff, 2005).

Schizophrenia usually strikes a person at the prime of their life, during which the early stage of higher education or career. In the past, the long duration of untreated psychosis had resulted in poorer outcome or quality of life. In recent years, quality of life measurement has become a necessary part of outcome assessment in people with Schizophrenia (Melle et al., 2005). The presence of obsessive compulsive symptoms had added more challenges in the treatment of Schizophrenia. From epidemiological studies, the estimated prevalence of OCS in patients diagnosed with Schizophrenia was as high as 30%. Recognising these symptoms and prompt and tactful initiation of Serotonin Reuptake Inhibitors (SRI) on top the antipsychotic had been shown to improve general wellbeing of the patients in term of reduction of psychosis and

obsessional symptoms (Reznik & Sirota, 2000b; Sayeed Khan, Arshad, & Ullah, 2004). Studies regarding presence of OCS in patients with Schizophrenia and its outcome on quality of life were not extensive and inconclusive. De Haan et. al. (2013) studied 198 patients with first episode psychosis to evaluate the presence of OCS and its associated subjective wellbeing or quality of life. They found that for patients with comorbid OCS (12%) were associated with lower subjective well-being score, especially in social integration subscale and emotional regulation subscale as well as subjective aspect of quality of life (L. de Haan, B. Sterk, & R. van der Valk, 2013). Uçok et. al. (2014) only found interpersonal relationship subscale of quality of life as significantly difference in these groups of patients (Uçok, Tihan, Karadayi, & Tükel, 2014). Comparison between Schizophrenia with OCS/OCD, Non-OCD Schizophrenia and Non-Schizophrenic OCD had showed no difference in term of quality of life as assessed by Quality of Life Scale (A. Frías et al., 2014). These contradicting finding can be explained by a difference in the patients group and methodology.

The association between antipsychotic and obsessive compulsive symptoms has long been recognized. It started with many case reports regarding the de novo emergence of OCS in patients treated with second generation antipsychotics, such as clozapine, risperidone, olanzapine and risperidone. A review on this issue was done by Lykouras et al. (2003). For patients who was on clozapine and risperidone, nearly two third of them have OCS for the first time after the initiation of SGA. From the review, clozapine induced OCS tends to occur after four months of treatment but with variable dose range. It gave idea that OCS may be related to dosage of clozapine in view that clozapine titration usually takes months to achieve optimal dosing. The explanation on how SGA caused de novo emergence of OCS was thought to due to the antiserotonergic

effects of SGA, with clozapine has the highest propensity (Goh, Chiu, Shen, & Yeh, 2013). Scheltema et al. (2012) performed a naturalistic study comparing treatment with clozapine, olanzapine and risperidone on 543 Schizophrenia patients found that prevalence of OCS induced by those SGA are 38.9%, 20.1% and 23.2% respectively. Patients who were not on any antipsychotics also has prevalence reaching 20% (Scheltema, Swets, Machielsen, & Korver, 2012).

Regarding the treatment for OCS/OCD in Schizophrenia, many authors has tried on diferent psychotropics. Among all antidepressants with serotonin-reuptake inhibition (SRI) activities confers higher benefits. This was in line with the idea of treating OCD in general practice, as OCD was found to be caused by insufficient serotonin in the brain and patient with OCD responded well with SRIs. Earlier studies using clomipramine had shown to be superior as compared to placebo (Berman et al., 1995). Subsequently trials using Selective Serotonin Reuptake Inhibitors (SSRIs) had also shown to be promising. Authors who used escitalopram (Stryjer et al., 2013) and fluvoxamine (Reznik & Sirota, 2000a) had found that SSRI are effective and safe in treating OCS/OCD in Schizophrenia in combination with antipsychotics. In addition, a few antipsychotics also had been tried on treating OCS/OCD in Schizophrenia.

Considering all the empirical evidences available in the literatures, researchers are still in dilemma in putting Schizo-Obsessive Disorder as a distinct subtype of Schizophrenia. This is evidenced in latest version of DSM-5, where Schizophrenia subtype has been dropped. This could be due to the inconsistent in the result as a result in wide differences in criteria used to diagnose OCS in the studies. In addition, measurement tools and pool of patient recruited for studies also contributed to the variation of results and interpretation.

CHAPTER 3.0 RATIONALE OF THE STUDY

1. There was no published data on prevalence of comorbid OCS in patient with Schizophrenia in Malaysia to date.
2. There are significant correlation between schizophrenia with comorbid OCS and the increased risk of suicidality, more depressive symptoms and poorer quality of life. However, no study was done in Malaysia, a multiracial and multicultural nation.
3. Several trials had found significant benefits for treating patients with Schizophrenia with comorbid OCS with addition of Selective Serotonin Reuptake Inhibitor (SSRI) and Clomipramine.
4. Early identification of this potentially treatable syndrome is imperative for appropriate diagnosis and treatment of this unique subset of schizophrenia patients.

CHAPTER 4.0 STUDY OBJECTIVES

General Objectives

To study to prevalence of Obsessive Compulsive Symptoms in patient with Schizophrenia and their correlation with suicidality, depressive symptoms and quality of life.

Specific Objectives

1. To study the demographic factors of the patients diagnosed Schizophrenia with comorbid OCS.
2. To compare the suicidality between Schizophrenia with and without OCS.
3. To compare the psychopathologies between Schizophrenia with and without OCS.
4. To compare the type of antipsychotics between Schizophrenia with OCS and without OCS.
5. To compare the quality of life between Schizophrenia with and without OCS.

Research Hypothesis

The presence of obsessive compulsive symptoms in patients with Schizophrenia is associated with more severe psychopathologies, more depressive symptoms, higher level of suicidal behaviours and poorer quality of life as compared to those without OCS.

CHAPTER 5.0 METHODOLOGY

5.1 Background of the study area

University Malaya Medical Center is a university-affiliated hospital located in Pantai Dalam, Petaling Jaya, and southwest corner of Kuala Lumpur. It was founded in 1962. It serves the population in Petaling Jaya and nearby region with an area approximately 97.2 square kilometres. The population in the region are mainly Malays, Indians, Chinese and others. As these are the 3 main races in the country of Malaysia, the study location is appropriately reflected the multiracial and multicultural of the country. This department contained inpatient, outpatient as well as psychiatric daycare center. The outpatient psychiatry clinics operate every weekday (Monday to Friday, except for public holiday).

5.2 Study design

The study was a cross-sectional study to estimate the prevalence of Obsessive Compulsive Symptoms in patients with Schizophrenia and to assess the clinical correlates in term of suicidality, depressive and psychosis and quality of life among Schizophrenia patients receiving treatment in psychiatry outpatient clinics, University Malaya Medical Centre (UMMC).

5.3 Study population and duration

Study population

All patients diagnosed with Schizophrenia using Diagnostic and Statistical Manual for Mental Disorder, fifth version (DSM-5), who attended outpatient Psychiatry Clinic, UMMC.

Study Duration

The study was conducted from 15 August 2014 until 15 July 2015.

5.4 Sampling method

Sampling

The study had used universal sampling. All the patients with diagnosis of Schizophrenia based on DSM-5 were preliminarily assessed by medical officers or psychiatrists in-charged for eligibility of language (Malay or English) and capacity to answer questionnaires. Subsequently they were sent to investigators for further further explanation of the study. When patients were agreed and fulfilled all inclusion criteria, they were recruited. Written consents were obtained from patients after detailed explanation. Patient information sheet was provided for their reference.

Sample Size

Sample size was determined using the following formula:

$$\begin{aligned}n &= \frac{t^2 \times p(1-p)}{m^2} \\&= \frac{1.96^2 \times 0.184(1-0.184)}{0.05^2} \\&= \frac{3.841 \times 0.184(0.816)}{0.0025} \\&= \frac{0.5768}{0.0025} \\&= 230.72 \\&\approx 230\end{aligned}$$

n = required sample size

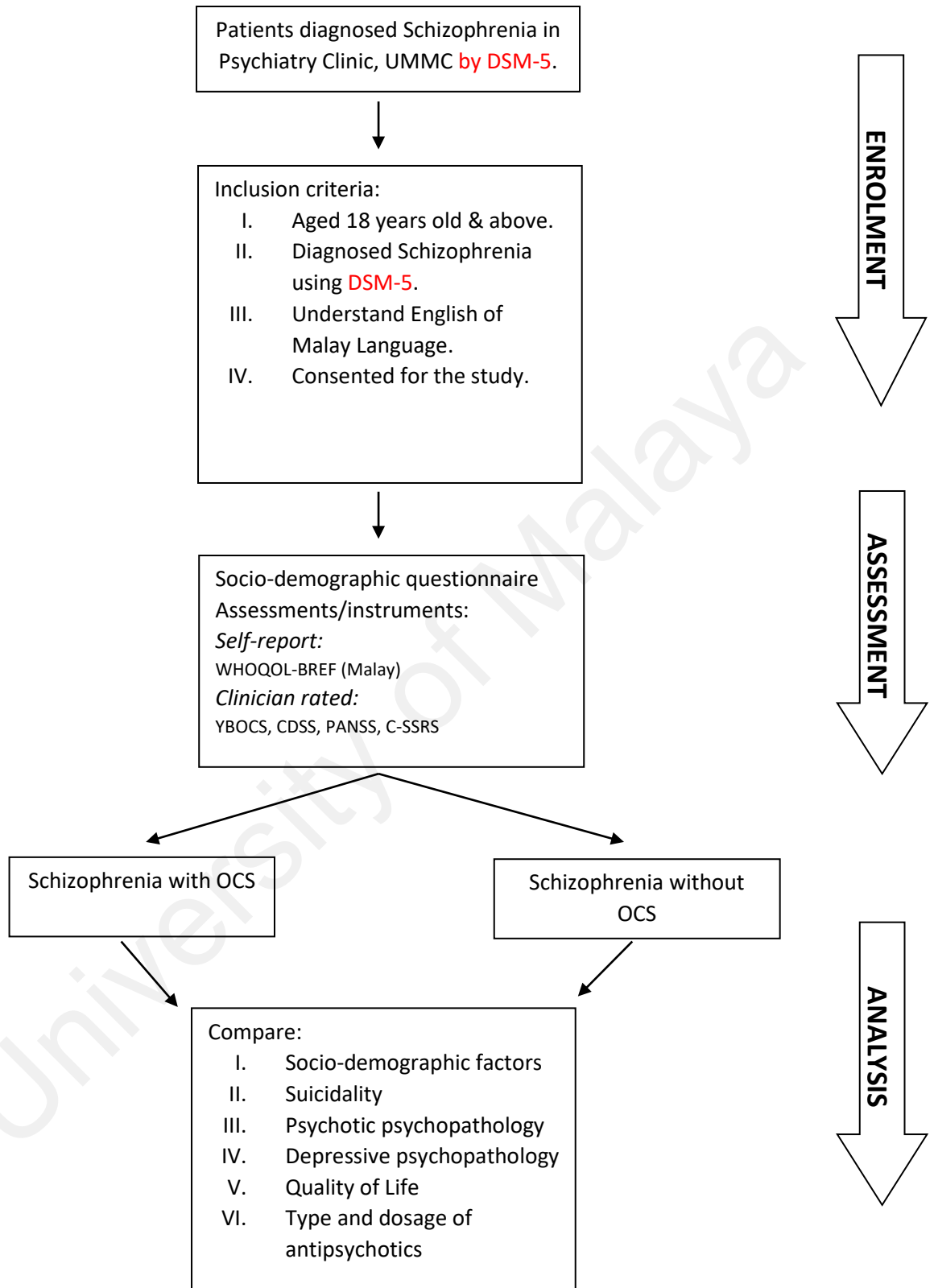
t = confidence level at 95% (standard value of 1.96)

p = estimated prevalence from study by Kim et al. (2015)

m = margin of error at 5%(standard value of 0.05)

Estimated sample size for the study is 230 participants.

5.5 Flow Diagram



5.6 Selection Criteria

Inclusion criteria

- I. Patients aged 18 years old and above.
- II. Patients who agreed to participate in the study.
- III. Patients diagnosed with Schizophrenia using DSM-5 for Schizophrenia.
- IV. Patients understood either English or Malay Language.

Exclusion criteria

- I. Patients with serious medical condition and other major psychiatric disorder.
- II. Patients with severe intellectual disability and dementia.
- III. Patients with substance dependence.

5.7 Ethical Consideration and Approval

The study was approved by Medical Ethic Committee of UMMC.

5.8 Study Instrument

5.8.1 Diagnostic and Statistical Manual of Mental Disorder 5th Edition

DSM-5 was launched in 2013 as a refined and improved classification of psychiatric disorder. For the diagnosis of Schizophrenia, the previous subtypes (paranoid, disorganized, catatonic and undifferentiated) had been removed. In this study, the diagnosis of Schizophrenia will confirmed according to DSM-5 criteria.

5.8.2 Positive and Negative Symptoms of Schizophrenia (PANSS)

The scale was developed by Kay et. al. (1987). It was found to be a reliable and valid tool to assess positive, negative and general psychopathologies in major psychiatric disorder, especially Schizophrenia and other psychotic disorders (Kay, Fiszbein, & Opler, 1987). It contained 30 items scale with positive, negative and general symptoms subscales. In this study, PANSS will be used to assess the psychopathologies in patient with Schizophrenia. We used the information obtained from semistructured interview (SCI-PANSS). Higher score means more severe psychopathology.

5.8.3 Columbia Suicidality Severity Rating Scale (C-SSRS)

C-SSRS is a suicidal assessment questionnaire developed by Dr. Kelly Posner and colleagues from Columbia University, United States. It assessed the severity of suicidal ideation and behaviours in both psychiatric and non-psychiatric population. It has good convergent and divergent validity compared to other scales which measured suicidality. In addition, it has high sensitivity and specificity suicidal behaviour classification compared to other scale (Posner et al., 2011). C-SSRS contained 4 constructs of suicidality assessment, namely suicidal severity, intensity, suicidal behaviours and lethality subscale. Each subscales are rated in different ordinal scale. We focused on lifetime suicidal behaviours and current suicidal ideation (within one month of the assessment review) to derive suicidality as an outcome for this study. Scoring system according to the original authors were strictly followed and permission was obtained from Dr. Kelly Posner via email.

5.8.4 Yale-Brown Obsessive Compulsive Scale (YBOCs)

This scale was developed to rate the severity and type of symptoms in patients with Obsessive Compulsive Disorder by Goodman et. al. (1989). The scale is clinician rated, 10 items scale with each item rated from 0 (no symptom) to 4 (extreme symptom). The total score range from 0 to 40 with separate subtotal in both obsession domain and compulsion domain. Interrater reliability was excellent and internal consistency measured with Cronbach's alpha was of high degree (Goodman et al., 1989). The reliability and internal consistency of this scale for patients with Schizophrenia was also found to be good and is suitable for assessment of obsessive compulsive symptoms in

Schizophrenia (de Haan et al., 2006). Total cut-off score of 8 and above was accepted as clinically significant obsessive compulsive symptoms based of previous studies (Schirmbeck et al., 2011; Tonna et al., 2015). Permission for the use of the scale was sent, however, we did not received reply from the authors.

5.8.5 Calgary Depression Scale for Schizophrenia (CDSS).

This is symptom scale for assessment of depressive symptoms separate from positive, negative and extrapyramidal symptoms in patients with Schizophrenia (Addington, Addington, & Maticka-Tyndale, 1993, 1994). The scale was developed by Dr. Donald Addington in 1990. CDSS is a clinician rated, 9 items semi structured interview which assessed patient's depressive symptoms over the past 2 weeks. Each item score from 0 (absent) to 3 (severe) depressive symptoms. This scale has high internal consistency and significant strong correlations with other depression scale (Hamilton Depression Rating Scale, Beck Depression Inventory and Brief Psychiatric Rating Scale) (Addington, Addington, Maticka-Tyndale, & Joyce, 1992). Higher score means more depressive symptoms. Permission for the use of the scale was sent, however we did not received reply from the authors.

5.8.6 World Health Organization Quality of Life – bref (WHOQOL-BREF)

This assessment scale was developed World Health Organization for the purpose of assessing person's quality of life. It contained 26 self-administered items which measures four important domains: physical health, psychological health, social

relationships and environment. It had been validated for the use of patients with Schizophrenia and was found to have good reliability and validity. It was suggested that it is suitable for the assessment of patient with Schizophrenia (Mas-Exposito, Amador-Campos, Gomez-Benito, & Lalucat-Jo, 2011). A validated Malay version of WHOQOL BREF (Hasanah, Naing, & Rahman, 2003) was used in this study. Scores from this version were transformed to 0 to 100 which was equivalent with the original version of WHOQOL-100 for data analysis. Lower score means better quality of life and vice versa. Patients were asked to complete the questionnaire by themselves or with the help of their caregiver.

5.9 Defination of the variables

Obsessive Compulsive Symptoms

In this study, the definition of obsessive compulsive symptoms is patient who has screened for symptoms of OCS by YBOCS Checklist, then to proceed with YBOCS to assess for severity of obsession and compulsion. Total YBOCS score 8 and above was taken as OCS in this study. This was the cut-off score used by a few previous studies (Poyurovsky et al., 2008; Schirmbeck et al., 2011; Tonna et al., 2015). Patients who scored YBOCS less than 7 considered having insignificant obsessive compulsive symptoms and was not included in the analysis.

Suicidality

As this study was using Columbia Suicide Severity Rating Scale, suicidality was defined as any suicidal behaviour or ideation occurred during a patient's lifetime. Suicidal behaviours included actually suicidal attempts, aborted attempts and preparatory acts of attempts.

