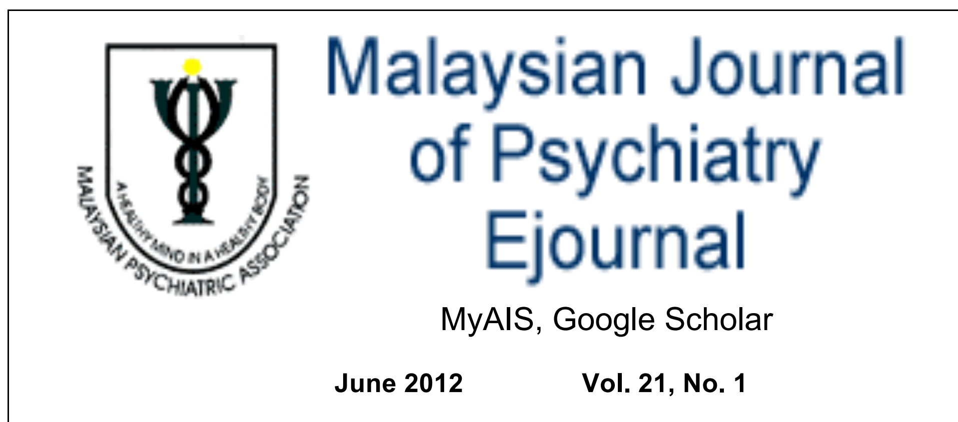

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EDITORIAL

Research Publications in Psychiatry: A Daunting Task for Everyone

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Over the years, it was noted that there was an urgent need for research publications for every Malaysian Psychiatrist. In academia, the pressure was mounting on every psychiatrist to excel in terms of their key performance indicator (KPI). The research university status of the university demanded all publications to be covered at least by the Scopus and ISI databases. Publications in quartile level journals were sought by every university. The need for publications is great, especially in academia in order to get promoted and develop one's career. At least, this urgency was not meant for clinicians serving under Malaysian Ministry of Health (MOH) but the scenario may change in near future. The entire exercise has posed a great challenge to the psychiatrist, and it is presumed that a situation may arise when the psychiatrist may himself or herself face a stressful situation and "burnt-out" situation and succumb to significant mental health problems. A balance has to be struck between our core business in teaching and clinical service in academia, and between clinical service and administrative workload in MOH.

In many instances, even though many manuscripts were sent to high impact factor journals in the West, they were shot down for no or some reasons. Sometimes, the common reasons for rejections were mentioned as poor English, no new scientific facts to highlight, lack in depth of the study, etc. Many authors wandered aimlessly as they did not know where to send their manuscript for the next option once their initial submission was rejected by a particular journal.

There is a drive for publishing in high impact factor journals. Impact factor itself is a debatable thing. Even the discoverers of impact factor and 'H index' would never have imagined that one day these things would be used as a yardstick to measure the ranking of universities. The main worry is the small number of Malaysian journals being indexed in Scopus or ISI. Inability to fulfil the stringent criteria had resulted in many journals being turned down when they applied for indexation in Scopus or ISI. The role of open-access journal was noted to be rather unimportant, despite of being cheap and easily accessible[1]. It is a sorry state to see not a single agency or authority being involved in helping an editor for his quest for indexation. The fact that some of the nations have their own indexed journals and tend to publish work from their region cannot be refuted. The role of *PLoS journal* as a peer-reviewed scientific journal that will be freely available and reportedly capable of competing with such prominent publications as *Science, Nature*, and *Cell* is an exciting idea[2] and may reduce the monopoly of existing publishers.

Nevertheless, why do we have to look constantly to our colleagues in the West? Why can't we be self-sufficient? How long do we have to wait to stand on our own feet to get our work published? No one weighs these facts.

Research is like keeping an 'elephant.' If you keep an elephant, then you have to feed and take care of the elephant in terms of manpower, or else the elephant will suffer. One has to have adequate manpower, good support staff, well trained post doctoral fellows, substantial financial back up, strong linkage with Western researchers and editors, and enough time to dedicate for research and do the writing. A closer look at all the premier research institutes depict that they have a sound post doctoral team which do the majority of research and article writing. There is an urgent need to hire more sophisticated experts in the field of research rather than tighten the noose on the local researchers. Results in terms of publication cannot be shown overnight rather one has to wait for years to weigh the research output. A culture has to be set in and maintained where everyone would strive hard for excellence rather than few individuals leading the research and publications. The editors are unable to perform because of too many administrative and clinical duties in their own institutions. An editor can only excel when he or she can devote her full time to run a journal without distraction. The editor has also compromised with mere supporting staff and faced severe financial constraints but still then, they manage to keep the journal running smoothly.

The main question of the day is "Are the psychiatrists really in the underperforming category?" I will not take any interest in defending them but I would surely focus and give my opinion to make the conditions more favourable for him/her so that he or she could excel without facing any problem. All areas need to be addressed properly. Psychiatrists deal with individuals who are mentally stressed and the day is not far when the psychiatrists themselves may find themselves on the "wrong side of the boat". The talent has to be nurtured carefully and good leaders are needed to pave the way for attaining stupendous success in the field of research. "Where there is a will, there is a way." Hence, if we have the will power, we can surely excel but we need to take out all the hurdles which hamper us from reaching the zenith of success in research. Let us develop the bond of collaborative research and plan our action judiciously. Consider this article an invitation to encourage a passion for research and publications and I am sure our goals to be the top ranked research nations of the world will be a success.

References

1. Mayor S. Libraries face higher costs for academic journals. BMJ. 2003;326:840.

2. Public Library of Science. PLoS history. Available at http://www.plos.org/about/history.html; accessed July 11, 2003.

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ORIGINAL PAPER

Psychometric Profile of Malaysian Version of the Depressive, Anxiety and Stress Scale 42-item (DASS-42)

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Abstract

Background*: The Malay short version of Depressive Anxiety and Stress Scale (DASS-21) has been widely used as a tool to measure psychological parameters in studies in Malaysia. The version has been found to be reliable for clinical and non-clinical populations. *Objectives*: To analyse and establish the psychometric properties of the Malay version of the DASS 42-item (BM DASS-42) among medical students. *Methods*: Concurrent forward and backward translations of original English DASS-42 were completed. Construct validity of the DASS-42 was established by looking at its exploratory factor analysis. Malay DASS-42 and Malay HADS were administered to a total of 411 medical students. *Results*: Reliability of DASS-42 revealed excellent Cronbach's alpha values of 0.94, 0.90 and 0.87 for depressive, anxiety and stress domains respectively. Construct validity yielded 38 items out of 42 items (90%) had good factor loadings of 0.4 and more. DASS and HADS were strongly correlated for both anxiety (r=0.87) and depression (r=0.68) domains. *Conclusions*: The BM DASS-42 had admirable psychometric properties among the tested population. Further studies are needed to verify these preliminary outcomes in other Malaysian subjects.

Keywords: Depressive, Anxiety, Stress, Malay, Validation

Introduction

The Depression Anxiety Stress Scales (DASS) has been translated in various languages including Malay language. It also has been wildly used across the globe as a research tool to measure psychological aspects. By a single administration the researchers would be able to gauge 3 main psychological domains namely depression, anxiety and stress. The original version of DASS is 42-item and DASS 21-item is a modified short version. The DASS-21 has been tested for various aspects of psychometric properties in different populations [1, 2, 3]. Ever since the

establishment of the Bahasa Malaysia (BM) DASS-21 validity, it has received overwhelming responses and it has been widely used in Malaysia. The questionnaire is simple and convenient to be administered to general population. The forty two items in this questionnaire are cultural free and that makes the test feasible to adapt to any cultures[4,5].

Prior to the validation effort, we obtained the permission from the original author (Professor Dr. Peter Lovinbond, Professor of The School of Psychology University of New South Wales Australia) to develop BM DASS-42. The ultimate aim of this study was to produce a well adapted Bahasa Malaysia version of DASS-42 that can be used for Malaysian population.

Methods

This research obtained an approval by The Ethics and Research committee Kulliyyah of Medicine International Islamic University Malaysia. The translation process was done according to guideline stipulated in US Census Bureau Guideline with 2 forward and 2 back translations by language and content experts[6]. The outcomes of previous DASS-21 translation were also integrated in the process. The finalized Bahasa Malaysia version (BM-DASS) was then tested for its reliability and validity. Reliability in this study is determined by good Chronbach alpha values and validity is by good factor exploratory analysis of all 42 items. The Hospital Anxiety and Depression Scale (HADS) was also administered to look at its correlations with DASS-42. All medical students except students in final year were the study population in this study. Final year medical students were excluded due to academic reasons. A total number of 452 students were identified, 10 declined to participate, 29 subject forms were incomplete and 2 were international students whom do not communicate Malay language Hence the analysis was based on 411 students. The inclusion criterion is those proficient in Malay language. Participants were given a simple consent form, BM versions of DASS-42 and Hospital Anxiety Depression Scale (HADS). The subjects were ensured of the confidentiality of the questionnaires.

During the course of Malay DASS-42 administration, subjects were left without any interference. If subjects raise any queries about the terminology, a minimal explanation was given in accordance with the objectives of this study.

The HADS was developed by Zigmond and Snaith in 1983. HADS is a measure consists of 2 domains namely anxiety and depression[7]. The Malay version of HADS has been validated by various centres[8,9]. In this study, we examined the correlation between the domains of anxiety and depression in HADS and DASS.

Results

Table 1. Socio-demographic data

	Number	%	Total
Race			
Malays	409	99.5	411
Others	2	0.5	

Age			
19-20	128	31.1	411
21-22	151	36.7	
23-24	132	32.2	
Gender			
Male	179	43.5	411
Female	232	56.5	

Table 1 shows almost all participants were Malays and they were well dispersed in their age groups and genders. The distribution was in accordance to university census.

The reliability of BM DASS-42 was based on the Cronbach's alpha values. The overall BM DASS Cronbach's alpha was 0.95, 0.92 for depressive domain, 0.87 for anxiety domain and 0.88 for stress domain.

Table 2. Component matrix of Exploratory Factor Analysis

	Domain		
	Depression	Anxiety	Stress
D3 tidak dapat mengalami perasaan positif	.42		
D5 tidak bergerak ke mana-mana	.40		
D10 tidak mempunyai apa-apa untuk diharapkan	.66		
D13 rasa sedih dan murung	.43		
D16 hilang minat dalam segala hal	.61		
D17 tidak begitu berharga	.68		
D21 hidup ini sudah tidak bermakna	.85		
D24 tidak dapat merasakan keseronokan	.59		
D26 rasa duka dan tidak keruan	.53		
D31 tidak bersemangat	.63		
D34 diri saya langsung tidak berharga	.81		
D37 melihat tiada masa depan	.78		
D38 rasa hidup ini tidak bermakna	.86		
D42 sukar untuk mendapatkan semangat	.44		
A2 mulut terasa kering		.41	
A4 mengalami kesukaran bernafas		.66	
A7 perasaan gementar		.60	
A9 keadaan yang menjadikan saya amat risau		.34*	.63
A15 macam nak pengsan		.46	
A19 banyak berpeluh		.41	
A20 takut tanpa sebab		.52	
A23 sukar menelan		.61	
A25 sedar tindakbalas jantung		.59	
A28 menjadi panik/cemas		.57	
A30 dihambat oleh tugas yang remeh		.27*	.65
A36 rasa amat takut		.50	
A40 mungkin menjadi panik		.30*	.52

A41 rasa menggeletar	.57	
S1 kesal/marah sebabkan perkara-perkara kecil		.71
S6 bertindak keterlaluan		.63
S8 sukar untuk relaks		.45
S11 mudah merasa kesal		.64
S12 menggunakan banyak tenaga		.62
S14 hilang kesabaran sekiranya saya dilambatkan		.71
S18 rasa mudah tersentuh		.69
S22 sukar ditenteramkan		.57
S27 mudah marah		.56
S29 sukar untuk bertenang setelah rasa kesal		.73
S32 sukar bersabar pada gangguan		.40
S33 keadaan yang terlalu gementar	.59	.32*
S35 hilang pertimbangan		.55
S39 saya semakin gelisah		.43

*Poor factor loading (<0.4). Varimax rotation.

Before the factor analysis was done, we ran the Kaiser-Meyer-Olkin (KMO) analysis to look at the sampling adequacy. We obtained a good value of 0.95 which indicates the sample size is adequate.

The Principal Component analysis with Varimax rotation and Kaiser Normalization was done to look at the explanatory factor analysis. Table 2 shows all items in depression domain had good factor loading (>0.4). Three of items in Anxiety domain have poor factor loading which are item no 9, 30, and 40. All items in Stress domain had good values except item 33 which is having higher factor loading in anxiety domain.

The concurrent validity of DASS was determined by analysing the correlation with HADS. The Spearman's correlation for 2 domains in DASS & HADS was 0.68 for depression and 0.87 for anxiety.

Discussion

The results in this study prove that DASS-42 Malay version is reliable in internal consistency as it has good Cronbach's alpha values for overall scale and in 3 domains in DASS. The Cronbach's alpha values recorded in this study (0.94, 0.90 and 0.87 respectively for depressive, anxiety and stress domains) are superior when we compare with its Malay 21-item (short version). Two studies in the past on Malay short version showed the Cronbach's alpha values between 0.74 and 0.84 only[4,5]. However the Chronbach's alpha values of our study are comparable with the study done by the original authors (S.H. Lovibond and P.F. Lovibond) using DASS-42 item scale[3].

The good psychometric properties of the Malay DASS-42 are further echoed by its validity analysis. When we ran the explanatory factor analysis using Varimax rotation without any domain force, we found the items were well suited to their respective domains except only 4 out of 42 items. Other 38 items had quite acceptable values of factor loading. This is a source of evidence that the Malay version is validated in the studied population.

In this study, we also examined the concurrent validity of Malay DASS-42 by looking at the correlations of domains in

DASS with HADS. Since Malay HADS has been validated to the Malaysian population and we used it as our reference for the purpose. Since the Spearman's correlation values between DASS and HADS are high, this indicates that the convergent and divergent validity were well predicted. The Malay DASS-42 showed good concurent validity with HADS as the domains of depression and anxiety were strongly correlated. The values of 0.68 and 0.87 were obtained for depression and anxiety domain respectively. The correlation values in this study are better as compared to values obtained in a past study using Malay DASS short version (21 items) and HADS[10].

In another study done on intensive care unit (ICU) patients to compare DASS and HADS, the correlation values obtained were 0.75 for depression and 0.66 for anxiety. Looking at the results of this study, the result conversely yielded better correlation on anxiety domain as compared to depressive domain[11]. The strong correlations between both anxiety and depression domains in HADS and DASS, suggest that the two instruments are virtually interchangeable in their role and ability. There was good agreement between the two tests, as shown in a study done by Nieuwenhuijsen et al[12]. However it is good to remind the readers that these 2 scales are not diagnostic tools to detect cases of depression or anxiety. Structured interview is still needed to detect the real cases based on the Diagnostic and Statistical Manual of Mental Disorders (DSM).

By looking at the nature of items in both DASS and HADS scales, we observe they are free of cultural element but fully loaded with somatic evaluation. Somatic evaluation is good for designing a scale for Asian population as this population has the tendency to exhibit psychological ailment through somatic complaints. Nevertheless with regards to the aspect of gauging psychological disabilities among medically ill patients, these items are less suitable as physical complaints due to medical disease may mask the underlying psychiatric symptoms.

The results of our study suggest that the psychometric properties of Malay DASS-42 item are suited for the non-clinical population. The limitation of our study is that the findings cannot be generalized on the Malaysian population. Generalization of our will require more studies or replications on actual representive general Malaysian population. Similar results can be expected as most of other studies showed there was high internal consistency noted in both students and clinical populations[13,14]. In conclusion, the Malay version of DASS-42 has been translated with good quality and it is validated for this group of population. However to generalize it to Malaysian population, it needs more extensive studies on different groups of populations.

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

References

1. Lovibond PF. Long-term stability of depression, anxiety, and stress syndromes. Journal of Abnormal Psychology. 1998; 107(3): 520-526.

2. Lovibond PF, Lovibond SH. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behaviour Research and Therapy. 1995a; 33(3):335-343.

3. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety Stress Scales. Sydney, Australia: Psychology Foundation. 1995b.

4. Ramli M, Ariff MF, Zaini Z. Translation, validation and psychometric properties of Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS-21). ASEAN Journal of Psychiatry. 2007; 8(2):82-89.

5. Ramli M., Salmiah MA, Nurul Ain M. Validation and psychometric properties of Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS) among diabetic patients. Malaysian Journal of Psychiatry. 2009; 18(2):40-45.

6. U.S. Census Bureau. ‘‘Census Bureau Guideline: Language Translation of Data Collection, Instruments and Supporting Materials.’’ Internal U.S. Census Bureau document, Washington, DC, 2004.

7. Zigmond AS, Snaith RP. The Hospital Aniety and Depression Scale. Acta Psychiatrica Scandinavica. 1983: 67;361-70.

8. Fatt QK, Atiya AS, Heng NGC, Beng CC. Monash University Malaysia. Validation of the HADS & psychological disorder among premature ejaculation subjects. International journal of impotence research. 2007;19(3):321-5.

9. Abd Rashid R, Irnee WA, Ahmad Zahari M, Amer Nordin AS, Sulaiman AH, Robson N, Peters H, Said MA, Harun N, Rahim A, Habil H. Validity and reliability study in Hospital Anxiety Depression Scale (HADS) in heroin addicts population in Malaysia. The International Journal of Neuropsychopharmacology. 2010; 13(1):1-47

10. Ramli M, Roszaman R, Kartini A, Rosnani S. Concurrent Validity of the Depression Anxiety and Stress Scales (DASS). ASEAN Journal of Psychiatry, 2011; Vol.12(1):1-5.

11. Sukantarat K. T., Williamson R. C. N., Brett S. J. Psychological assessment of ICU survivors: a comparison between the Hospital Anxiety and Depression scale and the Depression, Anxiety and Stress scale Anaesthesia. 2007; 62:239-243.

12. Nieuwenhuijsen K, de Boer AGEM, Verbeek JHAM, Blonk RWB, van Dijk FJH. The Depression Anxiety Stress Scales (DASS): detecting anxiety disorder and depression in employees absent from work because of mental health problems. Occup Environ Med. 2003;60(1):77–82.

13. Brown TA, Chorpita BF, Korotitsch W, et al. Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. Behav Res Ther. 1997;35:79–89.

14. Antony MM, Bieling PJ, Cox BJ, et al. Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. Psychol Assessment. 1998;10:176–181.