5.10 Statistical analysis

All statistical analyses was conducted by using statistical package for the social sciences (SPSS) version 22.0. Descriptive study were use to describe the baseline demographic and clinical characteristics of the study population. Categorical data were compared using Chi Square tests and Fisher's exact test. Continuous data were analysed using independent t test when they are normally distributed; and when the distribution were skewed, Mann Whitney U test was used. Logistic regression analysis was performed by including all the variables that were found to be statistically significant determinants (presence or absence of OCS) to determine the variable that strongly associated with the outcome.

Correlation analysis was performed using Spearman Rank Order Analysis to look into the relationship of the continuous variables in the study.

Normality testing was done with Shapiro Wilk test. All Sig. value of more than 0.05 were consider to have normal distribution.

CHAPTER 6.0 RESULTS

6.1 Demographic data

A total of 230 patients from Psychiatric Clinic UMMC were approached. Ten patients refused to participate in the study as they were not keen. Thus, we recruited a total of 220 patients to complete demographic data and all the designated questionnaires after written consent was taken and patient was explained regarding the study protocol. Table 1 showed the demographic characteristics of the study patients.

Gender

A total of 107 (48.6%) patients were male and 113 (51.4%) patients were female.

Age

A quarter of patients were within the age range of 36 – 45 years old (25.9%) and 46 – 55 years old (25.9%). A total of 64 (29.1%) of patients were below 35 years old. Mean age of the subject was 43.7 with standard deviation 12.4 years.

Race

Majority of the patients are Chinese (57.7%), followed by Indian (23.6%), Malay (15.6%) and others (2.7%).

Marital status

Majority of the patients recruited in this study were not married (70.0%) with the remaining were married.

Education level

All patients were classified into primary, secondary and tertiary education level. From the descriptive analysis, majority of the patients has studied until secondary school level (62.7%), followed by tertiary education (27.7%) and primary level of education (9.5%).

Occupation

A number of 76.8% of the patients were unemployed and the remaining were employed.

Duration of illness

A total of 85.5% of the total number of patients recruited in the study were having duration of illness more than 5 years. The rest were less than 5 years.

Number of psychiatric admissions

There were 20% of the patients has never been admitted to the psychiatric inpatient service. However, majority of them had less than 5 admissions (53.6%), the remaining has more than 5 previous psychiatric admission (26.45).

Family history of mental illness

Only one third of the patients have family history of mental illness of any kind (34.1%) with the remaining have no family members diagnosed with a mental illness.

University of Malaya

Table 1. Demographic characteristics of the Schizophrenia patients recruited in the study.

Characteristic	Number (N)	Percentage (%)
Gender		
Male	107	48.6
Female	113	51.4
Age		
18 – 25	14	6.4
26 – 35	50	22.7
36 – 45	57	25.9
46 – 55	57	25.9
56 and above	42	19.1
<i>Mean age, SD</i>	<i>43.7</i>	<i>12.4</i>
Race		
Malay	35	15.9
Chinese	127	57.7
Indian	52	23.6
Others	6	2.7
Marital Status		
Single	154	70.0
Married	66	30.0
Education		
Primary	21	9.5
Secondary	138	62.7
Tertiary	61	27.7
Occupation		
Unemployed	169	76.8
Employed	51	23.2

SD Standard Deviation, N Number of participants

Continued Table 1

Characteristic	Number (N)	Percentage (%)
Duration of illness		
Less than 5 years	32	14.5
5 years and above	188	85.5
Number of hospital admission		
No admission	44	20.0
1 – 2 admissions	90	40.9
3 – 4 admissions	28	12.7
5 and more admissions	58	26.4
Family history of mental illness		
No	145	65.9
Yes	75	34.1

SD Standard Deviation, N Number of participants

6.2 Types of psychotropics used by the study participants.

In this study, we also obtained all the psychotropics that were prescribed for the patients during their follow up. We divided them into antipsychotics, antidepressants, mood stabilizers, anticholinergic and benzodiazepine. These are the medications that were used frequently in clinical setting. Table 2 showed the frequency of each psychotropics prescribed.

Antipsychotics

About two third (62.3%) of the study population were prescribed with antipsychotic monotherapy, while the rest were taking combination of two or more antipsychotics. There were 77.7% of the Schizophrenia patients taking atypical antipsychotics as compared to 32.7% of the study population taking typical antipsychotics. Furthermore, the number of patients who were prescribed depot antipsychotics was 37.7%.

Anticholinergic

Among the anticholinergic used in the study population were benhexol and ophenadrine. From the study, there were 37.7% of the patient were taking anticholinergic.

Antidepressants

There were 38 patients out of the 220 patients recruited in the study were taking antidepressants, which was 17.3%.

Benzodiazepine

There were 37.7% of the patients taking benzodiazepine of any kind.

Mood stabilizer

In this study, there were only 7.7% of the patients prescribed with any types of mood stabilizers.

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Table 2. Type of psychotropics prescribed for the patients in the study population.

Psychotropic	N	(%)
Antipsychotics		
Monotherapy	137	62.3
Combination	83	37.7
Typical antipsychotic		
Yes	72	32.7
No	148	67.3
Atypical antipsychotics		
Yes	171	77.7
No	49	22.3
Depot antipsychotics		
No	137	62.3
Yes	83	37.7
Anticholinergic		
No	137	62.3
Yes	83	37.7
Benzodiazepine		
No	137	62.3
Yes	83	37.7
Mood stabilizer		
No	203	92.3
Yes	17	7.7
Antidepressant		
No	182	82.7
Yes	38	17.3

6.3 Prevalence of obsession and compulsion among the study participants.

Screening for obsessive compulsive symptoms was done with YBOCS Checklist. From the assessment, there were 72.7% of the population did not have any obsession or compulsion. The prevalence of obsessions was 25.9% and for compulsion was 20.0%. For those who have both obsession and compulsion, the percentage was 18.6%. Table 3 showed the result of YBOCS Checklist. In addition, there 12 patients (5.5%) of the studied patients had more than one obsession while 11 patients (5.0%) had more than 1 compulsion.

Table 3. Prevalence of obsession and compulsion among the study population.

Symptoms	Number (N)	Percentage (%)
Obsession only	57	25.9
Compulsion only	44	20.0
Both obsession and compulsion	41	18.6
More than 1 obsession	12	5.5
More than 1 compulsion	11	5.0

Among the obsessions that were elicited, the most frequently found obsession were both aggression and contamination, which were around 8.2% each. This is followed by symmetrical and exactness (4.1%), hoarding and saving (2.8%) and others.

Meanwhile, the most commonly elicited compulsion was checking compulsion, which was 8.2%, followed by cleaning and washing (7.7%) and others as shown in table 4.

Table 4. Prevalence of obsession and compulsion by theme among the study population.

Symptoms	N	(%)
Obsession		
Aggression	18	8.2
Contamination	18	8.2
Symmetrical and Exactness	9	4.1
Hoarding and Saving	6	2.7
Religious	1	0.5
Somatic	1	0.5
Miscellaneous	17	7.8
Compulsion		
Checking	18	8.2
Cleaning and washing	17	7.7
Ordering and arranging	6	2.7
Hoarding and collecting	6	2.7
Repeating	5	2.3
Counting	4	1.8
Miscellaneous	1	0.5

In this study, we used the cut off point of 8 and above to define the presence or absence of significant OCS as described in the methodology section. From the study, we found that prevalence of OCS was 21.8%, which was equal to 48 participants recruited. In addition, those patients who scored YBOCS of 16 and above were defined as OCD. In the descriptive analysis, the prevalence OCD was 8.2%, which was 18 participants. Table 5 showed the prevalence of significant OCS and clinical OCD obtained from the study.

Table 5. Prevalence of OCS and OCD based on YBOCS.

	N	(%)
NO OCS	172	78.2
OCS PRESENT (score 8 and more)	48	21.8

OCS Obsessive compulsive symptoms

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6.4 Clinical characteristics based on YBOCS, PANSS, CDSS, C-SSRS and WHOQOL BREF

Yale-Brown Obsessive Compulsive Scale

In this study, YBOCS score was calculated according to obsession subscale, compulsion subscale and total YBOCS score. The result showed that the mean score for obsession was 1.95, standard deviation of 3.695. For the compulsion subscale, mean score was 1.54 and standard deviation was 3.300. For total YBOCS score, mean score was 3.48 with standard deviation 6.575. Table 6 showed the result of YBOCS in the study population.

Table 6. YBOCS score based on subscale.

	Mean	SD
Obsession subscale score	1.95	3.695
Compulsion subscale score	1.54	3.300
Total YBOCS score	3.48	6.575

SD, standard deviation

Positive and Negative Symptoms Scale for Schizophrenia

All the study participant were rated their severity of Schizophrenia psychopathology by using SCI-PANSS. From the study, we found that the means total score for PANSS was 51.92, with standard deviation 13.68. Score for PANSS positive subscale, PANSS negative subscale and PANSS general subscale were summarized in table 7.

Table 7. Summary of the PANSS score in the study population according to subscale.

Clinical Characteristic	Mean	SD
PANSS		
<i>PANSS Positive</i>	13.12	4.496
<i>PANSS Negative</i>	15.09	5.454
<i>PANSS General</i>	23.71	6.199
<i>PANSS Total</i>	51.92	13.680

PANSS, Positive and Negative Symptoms for Schizophrenia

SD, Standard Deviation

Calgary Depression Scale for Schizophrenia (CDSS)

All recruited patients were assessed for depression using CDSS. Mean score for CDSS was 2.43 with standard deviation of 3.525. Significant depression was described as CDSS score of 6 and above according to Addington et al. (1993). With this cut off score, the prevalence of depression in the study population was 17.3%. Table 8 described the score of CDSS in study population.

Table 8. Descriptive analysis of CDSS in study population.

	N	(%)
No depression (0 - 5)	182	82.7
Significant depression (score 6 and above, Addington et al 1993)	38	17.3
CDSS (mean, SD)	2.43	3.525

CDSS, Calgary Depression Scale for Schizophrenia

Columbia Suicide Severity Rating Scale

Suicidality in the study population was assessed using CSSR-S as described earlier. In this study, we assessed their suicidal behaviours and intention of the study population. From the study we found that 29.5% of the study population had any type of suicidal behaviours in their lifetime, while 6.4% of the patients had suicidal ideation during their lifetime. After calculation, the prevalence of suicidality was 32.7% of the study population (Table 9).

Table 9. Suicidality assessment with Columbia – Suicide Severity Rating Scale (C-SSRS) (screening version) among study samples.

Primary Outcome	N	(%)
Suicidal behaviors (lifetime)		
No suicidal behaviors	155	70.5
Any suicidal behaviors	65	29.5
<i>Actual attempts</i>	57	25.9
<i>Interrupted attempts</i>	6	2.7
<i>Aborted attempts</i>	6	2.7
<i>Preparatory acts or behaviors</i>	4	1.8

Continued Table 9.

Primary Outcome	N	(%)
Suicidal ideation		
No suicidal ideation	206	93.6
Any suicidal ideation present	14	6.4
<i>Wish to be dead</i>	12	5.5
<i>Non-specific active suicidal thoughts</i>	3	1.4
<i>Active suicidal ideation with any methods (not plan) without intent to act</i>	2	0.9
<i>Active suicidal ideation with some intent to act, without specific plan</i>	2	0.9
<i>Active suicidal ideation with specific plan and intent</i>	0	0
Suicidality (suicidal ideation + actual attempts)		
No suicidality	148	67.3
<i>Suicidality present</i>	72	32.7

WHOQOL-BREF (MALAY version)

In this study, quality of life was rated with WHOQOL-BREF Malay Version. All the score was retained in the original 26 items score. There are five subscales: overall, physical, psychological, social and environmental. The scores were transformed into 0 to 100 points score which was equivalent to the WHOQOL-100 version for data interpretation and analysis using methods provided by the authors of the questionnaires. Higher score means better quality of life, vice versa. The results were summarized in Table 10.

Table 10. Quality of life according to domain in the study population.

Domain	Minimum	Maximum	Mean	Standard Deviation
Physical health (transformed)	28.57	89.29	58.377	12.018
Psychological (transformed)	8.33	95.83	56.572	14.727
Social relationship (transformed)	0.00	100.00	35.455	22.154
Environment (transformed)	9.38	93.75	53.182	13.392

6.5 Characteristics of Schizophrenia patients with OCS.

6.5.1 Demographic characteristics

In this study, the prevalence of OCS based of YBOCS cut-off score of 8 and above was 21.8%, which was 48 patients out of the 220 participants recruited. This group of patients' demographic characteristics were summarized in the Table 11.

Gender

In this study, Schizophrenia patients with OCS has equal gender distribution.

Age

The mean age of this group of patients was 41.46 years old of age. Highest number (35.4%) of them aged range from 26 to 35 years. Lowest number of patients aged 18 to 25 years. The rest of the age group were almost equal.

Race

Half of the Schizophrenia patient with OCS were Chinese (50.0%). Other races were Indian (31.3%), Malay (16.6%) and others (2.1%).

Marital status

Majority of the Schizophrenia patients with OCS were single (72.9%) while the rest were married, divorced, separated or widowed.

Education level

In this study, Schizophrenia patients with OCS had education level range from primary (4.2%), secondary (58.3%) and tertiary (34.5%).

Occupational status

Majority of the Schizophrenia patients with OCS were unemployed (79.2%).

Duration of illness

Most of the patients with comorbid OCS had more than 5 years of duration of illness (83.3%).

Number of psychiatric admission

In this study, we found that 39.6% of the Schizophrenia patients with OCS had five and more admission at time of the assessment.

Family history of mental illness

There were 41.7% of the Schizophrenia patients with OCS had family history of mental illness.

Table 11. Demographic characteristic of the Schizophrenia patients with OCS.

Characteristic	Number (N=48)	Percentage (%)
Gender		
Male	24	50.0
Female	24	50.0
Age		
18 – 25	5	10.4
26 – 35	17	35.4
36 – 45	9	18.8
46 – 55	8	16.6
56 and above	9	18.8
<i>Mean age, SD</i>	<i>41.46</i>	<i>14.33</i>
Race		
Malay	8	16.6
Chinese	24	50.0
Indian	15	31.3
Others	1	2.1
Marital Status		
Single	35	72.9
Married	13	28.1

Continued Table 11.

Characteristic	Number (N=48)	Percentage (%)
Education		
Primary	2	4.2
Secondary	28	58.3
Tertiary	18	34.5
Occupation		
Unemployed	38	79.2
Employed	10	20.8
Duration of illness		
Less than 5 years	8	16.7
5 years and above	40	83.3
Number of hospital admission		
No admission	11	22.9
1 – 2 admissions	13	27.1
3 – 4 admissions	5	10.4
5 and more admissions	19	39.6
Family history of mental illness		
No	28	58.3
Yes	20	41.7

6.5.2 Clinical characteristics

Yale-Brown Obsessive Compulsion Scale

In this study, the obsession and compulsion subscale were summed up to produce a total score of YBOCS. Severity of OCS were then group into mild (score 8 to 15), moderate (16 to 23), severe (24 to 31) and extreme (32 to 40). In this study, majority of the patients had mild OCS (56.3%), moderate (37.5%) and severe (6.2%). There were no patients in the group of extreme OCS, as shown in Table 12.

Table 12. Severity of OCS in the Schizophrenia patients with OCS.

Severity	Number (N=48)	Percentage (%)
Mild (8 – 15)	27	56.3
Moderate (16 – 23)	18	37.5
Severe (24 – 31)	3	6.2
Extreme (32 – 40)	0	0

Positive and Negative Syndrome Scale (PANSS)

Mean score for PANSS total score and subscale were described in Table 13. Mean score for total PANSS was 57.04, whereas for other subscales were positive (15.15), negative (15.90) and general (26.00).

Table 13. PANSS score according to subscales and total PANSS.

Severity	Mean	Standard Deviation
PANSS Positive	15.15	4.415
PANSS Negative	15.90	5.369
PANSS General	26.00	6.694
PANSS Total	57.04	14.418

Calgary Depression Scale for Schizophrenia (CDSS)

From the descriptive analysis, mean score for CDSS in the Schizophrenia patients with OCS was 3.71, with standard deviation of 3.77. Based on CDSS cut off point of 6 and above, which mean significant depression, prevalence of significant depression among this group of patient was 25.0% (Table 14).

Table 14. CDSS score according to mean and cut off point of 6 and above.

CDSS	Mean/Number (N=48)	Standard Deviation/Percentage (%)
Total score	3.71	3.77
Significant depression (cut off point of 6 and above)	12	25

Columbia suicide severity rating scale (C-SSRS)

Based on C-SSRS, more than half of the Schizophrenia patients with OCS reported lifetime suicidality (56.3%). Nearly half of the patients reported lifetime actual suicidal behaviours (47.9%) which include actual attempt, aborted attempt, interrupted attempt and preparatory act or behaviours. In addition, suicidal ideation were reported as 16.7% of the Schizophrenia patients with OCS (Table 15).

Table 15. Suicidality among Schizophrenia patients with OCS.

C-SSRS	Number (N=48)	Percentage (%)
Suicidal behaviour (lifetime)	23	49.7
Suicidal ideation	8	16.7
Suicidality	27	56.3

WHO Quality of Life BREF (WHOQOL-BREF)

Based on the scale which consisted of five domains, we calculated the mean and standard deviation of each domains. Raw scores of WHOQOL-BREF were transformed to 0 to 100 scale used for further analysis. We summarized the score into Table 16.

From the descriptive analysis, mean score for social relation domain was the lowest, which was 32.639, as compared other three domains. The three domains had almost the same means score with physical (54.536), psychological (52.431) and environmental (51.888). The maximum and minimum score were also included in the table 16.

Table 16. Descriptive statistics for WHOQOL-BREF in Schizophrenia patients with OCS.

	N	Minimum	Maximum	Mean	Standard Deviation
Physical (transformed)	48	32.14	85.71	54.536	12.856
Psychological (transformed)	48	8.33	91.67	52.431	15.227
Social (transformed)	48	0.00	75.00	32.639	18.341
Environmental (transformed)	48	9.38	93.75	51.888	13.732

6.6 Comparison between Schizophrenia patients with and without OCS.

6.6.1 Demographic data

By using Mann-Whitney U test, age was not significantly difference between Schizophrenia patient with OCS (median=38, N=48) and without OCS (median=44, N=172), $U = 3535.50$, $z = -1.523$, $p = 0.128$.

As shown in the Table 17, there were no significant difference in all the demographic variables between Schizophrenia with OCS and without OCS including gender, race, marital status, employment, education level and family history of mental illness. The analysis were done with Chi Square test.

Table 17. Comparison in term of demographic variables between Schizophrenia patients with OCS and without OCS.

	OCS		OR	95% CI	P value
	Yes N = 48	No N = 172			
Age, median (mean rank)	38 (98.14)	44 (113.95)	3535.50 ^a	-1.523 ^b	0.128
Male	24 (50.0)	83 (48.3)	0.933	0.492 - 1.769	0.871
Female	24 (50.0)	89 (51.7)			
Chinese	24 (50.0)	103 (59.9)	0.670	0.352 - 1.274	0.249
Non-Chinese	24 (50.0)	69 (40.1)			
Malay	8 (17.0)	27 (15.7)	0.908	0.382 - 2.155	0.824
Non-Malay	39 (83.0)	145 (84.3)			
Indian	15 (31.3)	37 (21.5)	1.658	0.815 - 3.375	0.180
Non-Indian	33 (68.8)	135 (78.5)			
Single	35 (72.9)	119 (69.2)	0.834	0.408 - 1.703	0.723
Married	13 (27.1)	53 (30.8)			
Secondary and below education	30 (62.5)	129 (75.0)	1.800	0.913 - 3.548	0.102
Tertiary education	18 (37.5)	43 (25.0)			
Employed	10 (20.8)	41 (23.8)	0.841	0.385 - 1.834	0.847
Unemployed	38 (79.2)	131 (76.2)			
Family history of mental illness					
Yes	20 (41.7)	55 (32.0)	1.519	0.788 - 2.932	0.230
No	28 (58.3)	117 (68.0)			
Duration of illness					
Less than 5 years	8 (16.7)	24 (14.0)	0.811	0.339 - 1.941	0.646
5 years and above	40 (83.3)	148 (86.0)			

^a Mann-Whitney U test, ^b Z score

6.6.2 Psychotropics prescription

We compare type of psychotropics prescribed to the patients between Schizophrenia patient with and without OCS. From the analysis, we did not find any significant difference in term of number of antipsychotics used, typical or atypical antipsychotics used, mood stabilizer, anticholinergic, benzodiazepine and depot. However, we found that Schizophrenia with OCS were prescribed significantly frequently antidepressant (31.3%) as compared to patients without OCS (13.4%). In addition, there were no difference in patients taking olanzapine and risperidone in the rate of OCS when comparing the two group. On the contrary, the use of clozapine were significantly higher in Schizophrenia with OCS group (62.5%, N=30, p=0.008) when compared with those without OCS. Table 18 showed the comparison between the two groups.

Table 18. Comparison between Schizophrenia with and without OCS in term of psychotropics prescription.

	OCS		OR	95% CI	P value
	Yes N = 48	No N = 172			
Monotherapy antipsychotics	28 (58.3)	109 (63.4)	1.236	0.644 – 2.373	0.614
Combination antipsychotics	20 (41.7)	63 (36.6)			
Typical antipsychotics	6 (12.5)	42 (24.4)			0.171
Atypical antipsychotics	35 (72.9)	112 (65.1)			
Combination typical and atypical	7 (14.6)	18 (10.5)			
Olanzapine					
Yes	8 (16.7)	30 (17.4)	0.947	0.403 – 2.226	1.000
No	40 (83.3)	142 (82.6)			
Risperidone					
Yes	9 (18.8)	50 (29.1)	0.563	0.254 – 1.248	0.197
No	39 (81.3)	122 (70.9)			
Clozapine					
Yes	30 (62.5)	36 (20.9)	2.267	1.137 – 4.520	0.023*
No	18 (37.5)	136 (79.1)			

Continued Table 18.

	OCS		OR	95% CI	P value
	Yes N = 48	No N = 172			
Anticholinergic					
Yes	15 (31.3)	68 (39.5)	0.695	0.351 – 1.376	0.317
No	33 (68.8)	104 (60.5)			
Benzodiazepine					
Yes	19 (39.6)	64 (37.2)	1.106	0.547 – 2.130	0.866
No	29 (60.4)	108 (62.8)			
Mood stabilizer					
Yes	5 (10.4)	12 (7.0)	1.550	0.518 – 4.640	0.540
No	43 (89.6)	160 (93.0)			
Depot antipsychotics					
Yes	8 (16.7)	45 (26.2)	0.564	0.246 – 1.297	0.188
No	40 (83.3)	127 (73.8)			

OR Odd Ratio, *CI* Confident Interval, *P* value significant level $p < 0.05^*$, $P < 0.01^{**}$

OCS Obsessive Compulsive Symptoms

6.7 Primary outcome analysis

6.7.1 Comparison between Schizophrenia with and without OCS in this study: number of hospitalizations, severity of PANSS, CDSS, C-SSRS and WHOQOL-BREF.

There were a few outcomes of interest for this study as mentioned earlier. They were number of hospitalization as a measure for illness severity, the use of antidepressants, severity of Schizophrenia psychopathology based on PANSS, severity of depression based on CDSS, presence of suicidality according to C-SSRS as well as quality of life assessment using WHOQOL-BREF.

From the analysis, we found that Schizophrenia patients with OCS were significantly more hospitalizations (OR = 2.234, $p = 0.026$), higher prescribed antidepressants (OR = 2.945, $p = 0.008$), higher suicidality (OR = 3.629, $p < 0.001$), more severe PANSS positive subscale (median = 15.00, $N = 48$, $U = 2729.00$, $Z = -3.603$, $p < 0.001$), general subscale (median = 25.50, $N = 48$, $U = 3038.00$, $Z = -2.801$, $p = 0.005$), total PANSS (median = 57.00, $N = 48$, $U = 3037.50$, $Z = -2.798$, $p = 0.005$), CDSS total (median = 3.00, $N = 48$, $U = 2985.00$, $Z = -3.193$, $p = 0.001$), poorer physical quality of life (median = 22.00, $N = 48$, $U = 3304.50$, $Z = -2.121$, $p = 0.034$) and poorer psychological quality of life (median = 18.50, $N = 48$, $U = 3294.00$, $Z = -2.147$, $p = 0.032$).

There were no significant finding in term of other clinical outcome such as PANSS negative subscale, social and environmental quality of life domains (Table 19 and 20).

Table 19. Comparison between Schizophrenia with and without OCS in term of number of hospital admission, presence of significant depression and presence of suicidality.

	OCS		OR	95% CI	P value
	Yes N = 48	No N = 172			
Hospitalization					
Less than 5	29 (60.4)	133 (77.3)	2.234	1.132 – 4.409	0.026*
5 and above	19 (39.6)	39 (22.7)			
Suicidality					
Yes	27 (56.3)	45 (26.2)	3.629	1.868 – 7.048	<0.001**
No	21 (43.8)	127 (73.8)			
Antidepressant					
Yes	15 (31.3)	23 (13.4)	2.945	1.388 – 6.246	0.008**
No	33 (68.8)	149 (86.6)			
Depression (CDSS)					
Score 6 and above	12 (25.0)	26 (15.1)	1.872	0.862 – 4.064	0.131
Score below 6	36 (75.0)	146 (84.9)			

OR Odd Ratio, CI Confident Interval, P value significant level $p < 0.05^*$, $P < 0.01^{**}$

CDSS Calgary Depression Scale for Schizophrenia

Table 20. Comparison between Schizophrenia with or without OCS in clinical outcomes: PANSS, CDSS, C-SSRS and WHOQOL-BREF.

	OCS		<i>U</i>	<i>Z</i>	P value
	Yes (Mean rank)	No (Mean rank)			
PANSS					
Positive	139.65	102.37	2729.00	-3.603	< 0.001**
Negative	121.39	107.46	3605.50	-1.343	0.179
General	133.22	104.16	3038.00	-2.801	0.005**
Total	133.22	104.16	3037.50	-2.798	0.005**
CDSS Total	134.31	103.85	2985.00	-3.183	0.001**
WHOQOL-BREF					
Physical	93.34	115.29	3304.50	-2.121	0.034*
Psychological	93.13	115.35	3294.00	-2.147	0.032*
Social	105.22	111.97	3874.50	-0.656	0.512
Environmental	104.97	112.04	3862.50	-0.683	0.494

U, Mann-Whitney U test

Z, z score

P value significant level at $p < 0.05^$, $p < 0.01^{**}$*

Analysis of covariance was performed to compare the difference between Schizophrenia patients with and without OCS in term of all significant clinical outcomes obtained from univariate analysis. By controlling the effect clozapine usage, which was usually for refractory Schizophrenia, and duration of illness (chronicity of illness), our analysis showed that PANSS positive (mean difference = 2.45, $p = < 0.001$), PANSS general (mean difference = 2.83, $p = 0.003$), PANSS total (mean difference = 6.22, $p = < 0.001$) and CDSS (mean difference = 1.61, $p = < 0.001$) remained significant. On the contrary, physical (mean difference = 5.50, $p = 0.116$) and psychological (mean difference = -1.12, $p = < 0.001$) domains of WHOQOL-BREF showed no significant difference between patients with and without OCS. (Table 21)

Table 21. Comparison between Schizophrenia with or without OCS in clinical outcomes (PANSS, CDSS and WHOQOL-BREF) using analysis of covariance (ANCOVA), Generalized Linear Models after controlled for usage of Clozapine in the study sample.

	OCS		Mean difference	P value
	Yes Mean	No Mean		
PANSS				
Positive	14.98	12.56	2.42	< 0.001**
General	25.78	22.95	2.82	0.001**
Total	55.57	49.39	6.18	< 0.001**
CDSS Total	3.79	2.10	1.69	< 0.001**
WHOQOL-BREF				
Physical	62.35	57.12	5.23	0.145
Psychological	57.71	59.20	1.51	0.679

P value significant level at $p < 0.05^$, $P < 0.01^{**}$*

To control the effect of clozapine and duration of illness to the categorical clinical outcomes, we used logistic regression analysis with use of clozapine as covariate. Results showed that there were there was significant difference between Schizophrenia and and without OCS in term of suicidality (OR = 3.379, $p = < 0.001$) but not for number of hospitalization (OR = 1.953, $p = 0.061$). (Table 22)

Table 22. Logistic Regression for clinical outcomes with usage of clozapine as covariate: hospitalization and suicidality.

Outcomes	B	SE	Exp (B)	P value
Hospitalization	0.744	0.369	2.105	0.044*
Suicidality	1.257	0.348	3.516	<0.001**
Use of antidepressant	0.974	0.392	2.650	0.013*

P value significant level at $p < 0.05^$, $p < 0.01^{**}$*

6.7.2 Correlation Analysis between YBOCS scores with CDSS, PANSS and WHOQOL-BREF.

In this study, we also performed correlation analysis of the clinical variables to explore their relationship. We focused mainly on the relationship between subscales in YBOCS with other clinical variables such as PANSS subscales, depression and quality of life scale by using Spearman Rank Order Correlation analysis (ρ).

From the analysis, we found that obsession was positively correlated with PANSS positive ($\rho = 0.292$, $p < 0.001$), PANSS general ($\rho = 0.217$, $p = 0.001$) and CDSS total score ($\rho = 0.251$, $p < 0.001$).

Meanwhile, compulsion was found to be positively correlated with PANSS positive ($\rho = 0.195$, $p = 0.004$) and CDSS total score ($\rho = 0.137$, $p = 0.043$).

In addition, total YBOCS score was positively correlated with PANSS positive ($\rho = 0.258$, $p < 0.001$), PANSS general ($\rho = 0.177$, $p = 0.008$), PANSS total score ($\rho = 0.162$, $p = 0.016$) and CDSS total score ($\rho = 0.230$, $p = 0.001$).

There were no correlation between YBOCS and WHOQOL-BREF using this analysis. Table 23 was reproduced from SPSS to demonstrate the correlation analysis.

		OBS	COMP	YBOCS TOTAL	PANSS +VE	PANSS - VE	PANSS GEN	PANSS TOTAL	CDSS	PHY	PSY	SOCIAL	ENVIR	
Spearman's rho	OBS	Correlation	1.000	.785**	.966**	.292**	.029	.217**	.195**	.251**	-.127	-.131	.010	-.038
		Sig. (2-tailed)		.000	.000	.000	.670	.001	.004	.000	.059	.053	.886	.571
		N	220	220	220	220	220	220	220	220	220	220	220	220
	COMP	Correlation	.785**	1.000	.879**	.195**	.078	.109	.129	.137*	-.103	-.052	.004	-.015
		Sig. (2-tailed)	.000		.000	.004	.251	.105	.056	.043	.129	.440	.950	.824
		N	220	220	220	220	220	220	220	220	220	220	220	220
	YBOCS TOTAL	Correlation	.966**	.879**	1.000	.258**	.026	.177**	.162*	.230**	-.118	-.089	.026	-.013
		Sig. (2-tailed)	.000	.000		.000	.697	.008	.016	.001	.081	.189	.703	.848
		N	220	220	220	220	220	220	220	220	220	220	220	220
	PANSS +VE	Correlation	.292**	.195**	.258**	1.000	.420**	.656**	.791**	.278**	-.334**	-.360**	-.353**	-.373**
		Sig. (2-tailed)	.000	.004	.000		.000	.000	.000	.000	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220	220	220	220	220
	PANSS VE	Correlation	.029	.078	.026	.420**	1.000	.650**	.812**	.181**	-.342**	-.322**	-.438**	-.389**
		Sig. (2-tailed)	.670	.251	.697	.000		.000	.000	.007	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220	220	220	220	220
	PANSS GEN	Correlation	.217**	.109	.177**	.656**	.650**	1.000	.923**	.446**	-.398**	-.414**	-.456**	-.423**
		Sig. (2-tailed)	.001	.105	.008	.000	.000		.000	.000	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220	220	220	220	220
	PANSS TOTAL	Correlation	.195**	.129	.162*	.791**	.812**	.923**	1.000	.368**	-.423**	-.443**	-.504**	-.472**
		Sig. (2-tailed)	.004	.056	.016	.000	.000	.000		.000	.000	.000	.000	.000
N		220	220	220	220	220	220	220	220	220	220	220	220	
CDSS	Correlation	.251**	.137*	.230**	.278**	.181**	.446**	.368**	1.000	-.296**	-.413**	-.164*	-.215**	
	Sig. (2-tailed)	.000	.043	.001	.000	.007	.000	.000		.000	.000	.015	.001	
	N	220	220	220	220	220	220	220	220	220	220	220	220	
PHY	Correlation	-.127	-.103	-.118	-.334**	-.342**	-.398**	-.423**	-.296**	1.000	.562**	.511**	.502**	
	Sig. (2-tailed)	.059	.129	.081	.000	.000	.000	.000	.000		.000	.000	.000	
	N	220	220	220	220	220	220	220	220	220	220	220	220	
PSY	Correlation	-.131	-.052	-.089	-.360**	-.322**	-.414**	-.443**	-.413**	.562**	1.000	.508**	.652**	
	Sig. (2-tailed)	.053	.440	.189	.000	.000	.000	.000	.000	.000		.000	.000	
	N	220	220	220	220	220	220	220	220	220	220	220	220	
SOCIAL	Correlation	.010	.004	.026	-.353**	-.438**	-.456**	-.504**	-.164*	.511**	.508**	1.000	.640**	
	Sig. (2-tailed)	.886	.950	.703	.000	.000	.000	.000	.015	.000	.000		.000	
	N	220	220	220	220	220	220	220	220	220	220	220	220	
ENVIR	Correlation	-.038	-.015	-.013	-.373**	-.389**	-.423**	-.472**	-.215**	.502**	.652**	.640**	1.000	
	Sig. (2-tailed)	.571	.824	.848	.000	.000	.000	.000	.001	.000	.000	.000		
	N	220	220	220	220	220	220	220	220	220	220	220	220	

Table 23. Correlation analysis between YBOCS with PANSS, CDSS and WHOQOL-BREF.

6.7.3 Correlation Analysis between obsession and compulsion with positive and negative symptoms items in PANNS.

We performed correlation analysis for the seven positive symptoms in PANSS positive and seven negative symptoms in PANSS negative with obsession and compulsion score obtained in the study.

From the analysis as shown in Table 24 and Table 25, we found that both obsession and compulsion positively correlated with delusion, hallucinatory behaviours, suspiciousness and persecution of the PANSS positive items; as well as correlated positively with stereotyped thinking from the PANSS negative items.

For obsession, positive correlation with delusion ($\rho = 0.304$, $p = <0.001$), hallucinatory behaviours ($\rho = 0.284$, $p = < 0.001$), suspiciousness and persecution ($\rho = 0.288$, $p = < 0.001$) and stereotyped thinking ($\rho = 0.327$, $p = < 0.001$) were found.

For compulsion, positive correlation with delusion ($\rho = 0.179$, $p = <0.001$), hallucinatory behaviours ($\rho = 0.156$, $p = 0.02$), suspiciousness and persecution ($\rho = 0.201$, $p = 0.03$) and stereotyped thinking ($\rho = 0.271$, $p = < 0.001$) were found.