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ORIGINAL PAPER

Dark Chocolate Consumption on Anxiety, Depression and Health-Related Quality of Life of Patients with Cancer: A Randomised Clinical Investigation

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Abstract

Objective: **Anxiety and depressive symptoms are common among cancer patients and have been shown to adversely affect their health-related quality of life (HRQoL). Dark chocolate is popular for its beneficial effects on mood regulations. This study aimed to assess the effects of dark chocolate consumption on anxiety and depressive symptoms and the HRQoL status among cancer patients.** ***Methods:*** **A sample of 133 cancer patients was recruited from 3 public hospitals in the East Coast Peninsular of Malaysia. The anxiety and depressive symptoms was assessed by the Malay Hospital Anxiety and Depression Scale (HADS) while HRQoL was measured via the Malay McGill Quality of Life questionnaire (MMQoL). Patients were randomly assigned to Study Group (SG) and Control Group (CG) whereby dark chocolate (50g) was administered to SG while CG consumed mineral water for 3 consecutive days.** ***Results:*** **Specifically, the anxiety and depressive symptoms was significantly reduced after dark chocolate consumption. The HRQoL score was also significantly increased in SG at post-intervention.** ***Conclusion:*** **These findings indicated that a 3-day dark chocolate consumption may reduce anxiety, depressive symptoms and thus also improved the HRQoL status in hospitalised cancer patients.**

Keywords: Dark Chocolate, Anxiety, Depressive, Cancer, Health-related Quality of Life

Introduction

Cancer often progresses with symptoms that contribute to enormous suffering which would negatively affects patients' health-related quality of life (HRQoL). Patients with cancer are at increased risk of psychological problems which impact upon almost one quarter of the cancer population[1]. Moreover, cancer patients simultaneously experience physical symptoms such as insomnia, pain, fatigue and anorexia which also possessed a greater risk of psychological morbidity[2]. Undoubtedly, greater psychological morbidity among cancer patients is also likely to hasten death[3].

Anxiety and depression are the most common psychological problems among early diagnosed cancer patients and those who are under treatments. However, depression and anxiety disorders in this population are often unrecognized and untreated. Published data had also suggested that depression and anxiety often present in up to 40% of cancer patients[4]. Interventions which could reduce anxiety and depressive symptoms that can simultaneously improve HRQoL are therefore consistently needed.

Evidence on the behavioural effects of chocolate consumption is well documented in the literature. It is always associated with craving, enjoyment and pleasure. Chocolate has been commonly claimed to have the power of lifting up spirits, inducing 'feel good' condition and producing a better mood state[5]. A review on atypical depression stated that the capacity of carbohydrates in chocolate could comfort and promote 'feel good' sensations by releasing multiple gut and brain peptides[6]. In seasonal affective disorder (SAD), chocolate has been perceived to be an “antidepressant”. Chocolate-eating is also known as a form of self-medication among the chocolate cravers[5]. Similarly, in a personal marker study, chocolate was also considered to be a good food for depression, anxiety and irritability during stress among chocolate cravers[7]. A small amount of chocolate consumption has shown improvement in negative mood promptly and somewhat depends on the palatability[8].

Dark chocolate is believed to bring tangible benefits for health since ancient times in which its consumption may beneficially impact the metabolism of people who experience high level of stress[9]. Individuals with higher anxiety traits indicated a distinct metabolic phenotype marked by differences in energy, hormonal metabolism and gut microbial activities. Martin and colleagues (2009) discovered that daily dark chocolate consumption for 2 weeks could exert positive impact on stress-associated metabolic among stressed individuals[10]. Many dark chocolate studies had been conducted among healthy participants. Yet, there are still limited trials assessing the health outcomes of dark chocolate among patients. To our knowledge there are no other reports examining the effects of dark chocolate consumption specifically on HRQoL in cancer patients. Ingestion of dark chocolate among the cancer patients is hypothesized to create improved HRQoL status by reducing anxiety and depressive symptoms. This experimental study was designed to primarily compare the effects of a 3-day dark chocolate consumption on the anxiety and depressive symptoms and HRQoL status among in-patients with cancer.

Methods

Study design and sample selection

This study was approved by the Medical Research and Ethics Committee (MREC) and Clinical Research Centre (CRC) of the Ministry of Health Malaysia (MOH) (reference number: KKM/NIHSEC/08). The intervention study was based on a parallel, randomized and open-labeled study design. Dark chocolate was chosen due to its palatability and the lower carbohydrate content compared to other types of chocolate. The present study was a controlled two-armed randomized study including a post study follow-up period of 3-days. Cancer patients who were hospitalized at Hospital SultanahNurZahirah, Terengganu (HSNZ), Hospital TengkuAmpuanAfzan, Pahang (HTAA) and Hospital Raja PerempuanZainab II, Kelantan (HRPZ II) were consecutively invited to represent

patients from the East Coast of Peninsular Malaysia. They were enrolled during their admission in the oncology, surgical or palliative wards within a period of 16 months. For this typical study which involved two groups, a power of 0.80 and α error at 0.05 for significance was used to estimate the number of patient per group for each instrument[11]. The sample size was determined according to prospective study formula. According to the formula at least 44 patients per arm was required to detect changes.

Formula for sample size calculation:
$n = 2Z + Z^2\sigma^2((\mu - \mu))$ n = required sample size; $Z\alpha$ = value of the standard normal distribution cutting off probability the α; Z_β = value of the standard normal distribution cutting off probability ß; σ = postulated difference in the population from pilot study; $(\mu 1 - \mu 2)$ = Standard error of the sample difference[12]. Calculation:

$$n = \frac{2(1.96 + 0.84)^2 \times (1.67)^2}{12}$$

$$n = 44$$

All included patients had to be 18 years old and above, cognitively capable of completing in the questionnaire, Malay-literate, permitted to participate by their physician or medical staff, have no difficulties in swallowing, not diabetic, not on anxiolytic medication or any psychological treatments, and were not allergic to chocolate. Patients who were eligible to participate were required to score ≥ 8 for either subscale in HADS to confirm them as anxiety and/or depressive cases. On the other hand, patients with unpredictable changes of condition such as those with life expectancy of less than 6 months, not cognitively capable of completing questionnaires, or with possessed mental disturbances/comorbidities which limit meaningful contribution of information were excluded from the study.

Instruments

The Malay Hospital Anxiety and Depression Scale (HADS)[13]

The HADS had been extensively utilised for screening purposes, in diverse range of clinical and non-clinical populations. The HADS possesses good psychometric properties and is suitable in assessing anxiety and depression disorders in a wide range of population [14].Furthermore, this instrument had also been validated against the official psychiatric classification systems Diagnostic and Statistical Manual-IV (DSM-IV) diagnoses and it had also demonstrated fair associations with mood disorders [15].In this study, the Malay validated and translated HADS was the instrument of choice [16,17]. This instrument was appropriate for screening of psychiatric problems in patients with cancer due to its 14-item bidimensional scale; namely, anxiety (HADS-A) and depression (HADS-D) [14]. The items were rated on a four-point scale from 0 (not present) to 3 (considerable). The item scores were summed, giving both sub-scale scores from 0 (no symptoms) to 21 (high level of symptoms). Summated scores from 0 to 7 for each subscale was categorized as "non case", 8 to 11 as "mild", 12 to 15 as "moderate" and above 15 was “severe”. In this study, HADS was utilized to measure the anxiety and depression level at baseline and at 3-day post consumption. A subscale total score ≥ 8 (either HADS-A or HADS-D) was set as the inclusion criteria. This cut-off level (≥ 8) has been shown to give an optimal balance between sensitivity and specificity on Receiver Operating Characteristic curves [14]. Cases defined by HADS subscales basically indicated that patients were experiencing symptoms and they were in need of clinical concern.

The Malay McGill Quality of Life Questionnaire (MMQoL)[18]

The Malay validated and translated of McGill Quality of Life Questionnaire was employed in this study[12]. This scale had fewer items than other similar scales and was intended to reduce the burden on patients with deteriorating physical strength, making it suitable and relevant for cancer patients. The MQoL was designed by Cohen *et al*. (1995) to examine the HRQoL of patients with life-threatening illness by exploring five domains: Physical Symptoms (items 1 to 3), Physical Well-Being (item 4), Psychological Well-Being (items 5 to 8), Existential Well-Being (items 9 to 14) and Support Issues (items 15 and 16)[18]. This instrument consisted of 16 items, a global QoL question and an opened ended question for patients to qualitatively describe factors affecting their HRQoL. Both the sub-scale scores and Total MMQoL Score (mean of all five domains) could range from 0 to 10. A score of 0 for each item indicated the "least desirable" and 10 represented the "most desirable" situation. The first three questions allowed the patients to record three main physical symptoms that create the most problems which could affect their HRQoL. For items 1 to 3 and items 5 to 8, the scores were transposed so that the 0 represented the "most desirable situation" and 10 was indicator for "least desirable" situation. The reference of frame of "the past two days" was employed due to the unpredictable nature of patient condition. This instrument has also been proven to possess established use and good psychometric properties[19]. Furthermore, this instrument has been shown to be able to detect differences between good, average, or bad days among palliative care patients[20].

Procedure

At the first meeting, identified cancer patients were approached by the trained research assistants. The research assistants explained about the study to the potential patients followed by invitation to participate. Once patients' agreement was obtained, they were provided with Patient Information Sheet to enhance their understanding about the study. Eligible patients who agreed to be participants were then instructed to complete the Informed Consent Form, Personal particulars form, the Malay HADS and the MMQoL. All patients were prohibited from consuming any chocolate products at least 3 days before the study began. Patients who met the all the inclusion criteria and completed the baseline assessments were randomized to either the Study Group (SG) or the Control Group (CG). Eligible patients were randomized by selecting a number from a box which contained 150 numbers labeled from 1 to 150. The even numbers were provided to SG and odd numbers represented the CG. Each SG member was provided with a bar dark chocolate, Vochelle@TM (50g; 275 kcal) daily for 3 consecutive days. On the other hand, the CG was instructed to consume a bottle of mineral water (350 ml) for 3 consecutive days. The main intention using mineral water as control was to mimic a "placebo" (i.e.nothing) as close as possible. Mineral water was utilised because it contains no cocoa derivatives and sugar which could potentially confound our outcomes and it had also been utilised in previous study[8,21]. Both dark chocolate and mineral water was administered to the patients only for three consecutive days because the average time of hospitalisation for majority of the patients was between 3 to 7 days except for those scheduled to undergo surgery[22,23].

Patients were also required to abstain from food for at least 4 hours before chocolate consumption. The patients were additionally advised not to swallow the dark chocolate hurriedly, but to consume each piece slowly and mindfully. Both interventions were administered to hospitalised patients with cancer between 11 am to 1 pm or between 3 pm to 5 pm during their admission in the oncology, surgical wards or palliative wards within the study period. All patients were re-assessed at follow-up, using the Malay HADS and MMQoL. Once the complete sets of instrument have been collected, a token of appreciation was distributed to each participating patients.

Statistical analysis

Statistical analyses were carried out with licensed SPSS 17.0 for Windows. Socio-demographic data was analysed descriptively and presented as frequencies and percentages. Testing of data normality was initially performed. The Kolmorogov-Smirnov statistics generated values of lesser than 0.05, indicating that the assumption of normality test has been violated. Subsequently, score comparisons were performed using the non-parametric alternatives; 1) Mann-Whitney U test (between-groups differences) 2) Wilcoxon Signed Rank Test (within-groups changes). For all statistical tests, $p < 0.05$ was considered as significant. Effect sizes usingCohen's (1988) interpretation were also computed for SG and CG between the two assessment time points whereby values of 0.2 to 0.49 = small effect, 0.5 to 0.79 = medium effect, and ≥ 0.8 = large effect[11].

Results

A preliminary pilot exploration had found that the internal consistency reliability for both HADS and MMQoL domains was between moderate to high. Majority of the Cronbach's α coefficient for both instruments exceeded 0.70 (Physical Symptoms = 0.701, Psychological Well-Being = 0 .865, Existential Well-Being = 0.817, Support Issues = 0.619, Total MMQoL Score = 0.659, HADS-A = 0.801, HADS-D = 0.739).

Demography

Of 221 eligible patients who were approached, 65 (29.4%) were excluded at baseline and 23 (10.4%) later dropped out of the study. Among the reasons for exclusion were due to not fulfilling inclusion criteria (n = 32), not interested (n = 25), too ill (n = 3), considered unsuitable by staff (n = 5), declined participation (n = 2), and did not complete follow-up (n = 21). A total of 133 eligible patients had finally completed the baseline and follow-up phases in this intervention study and were therefore included for analysis (HSNZ = 46, HTAA = 41, HRPZ II = 46). Over 50.0% of the patients had completed PMR education (equivalent to lower secondary level), were not employed, liked chocolate, have been diagnosed with cancer for less than 2 years. As to the types of cancer, the largest proportion was suffering from breast cancer (30.1%), followed by colorectal (27.1%) and gynaecologic cancers (15.0%). More than half of the patients also received various treatments such as chemotherapy (47.4%), surgery (2.3%) or radiotherapy (5.3%) during the study period. The more comprehensive socio-demographic data of the recruited patients was presented in Table 1.

Table 1. Patient characteristics by group assignment (N = 133).

	All patients	*p* value*	SG	CG	*p* value^{+}
	n (%)		n (%)	n (%)	
Mean age (years)	49.9		50.2	49.6	
Gender					
Male	65 (48.9)	> 0.05	30 (46.2)	35 (51.5)	> 0.05
Female	68 (51.1)		35 (5.3.8)	33 (48.5)	
Marital Status					
Married	119 (89.5)	< 0.001	58 (89.2)	61 (89.7)	> 0.05
Single/Divorce	14 (10.5)		7 (10.8)	7 (10.3)	
Living arrangement					
Alone	3 (2.3)	< 0.001	2 (3.1)	1 (1.5)	> 0.05
With family/partner	130 (97.7)		63 (96.9)	67 (98.5)	
Race					
Malay	114 (85.7)	< 0.001	59 (90.8)	55 (80.9)	> 0.05
Others	19 (24.3)		6 (9.2)	13 (9.1)	
Level of education					
> PMR	87 (65.4)	< 0.001	38 (58.5)	49 (72.0)	> 0.05
< PMR	46 (34.6)		27 (41.5)	19 (28.0)	
Occupation					
Employed	49 (36.8)	< 0.001	27 (41.5)	22 (32.3)	> 0.05
Not employed	84 (63.2)		38 (58.5)	46 (67.7)	
Monthly salary					
< RM 500	78 (58.6)	< 0.001	33 (50.8)	45 (66.2)	> 0.05
> RM 500	55 (41.4)		32 (49.2)	23 (33.8)	
Duration since					
diagnosis	89 (66.9)	< 0.001	47 (72.3)	42 (61.8)	> 0.05
Up to 1 year	44 (33.1)		18 (27.7)	26 (38.2)	
More than 1 year					
Staging of cancer					
Unknown/Stage 0- 1	59 (44.4)	< 0.05	32 (49.3)	27 (39.7)	> 0.05
Stage 2-4	74 (53.6)		33 (50.7)	31 (60.3)	
Chocolate-liking					
Yes	90 (67.7)	< 0.001	52 (80.0)	38 (55.9)	< 0.05
No	43 (32.3)		13 (20.0)	30 (44.1)	

*χ^2 tests for goodness of fits for distribution of categorical variables, SG = study group, CG = control group, $^{+}$ χ^2 tests for relatedness, $p < 0.05$ = significant.

Score comparisons

Between-Group Score Comparisons (anxiety, depression and HRQoL).
With respect to the key variables shown in Table 2, there was no significant difference between the groups at baseline for all the domains of the HADS and MMQoL (all p > 0.05). When baseline anxiety and depressive symptom scores were compared with follow-up ratings for each group, there were statistically significant changes (p < 0.05) (Table 2). Although similar significant differences were discovered between two groups, patients in SG scored significantly better on HADS-A and HADS-D after consuming the dark chocolate. Similarly, SG respondents also reported relatively higher scores for all MMQoL domains compared to CG at the end of the study.

Table 2. Comparisons of anxiety, depressive symptoms and Health-related quality of life (HRQoL) profiles (between-group) (N = 133).

	Baseline			Follow-up		
	SG	CG	*p* value*	SG	CG	*p* value*
	Median (IQR)	Median (IQR)		Median (IQR)	Median (IQR)	
HADS-A	8.0 (15.0)	8.0 (11.0)	> 0.05	4.0 (11.0)	7.5 (17.0)	< 0.001
HADS-D	10.0 (6.0)	10.0 (9.0)	> 0.05	4.0 (12.0)	8.0 (8.0)	< 0.001
Physical symptoms	7.0 (8.3)	7.3 (7.7)	> 0.05	9.0 (4.6)	8.3 (7.3)	< 0.01
Physical Well-Being	5.0 (9.1)	6.0 (7.2)	> 0.05	7.0 (9.3)	6.0 (8.0)	< 0.05
Psychological Well-Being	4.0 (8.8)	4.9 (10.0)	> 0.05	5.3 (7.5)	5.0 (8.8)	< 0.05
Existential Well-Being	7.5 (7.2)	7.5 (5.0)	> 0.05	8.5 (7.9)	8.2 (5.0)	< 0.05
Support Issues	9. 5 (8.0)	9.0 (8.0)	> 0.05	10.0 (3.7)	9.3 (3.0)	> 0.05
Total MMQoL Score	6.5 (3.7)	6.8 (5.1)	> 0.05	7.9 (3.1)	7.3 (3.3)	< 0.001

*Mann-Whitney U test, IQR = interquartile range, $p < 0.05$ = significant.

Within-Group Score Comparisons (anxiety, depression and HRQoL). For anxiety and depressive symptoms, SG patients also showed significant improvements at follow-up (p < 0.05).

However, greater statistically significant mean change was detected for SG patients when compared to CG respondents. The over-time effect sizes of both HADS subscales also demonstrated statistically significant improvements in SG respondents (p = < 0.001). Overall, statistically significant differences in all MMQoL domains were also exhibited across the study period except for Support Issues among these respondents (p < 0.05). Within the domains in MMQoL, the SG reported its largest change in Psychological Well-Being and Physical Symptoms (both d = 0.80). At follow-up, CG patients also showed significant improvements (p < 0.05) in all HADS domains. Similarly, significant differences in all MMQoL domains except for Support Issues and Physical Well-being were detected among CG respondents between baseline and follow-up (Table 3). However for these control respondents, the biggest mean change was found in the Physical Symptoms domain only (d = 0.48) apart from the Total MMQOL Score. Specifically, larger effect sizes were demonstrated for all MMQoL domains within SG (d = 0.27 – 0.84) compared to CG respondents (d = 0.20 – 0.62) (Table 3).

Table 3. Mean change and effect size for domains in Malay Hospital Anxiety and Depression Scale (HADS) and the Malay McGill Quality of Life (MMQoL) questionnaire (N = 133).

	SG			CG		
	Mean change	*p value**	Effect sizes	Mean change	*p value**	Effect size
HADS-A	- 4.3	< 0.001	0.83	- 1.0	< 0.05	0.25
HADS-D	- 6.5	<0.001	0.87	-2.0	<0.001	0.73
Physical symptoms	2.1	< 0.001	0.80	1.0	< 0.001	0.48
Physical Well-Being	1.2	< 0.001	0.52	0.3	> 0.05	0.21
Psychological Well-Being	1.5	< 0.001	0.80	0.3	< 0.01	0.31
Existential Well-Being	1.0	< 0.001	0.78	0.6	< 0.01	0.40
Support Issues	0.3	> 0.05	0.27	0.4	> 0.05	0.20
Total MMQoL Score	1.2	< 0.001	0.84	0.5	< 0.001	0.62

SG = study group, CG = control group, *Wilcoxon Sign Rank test, $p < 0.05$ = significant, Effect size: small = 0.20 – 0.49, medium = 0.50 – 0.79, large effect = ≥ 0.80.