		OBS	COMP	DELUSION	DISORGANIZATIO N	HALLUCINATORY BEHAVIOUR	EXCITEMENT	GRANDIOSITY	SUSPICIOUSNESS / PERSECUTION	HOSTILITY	
Spearman's rho	OBSESSION SCORE YBOCS	Correlation Coefficient	1.000	.785**	.304**	.082	.284**	.046	-.010	.288**	.046
		Sig. (2-tailed)		.000	.000	.224	.000	.502	.884	.000	.499
		N	220	220	220	220	220	220	220	220	220
	COMPULSION SCORE	Correlation Coefficient	.785**	1.000	.179**	.107	.156*	.026	-.015	.201**	.048
		Sig. (2-tailed)	.000		.008	.113	.020	.706	.822	.003	.481
		N	220	220	220	220	220	220	220	220	220
	DELUSION	Correlation Coefficient	.304**	.179**	1.000	.459**	.478**	.144*	.071	.797**	.350**
		Sig. (2-tailed)	.000	.008		.000	.000	.033	.293	.000	.000
		N	220	220	220	220	220	220	220	220	220
	CONCEPTUAL DISORGANIZATIO N	Correlation Coefficient	.082	.107	.459**	1.000	.276**	.117	.059	.439**	.280**
		Sig. (2-tailed)	.224	.113	.000		.000	.083	.383	.000	.000
		N	220	220	220	220	220	220	220	220	220
	HALLUCINATORY BEHAVIOUR	Correlation Coefficient	.284**	.156*	.478**	.276**	1.000	.163*	.044	.510**	.082
		Sig. (2-tailed)	.000	.020	.000	.000		.016	.520	.000	.228
		N	220	220	220	220	220	220	220	220	220
	EXCITEMENT	Correlation Coefficient	.046	.026	.144*	.117	.163*	1.000	.493**	.168*	.160*
		Sig. (2-tailed)	.502	.706	.033	.083	.016		.000	.013	.018
		N	220	220	220	220	220	220	220	220	220
	GRANDIOSITY	Correlation Coefficient	-.010	-.015	.071	.059	.044	.493**	1.000	.026	.036
		Sig. (2-tailed)	.884	.822	.293	.383	.520	.000		.704	.600
N		220	220	220	220	220	220	220	220	220	
SUSPICIOUSNESS / PERSECUTION	Correlation Coefficient	.288**	.201**	.797**	.439**	.510**	.168*	.026	1.000	.381**	
	Sig. (2-tailed)	.000	.003	.000	.000	.000	.013	.704		.000	
	N	220	220	220	220	220	220	220	220	220	
HOSTILITY	Correlation Coefficient	.046	.048	.350**	.280**	.082	.160*	.036	.381**	1.000	
	Sig. (2-tailed)	.499	.481	.000	.000	.228	.018	.600	.000		
	N	220	220	220	220	220	220	220	220	220	

Table 24. Correlation analysis for obsession and compulsion with positive symptoms in PANSS positive (reproduced from SPSS).

		OBSSESSION SCORE YBOCS	COMPULSION SCORE	BLUNTED AFFECT	EMOTIONAL WITHDRAWAL	POOR RAPPORT	PASSIVE / APATHETIC SOCIAL WITHDRAWAL	DIFFICULTY IN ABSTRACT THINKING	LACK OF SPONTANEITY AND FLOW OF CONVERSATION	STEREOTYPED THINKING	
Spearman's rho	OBSSESSION SCORE YBOCS	Correlation Coefficient	1.000	.785**	-.050	-.026	-.034	-.031	-.042	-.093	.327**
		Sig. (2-tailed)		.000	.463	.702	.612	.648	.538	.170	.000
		N	220	220	220	220	220	220	220	220	220
	COMPULSION SCORE	Correlation Coefficient	.785**	1.000	.031	-.030	.004	.018	.029	-.032	.271**
		Sig. (2-tailed)	.000		.643	.659	.956	.789	.665	.635	.000
		N	220	220	220	220	220	220	220	220	220
	BLUNTED AFFECT	Correlation Coefficient	-.050	.031	1.000	.696**	.333**	.588**	.514**	.544**	.182**
		Sig. (2-tailed)	.463	.643		.000	.000	.000	.000	.000	.007
		N	220	220	220	220	220	220	220	220	220
	EMOTIONAL WITHDRAWAL	Correlation Coefficient	-.026	-.030	.696**	1.000	.471**	.677**	.326**	.568**	.306**
		Sig. (2-tailed)	.702	.659	.000		.000	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220	220
	POOR RAPPORT	Correlation Coefficient	-.034	.004	.333**	.471**	1.000	.400**	.170*	.395**	.295**
		Sig. (2-tailed)	.612	.956	.000	.000		.000	.012	.000	.000
		N	220	220	220	220	220	220	220	220	220
	PASSIVE / APATHETIC SOCIAL WITHDRAWAL	Correlation Coefficient	-.031	.018	.588**	.677**	.400**	1.000	.411**	.515**	.207**
		Sig. (2-tailed)	.648	.789	.000	.000	.000		.000	.000	.002
		N	220	220	220	220	220	220	220	220	220
DIFFICULTY IN ABSTRACT THINKING	Correlation Coefficient	-.042	.029	.514**	.326**	.170*	.411**	1.000	.402**	.266**	
	Sig. (2-tailed)	.538	.665	.000	.000	.012	.000		.000	.000	
	N	220	220	220	220	220	220	220	220	220	
LACK OF SPONTANEITY AND FLOW OF CONVERSATION	Correlation Coefficient	-.093	-.032	.544**	.568**	.395**	.515**	.402**	1.000	.339**	
	Sig. (2-tailed)	.170	.635	.000	.000	.000	.000	.000		.000	
	N	220	220	220	220	220	220	220	220	220	
STEREOTYPED THINKING	Correlation Coefficient	.327**	.271**	.182**	.306**	.295**	.207**	.266**	.339**	1.000	
	Sig. (2-tailed)	.000	.000	.007	.000	.000	.002	.000	.000		
	N	220	220	220	220	220	220	220	220	220	

Table 25. Correlation analysis for obsession and compulsion with negative symptoms in PANSS negative (reproduced from SPSS).

CHAPTER 7.0 DISCUSSION, STRENGTH AND LIMITATION AND CONCLUSION

7.1 Prevalence of OCS in patients with Schizophrenia

In this study, we found that the prevalence of Obsessive Compulsive Symptoms among Schizophrenia patients was 21.8%. This prevalence was based on YBOCS total score with cut off points of 8 or more in according to standard from previous study. This prevalence was lower than that found in the meta analysis by Swets et al. (2014), which was 30.7% (Marije Swets, Jack Dekker, Katelijne van Emmerik-van Oortmerssen, Geert E Smid, et al., 2014). We acknowledged that the meta analysis recruited mostly studies from Western countries which may explained the difference.

The observed difference in the prevalence of OCS can also be due the difference in the method of assessment for the presence of significant OCS. Diagnosing OCS using Diagnostic and Statitiscal Manual for Mental Disorder (DSM) Fourth Edition was found to produced higher prevalence of OCS. Commonly used methods for assessing OCS are Structured Clincial Interview for DSM (SCID), Diagnostic Interview for Genetic Studies (DIGS) and Yale-Brown Obsessive Compulsive Scale (YBOCS). Among these, YBOCS looks specifically into OCS. However, there was no universally agreed cut-off points for YBOCS to diagnose OCS.

Our study may be comparable with prevalence found in nearby country such as Korea with prevalence of 21.1% (Lim et al., 2007) and Japan with the prevalence of 18.3% (M. Ohta, M. Kokai, & Y. Morita, 2003). Another study done in Korea recently by Kim et al. (2015) also found almost comparable prevalence with our study, which was 18.4% based on YBOCS score of 10 and above (Kim et al., 2015). In India, Sugnyani et al. (2015) used YBOCS score of less than 16 as the cut off for OCS. They found that the prevalence of OCS was 24.0%, which was near to our study (Devi et al., 2015). All these are Asian countries including Malaysia may be sharing similar etiological factors that made the prevalence measured for OCS in Schizophrenia comparable. This idea can be further investigated using similar criteria for assessment of OCS, similar instrument and comparable sample of participants.

We also included the diagnosis of OCD into the analysis. From the study, we found that the prevalence of OCD was 8.2%. We used the YBOCS cut off score of 16 and above. This prevalence was almost comparable to the meta analysis mentioned earlier, which was 12.3%. For this study, we only focus on the OCS.

With this prevalence, we can be sure to conclude that the prevalence of OCS/OCD is higher than the general population, which was approximately 2.0% to 3.0% (Subramaniam, Abdin, Vaingankar, & Chong, 2012).

7.2 Demographic characteristic of Schizophrenia patient with OCS in the study.

Similar to previous studies, demographics characteristic do not linked to the presence of OCS in Schizophrenia. Age, gender, education level, race, marital status, family history of any psychiatric disorder as well as duration of illness was not statistically significant. Of note, the chronicity of Schizophrenia as ascertained by duration of illness. First five year of Schizophrenia was considered to be the crucial period for rehabilitation and functional recovery. It was thought to be the early stage of illness. After this period, the chronicity of illness set in with rapid deterioration of psychopathologies and progressive functional impairments. Kim et al. (2015) compared Schizophrenia patients at early stage of illness (less than 5 years) and chronic stage (5 years and above) found that their score on YBOCS did not achieved a statistically significant level. Which may be suggest that chronicity does not predicts the emergence of OCS, and de novo OCS occurred independently of course of Schizophrenia illness as it was found in studies on patients with first episode psychosis and ultra high risk for psychosis (Lieuwe de Haan, Bouke Sterk, & Renate van der Valk, 2013; Sterk, Lankreijer, Linszen, & de Haan, 2011).

When comparison was done between classes of antipsychotics used by the participants, we did not found any significant association between class of antipsychotic usage and the presence of OCS. Comparing first generation antipsychotic (FGA) and second generation antipsychotics (SGA), there is no statistical significant, however, patients on SGA showed higher percentage of OCS (72.9%) as compared to FGA (12.5%) and combination of FGA and SGAI (14.6%, $p = 0.171$). Seedat et al. (2007) found significant higher prevalence of OCS in patients taking SGA (77.4%) as

compared to patients who were taking FGA (45.8%) (Seedat, Roos, Pretorius, Karayiorgou, & Nel, 2007). Similarly, Lykouras et al. (2003) also presented case reports on de novo emergence of OCS after patients were initiated with SGA (Lykouras et al., 2003). The complex interaction in neurotransmitter and neuroal level needed to be explored further for better understand and may be useful for clinical decision making in treating patients with Schizophrenia and OCD.

However, with regards to the types of atypical antipsychotic prescribed to the study participants, our study found that significantly ($p = 0.023$) higher percentage of Schizophrenia patients with OCS (62.5%) was prescribed Clozapine, as compared to Schizophrenia patients without OCS (20.9%). In this study, number of patients taking Clozapine was 66 or 30%. Clozapine was usually started for patients with Treatment Resistance Schizophrenia (TRS), extrapyramidal symptoms (EPS) and Schizophrenia with high suicidality. Clozapine's pro-obsessive effect has been studied in many studies and most studies support the existence of pro-obsessive properties (Goh et al., 2013). Scheltema et al. (2012) studied the occurrence of OCS in 543 Schizophrenia taking different types of atypical antipsychotics. They found the prevalence of OCS in patients taking Clozapine was 38.9%, whereas for Risperidone and Olanzapine were 23.2% and 20.1% respectively (Scheltema et al., 2012). In our study, we found higher prevalence of OCS in patient taking Clozapine, which is 45.5%. Similarly, Doyle et al. (2013) reported that 22.0% of patients taking Clozapine have OCS, with 19.0% occurred after the initiation of Clozapine (Doyle, Chorcorain, Griffith, Trimble, & O'Callaghan, 2014), while 46.4% in study by Galvez et al. (2004) (Galvez-Buccollini et al., 2004). In addition, Clozapine has also been found to exacerbate the underlying OCS in patients with Schizophrenia (Fonseka, Richter, & Müller, 2014). The mechanism which may

explained this association was thought to be due to the anti-cholinergic activity of the Clozapine. Among all the SGA, Clozapine has the highest propensity for serotonergic receptors (Goh et al., 2013).

In this study, we also found that higher number of patients taking antidepressant in Schizophrenia with OCS group (OR = 2.945, $p = 0.008$). This finding was consistent with finding from study done by Sa et al. (2009) (Sa et al., 2009). This can be explained by the reason that these patients has been treating for their OCS with antidepressant, which is also anti-obsessional medications at time of recruitment. Addition of this anti-obsessional medication has been shown to have better outcome in the management of Schizophrenia patients with OCS (Dowling, Pato, & Pato, 1995; Sayeed Khan et al., 2004).

There were no significant difference in the presence of OCS in Schizophrenia for other group of psychotropics prescribed to study participants including depot antipsychotics, benzodiazepine, anticholinergic and mood stabilizer.

7.3 Clinical variables of the Schizophrenia patients with OCS.

Schizophrenia with OCS has been found to have worse clinical outcomes based on many previous studies despite that some other studies showed the opposite finding. In this study, we had found that Schizophrenia with OCS has higher hospitalization as compared to Schizophrenia only patients (OR = 2.234, $p = 0.026$). After adjusting the confounding effect of Clozapine, used for refractory Schizophrenia, and duration of illness in the study, number of hospitalization remained statistically significant (adjusted OR = 2.105, $p = 0.044$) associated with the presence of OCS in Schizophrenia. More hospitalization means a more severe course of illness due to multiple relapses. This has importance implication to patient's stability of illness as well as for the resource utilization in psychiatric services. This result was inconsistent to the result found by Byerly et al. (2005) where they found no significant increased in hospitalization in this group of patients, where hospitalization was assessed by number of days in hospitalized in psychiatric setting (Byerly, Goodman, Acholonu, Bugno, & Rush, 2005). However, the study only recruited 21 patients with Schizophrenia and OCS to compare with 37 Schizophrenia patients without OCS. Negative result was also found by a retrospective study by de Haan et al. (2011) where number of psychotic relapses showed no significant difference between OCD only, Schizophrenia with OCS and Schizophrenia with OCD (Lieuwe de Haan, Bouke Sterk, Luuk Wouters, et al., 2013), this finding must be interpreted cautiously due to the retrospective nature of the study design may have invited unwanted recall biases. Uçok et al. (2011) from Turney studied 184 Schizophrenia patients, From the 17.6% of the Schizophrenia with OCS, they found this this group has less hospitalization (Üçok et al., 2011). The discrepancy may be explained firstly by the extensiveness of community psychiatry services available in the

study centres. Centers with good community services may provide community acute home care to prevent admission to psychiatric wards. Thus hospitalization can be reduced. Secondly, Schizophrenia with OCS in our study population may be a more severe form of disorder as compared to other countries, with the significant difference in the socio-cultural practices and believes.

Lewis & Lieberman (2000) in their review on the natural course of illness for Schizophrenia highlighted that every subsequent psychotic relapses contributed to the further deterioration of psychopathologies and functional impairment (Lewis & Lieberman, 2000). The first five to ten years of illness remained the most important time of treatment, failure to sustained remission means Schizophrenia will continue to progress into a chronic phase and remain plateau into senescence, with profound functional disabilities (Harvey et al., 1999). Measures to reduce psychotic relapses include improving all the factors that contributed to the events, which means adequate control of the OCS in patients with Schizophrenia may be beneficial in reducing psychotic relapsed.

Another sentinel event that presented as a major concern in treating any individual with mental disorder is the prevention and early detection of suicide. Our study showed highly significant association between the presence of OCS in Schizophrenia with suicidality. Suicidality, as measured using Columbia Suicide Severity Rating Scale (C-SSRS) were more likely to occur in Schizophrenia with OCS (Adjusted OR = 3.379, $p = < 0.001$). In this cross sectional study, we obtained lifetime suicidal behaviours among the study samples because having a previous attempt is the risk for subsequent attempts . We found that suicidality was presence in more than half

of the Schizophrenia patients with OCS (56.3%), with lifetime suicidal behaviours 49.6% and suicidal ideation 16.7%. This significantly high prevalence of suicidality should alert the psychiatrists regarding the powerful impact of comorbid OCS to patients with Schizophrenia. Earlier studies on lifetime suicide in Schizophrenia had reported the prevalence of completed suicide was around 10% to 13% (Caldwell & Gottesman, 1990; Miles, 1977). Later studies collecting data from 632 articles review, from year 1966 till 2005 revealed that the lifetime suicide rate in Schizophrenia was around 4.9% (B. A. Palmer, V. Pankratz, & J. Bostwick, 2005). Methodological and terminological difference in defining suicide may have contributed to the significant discrepancy of the prevalence. Among the commonly cited risk factors for suicide are being male, self reported hopelessness, substance use disorders and other Schizophrenia specific risks such as awareness of illness and low number of negative symptoms. Pompili et al. (2009) reported that risk factors for suicide completer were self reported worthlessness, previous suicidal attempts and hopelessness (Pompili et al., 2009). Our study finding was in agreement with numerous other studies which found that higher suicidality among Schizophrenia patients with comorbid OCS (Jordan E DeVlyder et al., 2012; Kristen Hagen et al., 2013; Tara A. Niendam et al., 2009; Szmulewicz, Smith, & Valerio, 2015; Ucok, Tukel, Ozgen, Saylan, & Uzuner, 2006). Both Schizophrenia and OCD were associated with higher suicidality (Angelakis, Gooding, Tarrier, & Panagioti, 2015; Montross, Zisook, & Kasckow, 2005). Our study may indicate the double jeopardy effects of both disorders to a Schizophrenia patient's life.

The association between severity of Schizophrenia's psychopathology and presence of comorbid OCS, were highly significant. In this present study, we divided our questionnaire, Positive and Negative Syndrome Scale (PANSS) into positive,

negative and general subscales score, as well as a total score. We sought to identify the association between the presence of OCS in Schizophrenia and Schizophrenia's psychopathology. Specifically, the positive and negative symptoms. In this study, positive, general and total PANSS score remained statistically significant despite we controlled the effect of chronicity of illness. Schizophrenia with OCS scored significantly higher in the three subscales measured. Although Schizophrenia with OCS scored higher in PANSS negative compared to Schizophrenia without OCS, it did not reached statistically significant level. Similar study in Korea by Kim et al. (2015) on 163 Schizophrenia outpatients, with the prevalence of OCS at 18.4% found that Schizo-OCS group scored higher in all the subscales in PANSS, including negative symptoms subscale (Kim et al., 2015). This finding was also supported by study done by Japanese authors, Owashii et al. (2010), but in a small sample size (N = 92). However, study by Devi et al. (2015) did not find similar finding, they found that Schizo-OCS scored significantly lower PANSS positive subscale score, specifically lower conceptual disorganization (Devi et al., 2015). In addition, a few authors found no association between the presence of OCS in Schizophrenia and Schizophrenia's psychopathology (Á. Frías et al., 2014; Ongur & Goff, 2005; Poyurovsky et al., 2001; Tonna et al., 2015).

Contrasting findings between different studies may raised concern regarding the overall effects of OCS on the course of Schizophrenia. The present study has controlled 2 major confounders which were the used of Clozapine for refractory Schizophrenia and duration of illness in the analysis base on a few observations. Firstly, the selection of sample, either they are in active phase of illness or during remission. Acutely psychotic patients may manifest more severe psychopathology. Some studies has recruited inpatients as study subject. We expected that these group of patients would present with

higher prevalence of OCS and worse psychopathology (Toshimi Owashi et al., 2010). In this study, we only recruited outpatients, where assessment of comorbid OCS may not be altered by the active psychotic process. In addition, the mean PANSS total score in this study was 57.04, which is approximate to Clinical Global Impression (CGI) of “mildly ill” (Leucht et al., 2005). Secondly, there are three types of rating scales for severity of Schizophrenia psychopathology were used. PANSS, SAPS and SANS and Brief Psychiatric Rating Scale (BPRS).

Depression is another challenges in managing patients with Schizophrenia. Depression in Schizophrenia may be primary or secondary. Our finding was in lieu with many previous studies in that Schizophrenia patients with OCS showed more severe depressive symptoms (Jordan E DeVlyder et al., 2012; Kristen Hagen et al., 2013; Kim et al., 2015; Mariné et al., 2015; Ongur & Goff, 2005; Rajkumar et al., 2008). In this study, after controlled for concurrent use of Clozapine for refractory Schizophrenia as well as the duration of illness, depressive symptoms remained highly significant in Schizophrenia patients with OCS. These finding may explained that higher number of patients in Schizophrenia with OCS group was concurrently prescribed with antidepressant as reported earlier. Szmulewicz et al. (2015) had looked into specifically a group of Schizophrenia patients prescribed with Clozapine and the comorbid OCD/OCS, they found that in the presence of resistance Schizophrenia, depressive symptoms were significantly more severe in Schizophrenia with OCS/OCD (Szmulewicz et al., 2015). Addition of antidepressant as anti-obsessional concurrently with antipsychotic had showed to improved both psychosis and obsessive symptoms (Reznik & Sirota, 2000a; Sayeed Khan et al., 2004; Stryjer et al., 2013). Our current finding may add more evidences to the prescribing of antidepressant in Schizophrenia

patients with OCS/OCD. Thus, detection of OCS in Schizophrenia should be included in clinical practices.

Another important outcome that was assessed was the quality of life of the patients by comparing Schizophrenia with OCS and without OCS. We used WHOQOL-BREF scale, whereby the abbreviated version was transformed into WHOQOL-100 scale before statistical analysis were performed. Lower score means poorer quality of life. Among the four domains, physical and psychological domains were found to be statistically lower in Schizophrenia with OCS group, but not social and environmental quality of life domains. However, after adjusted for the chronicity of illness, which are duration of illness and the use of clozapine for refractory Schizophrenia, we found no difference between Schizophrenia with and without OCS. Existing literatures regarding the impacts of OCS on quality of life in Schizophrenia patients were scarce. Different outcome measures were assessed using different scales. The nearest to our study was Devi et al (2015), where authors similar rating scale, however the result was not similar. The latter found that environmental domain was significantly better in Schizophrenia patients with OCS. No difference were found in other domains (Devi et al., 2015). In another study by Ahmet et al. (2010), authors recruited 662 inpatients with Schizophrenia. Quality of life was compared between Schizophrenia with and without OCS by using Quality of Life (QLS), which was a semistructured interview. The authors failed to find any association between the presence of OCS in Schizophrenia quality of life (A. Tiryaki & Ozkorumak, 2010). In view of the limited evidence in the literature, these finding need to be interpreted with caution. Future research maybe advisable to utilize universally accepted scale to assess both the objective and subjective quality of life in Schizophrenia patients with comorbid OCS.

7.4 Correlation analysis of YBOCS and PANSS

We performed correlation analysis to determine the correlation between YBOCS and PANSS. Analysis showed total YBOCS score significantly correlated with PANSS positive, general and total score, despite that the correlation was weak. No significant correlation was found between total YBOCS and PANSS negative. Further breakdown of the YBOCS subscales and PANSS positive items revealed significant correlation between obsession and compulsion with delusion, hallucinatory behaviours and suspicious behaviours. Whereas for PANSS negative items, obsession and compulsion were only significantly correlated with stereotype thinking. Several studies had looked into these correlations. Our study finding may be suggesting that severity of OCS has direct influence on the severity of Schizophrenia symptoms. Similar finding was reported by Rajkumar et al. (2008) which compared 50 Schizophrenia with comorbid OCD and another 50 Schizophrenia patients without OCD (Rajkumar et al., 2008). Tiryaki et al. (2010) and Guillem et al. (2009) also reported positive correlation between obsession and delusion; and compulsion positively correlated with total positive symptoms (SAPS) (Guillem et al., 2009; A. Tiryaki & Ozkorumak, 2010). There are no evidence from our study that OCS may be protective against psychosis as claimed by previous study (Poyurovsky et al., 1999).

7.5 Strengths and Limitations

There are a few methodological flaws in this study. First of all, this was a cross sectional study design which limit the ability to determine the causal relationship of cause and effect of the variables tested in statistical analysis. However, the study on prevalence of OCS in Schizophrenia may be appropriate using this study design. Secondly, there were no standardized and universally approved criteria for diagnosing Obsessive Compulsive Symptoms (OCS). Most of the study used criteria from previous related studies to determine the presence of OCS. This had again created controversial prevalence of OCS, which subsequently may affect the association analysis. Thirdly, this study was performed in government affiliated teaching hospital. In this study center, a substantial portion of patients need to purchase their medications; some may be subsidized and some may be free. These may have an effect on sociodemographic details of the study participants. Subsequently, may not be able to generalized to the general population in Malaysia. Finally, and as for most of the studies conducted in Malaysia, language barrier may have limit participant's eligibility to enroll in this study. We were aware that questionnaires used in our study were in English language. PANSS, YBOCS Symptoms Checklist, YBOCS, CDSS. These questionnaires would require participants to understand adequate English language. When participants had difficulty to understand, interviewers would use simpler English to make participants able to answer the questions.

The cross sectional study design may be most suitable for short duration research for dissertation. It is also called as prevalence study. This study design is less expensive compared to other study designs. In addition, the study of prevalence of OCS in Schizophrenia is suitable using this study design. However, to ascertain the causal

relationship between variables, prospective study may be able to produce stronger evidence. Despite of the limitation, our study findings may be an addition to the current evidences regarding the association of OCS in Schizophrenia and other clinical variables in Schizophrenia.

Meanwhile, selecting the most acceptable criteria to ascertain the presence of comorbid OCS was the real concern of the authors. Review of literatures showed different authors used different criteria for OCS. We followed at least three previous studies which used the same criteria for diagnosing OCS, which was YBOCS score of 8 above. This cut off point were chosen partly because recent meta analysis had found mean prevalence of OCS in studies with cut off score of six to nine was 30.3%, which was closest to the pooled prevalence of OCS, 30.7%. We are cautious regarding the potential false positive assessment of obsessive compulsive symptoms in Schizophrenia. This is because obsessions can mimicked delusional believes; and compulsions maybe manifestation of stereotypies in Schizophrenia. To improve the objectivity of OCS assesment, we first performed screening test for all participants using YBOCS Symptoms Checklist. This screening would determine which patients has OCS before we proceed with YBOCS for symptoms severity. Subsequently, cut off score of 8 and above was considered as clinically significant OCS.

We were also aware of the unequal distribution of the study participants due to the psychiatric setting in the UMMC from previous researches on Schizophrenia. From the literature, sociodemographic factors such as gender, racial difference and socioeconomic status were not associated with the prevalence of OCS in Schizophrenia as these variables were not commonly reported. Therefore, the unequal

sociodemographic distribution in the study participants may not produce large effects on the prevalence and clinical variables associated with the comorbidity.

We recommended that future researches in this field may be focused on the causal relationship of the comorbid OCS and clinical outcomes, as researches consistently found the higher prevalence of OCS in Schizophrenia. With the finding in this study, there is a need for more treatment trials to treat this comorbidity effectively and as soon as possible. Prospective cohort studies may be recommended to determine the onset of OCS, the effect of treatments for Schizophrenia and the effect of duration of illness of the comorbidity. Early detection using standardized tools or criteria may be of major concern for a more objective assessment and subsequently early initiation of appropriate treatment.

7.6 Conclusion

In the present study, we found that the prevalence of OCS in patients with Schizophrenia were as high as 21.8%, using the cut off point of 8 and above for YBOCS total score. Sociodemographic factors conferred no association with this comorbidity. Our study also refuted claims by previous authors that chronicity of Schizophrenia may be associated with higher prevalence of OCS in Schizophrenia. In addition, the used of atypical antipsychotics were not associated with higher prevalence of OCS in Schizophrenia. However, Clozapine use in refractory Schizophrenia was remarkable associated with higher prevalence of OCS, which was in line with existing literatures.

Meanwhile, this study also achieved the proposed objectives in term of clinical variables associated this Schizophrenia with comorbid OCS. Schizophrenia with OCS showed more severe psychopathology, namely positive symptoms, general symptoms and depressive symptoms. In addition, suicidality was also remarkable higher in this context. Despite of the worse psychopathology compared to Schizophrenia with OCS, the former did not seems to have statistically significant poorer quality of life, the questions that arised for future researches to explore this conflicting finding. However, they could possibly explained by methodological divergence.

With these findings, we emphasized that clinician may need to be more aware of the presence of OCS in Schizophrenia to improve holistic care for this possible subtype of chronic mental illness. Screening questions for OCS will be useful as initial

assessment of OCS. In addition, standardized criteria for diagnosing comorbid OCS in Schizophrenia should be made available to assist researchers in future researches.

Therefore, we recommended that future study may be focused on treatments of this comorbidity, in view of the positive findings with previous studies with supported our research findings. Prospective study to look into the longitudinal course of OCS in Schizophrenia would be beneficial in determining the initiation of treatment before this comorbidity took its tolls on this debilitating chronic mental illness.

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ACKNOWLEDGEMENT

This study was funded by the University Malaya under Peruntukan Penyelidikan Pascasiswazah (PPP) grant, PO048 – 2014B.

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PATIENT INFORMATION SHEET

Please read the following information carefully, do not hesitate to discuss any questions you may have with your Doctor.

Study Title

Obsessive Compulsive Symptoms (OCSs) in Schizophrenia: Prevalence and its association with suicidality, psychopathologies and quality of life.

Introduction

Schizophrenia is a chronic and debilitating major psychiatric disorder with heterogeneous presentations. Among all, obsessive compulsive symptoms had been reported as high as 30% in patients with Schizophrenia. Studies had shown that the presence of obsessive compulsive symptoms in Schizophrenia were associated with higher suicidalities, worse depressive and psychotic psychopathologies and poorer quality of life. Early recognition of obsessive compulsive symptoms in Schizophrenia is imperative for correct diagnosis, subsequently effective treatment could be provided.

What is the purpose of this study?

This study is to estimate the prevalence of obsessive compulsive symptoms in Schizophrenia. Subsequently, the researchers will be comparing this group of patients with another group of patients with Schizophrenia only in term of their suicidality, psychopathologies and quality of life.

What are the procedures to be followed?

Participants are invited to fill a basic demographic detail at the beginning of the session. Subsequently, participants will be invited to answer a self-report questionnaire and four interviewer rated questionnaires. Total duration of time is estimated to be one hour and fifteen minutes.

Who should not enter the study?

Those with other major psychiatric disorders such as intellectual disability and dementia and aged below 18 years old.

What will be benefits of the study?

(a) to you as the subject?

You will be going through a thorough interview regarding suicidality, depressive and psychotic symptoms and your current quality of life. When there is remarkable finding you will be referred to your treating psychiatrist to be further evaluation and proper management.

(b) to the investigator?

This study would be able to pick up the prevalence of obsessive compulsive symptoms among patients with Schizophrenia. With the information obtained, psychiatrists would be more vigilant in identifying these symptoms in routine clinical practice. This would contribute to the overall management of patients with Schizophrenia.

What are the possible drawbacks?

There is no major drawback of this study as there are no bloods taking and does not involved any type of medication and procedure.

Can I refuse to take part in the study?

All patient diagnosed with Schizophrenia who was under psychiatry clinic follow up are invited to participate. You may choose to participate or not participate.

Who should I contact if I have additional questions during the course of the study?

Doctor's Name: Dr. Ng Boon Seng

Tel: 019-8874871

KEIZINAN OLEH PESAKIT UNTUK PENYELIDIKAN KLINIKAL

Saya,.....No. Kad Pengenalan.

(*Nama Pesakit*)

beralamat.....

(*Alamat*)

dengan ini bersetuju menyertai dalam penyelidikan klinikal (pengajian klinikal/pengajian soal-selidik/percubaan ubat-ubatan) disebut berikut:

Title of Study: Obsessive Compulsive Symptoms in Schizophrenia: Prevalence and its association with suicidality, psychopathologies and quality of life.

yang mana sifat dan tujuannya telah diterangkan kepada saya oleh Dr.....

(*Nama dan Jawatan Doktor*)

mengikut terjemahanyang telah menterjemahkan kepada

(*Nama dan Jawatan Penterjemah*)

saya dengan sepenuh kemampuan dan kebolehannya di dalam bahasa / loghat

Saya telah diberitahu bahawa dasar penyelidikan klinikal dalam keadaan methodology, risiko dan komplikasi (mengikut kertas maklumat pesakit). Selepas mengetahui dan memahami semua kemungkinan kebaikan dan keburukan penyelidikan klinikal ini, saya merelakan/mengizinkan sendiri menyertai penyelidikan klinikal tersebut di atas.

Saya faham bahawa saya boleh menarik diri dari penyelidikan klinikal ini pada bila-bila masa tanpa memberi sebarang alasan dalam situasi ini dan tidak akan dikecualikan dari kemudahan rawatan dari doktor yang merawat.

Tarikh: Tandatangan / Cap Jari:

(*Pesakit*)

DI HADAPAN

Nama :
 No. Kad Pengenalan :
 Jawatan :

Tandatangan

(*Saksi untuk Tandatangan Pesakit*)

Saya sahkan bahawa saya telah menerangkan kepada pesakit sifat dan tujuan penyelidikan klinikal tersebut di atas.

Tarikh:

(*Doktor yang merawat*)

KEIZINAN OLEH PESAKIT UNTUK PENYELIDIKAN KLINIKAL	No. Pend	
	Nama	
	Jantina	
	Umur	
	Unit	

CONSENT BY PATIENT FOR CLINICAL RESEARCH

I, Identity Card No.
 (Name of Patient)

of
 (Address)

hereby agree to take part in the clinical research (clinical study / questionnaire study / drug trial) specified below:

Title of Study: Obsessive Compulsive Symptoms in Schizophrenia: Prevalence and its association with suicidality, psychopathologies and quality of life.

the nature and purpose of which has been explained to me by Dr.
 (Name & Designation of Doctor)

and interpreted by to the best of his / her ability in
 (Name & Designation of Interpreter)
 language / dialect.

I have been told about the nature of the clinical research in terms of methodology, possible adverse effects and complications (as per patient information sheet). After knowing and understanding all the possible advantages and disadvantages of this clinical research, I voluntarily consent of my own free will to participate in the clinical research specified above.

I understand that I can withdraw from this clinical research at any time without assigning any reason whatsoever and in such a situation shall not be denied the benefits of usual treatment by the attending doctors.

Date: Signature or Thumbprint:
 (Patient)

IN THE PRESENCE OF

Name :
 Identity Card No. : Signature
 Designation : (witness for signature of patient)

I confirmed that I have explained to the patient the nature and purpose of the above-mentioned clinical research.

Date:
 (Signature of Attending Doctor)

CONSENT BY PATIENT FOR CLINICAL RESEARCH	R.N. Name Sex Age Unit
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KEIZINAN OLEH KELUARGA PESAKIT UNTUK PENYELIDIKAN KLINIKAL

Saya.....No. Kad Pengenalan.....
(*Nama Pesakit*)

beralamat.....
(*Alamat*)

dengan ini bersetuju supaya saudara saya
(*Nama Pesakit*)

menyertai dalam penyelidikan klinikal (pengajian klinikal/pengajian soal-selidik/percubaan ubat-ubatan) disebut berikut:

Title of Study: Obsessive Compulsive Symptoms in Schizophrenia: Prevalence and its association with suicidality, psychopathologies and quality of life.

yang mana sifat dan tujuannya telah diterangkan kepada saya oleh Dr.....
(*Nama dan Jawatan Doktor*)

mengikut terjemahan yang telah menterjemahkan kepada
(*Nama dan Jawatan Penterjemah*)

saya dengan sepenuh kemampuan dan kebolehannya di dalam bahasa / loghat

Saya telah diberitahu bahawa dasar penyelidikan klinikal dalam keadaan methodology, risiko dan komplikasi (mengikut kertas maklumat pesakit). Saya mengetahui dan memahami semua kemungkinan kebaikan dan keburukan penyelidikan klinikal ini. Saya merelakan/mengizinkan saudara saya menyertai penyelidikan klinikal tersebut di atas.