Discussion

Anxiety, depressive symptoms and HRQoL were significantly improved in the group of in-patients who consumed dark chocolate for 3 consecutive days compared to those who did not. This suggested that there may be mood-elevating effects of dark chocolate

particularly in alleviating anxiety and depressive symptoms and thereby enhancing HRQoL among the hospitalized patients with cancers. Previous studies among cancer patients had revealed that psychological stress factors can affect HRQoL which is always related to the onset and progression of cancer[24]. In conjunction with that, reviews of the literature concerned with improving HRQoL in cancer patients had also indicated that employing interventions is the foremost method to improve HRQoL and help to reduce suffering among cancer patients[25]. Interventions to improve emotional well-being should be incorporated especially during admission and; before and during receiving treatments such as chemotherapy, surgery and radiotherapy as these situations may cause emotional distress particularly anxiety and depression.

This exploration study evaluated the effects of a 3-day dark chocolate consumption on anxiety, depressive symptoms and HRQoL among hospitalised cancer patients from East Coast Peninsular Malaysia. Although patient's daily food intake was not controlled in this study, they were instructed to abstain from food for at least4hours before the intervention study to avoid possible food interaction effects. No significant difference in domain scores for HADS and MMQoL at pre-consumption indicated that the sample overall was comparable in terms of anxiety, depressive symptoms and HRQoL levels before interventions were administered. At the beginning of the stay in the hospital, it was noted that anxiety and depression levels were more than normal, showing that beyond the disease and the treatment themselves, the shock of being confronted with the diagnosis, the unfamiliar hospital situation in the, and worries about impending surgery or chemotherapy might have been contributory. Patients on radiotherapy and chemotherapy treatment were especially depressed at the baseline substantiating the fact that anxiety and depressive symptoms are normal responses to traumatic events especially during cancer treatment[26].

In agreement with previous studies, this trial also has demonstrated better mood states and improvement of HRQoL level after a dark chocolate intervention[8,27]. A study using dark chocolate consumption for two weeks demonstrated decrements of physiological indicators of anxiety and stress among healthy volunteers[10]. Over-time, patients who consumed dark chocolate and those that did not similarly experienced beneficial changes in their anxiety and depressive symptoms scores. However, the changes were more profound in patients with dark chocolate intervention. The greatest changes in terms of effect sizes were also observed in the psychological aspects including anxiety, depressive symptoms and psychological well-being domain. These findings once again reinforce the stress reduction benefits of dark chocolate consumption.

Accumulating evidences from the chocolate studies had further convinced researchers that chocolate consumption may suppress anxiety and depressive symptoms by multiple paths [28]. According to other studies, interventions that can lower blood pressure, pulse rate and respiratory rate could excite the improvement of anxiety[29].Dark chocolate could possibly produce similar benefits by creating a declining effect on blood pressure (one of the physiological indicators of anxiety) due to the high flavonoid and arginine contents which helps to regulate blood pressure and inflammation through dilation of blood vessels.

The oro-sensory properties of dark chocolate were also perceived to be the main contributor of mood regulation. The oro-sensory aspects were mediated by dark's chocolate palatability and its unique combination of sweetness and aroma. This represents the most popular explanation for creating better mood states among chocolate lovers[27]. Since dark chocolate is a palatable food and its consumption is thought to stimulate the release of endorphins (which produce feel-good sensation) this potentially increases appetite and mood[30]. Apart from the endorphins, the contents of sugars and fat in chocolate may result immediate increase of energy, alertness and mood by initiating the release of tryptophan and serotonin[31]. These psychoactive substances are helpful in producing comforting effects to the emotional state during chocolate consumption. In addition, there is a close relationship between carbohydrate contents, brain serotonin and depressed mood. The elevation of serotonin levels would relieve depressive symptoms[32].

In addition, chocolate ingestion has also been suggested to affect mood through their nutritional components which evoke psychophysiological sensation[33,34]. The contents of cocoa butter (fat) and sugars in chocolate have been reported to result in subsequent immediate increases of energy and alertness. Furthermore, a number of specific serotonergic contributions to chocolate eating have been suggested and the associations between serotonin, mood and craving have been identified as the contributors of emotional eating[35]. Stress commonly stimulates the secretion of mineralcorticoids and glucocorticoids which resulted in the decrease of magnesium level in the body. Magnesium in lower level can lead to selective depletion of dopamine (a neurotransmitter that transmits signal of satisfaction and euphoria in the central nervous system) followed by decrease of serotonin. The high concentration of magnesium (520mg/100g) in chocolate is proposed to elevate mood[5]. Salsolinol (SAL) is one type of the tetrahydroisoquinolines that found in chocolate which has also been deemed to be one of the main psychoactive compounds present in chocolate products. The compound may binds to dopamine receptors which are specifically responsible for reinforcement and reward by suppressing the breakdown of serotonin and extending their duration of action[36]. SAL may also influence the production of endorphins and the amount of SAL ingested in 100g of chocolate has been shown to be adequate to interact with the dopamine receptors[37].

The findings in our study illustrated the negative relationships between anxiety and depressive symptoms with HRQoL status suggested that the presence of psychological problems seemed to reduce HRQoL. Perhaps any intervention which suppresses anxiety and depressive symptoms would be sufficient to produce greater HRQoL levels among hospitalized cancer patients. Encouragingly, as anxiety and depressive symptoms were ameliorated, the HRQoL status had also improved at post-intervention among the cancer patients. This suggested parallel outcome with previous interventional studies, indicating that intervention which reduced anxiety and depressive symptoms would indirectly improve the HRQoL status in cancer patients[38]. Furthermore, a cohort study had also proven that chocolate consumption and preference was associated with better health, optimism and better psychological well-being among old adults who were in their old age[28]. However, our findings could not compare with any data from past research as to our knowledge none of the chocolate research had conducted among cancer patients.

There were a few factors that imposed limitations on our study. The effects of dark chocolate on anxiety and depressive symptoms are known to be influenced by situational variables. The availability of the intervening food and the pleasure derived from dark chocolate consumption were also perceived to alter emotional states. All of the hospitalized patients included in our study were experiencing a mixture of emotions. During periods of low mood, the preference for junk food such as chocolate usually increases[39].For example, the preference for sweet food such as chocolate is increased during bad mood among women. The consumption of chocolate is thought to be partly attributed to better mood states[40]. Additionally, the provision of dark chocolate might have been viewed as a self-gift by hospitalized patients - thereby possibly influencing the findings of this study[41]. Essentially, this might have made the patients felt "happier". Moreover, the majority patients stated that they felt better and happier particularly during discharge because they were going home to be with their family, this again potentially explaining the positive outcomes. Although treatment such as chemotherapy would have also been capable of exerting bias in our study outcomes, no significant difference in anxiety, depressive symptoms and HRQoL was found between patients on chemotherapy and those not on such treatment, confirming the absence of treatment influences. But most importantly, chocolate preference would have been a vital extraneous variable confounding our results as indicated by the more significant proportion of chocolate lovers in the SG in relation to CG respondents. There were possible response biases due to prior perception that dark chocolate consumption may alleviate anxiety and depression levels. Perhaps liking chocolate or not will influence the outcomes. Nonetheless, we did not distinguish the chocolate-loving respondents from non-chocolate-loving respondents. The short duration of dark chocolate administration was also an additional limitation in our study. Dark chocolate was administered to the patient only for 3 consecutive days to suit the average duration of hospitalisation (between 3 to 7 days) depending on the type of treatments and their health conditions[22,23]. This also was planned to ensure the compliance of dark chocolate by each patient within the study period. Another limitation of this was due to the apparent lack of blinding between the interventions. Nonetheless, we attempted to minimize this limitation inherent in an open-label design by having similar packaging for both interventions and randomisation was also incorporated in our study to minimise bias in group allocation. Studies in the future should possess more uniformed and indistinguishable presentation for intervention and control in which placebo (with no cocoa derivative) for dark chocolate shall be used as control intervention. In addition, future studies with longer study period, along with diagnostic interviews and biophysiological factors examinations are also recommended.

Conclusions

Despite the limitations, it was concluded that anxiety and depressive symptoms and HRQoL were significantly improved in the group of patients who consumed dark chocolate for 3 consecutive days compared to those who did not. This suggests that there were mood-elevating effects of dark chocolate consumption particularly in alleviating anxiety and depressive symptoms and HRQoL among the hospitalized cancer patients. Because other external attributes may also be influential on anxiety, depressive symptoms and HRQoL, further

extensive studies with different types of chocolate, longer consumption periods along with affirmative clinical diagnostic interviews and the biophysiological factors examination are necessary before it could be recommended as a practical remedy for hospitalised patients with cancer.

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References

1. Hotopf M, Chidgey J, Addington-Hall J, Ly KL. Depression in advanced disease: A systemic review. Part 1. Prevalence and case finding. Palliat Med. 2002;16:81-97

2. Fossa SD, Dahl AA, Loge JH. Fatigue, anxiety, depression in long-term survivors of testicular cancer. J ClinOncol. 2003;21:1249-1254

3. Akechi T, Okuyama T, Sugawara Y, Shima Y, Furukawa TA, Uchitomi Y. Screening for depression in terminally ill cancer patients in Japan. J Pain Symp Manage. 2006;31:5-11

4. Wilson KG, Chochinov HM, Skirko MG, Allard P, Chary S, Gagnon PR, et al. Depression and anxiety disorders in palliative cancer care. J Pain Symp Manage. 2007; 33(2):118-129

5. Bruinsma K, Taren DL. Chocolate: Food or drugs? J Am Diet Assoc. 1999;99:1249-1256

6. Parker G, Roy K, Mitchell P, Wilhelm K, Mahli G, Hadzi-Pavlovic D. Atypical depression: A reappraisal. Am J Psychiat. 2002;159:1470–1479

7. Parker G, Crawford J. Chocolate craving when depressed: A personality marker. Brit J Psychiat. 2007;191:351-352

8. Macht M, Muller J. Immediate effects of chocolate on experimentally induced mood states. Appetite. 2007;49(3):667-674

9. Visioli F, Bernaert H, Corti R, Ferri C, Heptinstall S, Molinari E, et al. Chocolate, lifestyle, and health. Crit Rev Food SciNutr. 2009;49:299-312

10. Martin FJ, Rezzi S, Pere´-Trepat E, Kamlage B, Collino S, Leibold E, et al. Metabolic effects of dark chocolate consumption on energy, gut microbiota, and stress-related metabolism in free-living subjects. J Proteome Res. 2009;8:5568-5579

11. Columb MO, Stevens A. Power analysis and sample size

calculations. CurrAnaesthCrit Care. 2008;19:12-14

12. Lua PL, Wong SY, Selamat NW. Anxiety and depressive symptoms and health-related quality of life status among patients with cancer in Terengganu, Malaysia. ASEAN J of Psychiatry. 2011;12(1):18-24

13. Zigmond A, Snaith RP. The hospital anxiety and depression scale. ActaPsychiatr Scand. 1983;67:361-370

14. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the Hospital Anxiety and Depression Scale. An updated literature review. J Psychosom Res. 2002;52:69–77

15. Andrews B, Hejdenberg J, Wilding J. Student anxiety and depression: Comparison of questionnaire and interview assessments. J Affect Disord. 2006;95:29-34

16. Ariaratnam S, Devi A, Kaur G, Sinniah D, Suleiman A, Thambu M, et al. Psychiatric morbidity and survival in newly diagnosed treatment naive cancer patients – A study from Malaysia. Biomed Res. 2008;19(2):113-116

17. Hatta SM, Hamid AR, Jaafar R, Hamed N, Jalil NF, Mustafa N. Depressive symptoms among women after abortion. Malaysian J Psychiatry. 1997;5:27-33

18. Cohen SR, Mount BM, Strobel MG, Bui F. The McGill Quality of Life Questionnaire: A measure of quality of life appropriate for people with advanced disease. A preliminary study of validity and acceptability. Palliat Med. 1995;9:207-219

19. Lua PL, Salek S, Finlay I, Boay AGI, Mohd Said R. Comparisons of health-related quality of life in Sabah cancer population receiving different treatment modalities. J Kinabalu. 2003;9:21-43

20. Cohen SR, Mount BM. Living with cancer: "Good" days and "bad" days-what produce them. Cancer. 2000;89(8):1854-1864

21. Lua PL, Wong SY. An interventional exploration study: Dark chocolate consumption on anxiety, depression and stress. ASEAN J of Psychiatry. 2011 (In press)

22. Tamburini M, Gangeri L, Brunelli C, Boeri P, Borreani C, Bosisio M, et al. Cancer patients' needs during hospitalisation: a quantitative and qualitative study. BMC. 2003; 23(3):12

23. Tomaszek SC, Cassivi SD, Allen MS, Shen KR, Nichols FC III, Deschamps C, et al. An alternative postoperative pathway reduces length of hospitalisation following oesophagectomy. Eur J Cardiothorac Surg. 2010; 37(4):807-13

24. Sanson-Fisher R, Girgis A, Boyes A, Bonevski B, Burton L, Cook P. The unmet supportive care needs of patients with cancer. Supportive care review group. Cancer. 2000;88(1):226–237

25. Moadel AB, Shah C, Wylie-Rosett J, Harris MS, Patel SR, Hall CB, et al. Randomized controlled trial of yoga among a multiethnic sample of breast cancer patients: Effects on quality of life. J ClinOnco. 2007;25(28):4387– 4395.

26. Roth AJ, Modi R. Psychiatric issues in older cancer patients. Crit Rev OncolHematol. 2003;48(2):185–197

27. Parker G, Parker I, Brotchie H. Mood state effects of chocolate. J Affect Disord. 2006;92:149-159

28. Strandberg TE, Strandberg AY, Pitkala K, Salomaa VV, Tilvis RS, Miettinen TA. Chocolate, well-being and health among elderly men. Eur J ClinNutr. 2008;62(2):247-53

29. White JM. Effect of relaxing music on cardiac autonomic balance and anxiety after acute myocardial infraction. Am J Crit Care. 1998;8(4):220-230

30. Schenker S. Review: The nutritional and physiological properties of chocolate. British Nutritional Foundation. 2000;25:303-313

31. Wolfe BE, Metzger ED, Stollar C. Neurobiology of anorexia and bulimia nervosa. PhysioBehav. 2008;94:121-135

32. Markus CR. New insight in the beneficial effects of food on mood and performance: Evidence for interference between stress and brain 5-HT. Agro Food Industry Hi-Tech. 2002;13(5):21–23

33. Benton D, Donohoe RT. The effects of nutrients on mood. Public Health Nutr. 1999;2(3a):403-409

34. Macht M, Dettmer D. Everyday mood and emotions after eating a chocolate bar or an apple. Appetite. 2006;46(3):332-336

35. Rogers PJ, Smit HJ. Food craving and food “addiction”: A critical review of the evidence from a biopsychosocial perspective. PharmacolBiochemBehav. 2000;66:3–14

36. Herraiz T. Tetrahydro-beta-carbolines, potential neuroactive alkaloids, in chocolate and cocoa. J Agri and Food Chem. 2000;48: 4900–4904

37. Melzig MF, Putscher I, Henklein P, Haber H. In vitro pharmacological activity of the tetrahydroisoquinolinesalsolinol present in products from Theobroma cacao L. like cocoa and chocolate. J Ethnopharma. 2000;73:153–159

38. Osborn RL, Demoncada AC, Feuerstein M. Psychosocial interventions for depression, anxiety, and quality of life in cancer survivors: Meta-analyses. Int J Psychiatry Med. 2006;36(1):13-34

39. Solomon MR. Eating as both coping and stressor in overweight control. J AdvNurs. 2001;36:563–72

40. Zellner DA, Garriga-Trillo A, Centeno S, Wadsworth E. Chocolate craving and the menstrual cycle. Appetite. 2004;42: 119–121

41. Luomala HT, Laaksonen M. A qualitative exploration of mood-regulatory self-gift behaviours. Journal of Economic Psychology. 1999;20: 147-182

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ORIGINAL PAPER

The Reliability of the Malay Versions of Hospital Anxiety Depression Scale (HADS) and Mcgill Quality of Life Questionnaire (MQOL) among a Group of Patients with Cancer in Malaysia

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Abstract

Objective: **This study intends to investigate the reliability, validity and patients' perception towards the Malay Hospital Anxiety Depression Scale (HADS) and Malay McGill Quality of Life Questionnaire (MMQoL) in Terengganu cancer patients. *Methods:* It was conducted cross-sectionally in Hospital Sultanah Nur Zahirah (HSNZ), Kuala Terengganu, Malaysia recruiting 80 patients fulfilling the inclusion criteria. Socio-demographic data was analyzed descriptively and presented as frequencies. To examine patients' perception towards the applicability and practicality, completion time, comprehension, comprehensiveness difficulty and instrusiveness of the instruments were inquired via a 5-item survey. For reliability purposes, the internal consistency reliability (Cronbach's α) was calculated while Spearman's rank correlation coefficient (r_s) was used to examine the strength of associations between and within instruments (convergent/divergent validity). *Results:* To the majority of patients, both HADS and MMQoL instruments were considered clear, comprehensive and not difficult to complete (completion time < 10 minutes). The internal consistency reliability for both HADS and MMQoL domains ranged from moderate to high. Within HADS itself, the individual items produced strong correlations with their own domains than with other domains ($r_s \geq$ 4.0). Similarly, majority of individual items in MMQoL correlated stronger within their own domains compared to other domains (except *Existential Well-Being* and *Support Issues*) supporting validity. *Conclusion:* The overall findings suggested that both instruments have exhibited adequate evidence of reliability and validity plus being perceived as favourable for assessing health outcomes among cancer sufferers.**

Keywords: MQoL, HADS, Quality of Life, Anxiety, Depression, Cancer

Introduction

Patients with cancer commonly suffer from a range of on-going psychosocial and physical problems which negatively impact on health-related quality of life (HRQoL)[1]. Studies involving screening for anxiety and depressive symptoms are crucial as this may encourage the identification of patients who may be at risk of psychological disorders. Furthermore, emotional functioning represents the central predictor of HRQoL levels as sufferers often experience distress[2-3]. Self-reported HRQoL status has in turn, proven to be a powerful predictor of mortality and morbidity[1-3] because when life expectancy is short, improving HRQoL becomes a major aim of treatment for cancer patients[3].

It appears that before we utilise the instruments of choice in a particular study, it is critical to evaluate their psychometric characteristics to gauge the degree of acceptance and relevance in the targeted sample. Similarly, instruments designed to screen anxiety symptoms, depressive symptoms and HRQoL among cancer patients must possess appropriate content and must be acceptable to the intended respondents[4]. There should be minimal burden imposed on the respondents as it is important to limit the cost and time consumed in data collection[5]. An instrument used in a study hence must be easily-scored and understood. The length of the instrument and the frequency of administration should have also taken into account. Moreover, respondents usually tolerate and prefer shorter instrument as it is easier to be completed and not burdening[5]. Instruments used to collect data also need to be comprehensive so that sufficient information can be gathered to justify the outcomes[6].

The Malay Hospital Anxiety Depression Scale (HADS) is a self-screening questionnaire for psychopathological comorbidity which has also been used for wide range of respondents from clinical to non-clinical conditions[7], especially for anxiety and depression in patients with cancer. According to the literature, HADS has been extensively used in 768 studies globally involving the cancer population[8]. Furthermore, HADS also possesses good psychometric properties, having been validated against the official psychiatric classification systems Diagnostic and Statistical Manual-IV (DSM-IV) diagnoses[7-8]. In 1997, the English version of HADS was first validated and translated into Malay language in a sample of women after abortion[9]. Many previous studies have generally been conducted on psychological distress worldwide, however only a few studies were reported among Malaysian patients with cancer[10-11]. This is why despite the prominence of psychological distress among this patient cohort, comprehensive data on psychological functioning remains limited. Moreover, the Malay HADS has not been specifically validated among cancer patients in Terengganu itself.

It is well accepted in the field of oncology that the goal of treatment is to cure or to prolong life while optimizing HRQoL[11]. Valid and reliable assessments of HRQoL are therefore similarly important to ensure appropriate care and treatment for patients with cancer in order to mitigate unnecessary suffering. Several self-administered questionnaires have been developed to assess HRQoL. The MQoL was developed and validated in Canada particularly to measure HRQoL of patients with life-threatening illness[12-13]. It represents a useful instrument in clinical settings and was also preferred by nurses over the Hospice Quality of Life Index-Revised instrument[14].

Statistical analysis from the literature had further shown that MQoL possesses good psychometric evidence in measuring the HRQoL of patients with cancer[15]. Other instruments are also available but various limitations have been identified which impose constraints on their use. The MQoL is hence preferred because it is considered less burdening due to its limited number of questions compared to other instruments[14]. In addition, its advantage through the existential (spiritual) domain could be utilised, the important physical domain is retained and positive contributions are also taken into account [14-17]. In this study, we employed the Malay version of MQoL (MMQoL).

Psychometric evidence from past literatures coupled with the relevance of the variables under study therefore supported the reasons for choosing both HADS and MMQoL[16-17]. However, re-evaluation of the psychometric properties in the respective target samples is equally vital to confirm their usefulness and suitability. Consequently, we intended to examine the reliability of both instruments together with patients' perception on their applicability and practicality among a group of unsampled-before cancer cohort in Terengganu.

Methods

Study design and sample selection. This was a cross-sectional study conducted at Hospital Sultanah Nur Zahirah (HSNZ), Kuala Terengganu, Malaysia. Data was collected from two samples: out-patients and in-patients who were diagnosed with cancer. Patients were recruited for the study when they were attended to in the oncology or surgical clinics/wards. They were enrolled from Surgical Out-Patient Department/clinic (SOPD), and wards 4EF (Gynaecology), 7EF and 8CD (both Medical) of the hospital. The criteria for inclusion in the study consisted of 1) diagnosis of cancer 2) no documented brain metastasis 3) ambulatory 4) a minimum age of 18 years old 5) able to speak and read Malay language 6) not suffering from cognitive impairment 7) able to give informed consent 8) an estimated survival duration of more than six months. Patients who met the afore-mentioned inclusion criteria were approached by the research assistants. Patients who were deemed too weak to complete the instruments, with unpredictable changes of condition or in immediate crisis that research involvement would impose a clinical burden (limiting meaningful contribution of information) were excluded from the study. The number of participant is expected to be at least 30 persons depended upon the parameter(s) to be estimated. A general rule is to take 30 patients or greater[18].

Instruments

Personal Particulars. Patients were asked to provide their demographic information in this form. It consisted of 12 questions which included: gender, age, marital status, living arrangement, race, religion, education level, occupation, monthly salary and type of cancer. This Personal Particulars was adapted from a previous study[16].

Perception towards HADS and MMQoL. Two questionnaires assessing applicability and practicality were used for this purpose. They were 1) HADS applicability and practicality of instrument questionnaire 2) MMQoL applicability and practicality of instrument questionnaire. Both instruments similar consisting of 5 items each which asked the duration to complete the instrument (item 1), clarity and understandability (item 2), comprehensiveness (items 3 and 4) and the spontaneous responding (item 5). Items 1, 4

and 5 are open-ended. This form was adapted from a previous study in Malaysia[16,17].

The Malay Hospital Anxiety Depression Scale (HADS)

The Malay translated HADS is a brief 14-item, self-administered questionnaire specifically designed for screening of anxiety and depressive symptoms. It had also been used for wide range of respondents in clinical to non-clinical conditions[9,19]. Favourable reliability has been demonstrated in most samples utilising this instrument.16-18 The HADS contains 14 items and consists of two subscales: anxiety (HADS-A) and depression (HADS-D). The anxiety and depression subscales are scored from 0 to 3 (four-point likert scales), giving maximum scores of 21 for anxiety and depression respectively. Score of 7 or below is considered as "normal/no problem". Subscale scores range between 8 to 10 represent "mild case" and scores of 11 or more are considered to be "moderate case" of psychological morbidity (significant clinical case). For each subscale, scores from 12 to 14 is considered as "moderate case" and scores above 15 as "severe symptom". In brief, any domain score ≥ 8 was considered as "case" [9].

The Malay McGill Quality of Life Questionnaire (MMQoL)

The McGill Quality of Life Questionnaire (MQoL) was developed and validated in Canada and is especially used to measure the HRQoL of patients with a life-threatening illness such as cancer patients[12-13]. The questionnaire items were derived from informal patient interviews, literature reviews, and existing instruments. The original English and French versions has been translated and validated in various languages[12-13]. Similarly, the MQoL has been translated and validated in Malay - the Malay McGill Quality of Life Questionnaire (MMQoL)[16]. A study testing the applicability and validity of the MMQoL in a sample of Malaysian cancer patients has also been performed whereby the results demonstrated that MMQoL is valid and acceptable for the sample[16].

The validated Malay translation of MQoL was utilised in our study[21]. It possessed established use and the desired psychometric properties and consisted of 17 items, including a Global QoL question and the open-ended question, patients were encouraged to report issue which influenced their HRQoL[20]. Five domains were assessed, *Physical Symptoms* (items 1 to 3), *Physical Well-Being* (item 4), *Psychological Well-Being* (items 5 to 8), *Existential Well-Being* (items 9 to 14) and *Support Issues* (items 15 and 16). The response categories ranged from 0 to 10 with anchor ends. The *Total MMQoL Scores* was derived from the mean of all five domains. All questions in MMQoL could be answered using numerical value from 0 to 10. Scores for subscales could range from 0 to 10, facilitating the identification of specific domains that need attention relative to overall HRQoL. Larger numbers indicated more positive responses, except for items 1, 2, 3, 5, 6, 7, and 8. In this study, the reference of frame of "the past 2 days" was used due to the unpredictable nature of patient condition.

Data Collection Procedure

The protocol for this study was approved by the Ministry of Health Malaysia (reference number: KKM/NIHSEC/08). Upon approval, the investigators informed the study centre authorities to decide on the most suitable time and date to conduct the research. Patients who met all the inclusion criteria

were approached. Upon initial approached, patients were verbally briefed about the study and this was reinforced by the provision of an information sheet. Once the potential patients agreed, they were asked to sign a written consent form.

After obtaining the consent, the research assistants proceeded to administer the Personal Particulars, Malay HADS questionnaires followed by Malay HADS applicability and practicability forms. The completion time for Malay HADS assessment was recorded using a stopwatch.

After assessments of HADS, the MMQoL instrument along with the applicability and practicality form was also administered to the same patient. Similarly, the duration spent to answer the instrument was also recorded. Any distressing/unsuitable/difficult question was also recorded in the applicability and practicality form. The research assistants remained with the all patients during the time they completed the instruments to assist them whenever needed. At the end of the study, tokens were distributed to the participants as appreciation of their cooperation.

Data Analysis

SPSS 17.0 for Windows was used for data analysis. Socio-demographic data was analyzed descriptively and presented as frequencies. Descriptive statistics were also used to present results for applicability and practicality of the study. For reliability purposes, the internal consistency reliability the Cronbach's co-efficient alphas (α) were calculated for both instruments[21-23]. This statistics provide an indication of the average correlation among items that make up the scale. Value ranges from 0 to 1 and the higher the value, the greater the reliability. Usually α of 0.70 and above is acceptable [24]. A value below 0.50 indicates that the items do not originate from similar construct[25].

In the context of validity, Spearman's rank correlation coefficient (r_s) was used to examine the strength of the associations between or within instrument. For convergent validity, higher inter-correlations between items for both instruments would be expected i.e. $r_s > 0.40$ between an item and its own scale[23]. A successful evaluation of divergent validity should detect the lack of association of a measure with other tests designed to measure theoretically different concepts[24-29]. The magnitude of $r_s < 0.40$ with non-related construct is referred to as divergent validity, whereby the value is expected to be very low or near to zero[24-29].

Results

Socio-demographic. Responses were received from 80 out of 98 patients, hence a participation rate of 81.6%. Eighteen patients were excluded from the study mainly due to having limited time in the clinic (n = 9) or were in unfavourable conditions such as fatigue, restlessness, nausea or febrility (n = 6) and could not comprehend the purpose of study (n = 3). The mean age of participants were 50.2 years (SD = ±13.6). Majority of the patients were Malays (n = 70), and in total there were 24 males (30.0%) and 56 females (70.0%). At the time of the research nearly 79.0% of the patients were married and 92.5% of them were staying with their family or partner. More than 50.0% of the patients had completed PMR education and majority earned less than RM 500 per month. The more comprehensive demographic details are presented in Table 1. The mean scores for HADS-A was 6.4 (SD = ± 4.31) while 3.9 (SD = ± 4.22) was the mean score

for HADS-D. The highest mean score for MMQoL domains was reported in *Support Issues* (8.3). Meanwhile, the lowest mean score was found in *Psychological Well-Being* (mean = 5.3). Mean for *Total MMQoL Scores* was 6.8 (SD = ± 1.65).

Table 1. Demographic Data of Respondents

Characteristic	Frequency (n)	Percentage (%)	*p* value*
Gender			
Male	26	32.5	< 0.05
Female	54	67.5	
Living arrangement			
Alone	6	7.5	< 0.001
With partners/Family	74	92.5	
Marital status			
Married	63	78.8	< 0.01
Single/Divorce	17	21.2	
Race			
Malay	70	87.5	< 0.001
Others (Chinese, India, etc)	10	12.5	
Religion			
Islam	71	88.8	< 0.001
Others	9	11.2	
Educational level			
> PMR level	42	52.5	< 0.05
< PMR level	38	47.5	
Monthly income			
< RM 500	51	63.8	< 0.05
> RM 500	29	36.2	
Employment			
Employed	28	35.0	< 0.05
Not employed	52	65.0	

Type of cancer			
Breast	41	51.2	> 0.05
Others	39	48.8	

* x^2 test for goodness of fit.

Patients' perception towards HADS and MMQoL. Patients appeared to take shorter time to complete HADS than the MMQoL. The average time required to complete the HADS was 4.5 minutes (SD = ± 1.9, range = 2 – 10 minutes). The majority of the patients judged the questions and instructions for HADS to be "clear" (n = 53, 66.2 %) and "very clear" respectively (n = 26, 32.5%). Only one patient stated that the items were "not clear". All of the respondents thought HADS was comprehensive and no burdening question was reported for all items and instructions in HADS. The mean for MMQoL completion duration was 6.6 minutes (SD = ± 3.4, range = 3 – 19 minutes). The majority of patients thought the questions and instructions to be "clear" (n = 43, 53.8%). Forty-five percent of the patients judged the MMQoL to be "clear" (n = 36). Similarly, for MMQoL only one of the patients stated that the response as "not clear". Majority of the respondents also perceived that the instrument was comprehensive (n = 77, 96.2%). Two patients suggested that the MMQoL should include family and financial issues, home life and pain issues. However, one patient was not able to give immediate comment. Only one patient reported that item 15 (*Support Issues*) was difficult to complete. A number of 25 patients had written their comments in the open-ended questions (18.8%) which mostly mentioned about family supports, emotional state and financial problems.

Reliability. This study found that both instruments, MMQoL and HADS were reliable tools. The level of internal consistency reliability for both HADS and MMQoL domains emerged as moderate to high. The Cronbach's α coefficient for both instruments exceeded 0.70 with the exception of *Support Issues* (*Physical Symptoms* = 0.74, *Psychological Well-Being* = 0 .86, *Existential Well-Being* = 0.81, *Support Issues* = 0.66, *Total MMQoL Scores* = 0.77, HADS-A = 0.82, HADS-D = 0.82).

Table 2. Correlations^ within HADS (item vs. domain)

Domain	HADS-A$^{+\wedge}$	HADS-D$^{\wedge}$
HADS-A		
Anxiety 1	0.63**	0.50**
Anxiety 3	0.63**	0.44**
Anxiety 5	0.62**	0.51**
Anxiety 7	0.46**	0.45**
Anxiety 9	0.48**	0.36**
Anxiety 11	0.52**	0.41**
Anxiety 13	0.64**	0.45**

Domain	HADS-A^	HADS-D+^
HADS-D		
Depression 2	0.44**	0.50**
Depression 4	0.28*	0.59**
Depression 6	0.40**	0.43**
Depression 8	0.47**	0.52**
Depression 10	0.47**	0.59**
Depression 12	0.33*	0.50**
Depression 14	0.40**	0.44**

^Spearman's rank correlation coefficient (r_s); +corrected for overlap; *p < 0.05; **p < 0.01.

Convergent / divergent validity. Within HADS itself, the individual items produced strong correlations (corrected for overlap) with their own domains than with other domains ($r_s \geq 4.0$) (Table 2). Similarly, all individual items in MMQoL correlated (corrected for overlap) stronger within their own domains compared to others domains except for items in the *Existential Well-Being* and *Support Issues* domains (items 13- 16) (Table 3). These results demonstrated divergent validity. In this study the domains in HADS were weakly correlated to with MMQoL in the domain of *Physical Symptoms* (item 1 to 3), *Physical Well-Being* (item 4), *Existential Well-Being* (item 9 to 14) and *Support Issues* (item 15 and item 16). This results demonstrated discriminant validity. However, the strongest (and significant) correlations were found between HADS-A and HADS-D with *Psychological Well-Being* (0.62 – 0.53), while the weakest correlation was shown by *Support Issues* (0.25-0.34). The results are shown in Table 4.

Table 3. Correlations within MMQoL (item vs domain)

	*Physical Symptoms^*	*Physical Well-Being^*	*Psychological Well-Being^*	*Existential Well-Being^*	*Support Issues ^*
Physical Symptoms 1	0.47+**	0.35**	0.46**	0.28**	0.25*
Physical Symptoms 2	0.41+**	0.26*	0.40**	0.17**	0.13
Physical Symptoms 3	0.43+**	0.33**	0.37**	0.27*	0.23*
Physical Well-Being 4	0.37**	0.54+**	0.38**	0.42**	0.31**
Psychological Well-Being 5	0.38**	0.38**	0.61+**	0.16**	0.26
Psychological Well-Being 6	0.40**	0.43**	0.48+**	0.26*	0.29**
Psychological Well-Being 7	0.40**	0.30*	0.45+**	0.22	0.21

Psychological Well-Being 8	0.38**	0.22	0.58+**	0.18	0.14
Existential Well-Being 9	0.02	0.20	0.05	0.41+**	0.36**
Existential Well-Being 10	0.30*	0.19	0.11	0.33+**	0.31**
Existential Well-Being 11	0.23*	0.28*	0.22	0.58+**	0.40**
Existential Well-Being 12	0.26*	0.41**	0.25*	0.45+**	0.39**
Existential Well-Being 13	0.30*	0.45**	0.27*	0.48+**	0.51**
Existential Well-Being 14	0.04	0.21	0.01	0.48+**	0.65**
Support Issues 15	0.2	0.30**	0.21	0.49**	0.44+**
Support Issues 16	0.12	0.24*	0.21	0.51**	0.47+**

^Spearman's rank correlation coefficient (r_s); +corrected for overlap; *p < 0.05; **p < 0.01.

Table 4. Correlations between HADS and MMQoL

Domain	HADS-A+	HADS-D+
Physical Symptoms	- 0.37**	- 0.27*
Physical Well-Being	- 0.33**	- 0.26*
Psychological Well-Being	- 0.62**	- 0.53**
Existential Well-Being	- 0.44**	- 0.39**
Support Issues	- 0.25	- 0.34**
Total MMQoL Scores	- 0.55**	- 0.47**

+Spearman's rank correlation coefficient (r_s); *p< 0.05; **p < 0.01.

Discussion

Numerous self-administered questionnaires have been developed to assess anxiety, depression and HRQoL status. Preliminary testing of the instruments' psychometric properties is therefore essential to determine whether the instruments of choice are applicable, valid and relevant for use[30]. The aims of this pilot study were to investigate the reliability, validity and patients' perception towards the Malay HADS and MMQoL in a sample of cancer patients.

The first part of our study showed that HADS and MMQoL were generally acceptable to almost 90.0% of participating patients. The patients required a relatively longer time to answer MMQoL compared to HADS understandably due to the greater number of items in MMQoL. However, both instruments were found to be practical as both needed minimal time (less than 10 minutes) to complete and no complaint was reported. The results strongly supported the usage of both instruments in a busy setting particularly in out-patient oncology clinics. With the majority of the patients perceiving both instruments to be clear, comprehensive and possessing suitable basic construct, it was evident that both Malay HADS and MMQoL were acceptable and applicable.

Literatures in the past have also demonstrated similar supportive findings[31-32].

Both HADS and MMQoL also showed evidence of good reliability. The findings of the reliability tests surpassed the α threshold of 0.70 and results were consistent with earlier studies[9,30]. A strong correlation was also demonstrated between the assessment of psychological domains of the MMQoL and HADS domains, reiterating and confirming of the valid assessment of psychological domains in both questionnaires. These results have been confirmed by previous findings from the literature[31-32]. Strong correlations found in the psychological domains of the MMQoL and HADS may also reflect no difference in the reporting of the psychological domains in both questionnaires. Also, the correlation between HADS and overall HRQoL underlines the importance of psychological well-being in assessing the HRQoL of cancer patients.

One of the limitations in this study was with regard to the patient selection method which excluded those with limited time in the clinic or respondents who were too ill to take part, a possible factor leading to study bias. These patients may limit meaningful contribution of information for the study as they are also minimally interested to join other studies. Nonetheless, our overall results were still in line with those of earlier studies which supported the reliability, validity and patients' perception towards the applicability and practicality of the test instruments involved[31-37].