Saya faham bahawa saya boleh menarik balik penyertaan saudara saya dalam penyelidikan klinikal ini pada bila-bila masa tanpa memberi sebarang alasan dalam situasi ini dan tidak akan dikecualikan dari kemudahan rawatan dari doktor yang merawat. Sekiranya saudara saya kembali berupaya untuk memberi keizinan, beliau mempunyai hak untuk terus menyertai kajian ini atau memilih untuk menarik diri.

..... Tarikh Pertalian dengan Pesakit Tandatangan/Cap Jari Waris yang bertanggungjawab
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DI HADAPAN

Nama	:
No. Kad Pengenalan	:	<i>Tandatangan</i>
Jawatan	:	<i>(Saksi untuk Tandatangan Waris yang Bertanggungjawab)</i>

Saya sahkan bahawa saya telah menerangkan kepada waris yang bertanggungjawab sifat dan tujuan penyelidikan klinikal tersebut di atas.

Tarikh:
(*Doktor yang merawat*)

KEIZINAN OLEH WARIS PESAKIT UNTUK PENYELIDIKAN KLINIKAL	No. Pend
	Nama
	Jantina
	Umur
	Unit

CONSENT BY RESPONSIBLE RELATIVE FOR CLINICAL RESEARCH

I, Identity Card No.
 (Name)
 of
 (Address)

hereby agree that my relative I.C. No.
 (Name of Patient)
 participate in the clinical research (clinical study / questionnaire study / drug trial) specified below:

Title of Study: Obsessive Compulsive Symptoms in Schizophrenia: Prevalence and its association with suicidality, psychopathologies and quality of life.

the nature and purpose of which has been explained to me by Dr.
 (Name & Designation of Doctor)
 and interpreted by to the best of his / her ability in
 (Name & Designation of Interpreter)
 language / dialect.

I have been told about the nature of the clinical research in terms of methodology, possible adverse effects and complications (as per patient information sheet). I understand the possible advantages and disadvantages of participating in this research. I voluntarily give my consent for my relative to participate in this research specified above.

I understand that I can withdraw my relative from this clinical research at any time without assigning any reason whatsoever and in such situation, my relative shall not be denied the benefits of usual treatment by the attending doctors. Should my relative regains his/her ability to consent, he/she will have the right to remain in this research or may choose to withdraw.

.....
 Date Relationship to Patient Signature or Thumbprint

IN THE PRESENCE OF

Name :
 Identity Card No. : Signature
 Designation : (Witness)

I confirmed that I have explained to the patient's relative the nature and purpose of the above-mentioned clinical research.

Date:
 (Signature of Attending Doctor)

CONSENT BY PATIENT FOR CLINICAL RESEARCH	R.N. Name Sex Age Unit	
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Data on “Lack of Spontaneity and Flow of Conversation – N6”, “Poor Rapport – N3” and “Conceptual Disorganization – P2”

Hi, I'm We're going to be spending the next 30 to 40 minutes talking about you and your reasons for being here. Maybe you can start out by telling me something about yourself and your background?

(Instruction to interviewer: Allow at least 5 minutes for a non-directive phase serving to establish rapport in the context of an overview before proceeding to the specific questions listed below.)

Data on “Anxiety” (G2)

Have you been feeling worried or nervous in the past week?

IF NO: Would you say that you're usually calm and relaxed?

IF YES: What's been making you feel nervous (worried, uncalm, unrelaxed)?

Just how nervous (worried, etc.) have you been feeling?.....

Have you been shaking at times, or has your heart been racing?.....

Do you get into a state of panic?.....

Has your sleep, eating, or participation in activities been affected?.....

Data on “Delusions (General)-P1” and “Unusual Thought Content-G9”

Have things been going well for you?

Has anything been bothering you lately?.....

Can you tell me something about your thoughts on life and its purpose?.....

Do you follow a particular philosophy?.....

Some people tell me they believe in Devil; what do you think?.....

Can you read other people's mind?

IF YES: How does that work?

Can others read your mind?

IF YES: How can they do that?

Is there any reason that someone would want to read your mind?

Who controls your thoughts?

Data on “Suspiciousness/Persecution (P6), “Passive/Apathetic Social Withdrawal (N4)”, “Active Social Avoidance (G16)” and Poor Impulse Control (G14)”

How do you spend your time these days?

Do you prefer to be alone?

Do you join in activities with others?

IF NO: Why not? ... Are you afraid of people, or do you dislike them?

IF YES: Can you explain?

IF YES: Tell me about it.

Do you have many friends?

IF NO: Just a few?

IF NO: Any? ... Why?

IF YES: Why just a few friends?

IF YES: Close friends?

IF NO: Why not?

Do you feel that you can trust most people?

IF NO: Why not?

Are there some people in particular that you don't trust?

IF YES: Can you tell me who they are?

Why don't you trust people (or name specific person)?

IF “DON'T KNOW” OR “DON'T WANT TO SAY”: Do you have a good reason not to trust?

Is there something that ... did you know?

Perhaps might do to you now?

IF YES: Can you explain to me?

Do you get along well with others?.....

IF NO: What's the problem?.....

Do you have a quick temper?

Do you get into fights?

IF YES: How do these fights start?

Tell me about these fights.....

How often does this happen?

Do you sometimes lose control of yourself?

Do you like most people?

IF NO: Why not?

Are there perhaps some people who don't like you?

IF YES: For what reason?

Do others talk about you behind your back?

IF YES: What do they say about you?.....

Why?.....

Does anyone ever spy on you or plot against you?

Do you sometimes feel in danger?

IF YES: Would you say that your life is in danger?.....

Is someone thinking of harming you or even perhaps thinking of killing you?.....

Have you gone to the police for help?.....

Do you sometimes take matters into your own hands or take action on those who might harm you?.....

IF YES: What have you done?.....

Data on “Hallucinatory Behavior (P3)” and associated delusions

Do you once in a while have strange or unusual experiences?.....

Sometimes people tell me that they can hear noises or voices inside their head that others can't hear. What about you?.....

Are these as clear and loud as my voice?.....

How often do you hear these voices (noises, messages, etc.)?.....

Does this happen at a particular time of day or all the time?.....

IF HEARING VOICES: Can you recognize whose voices these are?.....

What do the voices say?.....

SCI-PANSS

L. A. Opler, M.D., Ph.D. S.R. Kay, Ph.D J. P. Lindenmayer, M.D. A. Fiszbein, M.D.

Are the voices good or bad?

Pleasant or unpleasant?.....

Do the voices interrupt your thinking or your activities?.....

Do they sometimes give you orders (instructions)?.....

IF YES: For example?.....

Do you usually obey these orders (instructions)?.....

What do you make of these voices (or noises): where do they really come from?.....

Why do you have these experiences?.....

Are these normal experiences?.....

Do ordinary things sometimes look strange or distorted to you?.....

Do you sometimes have “visions” or see things that others can’t see?.....

IF YES: For example?.....

Do these visions seem very real or life-like?.....

How often do you have these experiences?.....

Do you sometimes smell things that are unusual or that others don’t smell?.....

IF YES: Please explain.....

Do you get any strange or unusual sensations from inside your body?.....

IF YES: Tell me about this.....

Data on “Somatic Concern (G1)”

How have you been feeling in terms of your health?.....

IF OTHER THAN “GOOD”: What has been troubling you?.....

IF “GOOD”: Do you consider yourself to be in top health?.....

IF NO: What has been troubling you?.....

Do you have any medical illness or disease?.....

Has any part of your body been troubling you?.....

IF NO: How is your head? Your heart? Stomach? The rest of your body?.....

IF YES: Could you explain?.....

Has your head or body changed in shape or size?.....

IF YES: Please explain.....
What is causing these changes?.....

Data on “Depression (G6)”

How was your mood been in the past week: mostly good, mostly bad?

IF “MOSTLY GOOD”: Have there been times in the past week that you were feeling sad or unhappy? **IF YES, NEXT QUESTION:**

IF “MOSTLY BAD”: Is there something in particular that is making you sad?.....

How often do you feel sad?.....

Just how sad have you been feeling?.....

Have you been crying lately?.....

Has your mood in any way affected your sleep?.....

Has it affected your appetite?.....

Do you participate less in activities on account of your mood?.....

Have you had any thoughts of harming yourself?.....

IF YES: Any thoughts about ending your life?.....

IF YES: Have you attempted suicide?.....

Data on “Guilt Feeling (G3)” and “Grandiosity (P5)”

If you were to compare yourself to the average person, how would you come out: a little better, maybe a little worse, or about the same?.....

IF WORSE: Worse in what ways?.....

Just how do you feel about yourself?.....

IF BETTER: Better in what ways?.....

IF ABOUT THE SAME: Are you special in some ways?.....

IF YES: In what ways?.....

Would you consider yourself gifted?.....

Do you have talents or abilities that most people don’t have?.....

IF YES: Please explain.....

SCI-PANSS

L. A. Opler, M.D., Ph.D. S.R. Kay, Ph.D J. P. Lindenmayer, M.D. A. Fiszbein, M.D.

Do you have any special powers?.....

IF YES: What are these?.....

Where do these powers come from?.....

Do you have extrasensory perception (ESP), or can you read other people's minds?.....

Are you very wealthy?.....

IF YES: Explain please.....

Can you be considered to be very bright?.....

IF YES: Why would you say so?.....

Would you describe yourself as famous?.....

Would some people recognize you from TV, radio, or the newspaper?.....

IF YES: Can you tell me about it?.....

Are you a religious person?.....

IF YES: Are you close to God?.....

IF YES: Did God assign you some special role or purpose?.....

Can you be one of God's messengers or angels?.....

IF YES: What special powers do you have as God's messenger (angel)?.....

Do you perhaps consider yourself to be God?.....

Do you have some special mission in life?.....

IF YES: What is your mission?.....

Who assigned you to that mission?.....

Did you ever do something wrong-something you feel bad or guilty about?.....

IF YES: Just how much does that bother you now?.....

Do you feel that you deserve punishment for that?.....

IF YES: What kind of punishment for that?.....

Have you at times thought of punishing yourself?.....

IF YES: Have you ever acted on those thoughts of punishing yourself?.....

Data on “Disorientation (G10)”

Can you tell me what is today’s date (i.e., the day, month and year)?.....

What is the name of the place that you are in now?.....

(If hospitalised) What ward are you on?.....

What is the address of where you now stay?.....

If someone had to reach you by phone, what number would that person call?.....

What is the name of the doctor who is treating you?.....

(If hospitalized) Can you tell me who else is on the staff and what they do?.....

Do you know who is now the President?.....

Who is our Governor?.....

Who is the Mayor (Town Supervisor) of this city (town, etc.)?.....

Data on “Difficulty in Abstract Thinking (N5)”

I’m going to now say a pair of words, and I’d like you to tell me in what important way they’re alike. Let’s start, for example, with the words “apple” and “banana”. How are they alike – what do they have in common?

IF “THEY’RE BOTH FRUIT”: Good. Now what about ...?

(Select three items from the Similarities list at varying levels of difficulty from Appendix A)

IF AN ANSWER IS GIVEN THAT IS CONCRETE, TANGENTIAL, OR IDIOSYNCRATIC, E.G., “THEY BOTH HAVE SKINS”, “YOU CAN EAT THEM”, “THEY’RE SMALL” OR “MONKEYS LIKE THEM”: Ok, but they’re both fruit. Now how about ... and ...: how are these alike?

(Select three other items from the Similarities list at varying levels of difficulty from Appendix A)

Notes on Similarities response

.....
.....
.....

You've probably heard the expression, "Carrying a chip on the shoulder". What does that really mean? There's a very old saying, "Don't judge a book by its cover". What is the deeper meaning of the proverb?

(Select two other proverbs from the list in Appendix B at varying levels of difficulty.)

Notes on Proverb responses:

.....
.....
.....

Data on "Lack of Judgment and Insight (G12)"

How long have you been in the hospital (clinic, etc.)?.....

Why did you come to the hospital (clinic, etc.)?.....

Did you need to be in a hospital (clinic, etc.)?.....

IF NO: Did you have a problem that needed treatment?.....

IF YES: Would you say that you had a psychiatric or mental problem?.....

IF YES: Why?... Would you say that you had a psychiatric or mental problem?.....

IF YES: Can you tell me about it and what it consist of?.....

IF YES: In your own opinion, do you need to be taking medicine?.....

IF NO:

(If medicated): Why then are you taking medicine?.....

(If unmedicated): Why are you still in the hospital (clinic, etc.)?.....

IF YES: Why?... Does the medicine help you in any way?.....

Do you at this time have any psychiatric or mental problems?.....

IF NO: For what reason are you still in the hospital (clinic, etc.)?.....

IF YES: Please explain.....

Just how serious are these problems?.....

(If hospitalized)

Are you ready yet for discharge from the hospital?.....

Do you think you'll be taking medicine for your problems after discharge?.....

What are your future plans?.....

What about your longer-range goals?.....

Well, that's about all I have to ask you now. Are there any questions that you might like to ask of me?

Thank you for your cooperation.

Appendix A (Circle the similarities used)

1. How are a ball and an orange alike?
2. Apple and orange?
3. Pencil and pen?
4. Nickle and dime?

5. Table and chair?
6. Tiger and elephant?
7. Hat and shirt?
8. Bus and train?

9. Arm and leg?
10. Rose and tulip?
11. Uncle and cousin?
12. The sun and the moon?

13. Painting and poem?
14. Hilltop and valley?
15. Air and water?
16. Peace and prosperity?

Note on Appendix A: Similarities are generally assessed by sampling four items at different levels of difficulty (i.e. one item selected from each quarter of the full set). When using the PANSS longitudinally, items should be systematically altered with successive interviews so as to provide different selections from the various levels of difficulty and thus minimize repetition.

Appendix B (Circle the proverbs used)

What does the saying mean:

1. "Plain as the nose on your face"
2. "Carrying a chip on your shoulder?"
3. "Two heads are better than one"
4. "Too many cooks spoil the broth"

5. "Don't judge a book by its cover"
6. "One man's food is another man's poison"
7. "All that glitters is not gold"
8. "Don't cross the bridge until you come to it"

9. "What's good for the goose is good for the gander"
10. "The grass always look greener on the other side"
11. "Don't keep all your eggs in one basket"
12. "One swallow does not make a summer"

13. "A stitch in time saves nine"
14. "A rolling stone gathers no moss"
15. "The acorn never falls far from the tree"
16. "People who lives in glass houses should not throw stones at others"

Note on Appendix B: Proverbs interpretations are generally assessed by sampling four items at different levels of difficulty (i.e. one item selected from each quarter of the full set). When using the PANSS longitudinally, items should be systematically altered with successive interviews so as to provide different selections from the various levels of difficulty and thus minimize repetition.

PANSS RATING FORM

		<u>absent</u>	<u>minimal</u>	<u>mild</u>	<u>moderate</u>	<u>moderate severe</u>	<u>severe</u>	<u>extreme</u>
P1	Delusions	1	2	3	4	5	6	7
P2	Conceptual disorganisation	1	2	3	4	5	6	7
P3	Hallucinatory behaviour	1	2	3	4	5	6	7
P4	Excitement	1	2	3	4	5	6	7
P5	Grandiosity	1	2	3	4	5	6	7
P6	Suspiciousness/persecution	1	2	3	4	5	6	7
P7	Hostility	1	2	3	4	5	6	7
N1	Blunted affect	1	2	3	4	5	6	7
N2	Emotional withdrawal	1	2	3	4	5	6	7
N3	Poor rapport	1	2	3	4	5	6	7
N4	Passive/apathetic social withdrawal	1	2	3	4	5	6	7
N5	Difficulty in abstract thinking	1	2	3	4	5	6	7
N6	Lack of spontaneity & flow of conversation	1	2	3	4	5	6	7
N7	Stereotyped thinking	1	2	3	4	5	6	7
G1	Somatic concern	1	2	3	4	5	6	7
G2	Anxiety	1	2	3	4	5	6	7
G3	Guilt feelings	1	2	3	4	5	6	7
G4	Tension	1	2	3	4	5	6	7
G5	Mannerisms & posturing	1	2	3	4	5	6	7
G6	Depression	1	2	3	4	5	6	7
G7	Motor retardation	1	2	3	4	5	6	7
G8	Uncooperativeness	1	2	3	4	5	6	7
G9	Unusual thought content	1	2	3	4	5	6	7
G10	Disorientation	1	2	3	4	5	6	7
G11	Poor attention	1	2	3	4	5	6	7
G12	Lack of judgement & insight	1	2	3	4	5	6	7
G13	Disturbance of volition	1	2	3	4	5	6	7
G14	Poor impulse control	1	2	3	4	5	6	7
G15	Preoccupation	1	2	3	4	5	6	7
G16	Active social avoidance	1	2	3	4	5	6	7

Name: _____

Date: _____

YBOCS

Recent research has shown that obsessions and compulsions occur quite commonly among normal people. While completing the inventories below, please keep in mind the following definitions of obsessions and compulsions.

OBSESSIONS are unwelcomed and distressing ideas, thoughts, or impulses that repeatedly enter your mind. They may seem to occur against your will. They may be repugnant to you, you may recognize them as senseless, and they may not fit your personality.

Examples of an obsession are recurrent thought or impulses to do harm to a child even though you never would and the idea that household cleansers may lead to contamination and serious illness.