Conclusions

Overall, the instruments tested in this study exhibited evidence of favourable psychometric properties among patients with cancer in Terengganu. To the majority of them both HADS and MMQoL instruments were considered clear, comprehensive and not difficult to complete as minimal time was needed to complete them. Both instruments were also found to be reliable as their domains demonstrated satisfactory evidence of internal consistency. Strong correlations demonstrated by the psychological domains of both instruments provided some evidence of validity while underlining the importance of psychological well-being in assessing the HRQoL of cancer patients. To conclude, the evidence from our study indicated that both HADS and MMQoL instruments are feasible, relevant and useful to be implemented in health outcomes research among cancer sufferers, particularly in Terengganu.

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References

1. Badia X, Mascaro JM, Lozano R. Measuring health-related quality of life in patients with mild to moderate eczema and psoriasis: Clinical validity, reliability and sensitivity to change of the DLQI. The Cavide

Research Group. Br J Dermatol. 1999; 141:698–702

2. Pratheepawanit N, Salek MS, Finlay IG. The applicability of quality-of-life assessment in palliative care: Comparing two quality-of-life measures. Palliative Med. 1999;13:325-34

3. Grossi E, Groth N, Mosconi P, et al. Development and validation of the short version of the Psychological General Well-Being Index (PGWB-S). Health Qual Life Outcomes. 2006;4:88

4. Wilson KG, Chochinov HM, Skirko MG, et al. Depression and Anxiety Disorders in Palliative Cancer Care. J Pain Symptom Manage. 2007; 33(2): 118-129

5. Bouras N, Holt G. Psychiatric and Behavioural Disorders in Intellectual and Developmental Disabilities. (2nd edition). Cambridge University Press: United Kingdom; 2007

6. Chochinov HM. Psychiatry and terminal illness. Can J Psychiatry. 2000;45:143–150

7. Bjellanda I, Dahlb AA, Haugc TT, et al. The validity of the Hospital Anxiety and Depression Scale: An updated literature review. J Psychosom Res. 2002;52:69–77

8. Mitchell G, Girgis A, Jiwa M, et al. GP caregiver needs toolkit versus usual care in the management of the needs of caregivers of patients with advanced cancer: A randomized controlled trial. Trials. 2010;11:115

9. Hatta SM, Hamid AR, Jaafar R, et al. Depressive symptoms among women after abortion. Malaysian J of Psychiatry. 1997;5:27-33

10. Saniah AR, Zainal NZ. Anxiety, Depression and coping strategies in breast cancer patients on chemotherapy. Malaysian J of Psychiatry. 2010;19(2)

11. Hasanah CH, Biswal BM. Fatigue in cancer patients treated by external radiotherapy: An application of the revised Piper Fatigue Scale in Malay. Eur J Gen Med. 2004; 1(1):9-13

12. Cohen SR, Mount BM, Strobel MG, Bui F. The McGill Quality of Life Questionnaire: A measure of quality of life appropriate for people with advanced disease. A preliminary study of validity and acceptability. Palliative Med. 1995;9:207-19

13. Cohen SR, Mount BM, Bruera E, Provost M, Rowe J, Tong K. Validity of the McGill Quality of Life Questionnaire in the palliative care setting: A multi-centre Canadian study demonstrating the importance of the existential domain. Palliative Med.1997;11:3

14. Eischens MJ, Elliott BA, Elliott TE. Two hospice quality of life surveys: A comparison. Am J Hosp Palliat Care. 1998;15(3):143-8

15. Cohen SR, Boston P, Porterfield P. Changes in quality of life following admission to palliative care units. Palliat Med. 2001;15:363-371

16. Lua PL. The Malay McGill Quality Of Life Questionnaire (MMQOL)

adaptation and validation. Shah Alam; University Publication Centre (University Teknologi Mara). 2006;6-34

17. Lua PL, Salek S, Finlay I, et al. The feasibility, reliability and validity of the McGill Quality of Life Questionnaire-Cardiff Short Form (MQOL-CSF) in palliative care population. Qual Life Res 2005;14(7):1669-81.

18. Browne RH. On the use of a pilot sample for sample size determination. Statistics in Medicine. 1995;14:1933-40

19. Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. Acta Psychiat Scand. 1983;67:361–70

20. Hu WY, Dai YT, Berry D, Chiu TY. Psychometric testing of the translated McGill Quality of Life Questionnaire-Taiwan version in patients with terminal cancer. J Formos Med Assoc. 2003;102(2):97-104

21. Garson D. Reliability: Reliability Analysis. Available from http://www2.chass.nsu.edu/garson/pg765/reliab.htm#retest. June 28, 2011

22. Pallant J. SPSS survival manual. 3rd ed. Australia: Open University Press; 2007

23. John OP, Benet-Martinez V. Measurement: Reliability, construct validation, and scale construction. In: Reis HT, Judd CM, eds. Handbook of research methods in social and personality psychology. Cambridge: Cambridge University Press, 2000; 339-69

24. Blacker D, Endicott J. Psychometric properties: Concepts of reliability and validity. Handbook of psychiatric measures Washington, DC: American Psychiatric Association; 2000. p.7-14

25. Pratheepawanit N, Salek MS, Finlay IG. The applicability of quality-of-life assessment in palliative care: comparing two quality-of-life measures. Palliat Med. 1999;13(4):325-34

26. Jafari P, Forouzandeh E, Bagheri Z, et al. Health related quality of life of Iranian children with type 1 diabetes: reliability and validity of the Persian version of the PedsQL™ Generic Core Scales and Diabetes Module. Health Qual Life Outcomes. 2011;9:104

27. Kearney RS, Achten J, Lamb SE, et al. The Achilles tendon total rupture score: a study of responsiveness, internal consistency and convergent validity on patients with acute Achilles tendon ruptures. Health Qual Life Outcomes. 2012;10(1):24

28. Sadjadi R, Vincent KA, Carr AJ, et al. Validation of the individualised neuromuscular quality of life for the USA with comparison of the impact of muscle disease on those living in USA versus UK. Health Qual Life Outcomes. 2011;9:114

29. Nunnally JC, Bernstein IH. Psychometric theory. 3rd ed. New York: McGraw Hill; 1994

30. Bowling A. Measuring health- A review of quality of life measurement scales. 2nd ed. Philadelphia: Open University Press; 1997

31. Walker J, Postma K, McHugh GS, Rush R, Coyle B, Strong V, Sharpe M. Performance of the Hospital Anxiety and Depression Scale as a screening tool for major depressive disorder in cancer patients. J Psychosom Res. 2007;63:83–91

32. Ariaratnam S, Devi A, Kaur G, et al. Psychiatric morbidity and survival in newly diagnosed treatment naive cancer patients – A study from Malaysia. Biomed Res. 2008;19(2);113-6

33. Osborne RH, Elsworth GR, Sprangers MAG, Oort FJ, Hopper JL. The value of the Hospital Anxiety and Depression Scale (HADS) for comparing women with early onset breast cancer with population-based reference women. Qual Life Res. 2004; 13:191–206

34. Bjordal KA, de Graeff PM, Fayers E, et al. A 12 country field study of EORTC QLQ-C30 and the neck specific module in head and neck patients. Eur J Cancer. 2000;36:1796-1807

35. Harter MK, Reuter K, Aschenbrenner A, et al. Psychiatric disorders and associated factors in cancer: Results of an interview study with patients in inpatient, rehabilitation and outpatient treatment. Eur J Cancer. 2001;37:1385-93

36. Sellick SM, Edwardson AD. Screening new cancer patients for psychological distress using the hospital anxiety and depression scale. Psychooncology. 2007;16(6):534-542

37. Henry M, Huang LN, Ferland MK, Mitchell J, Cohen SR. Continued study of the psychometric properties of the McGill quality of life questionnaire. Palliat Med. 2008;22:718-23

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ORIGINAL PAPER

Magical Ideation and Schizophrenia

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Abstract

Schizophrenia is a mental disorder that is ambiguous and enigmatic in nature. Persons affected by schizophrenia often find difficulties in every sphere of life functions. They have difficulties to think logically, to have normal emotional responses, and to behave normally in social situations. In clinical understanding, magical thinking can be defined as the irrational beliefs that one can bring about a circumstance or event by thinking about it or wishing for it. *Objective:* The present study aimed to assess magical ideation in two groups ie. persons with schizophrenia and normal persons. *Methods:* The sample for this study consisted of two groups. The first group consists of thirty subjects with diagnosis of schizophrenia selected from the out patient unit of LGB Regional Institute of Mental Health, Tezpur, Assam. The second group consist of thirty normal subjects. A semi-structured clinical and socio-demographic data sheet prepared for the purpose of this study and Magical Ideation Scale was administered to both the groups. *Results:* Persons with schizophrenia scored significantly higher than normal subjects on magical ideation scale. Magical ideation was found to be positively correlated with domicile and occupation in socio demographic profile of the respondents. *Conclusion:* This study showed that magical ideation was high in schizophrenia group. The study is also an indication for the need to be culturally sensitive to the belief systems of people and projects the need for cultural competence in clinical practice.

Keywords: Schizophrenia, Magical Ideation

Introduction

The terms magic and magical have a wide range of meanings, both among scholars and among the general public. The terms can mean: the tricks and illusions of a stage magician; ability to change form, visibility, or location of something, or the creation of something from nothing; spirit invocation and command; having romantic, awe-inspiring, or wondrous quality; the “high” or “Hermetic” magic of late medieval and Renaissance times, including astrology, alchemy, Kabbalah, and other systems involving complex calculations and/or written notations and formulas; anything “mystical,” “psychic,” “paranormal,” “occult,” or “New Age"; some of the beliefs

and practices of Wicca and other neo-pagan religions, often spelled “magick"; any of the many meanings of “sorcery” or “witchcraft,” or other referents of “black magic"; anything seeming mysterious or miraculous; and the terms can be used as a general reference to supernatural power[1].

Magical thinking relates to a belief in the individual’s power to control or cause events in the external world[2]. It develops in childhood alongside an understanding of scientific principles[3]. In mental health and behavioural science, magical thinking has often been viewed as a mark of morbidity where an individual owing to psychological ailments experiences irrational fear of performing certain acts or having certain thoughts because he assumes a correlation with their acts and threatening calamities[4].

It has been unequivocally accepted that schizophrenia is not a single disorder but more likely a number of disorders that are, for the time being, classified under one rubric. Schizophrenia is a mental disorder with wide ambiguity and enigma and schizophrenia affected people often find difficulties in every sphere of life functions; they have difficulty to think logically, to have normal emotional responses, and to behave normally in social situations.

Schizophrenia has often been represented as an indefinable phenomenon, the meaning of which is almost impossible to make out. Historically, schizophrenia has been characterized as a psychological disorder with inaccessible subjectivity and numerous symptoms. Schizophrenia is characterized by wide range of symptoms which have often appeared as very much complex and confusing to clinicians, examples of schizophrenic symptoms are: hearing internal voices or experiencing other sensations not connected to an obvious source (hallucinations) and assigning unusual significance or meaning to normal events or holding fixed false personal beliefs (delusions). No single symptom is definitive for diagnosis; rather, the diagnosis encompasses a pattern of signs and symptoms, in conjunction with impaired occupational or social functioning.

Magical ideation (MI) is also identified as a feature of schizotypy. The MI scale was originally developed on the premise that MI was a precursor to schizophrenia. It emerged as a scale to identify proneness to psychosis within normal individuals. The items on the MI scale examine the individual’s interpretation of personal experience and beliefs in magical forms of causation. These beliefs extend across a range of paranormal beliefs, including reincarnation, spirit influences, astrology, clairvoyance, good luck charms and the transfer of energy between people[5].

Magical thinking is often intensified in psychiatric illnesses such as obsessive-compulsive disorder (OCD) or clinical depression. Magical Ideation is conceived as similarity to the positive symptoms reported by patients with schizophrenia. Magical thinking is also among the defined symptoms of some psychiatric disorders like schizotypal personality disorder in DSM-IV[6]. The Diagnostic and Statistical Manual of Mental Disorders, provides criteria for a number of mental disorders accompanied by paranormal beliefs & experiences. Nevertheless it does not mean that anybody who believes in or experiences paranormal phenomena will be diagnosed as mentally ill. Rather, the general idea is that believers who experience it are at risk for developing a mental disorder like psychosis[7].

In a multi-cultural and polytheistic society like India, ritualistic behaviours and magical

thinking is ingrained in the general psyche of the individuals. There have been very few studies carried out in the Indian setting. Lesser still are the comparisons with the normal population and in persons with mental disorders. The present study focuses on magical ideation among persons with schizophrenia in north eastern part of India.

Objectives

1. To assess magical ideation in schizophrenia and normal subject group.
2. To see the relationship between magical ideation and socio demographic profile

Methods

The sample for this study consisted of two groups. The first group consists of thirty subjects with diagnosis of schizophrenia in the age range of 18 to 50 years of both genders and fulfilling the criteria of schizophrenia according to ICD 10 were selected from the out patient unit of LGB Regional Institute of Mental Health, Tezpur, Assam. Only those who received no electroconvulsive therapy within the last six months prior to testing; have no history of drug or alcohol abuse; demonstrate no evidence of organicity (according to hospital records); were included in the study. The second group consist of thirty normal subject in the age range between 18 to 50 years; of both genders with no history of major mental or physical illness and who have no history of drug or alcohol abuse were included. The ethical requirements were met for the study and informed consent was taken prior to participation in the study. A semi-structured clinical and socio-demographic data sheet prepared for the purpose of this study and Magical Ideation Scale was administered to both the groups. The analysis of data was done using chi-square, t test and correlation through the SPSS (version 18).

Measurement Tools

Semi-structured Clinical and Socio-demographic Data Sheet: It was a semi - structured datasheet designed for the study and contained various socio-demographic and clinical variables of the persons with schizophrenia and normal subjects.

Magical Ideation Scale[8]: The MI Scale consists of 30 true-false items which exploring beliefs in a number of magical influences (e.g., thought transmission, spirit influences, astrology, good luck charms, psychic energy). The scale was originally designed as a measure of psychosis proneness. It has demonstrated construct validity as a measure of schizotypy, and adequate internal consistency.

Results

In the present study there were sixty respondents; thirty patients with schizophrenia and thirty normal subjects. The mean $\pm$ standard deviation (SD) age for the schizophrenia group was 30.00 ± 6.07 years while the normal subjects group had a mean age of 33.93 ± 5.72 years. There was no significant difference in the age distribution between the groups. In the schizophrenia group, there were 25 males and 5 females and in normal subjects group 23 were males and 7 were females. Significant difference was found at 0.05 level found in domicile and occupational status between the two groups. No significant statistical difference was found in gender, marital status, and religion between the two groups (Table 1).

Table 1. Socio Demographic Profile of Schizophrenia Group and Normal Subjects

Variables		Schizophrenia group n=30	Normal subjects n= 30	df	x^2
Sex	Male	25	23	1	.519
	Female	5	7		
Marital status	Married	27	22	1	.095
	Un married	3	8		
Domicile	Rural	24	14		.007*
	Urban	6	16		
Occupation	Agriculture	13	4	1	.034*
	Unemployed	10	14		
	Business	7	12		
Religion	Hindu	25	24	1	.739
	Muslims	5	6		

*p< 0.05

Magical ideation was compared between the schizophrenia groups and normal subjects. The mean±SD magical ideation score for schizophrenia group was 16.43±3.37 while for the normal subjects was 8.83±3.21. Significant difference was found between schizophrenia group and normal subject in magical ideation (df=58, t=8.95, p<0.01). Correlation between magical ideation and various socio demographic variables showed that magical ideation was positively correlated with domicile and occupation (Table 2).

Table 2. Correlation between Magical Ideation and Socio Demographic Variables

Variables	Sex	Age	Education	Marital status	Domicile	Occupation	Religion
Magical ideation	.195	-.164	-.106	.233	.409**	.310*	.069

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Discussion

Magical thinking is a clinical term used to describe a wide variety of non-scientific and sometimes irrational beliefs. It is important to note that magical thinking must be considered in the context of religious and cultural belief pattern of persons living in a community. A person from such a background should not be diagnosed based on belief systems related magical thinking. Previous research examining the MIS performance of non-psychiatric populations suggested the possible utility of the scale as a measure of schizophrenia proneness.

In the present study we found that schizophrenia group scored significantly higher than normal subjects in magical ideation scale. This finding is corroborated by similar results in the studies by Eckblad & Chapman, 1983[8] and George & Neufeld, 1987[9] on schizophrenic patients and normal subjects. Research has also shown that paranormal beliefs, including magical thinking, are significantly and positively correlated with people experiencing psychosis from schizophrenia and bipolar disorder[10].

The finding of the present study shows that magical ideation was positively correlated with domicile and occupation and thus it can be interpreted that community beliefs do influence the thinking process like magical ideation. Being multicultural, India has scores of religious beliefs, denominations, sects and cults. In some cases, questions about the community affairs – such as the adequacy of rains, quality and quantity of crops, safety of the livestock, possible epidemics – are placed before these ‘possessed’ beings, which are considered gods and goddesses for the period of trance, and if perils are involved in human affairs, these divine beings are appealed for assistance[11]. Kakar, 1982[12] documents the cases of many barren women who complained of spirit possession and sought cure in the Balaji temple of Sawai Madhopur. Certain other conditions – such as divorce, alcoholic husband, domestic unhappiness, protracted illness, and stresses at the place of work – can also give rise to mental health problems. In rural India, symptoms such as a ‘heavy head’, headache and bodily pain, and visions are all interpreted as being caused by the entry of evil powers in the body[13].

There was certain limitation of the present study, firstly sample size was small. The study population was small with only 30 for the schizophrenia and 30 for the normal group, which may make it difficult for any categorical conclusion to be reached about the magical ideation in the both the groups .Secondly the use of only one diagnosis entity included in the present study was another limitation. Study could be done on different groups of disorders like affective disorder, obsessive compulsive disorder and other psychiatric disorder for better generalization of results. Further, matched cultural different normal populations could also give a better inference for generalisation. In summary, this study showed that magical ideation was high in schizophrenia group as compared to the normal subjects and magical ideation had positive correlation with domicile and occupation. The study is also an indication for the need to be culturally sensitive to the belief systems of people and projects the need for cultural competence in clinical practice. The results reflect the need for further research in magical ideation taking in to consideration other components likes personality of individuals, their religiosity, paranormal beliefs to see a pattern of results. This study can be replicated in larger populations as prospective investigation. The inference drawn can be the frame of reference for promotion and preventive health initiatives for psychiatric social work professionals and others.