Obsessions differ from worries in that worries are about possible negative things related to life problems that you are afraid might happen. For example, you may worry about failing an exam, about finances, health, or personal relationships. In contrast to obsessions, your worries don't usually seem totally senseless, repugnant, or inconsistent with your personality.

COMPULSIONS, on the other hand, are behaviors or acts that you feel driven to perform although you may recognize them as senseless or excessive. Usually compulsions are performed in response to an obsession, or according to certain rules or in a stereotyped fashion. At times, you may try to resist doing them but this may prove difficult. You may experience discomfort that does not diminish until the behavior is completed.

Examples of a compulsions are the need to repeatedly check appliances, water faucets, and the lock on the front door before you can leave the house and repeated handwashing. While most compulsions are observable behaviors, some are unobservable mental acts, such as silent checking or having to recite nonsense phrases to yourself each time you have a bad thought.

Compulsions, as we define them here, are not to be confused with other kinds of compulsive behavior such as overeating, gambling, drinking alcohol, overshopping, or other "addictive behaviors."

Give the above definitions, please read carefully each item on the checklist below and 1) place a check mark beside each obsession and compulsion that you currently experience and that you have experienced at some time in the past. If you placed a check mark beside obsessions or compulsions that you currently experience; 2) circle the 2 most upsetting obsessions that you currently experience; and 3) circle the 2 most upsetting compulsions that you are currently engaged in.

YALE BROWN OBSESSIVE-COMPULSIVE SCALE SYMPTOM CHECKLIST

(GOODMAN, RASMUSSEN, ET AL.)

OBSESSIONS:

Aggressive Obsessions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	1. I fear I might harm myself	Fear of eating with a knife or fork, fear of handling sharp objects, fear of walking near glass windows
_____	_____	2. I fear I might harm other people	Fear of poisoning other people's food, fear of harming babies, fear of pushing someone in front of a train, fear of hurting someone's feelings, fear of being responsible by not providing assistance for some imagined catastrophe, fear of causing harm by giving bad advice.
_____	_____	3. I have violent or horrific images in my mind	Images of murder, dismembered bodies, or other disgusting scenes
_____	_____	4. I fear I will blurt out obscenities in class	Fear of shouting obscenities in public situations like church, fear of writing obscenities
_____	_____	5. I fear doing something embarrassing	Fear of appearing foolish in social situations
_____	_____	6. I fear I will act on an unwanted impulse	Fear of driving a car into a tree, fear of running someone over, fear of stabbing a friend
_____	_____	7. I fear I will steal things	Fear of "cheating" a cashier, fear of shoplifting inexpensive items
_____	_____	8. I fear that I'll harm others because I'm not careful enough	Fear of causing an accident without being aware of it (such as a hit-and-run accident)
_____	_____	9. I fear I'll be responsible for something else terrible happening.	Fear of causing a fire or burglary because of not being careful enough in checking the house before leaving

Contamination Obsessions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	10. I am concerned or disgusted with bodily waste or secretions	Fear of contracting AIDS, cancer, or other diseases from public rest rooms; fear of your own saliva, urine, feces, semen, or vaginal secretions
_____	_____	11. I am concerned with dirt or germs	Fear of picking up germs from sitting in certain chairs, shaking hands, or touching door handles

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	12. I am excessively concerned with environmental contaminants	Fear of being contaminated by asbestos or radon, fear of radioactive substances, fear of things associated with towns containing toxic waste sights
_____	_____	13. I am excessively concerned with certain household cleansers	Fear of poisonous kitchen or bathroom cleansers, solvents, insect spray or turpentine
_____	_____	14. I am excessively concerned with animals	Fear of being contaminated by touching an insect, dog, cat, or other animal
_____	_____	15. I am bothered by sticky substances or residues	Fear of adhesive tape or other sticky substances that may trap contaminants
_____	_____	16. I am concerned that I will get ill because of contamination	Fear of getting ill as a direct result of being contaminated (beliefs vary about how long the disease will take to appear)
_____	_____	17. I am concerned that I will contaminate others	Fear of touching other people or preparing their food after you touch poisonous substances (like gasoline) or after you touch your own body

Sexual Obsessions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	18. I have forbidden or perverse sexual thoughts, images, or impulses	Unwanted sexual thoughts about strangers, family, or friends
_____	_____	19. I have sexual obsessions that involve children or incest	Unwanted thoughts about sexually molesting either your own children or other children
_____	_____	20. I have obsessions about homosexuality	Worries like "Am I a homosexual?" or "What if I suddenly become gay?" when there is no basis for these thoughts
_____	_____	21. I have obsessions about aggressive sexual behavior toward other people	Unwanted images of violent sexual behavior toward adult strangers, friends, or family members

Hoarding/Saving Obsessions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	22. I have obsessions about hoarding or saving things	Worries about throwing away seemingly unimportant things that you might need in the future, urges to pick up and collect useless things

Religious Obsessions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	23. I am concerned with sacrilege and blasphemy	Worries about having blasphemous thoughts, saying blasphemous things, or being punished for such things
_____	_____	24. I am excessively concerned with morality	Worries about always doing "the right thing," having told a lie, or having cheated someone

Obsession with need for Symmetry or Exactness:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	25. I have obsessions about symmetry or exactness	Worries about papers and books being properly aligned, worries about calculations or handwriting being perfect

Miscellaneous Obsessions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	26. I feel that I need to know or remember certain things	Belief that you need to remember insignificant things like license plate numbers, the names of actors on television shows, old telephone numbers, bumper stickers or t-shirt slogans
_____	_____	27. I fear saying certain things	Fear of saying certain words (such as "thirteen") because of superstitions, fear of saying something that might be disrespectful to a dead person, fear of using words with an apostrophe (because this denotes possession)
_____	_____	28. I fear not saying just the right thing	Fear of having said the wrong thing, fear of not using the "perfect" word
_____	_____	29. I fear losing things	Worries about losing a wallet or other unimportant objects, like a scrap of note paper
_____	_____	30. I am bothered by intrusive (neutral) mental images	Random, unwanted images in your mind
_____	_____	31. I am bothered by intrusive mental nonsense sounds, words or music	Words, songs, or music in your mind that you can't stop
_____	_____	32. I am bothered by certain sounds or noises	Worries about the sounds of clocks ticking loudly or voices in another room that may interfere with sleeping

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	33. I have lucky and unlucky numbers	Worries about common numbers (like thirteen) that may cause you to perform activities a certain number of times or to postpone an action until a certain lucky hour of the day
_____	_____	34. Certain colors have special significance to me	Fear of using objects of certain colors (e.g. black may be associated with death, red with blood or injury)
_____	_____	35. I have superstitious fears	Fear of passing a cemetery, hearse, or black cat; fear of omens associated with death

Somatic Obsessions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	36. I am concerned with illness or disease	Worries that you have an illness like cancer, heart disease or AIDS, despite reassurance from doctors that you do not
_____	_____	37. I am excessively concerned with a part of my body or an aspect of my appearance (dysmorphophobia)	Worries that your face, ears, nose, eyes, or another part of your body is hideous, ugly, despite reassurances to the contrary

COMPULSIONS:

Cleaning/Washing Compulsions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	38. I wash my hands excessively or in a ritualized way	Washing your hands many times a day or for long periods of time after touching, or thinking that you have touched a contaminated object. This may include washing the entire length of your arms
_____	_____	39. I have excessive or ritualized showering, bathing, tooth brushing, grooming, or toilet routines	Taking showers or baths or performing other bathroom routines that may last for several hours. If the sequence is interrupted, the entire process may have to be restarted
_____	_____	40. I have compulsions that involve cleaning household items or other inanimate objects	Excessive cleaning of faucets, toilets, floors, kitchen counters, or kitchen utensils
_____	_____	41. I do other things to prevent or remove contact with contaminants	Asking family members to handle or remove insecticides, garbage, gasoline cans, raw meat, paints, varnish, drugs in the medicine cabinet, or kitty litter. If you can't avoid these things, you may wear gloves to handle them, such as when using a self-service gas pump

Checking Compulsions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	42. I check that I did not harm others	Checking that you haven't hurt someone without knowing it. You may ask others for reassurance or telephone to make sure that everything is all right
_____	_____	43. I check that I did not harm myself	Looking for injuries of bleeding after handling sharp or breakable objects. You may frequently go to doctors to ask for reassurance that you haven't hurt yourself
_____	_____	44. I check that nothing terrible happened	Searching the newspaper or listening to the radio or television for news about some catastrophe that you believe you caused. You may also ask people for reassurance that you didn't cause an accident
_____	_____	45. I check that I did not make a mistake	Repeated checking of door locks, stoves, electrical outlets, before leaving home; repeated checking while reading, writing, or doing simple calculations to make sure that you didn't make a mistake (you can't be certain that you didn't)
_____	_____	46. I check some aspect of my physical condition tied to my obsessions about my body	Seeking reassurance from friends or doctors that you aren't having a heart attack or getting cancer; repeatedly taking pulse, blood pressure, or temperature; checking your appearance in a mirror, looking for ugly features

Repeating Rituals:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	47. I reread or rewrite things	Taking hours to read a few pages in a book or to write a short letter because you get caught in a cycle of reading and rereading; worrying that you didn't understand something you just read; searching for a "perfect" word or phrase; having obsessive thoughts about the shape of certain printed letters in a book
_____	_____	48. I need to repeat routine activities	Repeating activities like turning appliances on and off, combing your hair, going in and out of a doorway, or looking in a particular direction; not feeling comfortable unless you do these things the "right" number of times

Counting Compulsions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	49. I have counting compulsions	Counting objects like ceiling or floor tiles, books in a bookcase, nails in a wall, or even grains of sand on a beach; counting when you repeat certain activities, like washing

Ordering/Arranging Compulsions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	50. I have ordering or arranging compulsions	Straightening paper and pens on a desktop or books in a bookcase, wasting hours arranging things in your house in "order" and then becoming very upset if this order is disturbed

Hoarding/Collecting Compulsions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	51. I have compulsions to hoard or collect things	Saving old newspapers, notes, cans, paper towels, wrappers and empty bottles for fear that if you throw them away you may need them; picking up useless objects from the street or from garbage cans

Miscellaneous Compulsions:

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	52. I have mental rituals (other than checking/counting)	Performing rituals in your head, like saying prayers or thinking a "good" thought to undo a "bad" thought. These are different from obsessions, because you perform them intentionally to reduce anxiety or feel better
_____	_____	53. I need to tell, ask, or confess	Asking other people to reassure you, confessing to wrong behaviors you never even did, believing that you have to tell other people certain words to feel better
_____	_____	54. I need to touch, tap, or rub things	Giving in to the urge to touch rough surfaces, like wood, or hot surfaces, like a stove top; giving in to the urge to lightly touch other people; believing you need to touch an object like a telephone to prevent an illness in your family

<u>Past</u>	<u>Current</u>		<u>Examples</u>
_____	_____	55. I take measures (other than checking) to prevent harm or terrible consequences to myself or family	Staying away from sharp or breakable objects, such as knives, scissors, and fragile glass
_____	_____	56. I have ritualized eating behaviors	Arranging your food, knife, and fork in a particular order before being able to eat, eating according to a strict ritual, not being able to eat until the hands of a clock point exactly at a certain time
_____	_____	57. I have superstitious behaviors	Not taking a bus or train if its number contains an "unlucky" number (like thirteen), staying in your house on the thirteenth of the month, throwing away clothes you wore while passing a funeral home or cemetery
_____	_____	58. I pull my hair out (trichotillomania)	Pulling hair from your scalp, eyelids, eyelashes, or pubic areas, using your fingers or tweezers. You may produce bad spots that require you to wear a wig, or you may pluck your eyebrows or eyelids smooth

Acknowledgments: The Y-BOCS was developed by Goodman, W.K., Price, L.H., Rasmussen, S.A., et al. (1989). The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) Part 1: Development, use and reliability. *Archives of General Psychiatry*, *46*, 1006-1011. It was modified for computer administration by John Greist and associates, (1992). A computer administered version of the Yale-Brown Obsessive Compulsive Scale. *Psychological Assessment*, *4*, 329-332. The self-report version contained herein was developed by Lee Baer (1991). *Getting Control: Overcoming your obsessions and compulsions*. Boston: Little, Brown, & Co. The Y-BOCS Symptom Checklist was also developed by Dr. Wayne Goodman and associates. We extend our appreciation to Dr. Goodman and Dr. Baer for granting us permission to use these materials for clinical and research purposes

YALE BROWN OBSESSIVE-COMPULSIVE SCALE (Y-BOCS) – Part 2

Thank you for completing the Y-BOCS checklist. Please make sure you circle the 2 most upsetting obsessions that you currently experience and that you circled the 2 compulsions that cause you the most difficulty. Remember the definitions of obsessions and compulsions and the examples of each that you may have noted on the checklist. Please place a check mark by the appropriate number from 0-4 under each question below. If you are currently not experiencing any obsession or compulsions, you may simply enter zeros for the questions, then continue to the next question.

OBSESSIVE THOUGHTS: Review the obsessions you checked on the Y-BOCS Symptom Checklist to help you answer the first five questions. Please think about the last seven days (including today), and check one answer for each question.

1. TIME OCCUPIED BY OBSESSIVE THOUGHTS: How much of your time was occupied by obsessive thoughts? How frequently did these thoughts occur?

- 0 = None
- 1 = Less than 1 hour per day, or occasional intrusions (occur no more than 8 times a day)
- 2 = 1-3 hours per day, or frequent intrusions (most of the day are free of obsessions)
- 3 = More than 3 hours and up to 8 hours per day, or very frequent intrusions
- 4 = More than 8 hours per day, or near-constant intrusions

2. INTERFERENCE DUE TO OBSESSIVE THOUGHTS: How much did these thoughts interfere with your social or work functioning? Is there anything that you didn't do because of them?

- 0 = No interference
- 1 = Mild, slight interference with social or occupational performance, but still performance not impaired
- 2 = Moderate, definitive interference with social or occupational performance, but still manageable
- 3 = Severe interference, causes substantial impairment in social or occupational performance
- 4 = Extreme, incapacitating interference

3. DISTRESS ASSOCIATED WITH OBSESSIVE THOUGHTS: How much distress did your obsessive thoughts cause you?

- 0 = None
- 1 = Mild, infrequent, and not too disturbing distress
- 2 = Moderate, frequent, and disturbing distress, but still manageable
- 3 = Severe, very frequent, and very disturbing distress
- 4 = Extreme, near-constant, and disabling distress

4. RESISTANCE AGAINST OBSESSIONS: How much effort did you make to resist the obsessive thought? How often did you try to disregard or turn your attention away from those thoughts as they entered your mind?

- _____ 0 = I made an effort to always resist (or the obsessions are so minimal that there is no need to actively resist them)
- _____ 1 = I tried to resist most of the time (e.g. more than half the time I tried to resist)
- _____ 2 = I made some effort to resist
- _____ 3 = I allowed all obsessions to fill my mind without attempting to control them, but I did so with some reluctance
- _____ 4 = I completely and willingly gave in to all obsessions

5. DEGREES OF CONTROL OVER OBSESSIVE THOUGHTS: How much control did you have over your obsessive thoughts? How successful were you in stopping or diverting your obsessive thinking?

- _____ 0 = Complete control
- _____ 1 = Much control; usually I could stop or divert obsessions with some effort and concentration
- _____ 2 = Moderate control; sometimes I could stop or divert obsessions
- _____ 3 = Little control; I was rarely successful in stopping obsessions and could only divert attention with great difficulty
- _____ 4 = No control; I was rarely able to even momentarily ignore the obsessions

OBSESSION SUPTOTAL (Add items 1-5) _____

COMPULSIONS: Review the compulsions you checked on the Y-BOCS Symptom Checklist to help you answer these five questions. Please think about the last seven days (including today), and check one answer for each question.

6. TIME SPENT PERFORMING COMPULSIVE BEHAVIORS: How much time did you spend performing compulsive behavior? How frequently did you perform compulsions?

- _____ 0 = None
- _____ 1 = Less than 1 hour per day was spent performing compulsions, or occasional performance of compulsive behaviors (no more than 8 times per day)
- _____ 2 = 1-3 hours per day was spent performing compulsions, or frequent performance of compulsive behaviors (most hours were free of compulsions)
- _____ 3 = More than 3 hours and up to 8 hours per day were spent performing compulsions, or very frequent performance of compulsive behaviors (during most hours of the day)
- _____ 4 = More than 8 hours were spent performing compulsions, or near-constant performance of compulsive behaviors (hour rarely passes without several compulsions being performed)

7. INTERFERENCE DUE TO COMPULSIVE BEHAVIOR: How much did your compulsive behaviors interfere with your social or work functioning?

- _____ 0 = No interference
- _____ 1 = Mild, slight interference with social or occupational activities, but overall performance not impaired
- _____ 2 = Moderate, definite interference with social or occupational performance, but still manageable
- _____ 3 = Severe interference, substantial impairment in social or occupational performance
- _____ 4 = Extreme, incapacitation interference

8. DISTRESS ASSOCIATED WITH COMPULSIVE BEHAVIOR: How would you have felt if prevented from performing your compulsion(s)? How anxious would you have become?

- _____ 0 = Not at all anxious
- _____ 1 = Only slightly anxious if compulsions prevented
- _____ 2 = Anxiety would mount but remain manageable if compulsions prevented
- _____ 3 = Prominent and very disturbing increase in anxiety if compulsions interrupted
- _____ 4 = Extreme, incapacitating anxiety from any intervention aimed at reducing the compulsions

9. RESISTANCE: How much effort did you make to resist the compulsions? Or how often did you try to stop the compulsions?

- _____ 0 = I made effort to always resist (or the symptoms were so minimal that there was no need to actively resist them)
- _____ 1 = I tried to resist most of the time (e.g. more than half the time)
- _____ 2 = I made some effort to resist
- _____ 3 = I yielded to almost all compulsions without attempting to control them, but I did so with some reluctance
- _____ 4 = I completely and willingly yielded to all compulsions

10. DEGREES OF CONTROL OVER COMPULSIVE BEHAVIOR: How much control did you have over the compulsive behavior? How successful were you in stopping the ritual(s)?