References

1. Stevens, Phillips, Jr. Black Magic. In Encyclopaedia of the Paranormal. Gordon Stein, ed. Amherst, New York: Prometheus Books; 1996;129-133

2. Woolley, J.D. Thinking about fantasy: Are children fundamentally different thinkers and believers than adults? Child Development.1997; 68: 991–1011

3. Johnson, C.N., & Harris, P.L. Magic: Special but not excluded. British Journal of Developmental Psychology.1994; 12: 35–51

4. Shafir, E. & Tversky, A. Thinking through uncertainty: Non consequential reasoning and choice. Cognitive Psychology.1992; 24 (4): 449–474

5. Chapman, L.J., & Chapman, J.P. Psychosis Proneness. In M. Alpert (Ed.), Controversies in schizophrenia: Changes and constancies (1st ed.). New York: Guilford Press; 1985;157–172

6. American Psychiatric Association. Diagnostic and statistical manual of mental disorder .4th ed. Washington, DC:1994

7. Meehl, P.E. Toward an integrated theory of schizotaxia, schizotypy, and schizophrenia. Journal of Personality Disorders. 1990; 4: 1-99

8. Eckblad, M. & Chapman, L. J. Magical ideation as an indicator of schizotypy. Journal of Counselling and Clinical Psychology.1983; 51:215-225

9. George, L., & Neufeld, R. W. J. Magical ideation and schizophrenia. Journal of Consulting and Clinical Psychology.1987; 55: 778-779

10. Thalbourne, M. A. & French, C. C. Paranormal belief, manic-depressiveness, and magical ideation: a replication. Personality and Individual Differences.1995; 18: 291-292

11. Fuller, C.J. The Camphor Flame, Popular Hinduism and Society in India. Princeton University Press, Princeton, New Jersey; 1992

12. Kakar, Sudhir: Shamans, Mystics and Doctors: A Psychological Inquiry into India and Its Healing Traditions. Unwin Paperbacks, London ;1982

13. Gold, Ann Grodzins. Spirit Possession perceived and performed in rural Rajasthan. Contributions to Indian Sociology.1988; 22 (1):35-63

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ORIGINAL PAPER

Verbal Working Memory in Schizophrenia: Relationship to Cigarette Smoking and Psychopathology

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Abstract

Introduction: **A number of researches suggest *s*moking serves as a form of self-medication to reduce the side effects of antipsychotic medications, to alleviate negative symptoms, and/or to ameliorate a number of cognitive deficits associated with schizophrenia.** ***Objective:*** **The aim of this study was to investigate the association of cigarette smoking with verbal working memory and psychopathology of patients with schizophrenia.** ***Methods:*** **Fifty-three patients with schizophrenia were assessed by a single rater using the Malay Version of Auditory Verbal Learning Test (MVAVLT) and Positive and Negative Syndrome Scale (PANSS). Smokers (n=30) were compared with nonsmokers (n=23) on socio-demographic, clinical, psychopathology and verbal memory variables. Single linear and multiple regression analysis were performed to determine factors associated with verbal memory performance.** ***Results:*** **Verbal working memory performance is associated with lower number of admission to ward, lesser severity of the negative symptoms or general psychopathology of schizophrenia and use of atypical antipsychotics in all schizophrenic subjects. Smokers with schizophrenia scored higher than non- smoker in measures that reflect immediate memory, delayed recall and recognition memory. However, the association between verbal working memory performance and smoking status was found to be not significant.** ***Conclusion:*** **Verbal working memory performance is associated with negative symptoms but not positive symptoms. This study failed to detect association of smoking on verbal working memory.**

Keywords: Schizophrenia, Smoking, Working Memory

Introduction

Prevalence of smoking in patients with schizophrenia is up to four-fold higher compared the general population[1]. These observations remain true across cultures and countries and when controlling for possible confounders, such as marital and socio-

economic status, alcohol use, antipsychotic use, or institutionalism[2]. Patients with schizophrenia smoke more, favour stronger cigarettes and extract more nicotine from their cigarettes[3]. Several possible mechanisms have been hypothesized to explain the high prevalence of smoking seen in schizophrenia. Most of these suggest that nicotine serves as a form of self-medication to reduce the side effects of antipsychotic medications, to enhance the therapeutic effect of antipsychotics and so alleviate negative symptoms, and/or to ameliorate a number of cognitive deficits associated with schizophrenia[4].

Smoking high-nicotine cigarettes, compared to smoking de-nicotinized cigarettes was found to reduce negative symptoms without affecting positive symptoms[5]. This effect is thought to reflect nicotine's ability to raise dopamine levels in the nucleus accumbens and prefrontal cortex[6]. Following from the view that negative symptoms results from hypodopaminergic tone in the frontal cortex[7], it has been suggested that smoking provides a way of temporarily reducing these negative symptoms by raising dopamine levels in these regions[8]. In a phase 2 trial of a nicotinic agonist in schizophrenia, DMXB-A which activates α7-nicotinic receptor was found to improve negative symptoms that are generally resistant to treatment with antipsychotics[9]. Cognitive impairment whilst less obvious than positive symptoms such as hallucinations and delusions, is now thought to be a core component of schizophrenia. Neuropsychological studies have consistently described deficits affecting attention, working memory, executive functioning, learning and memory in patients with schizophrenia[10].

Working memory provides a crucial interface between perception, attention, memory, and action, due to its involvement in complex cognitive functions such as learning, reasoning and comprehension[11]. It is limited in volume and time span, allowing the subject to operate with bits of recent information. Two subsystems namely the visuo-spatial sketchpad and the phonological loop have been described. The first one is represented by the working memory for visual and spatial information, and the second one is the short term memory for acoustic or speech based information. The two aforementioned subsystems are under the control of a central executive system[11]. Verbal memory is therefore regarded as a distinctive type of working memory, underlying encoding through language[12].

In a study by Cosman, patients with schizophrenia performed significantly poorer in all three working memory tests comprised of Word List Memory Test, Face Memory Test, and Spatial Working Memory[13]. On the other hand, studies have suggested that nicotine administration can improve attention and working memory deficits[14,15]. Overall, existing evidence points consistently towards the beneficial effect of smoking or nicotine on sustained attention and working memory functions in schizophrenia, perhaps to a greater extent than seen in healthy populations. Other cognitive functions may be less sensitive to the effects of nicotine or smoking.

The assessment of working memory subsystems has been shown to provide invaluable information for the strategy of cognitive rehabilitation of schizophrenia patients, due to the fact that cognitive training exercises mainly involve working memory subsystems[16]. Therefore, this study aims to investigate the association of cigarette smoking with verbal memory (a part of working memory) and

psychopathology of patients with schizophrenia.

Methods

Subject

This is a cross sectional study on 30 smokers and 23 non-smokers with schizophrenia. Subjects were grouped into smoker if they smoke > 20 cigarettes per day and non-smoker if they do not smoke or smoke less than 5 cigarettes for the previous 6 months. They were recruited from the outpatient clinic and psychiatric wards in Hospital Universiti Sains Malaysia (HUSM) within a six-month period (1st July 2011 till 31st December 2011). They were cooperative and able to understand the Malay language. Patients were excluded if they have mental retardation, neurological or significant medical problems; current or past histories of substance abuse other than nicotine, or were regularly prescribed with anticholinergic medication such as benzhexol. Anticholinergic drugs have been shown to have significant negative effects on the immediate memory and the verbal working memory[17].

The age limit of all subjects was set between 15 and 65 years to minimize the effect of normal aging process on the cognitive performance. The study protocol was approved by the Research & Ethics Committee, Universiti Sains Malaysia and Ministry of Health. A single researcher (the first author) trained in psychiatric interview and rating scale interviewed all the subjects and administered the test individually.

Assessment

The Malay Version of Auditory Verbal Learning Test (MVAVLT) is a translated and validated Malay version of the Rey Auditory Verbal Learning Test, developed to suit the Malaysian population. It has good validity (factor analysis 0.66 to 0.98), test-retest reliability (pearson correlation 0.24 to 0.84) and sensitive in discriminating between normal and schizophrenia patients[18]. The MVAVLT consists of two different lists (A and B) of 15 concrete nouns each. Participants were asked to read the first list (A) five times (A1-A5) at a rate of one item per second (tape recording was used to standardize the rate). Free verbal recall (immediate memory) was tested immediately after each presentation. Total learning (A1 + A2 + A3 + A4 + A5) reflects the acquisition phase in the memory information processing operations. Then a second list (B) was presented followed by its free recall which acted as interference for A6. Thereafter, recall of list A (A6) was examined without prior presentation of list A. After 20 minutes of rest, recall of list A (A7) was repeated without its prior presentation. Finally, the participants had to recognize the words from list A interspersed among semantically or phonetically related words in a third list that comprised 30 words.

The Positive and Negative Syndrome Scale (PANSS) scale is a 30-item semi structured clinical interview specifically developed to assess for typological and dimensional assessment of schizophrenia. It has good psychometric properties with coefficients ranging from 0.73 to 0.83 for each of the scale[19]. There are 7 items for PANSS positive scale, 7 items for PANSS negative scale and 16 items for general psychopathology scale. Each items are rated on a 7-point scale (1= absent, 7 extreme). Rating is based upon information related to the past week. Total score for each group of symptoms were calculated by adding all the scores for the items in each group.

Results

Table 1 shows the socio-demographic and clinical variables of the study participants. The smoker and non-smoker groups did not differ significantly in age, age at first treatment, duration since first treatment and number of admission. The median age were 35.5 and 38.6 years old, median age at first treatment 21.5 and 20 years old, median duration of treatment 12.5 and 17 years and median number of ward admission 5 and 6 respectively. Both groups also did not differ significantly in ethnicity, marital status, employment status, educational level and type of antipsychotics. Majority of the participants was Malay (98.1%) and there was only one Chinese participant who is a smoker. Male comprised of 90% in smoker group compared to 39% in non-smoker group which is statistically a significant difference. Effect of gender on verbal learning from previous study has been inconclusive. A local study found that male patients performed better in verbal learning performance compared to female[20].

Table 1. Socio-Demographic and Clinical Characteristics of the Sample (n=53)

		Smokers (n=30)	Non-smokers (n=23)		
		Frequency (%)	Frequency (%)	Z*	*p*-value†
Gender	Male	27 (90)	9 (39)		<0.010
	Female	3 (10)	14 (61)		
Ethnic	Malay	29 (97)	23 (100)		0.566
	Others	1 (3)	0 (0)		
Marital status	Married	7 (23)	4 (17)		0.543
	Single	15 (50)	15 (65)		
	Divorced	8 (26)	4 (17)		
Employment status	Full time	1 (3)	2 (8)		0.460
	Part time	12 (40)	6 (26)		
	Unemployed	17 (57)	15 (66)		
Educational level	Tertiary	0 (0)	1 (4)		0.051
	Secondary	29 (97)	17 (74)		
	Primary	1 (3)	5 (22)		
Type of antipsychotics	Atypical only	14 (47)	10 (43)		0.460
	Typical Only	4 (13)	1 (4)		
	Combination	12 (40)	12 (52)		
		Median (IQR)	Median (IQR)		
Age (year)		35.5 (8.0)	38.7(8.0)	-1.92	0.542
Age at first treatment (year)		21.5 (11)	20 (10)	-0.70	0.481
Duration since first treatment (year)		12.5 (16)	17 (10)	-1.21	0.230
Number of ward admission		5 (8)	6 (9)	-1.69	0.493

*Mann-Whitney test.
† Chi-Square test, P<0.05 as significant at 95% CI.

Table 2 shows that all of the participants had only minimal to mild psychiatric symptoms. For smokers the means (SD) scores in PANSS positive, negative and general psychopathology were 15.3 (5.12), 11.5 (5.81) and 24.9 (7.17) while for non-smokers the score were 14.0 (5.9), 12.9(4.79) and 24.9 (5.25) respectively. Even though, smokers scored higher on PANSS positive and non-smokers scored higher on PANSS negative, these were not statically significant. Assessment with MVAVLT showed that there were significant differences in total A1-A5, A6, A7 and recognition between the 2 groups although the scores in smoker group were consistently higher than the non-smoker group in all 4 measures of immediate memory (total A1-A5), post-interference immediate memory (A6), delayed recall (A7) and recognition memory.

Table 2. Psychopathology and Verbal Memory among Smokers and Non-Smokers with Schizophrenia

	Smokers (n=30)	Non-smokers (n=23)	Statistical Analysis	
	Mean (SD)	Mean (SD)	Mean differences (95% CI)	*p*-value
PANSS				
Positive	15.41 (5.12)	14.03(5.91)	1.37 (-1.691,4.421)	0.380
Negative	11.50 (5.81)	12.90(4.79)	-1.42 (-4.350,1.501)	0.352
General Psychopathology	24.93 (7.17)	24.90 (5.25)	0.01 (-3.562,3.583)	0.901
MVAVLT				
Total A1-A5	42.71(11.03)	37.52(11.53)	0.6 (-0.591,1.710)	0.260
A6	8.50(2.51)	7.84((1.50)	0.2 (-0.680,1.052)	0.671
A7	9.41(2.53)	8.43(2.562)	0.9 (-0.490,2.351)	0.190
Recognition	14.00(2.02)	13.10(1.421)	0.6 (-0.191,1.400)	0.140

Simple linear regression analysis was done to determine the potential associated factors for verbal working memory among the subjects. Total A1-A5 scores of MVAVLT were chosen as dependent factor for the analysis since the scores measure immediate memory which reflects the verbal working memory of the subjects. Eight variables with p-value of less than 0.25, which include employment status, educational level, smoking status, number of admission, type of antipsychotics and all PANSS subscales, were further analysed using multiple linear regression. In the final model, the result shows that the higher the number of admission to ward and also, the more severe the negative symptoms or general psychopathology of schizophrenia, the lower the memory performance. There was also association between type of antipsychotics and memory, atypical showing better memory performance compared to typical antipsychotics or combination.

Table 3. Simple and Multiple Linear Regression Analysis to Determine Factors Associated with Verbal Working Memory in Patients with Schizophrenia

	SLR*			MLR‡		
	B† (95% CI)	t Stat	*p*-value	B§ (95% CI)	t Stat	*p*-value
Age	0.151 (-0.285,0.596)	0.69	0.491			
Gender	-0.574 (17.397,6.25)	-0.167	0.870			
Ethnicity	3.635 (-19.759, 27.028)	0.312	0.762			
Marital status	1.330 (-3.494, 6.154)	0.554	0.582			
Employment status	-5.153 (-10.254, -0.052)	-2.028	0.048	-0.054 (-5.526, 3.503)	-0.452	0.654
Educational level	-7.072 (-45.929, 1.785)	-1.603	0.115	-4.198 (-11.610, 3.215)	-1.139	0.260
Smoking status	-5.145 (-11.408, 1.118)	-1.65	0.108	-0.149 (-8.443, 1.616)	-1.368	0.178
Age at first treatment (year)	0.075 (-0.435, 0.585)	0.295	0.773			
Duration since first treatment (year)	0.022 (-0.335, 0.379)	0.123	0.902			
Number of ward admission	-0.810 (-1.427, -0.193)	-2.63	0.011	-0.623 (-1.120, -0.126)	-2.52	0.015
Type of antipsychotics	2.771 (-0.485, 6.027)	1.709	0.094	3.080 (0.598,5.562)	2.49	0.016
PANNS positive	-0.533 (-1.100, 0.035)	-1.885	0.065	-0.052 (-0.552, 0.449)	-0.207	0.837
PANSS negative	-1.170 (-1.669, -0.672)	-4.711	0.000	-1.011(-1.460,-0.562)	-4.59	0.000
PANSS general	-0.590 (-1.069, -0.111)	-2.475	0.017	-0.450 (-0.796, -0.034)	-2.19	0.034

*Simple Linear Regression (outcome as mean stigma score)
† Crude regression coefficient.
‡ There is no significant interaction; no multi colinearity problem; and linearity, normality and equal variance assumptions were made.
§ Adjusted regression coefficient.

Discussion

This study found better verbal working memory performance is associated with lower number of admission, use of atypical antipsychotics, lower negative symptoms and general psychopathology among patients with schizophrenia. No significant association was found between verbal working memory performance and smoking status.

The association between verbal working memory performance and lower negative symptoms is consistent with a previous study by Cameron[21] which measure psychopathology using PANSS in a sample of 58 patients with schizophrenia. It was concluded that working memory deficit was associated with severity of negative symptoms but not with positive symptoms. Working memory deficit was also associated with severity of disorganised dimension comprised of conceptual disorganization (P2), difficulty in abstract thinking (N5), disorientation (G10), and poor attention (G11) which also explained the positive association with general psychopathology subscale in this study. A more recent study by McDowd et al indicated that verbal memory, processing speed and negative symptoms were inter-related and significantly contributed to functional status directly and mediated by the other factors[22].

The association between verbal working memory performance and use of atypical antipsychotics is consistent with many previous studies. For example a study by Mori et al[23] suggested that switching chronic schizophrenic patients to risperidone or olanzapine improved the immediate memory. Risperidone and olanzapine have been suggested to promote the release of acetylcholine in the medial prefrontal cortex[24]. Improvement of the immediate memory by olanzapine and risperidone increased further when anticholinergic drugs were withdrawn. On the other hand, the immediate memory became worse after switching to quetiapine suggesting a strong connection between the immediate memory and the anticholinergic effect of drug therapy.

This study did not find significant association between verbal memory performance and smoking status which is consistent with study by Harris et al[25] which failed to detect positive effects of nicotine on tests of immediate or delayed memory, language or visuo-spatial attention. Nicotine nasal spray was reported to improve spatial accuracy and verbal memory[5]. Nicotine administered via patches to smoking deprived schizophrenia patients was reported to improve their performance on a task involving working memory and attention[26].

The main limitations of this study are its cross sectional design and small sample size. A better design will compare cognitive performance during nicotine abstinence and administration in subjects with schizophrenia. The use of nicotine spray or patch is preferable compared to patient's verbal report on the amount of cigarettes smoke which may not be accurate. Another poorly controlled confounder in this study is the use of antipsychotics. Antipsychotics use is different not only with regard to atypical, typical and combined, but also in their intrinsic anticholinergic activity[23]. Future study should consider all the subjects using only one or a few but very similar antipsychotics.