- _____ 0 = I had complete control
- _____ 1 = Usually I could stop compulsions or rituals with some effort and willpower
- _____ 2 = Sometimes I could stop compulsive behavior but only with difficulty
- _____ 3 = I could only delay the compulsive behavior, but eventually it had to be carried out to completion
- _____ 4 = I was rarely able to even momentarily delay performing the compulsive behavior

COMPULSIVE SUBTOTAL (Add items 6-10) _____

11. Do you think your obsessions or compulsions are reasonable or rational? Would there be anything besides anxiety to worry about if you resisted them? Do you think something would really happen?

- _____ 0 = I think my obsessions or compulsions are unreasonable or excessive
- _____ 1 = I think my obsessions or compulsions are unreasonable or excessive, but I'm not completely convinced that they aren't necessary
- _____ 2 = I think my obsessions or compulsions may be unreasonable or excessive
- _____ 3 = I don't think my obsessions or compulsions are unreasonable or excessive
- _____ 4 = I am sure my obsessions or compulsions are reasonable, no matter what anyone says

University of Malaya

CALGARY DEPRESSION RATING SCALE FOR SCHIZOPHRENIA

- 1 **DEPRESSION:** How would you describe your mood over the last two weeks? Do you keep reasonably cheerful or have you been very depressed or low spirited? In the last two weeks how often have you (own words) every day? All day?
- 0 Absent
 - 1 Mild Expresses some sadness or discouragement on questioning.
 - 2 Moderate Distinct depressed mood persisting up to half the time over last 2 weeks: present daily.
 - 3 Severe Markedly depressed mood persisting daily over half the time interfering with normal motor and social functioning.
- 2 **HOPELESSNESS:** How do you see the future for yourself? Can you see any future? – Or has life seemed quite hopeless? Have you given up or does there still seem some reason for trying?
- 0 Absent
 - 1 Mild Has at times felt hopeless over the last two weeks but still has some degree of hope for future.
 - 2 Moderate Persistent, moderate sense of hopelessness over last week. Can be persuaded to acknowledge possibility of things being better.
 - 3 Severe Persisting and distressing sense of hopelessness.
- 3 **SELF DEPRECIATION:** What is your opinion of yourself compared to other people? Do you feel better, not as good, or about the same as others? Do you feel inferior or even worthless?
- 0 Absent
 - 1 Mild Some inferiority; not amounting to feeling of worthlessness.
 - 2 Moderate Subject feels worthless, but less than 50% of the time.
 - 3 Severe Subject feels worthless more than 50% of the time. Maybe challenged to acknowledge otherwise.
- 4 **GUILTY IDEAS OF REFERENCE:** Do you have the feeling that you are being blamed for something or even wrongly accused? What about? (Do not include justifiable blame or accusation. Exclude delusions of guilt.)
- 0 Absent
 - 1 Mild Subject feels blamed but not accused less than 50% of the time.
 - 2 Moderate Persisting sense of being blamed, and/or occasional sense of being accused.
 - 3 Severe Persistent sense of being accused. When challenged, acknowledges that it is not so.
- 5 **PATHOLOGICAL GUILT:** Do you tend to blame yourself for little things you may have done in the past? Do you think that you deserve to be so concerned about this?
- 0 Absent
 - 1 Mild Subject sometimes feels over guilty about some minor peccadillo, but less than 50% of time.
 - 2 Moderate Subject usually (over 50% of time) feels guilty about past actions the significance of which he exaggerates.
 - 3 Severe Subject usually feels s/he is to blame for everything that has gone wrong, even when not his/her fault.

6 **MORNING DEPRESSION:** When you have felt depressed over the last 2 weeks have you noticed the depression being worse at any particular time of day?

- 0 Absent No depression.
- 1 Mild Depression present but no diurnal variation.
- 2 Moderate Depression spontaneously mentioned to be worse in a.m.
- 3 Severe Depression markedly worse in a.m., with impaired functioning which improves in p.m.

7 **EARLY WAKENING:** Do you wake earlier in the morning than is normal for you? How many times a week does this happen?

- 0 Absent No early wakening.
- 1 Mild Occasionally wakes (up to twice weekly) 1 hour or more before normal time to wake or alarm time.
- 2 Moderate Often wakes early (up to 5 times weekly) 1 hour or more before normal time to wake or alarm.
- 3 Severe Daily wakes 1 hour or more before normal time.

8 **SUICIDE:** Have you felt that life wasn't worth living? Did you ever feel life ending it all? What did you think you might do? Did you actually try?

- 0 Absent
- 1 Mild Frequent thoughts of being better off dead, or occasional thoughts of suicide.
- 2 Moderate Deliberately considered suicide with a plan, but made no attempt.
- 3 Severe Suicidal attempt apparently designed to end in death (i.e.: accidental discovery or inefficient means).

9 **OBSERVED DEPRESSION:** Based on interviewer's observations during the entire interview. The question "Do you feel like crying?" used at appropriate points in the interview, may elicit information useful to this observation.

- 0 Absent
- 1 Mild Subject appears sad and mournful even during parts of the interview, involving affectively neutral discussion.
- 2 Moderate Subject appears sad and mournful throughout the interview, with gloomy monotonous and is tearful or close to tears at times.
- 3 Severe Subject chokes on distressing topics, frequently sighs deeply and cries openly, or is persistently in a state of frozen misery if examiner is sure that this is present.

	ITEM	SCORE
1	DEPRESSION	
2	HOPELESSNESS	
3	SELF DEPRECIATION	
4	GUILTY IDEAS OF REFERENCE	
5	PATHOLOGICAL GUILT	
6	MORNIGN DEPRESSION	
7	EARLY WAKENING	
8	SUICIDE	
9	OBSERVED DEPRESSION	
TOTAL SCORE		

COLUMBIA-SUICIDE SEVERITY RATING SCALE (C-SSRS)

Screening

Version 1/14/09

*Posner, K.; Brent, D.; Lucas, C.; Gould, M.; Stanley, B.; Brown, G.; Fisher, P.; Zelazny, J.;
Burke, A.; Oquendo, M.; Mann, J.*

Disclaimer:

This scale is intended to be used by individuals who have received training in its administration. The questions contained in the Columbia-Suicide Severity Rating Scale are suggested probes. Ultimately, the determination of the presence of suicidal ideation or behavior depends on the judgment of the individual administering the scale.

*Definitions of behavioral suicidal events in this scale are based on those used in **The Columbia Suicide History Form**, developed by John Mann, MD and Maria Oquendo, MD, Conte Center for the Neuroscience of Mental Disorders (CCNMD), New York State Psychiatric Institute, 1051 Riverside Drive, New York, NY, 10032. (Oquendo M. A., Halberstam B. & Mann J. J., Risk factors for suicidal behavior: utility and limitations of research instruments. In M.B. First [Ed.] Standardized Evaluation in Clinical Practice, pp. 103 -130, 2003.)*

For reprints of the C-SSRS contact Kelly Posner, Ph.D., New York State Psychiatric Institute, 1051 Riverside Drive, New York, New York, 10032; inquiries and training requirements contact posnerk@nyspi.columbia.edu

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SUICIDAL BEHAVIOR (Check all that apply, so long as these are separate events; must ask about all types)			Past X Years or Lifetime
<p>Actual Attempt: A potentially self-injurious act committed with at least some wish to die, as a result of act. Behavior was in part thought of as method to kill oneself. Intent does not have to be 100%. If there is any intent/desire to die associated with the act, then it can be considered an actual suicide attempt. There does not have to be any injury or harm, just the potential for injury or harm. If person pulls trigger while gun is in mouth but gun is broken so no injury results, this is considered an attempt. Inferring Intent: Even if an individual denies intent/wish to die, it may be inferred clinically from the behavior or circumstances. For example, a highly lethal act that is clearly not an accident so no other intent but suicide can be inferred (e.g., gunshot to head, jumping from window of a high floor/story). Also, if someone denies intent to die, but they thought that what they did could be lethal, intent may be inferred.</p> <p>Have you made a suicide attempt? Have you done anything to harm yourself? Have you done anything dangerous where you could have died? What did you do? Did you _____ as a way to end your life? Did you want to die (even a little) when you _____? Were you trying to end your life when you _____? Or did you think it was possible you could have died from _____? Or did you do it purely for other reasons / without ANY intention of killing yourself (like to relieve stress, feel better, get sympathy, or get something else to happen)? (Self-Injurious Behavior without suicidal intent) If yes, describe:</p>			<p>Yes No <input type="checkbox"/> <input type="checkbox"/></p> <p>Total # of Attempts _____</p> <p>Yes No <input type="checkbox"/> <input type="checkbox"/></p>
<p>Has subject engaged in Non-Suicidal Self-Injurious Behavior?</p> <p>Interrupted Attempt: When the person is interrupted (by an outside circumstance) from starting the potentially self-injurious act (if not for that, actual attempt would have occurred). Overdose: Person has pills in hand but is stopped from ingesting. Once they ingest any pills, this becomes an attempt rather than an interrupted attempt. Shooting: Person has gun pointed toward self, gun is taken away by someone else, or is somehow prevented from pulling trigger. Once they pull the trigger, even if the gun fails to fire, it is an attempt. Jumping: Person is poised to jump, is grabbed and taken down from ledge. Hanging: Person has noose around neck but has not yet started to hang - is stopped from doing so. Has there been a time when you started to do something to end your life but someone or something stopped you before you actually did anything? If yes, describe:</p>			<p>Yes No <input type="checkbox"/> <input type="checkbox"/></p> <p>Total # of interrupted _____</p>
<p>Aborted Attempt: When person begins to take steps toward making a suicide attempt, but stops themselves before they actually have engaged in any self-destructive behavior. Examples are similar to interrupted attempts, except that the individual stops him/herself, instead of being stopped by something else. Has there been a time when you started to do something to try to end your life but you stopped yourself before you actually did anything? If yes, describe:</p>			<p>Yes No <input type="checkbox"/> <input type="checkbox"/></p> <p>Total # of aborted _____</p>
<p>Preparatory Acts or Behavior: Acts or preparation towards imminently making a suicide attempt. This can include anything beyond a verbalization or thought, such as assembling a specific method (e.g., buying pills, purchasing a gun) or preparing for one's death by suicide (e.g., giving things away, writing a suicide note). Have you taken any steps towards making a suicide attempt or preparing to kill yourself (such as collecting pills, getting a gun, giving valuables away or writing a suicide note)? If yes, describe:</p>			<p>Yes No <input type="checkbox"/> <input type="checkbox"/></p>
<p>Suicidal Behavior: Suicidal behavior was present during the assessment period?</p>			<p>Yes No <input type="checkbox"/> <input type="checkbox"/></p>
Answer for Actual Attempts Only			
<p>Actual Lethality/Medical Damage: 0. No physical damage or very minor physical damage (e.g., surface scratches). 1. Minor physical damage (e.g., lethargic speech; first-degree burns; mild bleeding; sprains). 2. Moderate physical damage; medical attention needed (e.g., conscious but sleepy, somewhat responsive; second-degree burns; bleeding of major vessel). 3. Moderately severe physical damage; medical hospitalization and likely intensive care required (e.g., comatose with reflexes intact; third-degree burns less than 20% of body; extensive blood loss but can recover; major fractures). 4. Severe physical damage; medical hospitalization with intensive care required (e.g., comatose without reflexes; third-degree burns over 20% of body; extensive blood loss with unstable vital signs; major damage to a vital area). 5. Death</p>			<p>Most Recent Attempt Date: Enter Code</p> <p>Most Lethal Attempt Date: Enter Code</p> <p>Initial/First Attempt Date: Enter Code</p>
<p>Potential Lethality: Only Answer if Actual Lethality=0 Likely lethality of actual attempt if no medical damage (the following examples, while having no actual medical damage, had potential for very serious lethality: put gun in mouth and pulled the trigger but gun fails to fire so no medical damage; laying on train tracks with oncoming train but pulled away before run over). 0 = Behavior not likely to result in injury 1 = Behavior likely to result in injury but not likely to cause death 2 = Behavior likely to result in death despite available medical care</p>			<p>Most Recent Attempt Date: Enter Code</p> <p>Most Lethal Attempt Date: Enter Code</p> <p>Initial/First Attempt Date: Enter Code</p>

WHO QUALITY OF LIFE – BRIEF MALAY VERSION

Sila baca setiap soalan, nyata dan nilai perasaan anda dengan membulatkan nombor di setiap soalan berkenaan mengikut skala yang diberikan.

		Sangat tidak berpuas hati	Tidak berpuas hati	Sederhana	Berpuas hati	Sangat berpuas hati
1 (G1)	Sejauh manakah anda berpuas hati dengan kesihatan anda?	1	2	3	4	5

		Sangat tidak baik	Tidak baik	Sederhana	Baik	Sangat baik
2 (G4)	Bagaimana anda menilai kualiti kehidupan anda?	1	2	3	4	5

		Tiada langsung	Sedikit sahaja	Sederhana	Sangat banyak	Teramat banyak
3 (F1.4)	Setakat manakah anda berasa kesakitan (fizikal) menghalang anda dari melakukan apa yang anda perlu lakukan?	1	2	3	4	5
4 (F11.3)	Berapa kerapkah rawatan perubatan yang anda perlu untuk berfungsi dalam kehidupan harian anda?	1	2	3	4	5
5 (F4.1)	Setakat manakah anda menikmati keseronokan dalam hidup anda?	1	2	3	4	5
6 (F24.2)	Setakat manakah anda rasa hidup anda bermakna?	1	2	3	4	5

		Tiada langsung	Sedikit sahaja	Sederhana	Sangat	Teramat
7 (F5.3)	Berapa baikkah anda memberi tumpuan?	1	2	3	4	5
8 (F16.1)	Berapa selamatkah anda rasa dalam kehidupan seharian anda?	1	2	3	4	5
9 (F22.1)	Berapa sihatkah persekitaran fizikal anda?	1	2	3	4	5

Soalan-solan berikutnya bertanyakan bagaimana sepenuhnya anda mengalami atau melakukan sesuatu perkara dalam 2 minggu yang lepas.

		Tiada langsung	Sedikit sahaja	Sederhana	Kebanyakannya	Sepenuhnya
10 (F2.1)	Setakat mana anda mempunyai cukup tenaga untuk menjalani kehidupan harian anda?	1	2	3	4	5
11 (F7.1)	Sejauh manakah anda dapat menerima rupa paras dan bentuk tubuh badan anda?	1	2	3	4	5
12 (F18.1)	Sejauh manakah anda mempunyai wang yang cukup untuk memenuhi keperluan anda?	1	2	3	4	5
13 (F20.1)	Setakat manakah kemudahan bagi anda untuk mendapatkan maklumat yang diperlukan dalam kehidupan anda?	1	2	3	4	5
14 (F21.1)	Setakat mana anda mempunyai peluang untuk aktiviti riadah?	1	2	3	4	5

Sila baca setiap soalan, nyata dan nilai perasaan anda dengan membulatkan nombor di setiap soalan berkenaan mengikut skala yang diberikan.

		Sangat tidak baik	Tidak baik	Sederhana	Baik	Sangat baik
15 (F9.1)	Sebaik manakah keupayaan anda boleh bergerak dari satu tempat ke satu tempat yang lain?	1	2	3	4	5

Soalan-soalan berikut bertanyakan tentang perasaan anda terhadap beberapa aspek tertentu dalam kehidupan anda sepanjang 2 minggu yang lepas.

		Sangat tidak berpuas hati	Tidak berpuas hati	Sederhana	Berpuas hati	Sangat berpuas hati
16 (F3.3)	Adakah anda berpuas hati dengan tidur anda?	1	2	3	4	5
17 (F10.3)	Adakah anda berpuas hati dengan keupayaan anda melaksanakan aktiviti kehidupan harian anda?	1	2	3	4	5
18 (F12.4)	Adakah anda berpuas hati dengan keupayaan anda dalam pekerjaan?	1	2	3	4	5
19 (F6.3)	Adakah anda berpuas hati dengan diri anda?	1	2	3	4	5
20 (F13.3)	Adakah anda berpuas hati dengan perhubungan peribadi anda?	1	2	3	4	5
21 (F15.3)	Adakah anda berpuas hati dengan perhubungan seks dengan pasangan anda?	1	2	3	4	5
22 (F14.4)	Adakah anda berpuas hati dengan sokongan yang anda dapati dari kawan-kawan anda?	1	2	3	4	5
23 (F17.3)	Adakah anda berpuas hati dengan keadaan tempat tinggal anda?	1	2	3	4	5
24 (F19.3)	Adakah anda berpuas hati dengan kemudahan mendapatkan perkhidmatan kesihatan?	1	2	3	4	5
25 (F23.3)	Adakah anda berpuas hati dengan pengangkutan anda?	1	2	3	4	5

Soalan berikut merujuk kepada kekerapan anda merasa atau mengalami sesuatu emosi sepanjang 2 minggu yang lepas.

		Tidak pernah	Jarang-jarang	Kerap	Sangat kerap	Sentiasa
26 (F8.1)	Berapa kerapkah anda mempunyai perasaan-perasaan negatif seperti susah hati, kecewa, kegelisahan atau kemurungan?	1	2	3	4	5

Adakah seseorang telah membantu anda mengisi borang ini?

Berapa lamakah masa yang diambil untuk mengisi borang ini?

Adakah anda mempunyai sebarang komen mengenai penilaian ini?

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