References

1. de Leon J, Diaz FJ. A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. Schizophr Res. 2005; 76:135–157

2. de Leon J, Becona E, Gurpegui M, Gonzalez-Pinto A, Diaz FJ. The association between high nicotine dependence and severe mental illness may be consistent across countries. J Clin Psychiatry 2002; 63:812–816

3. Olincy A, Johnson LL, Ross RG. Differential effects of cigarette smoking on performance of a smooth pursuit and a saccadic eye movement task in schizophrenia. Psychiatry Res. 2003; 117:223–236

4. Kumari V, Postma P. Nicotine use in schizophrenia: The self-medication hypotheses. Neuroscience & Biobehavioral Reviews, 2005; 29(6):1021-1034

5. Smith RC, Singh A, Infante M, Khandat A, Kloos A (2002) Effects of cigarette smoking and nicotine nasal spray on psychiatric symptoms and cognition in schizophrenia. Neuropsychopharmacology 2002; 27:479–497

6. Corrigall WA, Coen KM. Selective dopamine antagonists reduce nicotine self-administration. Psychopharmacology (Berl), 1991; 104(2), 171-6

7. Weinberger DR, Berman KF. Speculation on the meaning of cerebral metabolic hypofrontality in schizophrenia. Schizophr. Bull. 1988; 14(2): 157–168

8. Dalack GW, Healy DJ, Meador-Woodruff JH. Nicotine dependence in schizophrenia: clinical phenomena and laboratory findings. Am J Psychiatry. 1998; 155(11), 1490-501

9. Freedman R, Olincy A, Buchanan RW; Harris JG, Gold JM, Johnson L, et al. Initial phase 2 trial of a nicotiniv antagonist in schizophrenia. Am J Psychiatry. 2008; 165(8):1040-1047

10. Heinrichs RW, Zakzanis KK. Neurocognitive deficit in schizophrenia: a quantitative review of the evidence. Neuropsychology. 1998; 12:426–445

11. Baddeley AD. The fractionation of working memory. Proceedings of the National Academy of Sciences of the United States of America. 1996; 93: 13468–13472

12. Barch DM, Csernansky JG. Abnormal parietal cortex activation during working memory in schizophrenia verbal phonological coding disturbances versus domain-general executive dysfunction. Am J Psychiatry. 2007; 164: 1090-1098

13. Cosman D, Nemes B, Nica S, Herła DC. Verbal, visuo-spatial and face working memory impairment in multiple episode schizophrenia patients. Journal of Cognitive and Behavioral Psychotherapies. 2009; 9(1), 21-32

14. Zabala A, Eguiluz JI, Segarra R, Enjuto S, Ezcurra J, Gonzalez PA, Gutierrez M. (2009). Cognitive performance and cigarette smoking in first-episode psychosis. Eur Arch Psychiatry Clin Neurosci. 2009; 259(2), 65-71

15. Barr RS, Culhane MA, Jubelt LE, Mufti RS, Michael A Dyer MA, Weiss AP, Deckersbach T, Kelly JF, Oliver Freudenreich O, Goff DC, and Evins AE. The Effects of Transdermal Nicotine on Cognition in Nonsmokers with Schizophrenia and Nonpsychiatric Controls Neuropsychopharmacology. 2008; 33: 480–490

16. Wykes T, Brammer M, Mellers J, Bray P, Reeder C, Williams C, Corner J. Effects on the brain of a psychological treatment: cognitive remediation therapy. Functional magnetic resonance imaging in schizophrenia. Br J Psychiatry. 2002; 181, 144-152

17. Mori K, Yamashita H, Nagao M, Horiguchi J, Yamawaki S. Effects of anticholinergic drug withdrawal on memory, regional cerebral blood flow and extrapyramidal side effects in schizophrenic patients. Pharmacopsychiatry. 2002; 35, 6–11

18. Ruzita J, Zahiruddin O, Kamarul IM, Muhammad Najib MA. Validation of the Malay Version of Auditory Verbal Learning Test (MVAVLT) among schizophrenia patients in Hospital Universiti Sains Malaysia (HUSM), Malaysia, ASEAN J Psychiatry. 2009; 10(1)

19. Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. Schizophr Bull. 1987; 13(2):261-76

20. Zahiruddin O, Ruzita J, Muhammad Najib M A, Hasanah CI. Demographic and clinical factors associated with verbal memory performance in patients with schizophrenia in Hospital Universiti Sains Malaysia (HUSM), Malaysia. ASEAN J Psychiatry, 2011; 12(2)

21. Cameron AM, Oram J, Geffen GM, Kavanagh DJ, McGrath JJ, Geffen LB. Working memory correlates of three symptom clusters in schizophrenia. Psychiatry Res. 2002; 110(1), 49-61

22. McDowd J, Tang TC, Tsai PC, Wang SY, Su CY. The association between verbal memory, processing speed, negative symptoms and functional capacity in schizophrenia. Psychiatry Res 2011;187: 329–334

23. Mori K, Nagaoa M, Yamashita H, Morinobu S, Yamawaki S. Effect of switching to atypical antipsychotics on memory in patients with chronic schizophrenia. Progress in Neuro-Psychopharmacology & Biological Psychiatry. 2008;28: 659– 665

24. Ichikawa J, Dai J, O'Laughlin IA, Fowler WL, Meltzer HY. Atypical, but not typical, antipsychotic drugs increase cortical acetylcholine release without an effect in the nucleus accumbens or striatum. Neuropsychopharmacology. 2002; 26: 325–339

25. Harris JG, Kongs S, Allensworth D, Martin L, Tregellas J, Sullivan B, Zerbe G, Freedman R. Effects of nicotine on cognitive deficits in schizophrenia. Neuropsychopharmacology 2004; 29 (7): 1378–1385

26. Jacobsen LK, D'Souza DC, Mencl WE, Pugh KR, Skudlarski P, Krystal JH. Nicotine effects on brain function and functional connectivity in schizophrenia. Biol. Psychiatry. 2004; 55 (8): 850–858

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ORIGINAL PAPER

The Prevalence and Associated Factors of Psychiatric Early Readmission in a Teaching Hospital, Malaysia

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Abstract

Objective: **The aim of the study was to determine the early readmission rate among the psychiatric patients discharged from a teaching hospital in Malaysia. The associated factors were also examined.** ***Methods:*** **This is a prospective and observational study. The socio-demographic and clinical data of 202 patients from the psychiatric ward were collected on discharge along with the administration of instruments including Brief Psychiatric Rating Scale (BPRS), Life Events Questionnaire (LEQ), and Multidimensional Scale of Perceived Social Support (MSPSS). Assessment of compliance to medication and substance use was reliant on self-report data. Medication compliance was categorized as "poor" vs "good", whereas poor compliance was the complete discontinuation of medication for at least two weeks. The patients were followed up to determine whether they were readmitted within 6 months.** ***Results:*** **At the end of 6 months follow-up, 32.2% of the subjects were readmitted. Univariate regression analysis indicated that patients with psychotic disorder, past episodes, previous admission, poor compliance, on conventional or depot injectable antipsychotic and higher BPRS scores on discharge were significantly associated with early readmission (p <0.05). Multivariate Logistic analysis identified that poor compliance was the only significant predictor of early readmission (p<0.05).** ***Conclusion:*** **Early readmission is highly prevalent in psychiatric patients. Poor compliance to medication is the most important factor related to early readmission. Measures to improve compliance to medication are required to reduce psychiatric readmission.**

Keywords: Readmission, Psychiatry, Risk Factors, Medication, Malaysia

Introduction

Mental disorder accounts for nearly 12% of the global burden of diseases. Based on a report from World Health Organization (WHO), by 2020, mental disorder will account for nearly 15% of disability-adjusted life-years lost to illness[1].

Developing countries are likely to see a disproportionately large increase in the burden attributable to mental disorder in the coming decades[1].

Shortage of psychiatric beds remains a problem which exists in many parts of the world. The situation is even more critical in developing countries. The demand of limited number of psychiatric beds in hospitals is becoming an increasing pressure, along with the rapid growth of the need for psychiatric services[2,3]. This may put pressure on the psychiatric unit to discharge patients early. The resultant premature discharge may lead to increase in readmissions.

Psychiatric readmission in a short period of time following discharge is undoubtedly an undesirable event. It increases the cost of the health care system and workload of the mental health care workers[4]. Often these episodes require involuntary hospitalization and trigger the involvement of police, emergency rooms, inpatient units and various types of services[5]. It is estimated that the repeat admissions may be responsible for up to 60% of hospital expenditure. Readmission is a painful experience for the patients and their families. The cost of multiple admissions to the patients and their relatives in terms of distress, morbidity and mortality is immeasurable. It has been reported that the more relapses, the poorer the prognosis and long term outcome for patients with mental disorders like schizophrenia[6].

It is reported that readmissions may be responsible for up to half of all hospital admissions[7,8].While there is vast literature examining readmission among those who are chronically mentally ill[9,10,11,12], only a small number of reports have addressed the phenomenon of early readmission despite the fact that it is as high as 30% of all discharged patients.

To date, there are limited studies on psychiatric readmission in Malaysia. Under the current climate, understanding the relationship of hospital outcome to readmission is particularly important. In order to address this matter, this study aims to determine the psychiatric early readmission rate in a teaching hospital in Malaysia. It also examines the association of patient's socio-demographic factors, clinical conditions, prescriptions of atypical antipsychotic, medication non-compliance and perceived social support prior to discharge, with early readmission. The identification of factors associated with early readmission will be useful for future care strategy design aimed at both cost containment and improved quality of care in patients with mental disorder.

Methods

Ethical approval was obtained from the Medical Committee, UMMC. The confidentiality of the participants was assured and the purpose of this study was explained to the participants. Written consents were obtained from all the participants for this study.

Study Setting and Design

This is a prospective observational study conducted in the psychiatric ward of University Malaya Medical Centre (UMMC). UMMC is located at the border of Kuala Lumpur (KL) and Petaling Jaya (PJ) cities. The catchment area for PJ population last stands at 450,000. They are composed of mainly Chinese descendants, urbanized and middle income group.

The study used universal, convenient sampling method to recruit a series of non-duplicated, consecutive patients who were discharged from the psychiatric ward from 27th Aug 2007 to 15th Apr 2008. Assessment was carried out on patients prior to their discharge. Patients who were diagnosed with any mental illness and consented to be recruited were included in the study. However patients admitted for clinical drug trials and admitted for maintenance electro-convulsive therapy were excluded.

All patients who were discharged during the study period were approached and explained regarding the study. Patient Information Sheets were provided. They were given adequate period of time to consider to participate in the study. The patients were reassured of their confidentiality and that no identification data would be revealed in the final report. Those who gave their consent were recruited in the study.

The investigator confirmed the diagnosis of the patients with their respective treating psychiatrists based on the DSM-IV criteria. The socio-demographic and relevant clinical data were then obtained, including age, sex, race, marital status, level of education, occupation, first onset, number of previous admission, date of last admission, period of stay for current admission, treatment received (i.e., conventional or atypical antipsychotic medication, depot injection and electroconvulsive therapy) and substance use.

Recent life events were assessed with the Life Events Questionnaire (LEQ) whereas perceived psychosocial support was measured using Multidimensional Scale of Perceived Social Support (MSPSS). General psychopathology of the patients was assessed using Brief Psychiatric Rating Scale (BPRS).

All recruited patients were followed up for six months after discharge. Any of them who were readmitted in less than 6 months would be identified. The interval period from index discharge was recorded. For those who were not readmitted within 6 months, were contacted by phone or identified in the psychiatric clinic, UMMC and the follow up assessment was carried out. On follow up assessment, the patients were checked on their compliance to treatment. Compliance to medication was based on self-report data (defined as missing medication as prescribed for 2 consecutive weeks or more)[40,41].

Instruments

Brief Psychiatric Rating Scale (BPRS-24)

The BPRS was developed by JE Overall and DR Garham in the early 1960s[13,14,15]. It is the most established questionnaire scale for rapid clinical assessment that measures major psychotic and non-psychotic symptoms in individuals with major psychiatric disorders. The version of 24 items was adapted by Ventura[16] et al in 1993 The rating is based on the observations made by the clinician or rater during a 15- to 30-minute interview (items which measure tension, emotional withdrawal, mannerisms and posturing, motor retardation and uncooperativeness), and subject verbal report (items which measure conceptual disorganization, unusual thought content, anxiety, guilt feeling, grandiosity, depressive mood, hostility, somatic concern, hallucinatory behaviour, suspiciousness and blunted affect). Additional to the scale were eight additional items of suicidality, elated mood, bizarre behaviour, self-neglect, disorientation, excitement, distractibility,

motor hyperactivity. Each item is defined by 1-2 sentences of clinical description. The scale points range from 1 to 7, defining from "not present" up to "extremely severe".

Life Events Questionnaire (LEQ)

The LEQ was developed by TS Brugha[17] in 1990. It is a 12 item self-rated instrument measuring common life events that tend to be threatening. The list of the 12 stressful life events include: personal suffering from a serious illness, injury or assault; a close relative suffering from a serious illness, injury or assault; death of a parent, spouse/ partner, child, brother or sister; death of a close family friend or another relative; marital separation; break-up of steady relationship; serious problem with a close friend, neighbour or relative; redundancy/ sacking from job; unsuccessfully seeking work for more than 1 month; major financial crisis, such as losing the equivalent of 3-month income; problems with the police involving in a court appearance; something valued being lost or stolen. Each item may be scored 1 if it is checked and 0 if not. A total score would be the sum of all items. The test-retest reliability was reported as 0.84 for a three month period and 0.66 for a six month period. Concurrent validity ranged from a Kappa of 0.70 to 0.90 depending on whether the 6 or 3 month period is considered prior to measurement18. The reliability of the Malay version of LEQ was reported in the previous study[19].

Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS was developed by Zimet GD[20] in 1988. It is an instrument which specifically addresses the subjective assessment of social support adequacy. It is a 12-item self-rated instrument designed to assess perceptions of social support from three specific sources: family, friends and significant other. The MSPSS assesses the extent to which respondents perceive social support from each of those sources and is divided into three subscales: family (items 3,4,8,11); friends (items 6,7,9,12) and significant other (items 1,2,5,10). It uses a 7-point Likert type response format (1=very strongly disagree, 7=very strongly agree)18. The validity and reliability of the Malay version of MSPSS was established in the previous study[21].

Measurement of Early Readmission

The numerator for a readmission rate was defined as the number of readmissions in 6 months after an index discharge from the psychiatric ward, UMMC. The denominator was defined as the corresponding number of patients discharge within the study period[22].

Formula:

$$\text{Early Readmission Rate} = \frac{\text{Number of readmission within 6 months interval of previous index discharge}}{\text{Number of discharge within the study period}}$$

Results

Table 1. Socio-demographic and clinical characteristic of the patients (N=202)

Socio-demographic Characteristic	**Mean (SD)**
Age	39.12 (13.64)
	n (%)
Sex	

Male	92 (45.5)
Female	110 (54.5)
Race	
Malay	45 (22.3)
Chinese	92 (45.5)
Indian	57 (28.2)
Others	8 (4.0)
Marital Status	
Single	101 (50.0)
Married	85 (42.1)
Separated	7 (3.5)
Divorced	8 (4.0)
Widow	1 (0.5)
Educational Level	
Nil	2 (1.0)
Primary	24 (11.9)
Secondary	106 (52.5)
Tertiary	70 (34.7)
Employment	
No	110 (54.5)
Yes	92 (45.5)
Clinical Characteristic	
Diagnosis	
Psychotic disorder	73 (36.1)
Bipolar Disorder	46 (22.8)
Major Depressive Disorder	47 (23.3)
Others	36 (17.8)
First Onset	
Yes	61 (30.2)
No	141 (69.8)
Type of antipsychotic use	
Conventional	18 (8.9)
Atypical	110 (54.5)
Mixed	17 (8.4)
Nil	57 (28.2)
Type of depot medication use	
Conventional	21 (10.4)
Atypical	2 (1.0)
Nil	179 (88.6)
Electroconvulsive therapy use	
Yes	42 (20.8)
No	160 (79.2)
Length of stay	
< 15 days	156 (77.2)
≥ 15 days	46 (22.8)
Compliance to treatment	

Yes	91 (45.0)
No	95 (47.0)
Not applicable	16 (7.9)
Substance use	
Yes	27 (13.4)
No	175 (86.6)
Life Threatening Events	
Nil	91 (45.2)
At least one event	111 (54.8)

A total of 202 patients were recruited for the study. The average age was 39.1 years (range = 16-88 years). Female accounted for 54.5% of the samples and male 45.5%. The study group were predominantly Chinese, single and achieved secondary education level. Most of the patients were unemployed or students.

Most of the patients were admitted with a primary diagnosis of psychotic disorder. Of the 202 samples, 30.2% were having the first onset during the index admission. Most of the patients stayed less than 15 days in the ward. The co-morbid use of substance was only found in 13.4% of the sample. The majority of the patients were treated with atypical antipsychotic drugs. 28.2% of the patients were not on any psychotropic medication. About one fifth of the samples were given electro-convulsive therapy and 11.4% were given depot injectable antipsychotic. Almost half of the samples were poorly compliant to the medications. 16 patients were not assessed for compliance to medication as they were not on any treatment at discharge. More than half of the patients were reported to have experienced at least one stressful life event in the past six months (Table 1).

The mean score of the MSPSS for the subjects was in the direction of good social support (mean=56.24, sd=16.37). The median BPRS score for the subjects was 36 (mean = 39.07, sd=11.74, range = 17-78). This reflected on average a moderate level of psychiatric symptomatology among the patients at discharge.

Table 2. Univariate analysis of the factors associated with early readmission

Variable	**Readmission, n (%) Yes**	**No**	**χ^2 (df=1)**	**OR (95% CI)**	***P* value**
Sex					
Male	30 (32.6)	62 (67.4)			
Female	35 (31.8)	75 (68.2)	0.01	1.04 (0.57-1.88)	0.91
Age					
< 40 years	36 (32.7)	24 (67.3)			
≥ 40 years	29 (31.5)	63 (68.5)	0.03	1.06 (0.58-1.91)	0.86
Race					
Malay	15 (33.3)	30 (66.7)			
Non Malay	50 (31.8)	107 (68.2)	0.35	1.07 (0.53-2.17)	0.85
Marital Status					

Never married	35 (34.7)	66 (65.3)			
Married	30 (29.7)	71 (70.3)	0.57	1.26 (0.70-2.27)	0.45
Educational Level					
Less than secondary	10 (38.5)	16 (61.5)			
Secondary and above	55 (31.3)	121 (68.8)	0.54	1.38 (0.59-3.22)	0.46
Occupation					
Unemployed	40 (36.4)	70 (63.6)			
Employed	25 (27.2)	67 (72.8)	1.94	1.53 (0.84-2.80)	0.16
Previous life events					
Yes	32 (28.3)	81 (71.7)			
No	33 (37.1)	56 (62.9)	1.75	0.67 (0.37-1.21)	0.19
Diagnosis					
Psychotic disorder	30 (41.1)	43 (58.9)			
Non psychotic disorder	35 (27.1)	94 (72.9)	4.16	1.87 (1.02-3.44)	0.04*
First onset					
Yes	13 (21.3)	48 (78.7)			
No	52 (36.9)	89 (63.1)	4.73	0.46 (0.23-0.94)	0.03*
Length of stay					
< 15 days	51 (32.7)	105 (67.3)			
≥15 days	14 (30.4)	32 (69.6)	0.08	1.11 (0.55-2.26)	0.77
Use of ECT					
Yes	13 (31.0)	29 (69.0)			
No	52 (32.5)	108 (67.5)	0.04	0.93 (0.45-1.94)	0.85
Substance use					
Yes	12 (44.4)	15 (55.6)			
No	52 (30.2)	120 (69.5)	2.16	1.85 (0.81-4.22)	0.14
Compliance					
Yes	21 (23.1)	70 (76.9)			
No	43 (45.3)	52 (54.7)	10.14	0.36 (0.19-0.68)	<0.01*
Use of atypical antipsychotic					
Yes	39 (30.7)	88 (69.3)			
No	11 (61.1)	7 (38.9)	6.45	0.28 (0.10-0.78)	0.01*
Previous admission					
No	21 (23.1)	70 (76.9)			
Yes	44 (39.6)	67 (60.4)	6.29	0.46 (0.25-0.85)	0.01*
Use of depot					
Yes	14 (60.9)	9 (39.1)			
No	51 (28.5)	128 (71.5)	9.79	3.90 (1.59-9.58)	<0.01*

	mean (sd)	**mean (sd)**	**t**	**95% CI of mean difference**	

BPRS	43.72 (14.57)	36.86 (9.42)	4.02	(3.50, 10.22)	<0.01 *
MSPSS	56.72 (15.44)	56.04 (16.81)	0.27	(-4.33, 5.70)	0.79

df = degree of freedom
OR = odds ratio
BPRS = brief psychiatric rating scale
MSPSS = multidimensional scale of perceived social support
* p< 0.05

Of total, 65 patients (32.18%) were readmitted within six months after being discharged from the psychiatric ward. Table 2 shows the univariate analysis of the factors associated with the early readmission. Socio-demographic characteristics such as gender, age, race, marital status, education level and employment were not associated with early readmission. Clinical factors such as diagnosis of psychotic disorder, poor compliance to medication, not the first onset during the index admission, history of previous admission were associated with early readmission. The patients on conventional antipsychotic or depot medications had higher odds of early readmission. Length of stay, use of electro-convulsive therapy and substance use were not associated with early readmission among the subjects. Early readmitted patients had higher score on BPRS at discharge. Patients' perceived social support was not associated with readmission.

Table 3. Multivariate analysis of predictor variable for early readmission using Logistic regression

Variables	**Category**	**Adjusted OR (95% CI)**	***P value***
Diagnosis	Psychotic disorder*		
	Non psychotic disorder	1.33 (0.62-2.84)	0.47
First onset	Yes*		
	No	1.13 (0.35-3.66)	0.84
Previous admission	Yes*		
	No	0.61 (0.22-1.70)	0.35
Use of atypical antipsychotic	Yes*		
	No	0.79 (0.22-2.85)	0.71
Use of depot medication	Yes*		
	No	2.67 (0.85-8.35)	0.09
Compliance	Yes*		
	No	0.38 (0.17-0.81)	0.01**

BPRS score	< 36*			
	≥ 36	0.82	(0.39-1.72)	0.60

* Reference category ** p < 0.05

Logistic multivariate regression analysis was performed using the variables which were shown to be significant in the univariate analysis ($p < 0.05$). Table 3 shows that compliance to medication was the only independent factor associated with early readmission within six months.

Discussion

The current study examined the rate of early readmission among 202 psychiatric patients who were discharged from the psychiatric ward, University Malaya Medical Centre (UMMC), Malaysia. The findings showed that 32.18% of the patients were readmitted within six months after discharged. The only associated factor with early readmission was poor compliance to medications, which was defined as missed medication for two weeks or more in the study.

Readmission is commonly used as an outcome or quality indicator for psychiatric inpatient services[23,24].Hospital readmission, particularly when it occurs within relatively short time after previous discharge, is often seen as a failure of the earlier hospital admission.[25] In Malaysia, early readmission (within 6 months) is used as one of the 2 National Indicators in Psychiatry (NIP-2). The first indicator is the number of mortality (NIP). Readmission rate has been proposed as the quality indicator for psychiatric services in other countries. In England, a specific performance indicator of reducing emergency psychiatric readmission to 12% by 2002 had been set in the past[26]. In the current study, the rate of early readmission was relatively high as compared to the previous study on chronic mentally ill patients[9,10,11,12]. Premature discharge due to shortage of beds and the increased need of psychiatric services may be responsible for the high readmission rate[27].

Several factors were identified to be associated with psychiatric readmission in the previous studies. The relation between socio-economic status and admissions to hospital for mental illness has been recognized for decades.[28] However, in the current study, it appeared that there was no statistical significant relationship between socio-demographic status with early readmission. This was similar to the finding by Dixon et al[29]and Lyons et al[25] in 1997. Surprisingly unemployment was not a significant predictor of readmission in the current study. In contrast, Dekker et al[30] (1997) reported a positive correlation in Amsterdam. Kammerling and O'Connor[31] (1993) also reported that unemployment rates were an extremely powerful indicator of the rates of serious mental illness that would need treatment in hospital in those aged below 65 years. The lack of association of early readmission with socio-economic variables may indicate that illness-specific variables are more important determinants of readmission[32].

In the result of current study, the author identified six variables (higher BPRS discharge score, not the first onset during index admission, poor compliance to medication, use of conventional antipsychotic drugs, previous history of admission and use of depot injectable antipsychotic) were significantly associated with early readmission in univariate

analysis. However, after adjusting for the covariates in multivariate analysis, non-compliance was the only significant factor associated with psychiatric early readmission. In contrast, variables like median BPRS discharge score, use of atypical antipsychotic, depot injectable antipsychotic, first onset of illness and history of previous admission did not maintain their predictive capacity in multivariate analysis. This suggested that these variables were manifestations of maladaptive pattern of behaviour which led to poor compliance of medication rather than independent contributors to poor outcome.

Compliance was defined as the extent to which the patient's behaviours, in terms of taking medications, following diets, or executing lifestyles changes, coincide with the clinical prescriptions [33]. Non adherence to medication was one of the major problems faced in the treatment of psychiatric illness. Poor adherence to medication was reported as 55% in the current study. Although the rate was within the reported range of non-adherence of 27%-90% in the previous studies [34], it was much lower than the reported rate of 74% in medication discontinuation in the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) done by Lieberman et al, 2005[35]. Deviation from maintenance antipsychotic treatment put patients at risk of exacerbation of psychosis and emergency room visit. Medication non adherence was also reported in other studies as an important predictor of readmission[36,24]. There has been growing interest in studying compliance behaviour which has been propelled by two factors: an exponential growth in the development and testing of new therapeutic agents, and the growing burden of chronic diseases that require reliance on life-long medical treatment [37]). There has been a general consensus that long-term maintenance antipsychotic treatment remains the most reliable means of preventing relapse, minimizing mortality and morbidity, and enduring independent living and longer community tenure in people treated for schizophrenia[38,39]. However, treatment adherence remains a significant problem in the long term care of schizophrenia[37].

The result of the current study should be interpreted in the context of a few potential methodological limitations. The study subjects were recruited from a single centre. The results may not be generalizable to other settings. The assessment of compliance to medication and substance use were reliant on self-report data which carried the risk of information bias. The information of other important factors that might be associated with early readmission in psychiatric patients such as expressed emotion among the family member was not collected in this study.

In conclusion, early readmission is high among psychiatric patients. Poor adherence to medication is associated with psychiatric early readmission. If the treatment program seeks to decrease the incidence of early readmission, greater attention must be paid to help the patients to recognize their own symptoms and understand their illness with the aim to improve medication adherence.

References

1. World Health Organization. The Mental Health Context. Mental Health Policy and Service Guidance Package. 2003.

2. Powell R, Hollander D, Tobianski R. Crisis in admission beds: a four year survey of the bed state of greater

London's acute beds. Br J Psychiatry. 1995; 167 : 765-769.

3. Hodgson RE, Boardman AP. Shortage of psychiatric beds exists in Staffrdshire too. B M J. 1996; 313 : 1083.

4. Weinberger M, Oddone EZ, Henderson WG. Does increased access to primary care reduce hospital admission? N Eng J Med. 1996; 334 : 1441-1447.

5. Vincenzo R Sanguineti, Steven E Samuel, Stephen L Schwartz, Mary R Robeson (1996) Retrospective Study of 2,200 involuntary psychiatric admissions and readmissions. Am J Psychiatry. 1996; 153 : 392-396.

6. Sheitman BB, Lee H, Strauss R, Lieberman JA. The evaluation and treatment of first episode psychosis. Schizphr Bull. 1997; 23 : 653-661.

7. Holloway JJ, Medendorp SV, Browning J. Risk factors for early readmission among veterans Health Serv Res. 1990; 25 : 213-237.

8. Tierney AJ, Worth A. Review: Readmission of elderly patients to hospital. Age Aging. 1995; 24 : 163-166.

9. Green JH. Frequent rehospitalization and noncompliance with treatment. Hosp Commun Psychiatry. 1988; 39: 963-966.

10. Havassy BE, Hopkins JT. Factors predicting utilization of acute psychiatric inpatient services by frequently hospitalized patients. Hosp Commun Psychiatry. 1989; 40: 820-823.

11. Zeff KN, Armstrong SC, Crandell EO, Folen RA. Characteristics associated with psychiatric readmission in active-duty patients. Hosp Commun Psychiatry.1990; 41: 91-93.

12. Goodpastor WA, Hare BK . Factors associated with multiple readmissions to an urban public psychiatric hospital. Hosp Commun Psychiatry. 1991; 42 : 85-87.

13. Overall JE, Gorham DR. The Brief Psychiatric Rating Scale (BPRS): A comprehensive review. J Operat Psychiatr. 1962; 11:48-65.

14. Overall JE, Gorham DR. The Brief Psychiatric Rating Scale, ECDEU Assessment manual for psychopharmacology, Guy W, ed, Rockville, MD: U. S. Department of Health, Education, and Welfare, 1976; 157-69.

15. Overall JE, Gorham DR. The Brief Psychiatric Rating Scale (BPRS): Recent developments in ascertainment and scaling. Psychopharmacol Bull. 1988; 24:97-9.

16. Ventura MA, Green MF, Shaner A, Liberman RP. Training and quality assurance with the brief psychiatric rating scale: "The drift buster". International Journal of Methods in Psychiatric Research.1993; 3:221-244.

17. Brugha TS, Cragg D. The list of threatening experiences: The

reliability and validity of a brief Life Events Questionnaire. Act Psychiatr Scand. 1990; 82:77-81.

18. Fisher J, Corcoran K. Measures for clinical practice. A sourcebook. 2nd Edition. Volume 2. Adults. The Free Press. A Division of Macmillan, Inc. New York. 1994.

19. Ng CG, Amer Siddiq AN, Aida SN, Koh OH, Zuraida NZ. The Reliability Of Malay Version Of List Of Threatening Experiences Questionnaire - A Study On A Group Of Medical Students In Malaysia. Malaysian Journal of Psychiatry. 2009; 18(2)

20. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. Journal of Personality Assessment. 1998; 52(1):30-41.

21. Ng, C.G.; Amer Siddiq, A.N.; Aida, S.A.; Zainal, N.Z.; Koh, O.H. Validation of the Malay version of the Multidimensional Scale of Perceived Social Support (MSPSS-M) among a group of medical students in Faculty of Medicine, University Malaya. Asian Journal of Psychiatry. 2010; 3 (1). pp. 3-6. ISSN 18762018.

22. Chambers M, Clarke A. Measuring readmission rates. BMJ. 1990; 3011134-6.

23. Jenkins R. Towards a system of outcome indicators for mental health care. Jenkins R, Griffiths (eds) Indicators for mental health in the population. Department of Health, London. 1991.

24. Craig T J, Fennig S, Tanenberg-Karant M, Bronet E J. Rapid versus Delayed Readmission in first admission psychosis: Quality indicators for managed care? Ann Clin Psychiatry. 2000; 12 : 233-238.

25. Lyons JS, O'Mahoney MT, Miller SI, Neme J, Kabat J, Miller F. Predicting readmission to the psychiatric hospital in a managed care environment: Implications for quality indicators. Am J Psychiatry. 1997; 154 : 337-340.

26. Department of Health . The NHS Plan-Implementing the performance improvement agenda. A policy statement and consultation document. HMSO, London. 2001.

27. Hollander D, Tobianski, Powell. Crisis in admission beds. B M J.1990; 301: 664.

28. Faris REL, Durham HW. Mental disorders in urban areas. Chigaco: Hafner. 1939.

29. Dixon M, Robertson E, George M, Oyebode F. Risk factors for acute psychiatric readmission. Psychiatr Bull.1997; 21 : 600-603.

30. Dekker J, Peen J, Goris A, Heijnen H, Kwakman H. Social deprivation and psychiatric admission rates in Amsterdam, Soc Psychiatry Psychiatr Epidemiol. 1997; 32:485-92.

31. Kammerling RM, O'Connor S. Unemployment rate as predictor of

rate of psychiatric admission B M J.1993; 307 : 1536-1539.

32. Hodgson RE, Lewis M, Boardman AP. Prediction of readmission to acute psychiatric unit. Soc Psychiatry Psychiatr Epidemiol.2001; 36 :304-309.

33. Sackett DL, Haynes RB. Compliance with therapeutic regimes. Baltimore, MD: Johns Hopkins University Press. 1976.

34. Nose M, Barbui C, Tansella M. How often do patients with psychosis fail to adhere to treatment programmes? A systematic review. Psychol Med. 2003; 33:1149-60.

35. Lieberman JA, Stroup TS, McEvoy JP, et al. Effectiveness of antipsychotic drugs in patients with chronic schizophrenia. N Engl J med. 2005; 353: 1209-23.

36. Olfson M, Mechanic D, Hansell S, Boyer CA, Walkup J, Weiden PJ.Predicting medication noncompliance after hospital discharge among patients with schizophrenia. Psychiatr Serv. 2000; 51(2):216-22.

37. Voruganti L, Baker L, Awad AG. New generation antipsychotic drugs and compliance behavior. Curr Opin Psychiatr. 2008; 21(2); 133-9.

38. Wyatt RJ (1991) Neuroleptics and the natural course of schizophrenia. Schizophr Bull. 1991; 17:325-51.

39. American Psychiatric Association. Practice guideline for the treatment of patients with schizophrenia. 2nd ed. Washington, DC: American Psychiatric Press. 2004.

40. Verdoux H, Lengronne J, Liraud F et al. Medication adherence in psychosis: predictors and impact on outcome. A 2-year follow-up of first-admitted subjects. Acta Pscyhiatr Scand. 2000; 102: 203-210.

41. Cougnard A, Parrot M, Grolleau S, Kalmi E, Desage A, Misdrahi D, Brun-Rosseau H, Verdoux H.Pattern of health service utilization and predictors of readmission after a first admission for psychosis: a 2 year follow up study. Acta Psychiatr Scand. 2006; 113; 340-9.

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ORIGINAL PAPER

Clinical and Developmental Characteristics of Sex Offenders in Malaysian Prisons

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Abstract

The population of incarcerated sex offenders in Malaysia is steadily growing. *Objective:* This is a descriptive study to look at what clinical and developmental characteristic are present amongst the sex offenders in Malaysia, which could be possible mitigating factors. *Methods:* Data was collected from offenders located in 3 prisons where the offenders are held. *Results:* a total of 147 prisoners participated in the study. Slightly more than half of the victims were below the age of 18, of which 10% were below the age of 12. Three quarters of offenders were thirty years and older, while 12% were below 18 years. However their problems begun much earlier in their life with 50% of the offenders reporting that they had difficulties in their primary support group, resulting in them feeling their families were less expressive, their parents were distant and unsupportive.29% of the offenders had not lived with their parents from the age of 16. More than half of the offenders reported academic, behavior and developmental difficulties; they reported losing interest in their studies and were struggling during their schooling days. 43% had history of aggressive behaviour during their adolescent years and 76% had peers who often indulged in risky behaviors. 85% of the offenders were Muslim. 40% made the criteria of Attention Deficit Hyperactive Disorder and conduct disorder while a quarter were diagnosed with having personality disorder. Slightly more than half of the offenders had alcohol and drug-related problems, 36% had history of previous crimes, mainly drug and theft offence. *Conclusion:* The findings show that the sex offenders are indeed a heterogeneous group with pervasive familial, behaviour, academic and social problems which are possible risk that can be identified early in the lives of offenders.

Keywords: Incarcerated, Juvenile, Adult, Sex Offenders

Introduction

Humans, who are abusive of others, are of great concern to many communities. It is similar in Malaysia, there has been increasing cases of sexual abuse reported and prosecuted over the recent years. These sexual crimes have resulted in horrendous injuries and death in many victims including children. As a consequence of heightened public concern regarding safety in the community, the assessment, treatment, and management of sex offenders has become the prerogative of many criminal justice systems[1-3].

In developed countries interest and research in this forensic population have progressed significantly. Rigorous work done have resulted in considerable depth of knowledge regarding the characteristics of the offenders, progress in managing this population, as well as treatment and policy practices[1,2,5]. Examination of the individual factors has resulted in risk factors being identified[2,6,7-,9]. It has have also shown there are relationships between certain socio-demographic characteristics and offending behavior[2,6,7-9]. Though the research findings are diversified, certain characteristics are worthy and deserve the attention with implication on management of the offenders[10].

Unlike many countries around the world, in Malaysia, we do not have yet any systematic data or information regarding the offenders. The study hopes to assess the offenders with reference to a series of variables found to have bearings to their sexual offending behavior in other studies, and to compare these profiles with the local offenders.

Methods

The consent to carry out the study was sought by the team from the Prison Department Malaysia. All the sex offenders were recruited from 3 prisons, which held these offenders. Consent to be included in the study were taken from the prisoners themselves; five prisoners did not consent to participate and were not included. The prisoners were interviewed individually by a psychiatrist, there were 4 psychiatrists involved in the study. Data was collected using both a semi-structured and a structured clinical interview. The semi-structured interview collected information with regards to the demographic data, developmental and educational history, psychosocial and psychosexual factors. The data collected included family and developmental background, education history included difficulties during primary and secondary school, employment history, substance use, peer relationship, previous offences, victim relationship, etc. The structured clinical interview using the DSM-IV was done to look for Axis I and II disorders, while the Childhood and Adolescent Taxon Scale (CATS) was used to look at behavioral difficulties in childhood. The psychiatrists were not allowed access to the information file of the prisoners due to security reasons. The data were then analysed using descriptive statistics methods e.g. frequencies to look at the frequent or highest number of psychological and sociological characteristics within the sample studied.

Results

A total of 147 prisoners participated in the study. Their socio-demographic profiles are shown in Table 1.

Table 1. Age at index offence, race, marital status, employment of the sex offenders

Age at index offence	No.	%
< 18	18	12
19 - 30	66	45
31 - 50	52	35
> 50	11	7
Race		
Malay	125	85
Indian	11	8
Chinese	6	4
Others	5	3
Marital status		
Single, never married	83	56
Married	15	10
Married, with difficulties	37	25
Divorced	12	9
Employment and income		
High Income (RM11,906 or more)	7	5
Medium Income (RM976 – RM3,855)	82	56
Low Income (RM975 or less):	54	37
Unemployed	3	2
TOTAL	**147**	**100**

Table 2. Education attainment, and school performance and behavior of the sex offenders in their adolescent years

Academic Concerns	No.	%
Not schooling	14	10
Good / Average / No difficulties	51	34
Poor / Lost interest	84	56
Academic Attainment		
Not schooling	14	10
Primary school	36	24
Lower secondary	45	31
Upper secondary	40	27
Tertiary	12	8
Childhood aggression		
No	84	57
Yes	63	43
Social History		
Loner	35	24
Social able	111	76
Meet Criteria		
No	88	60
Attention Deficit Hyperactive Disorder	59	40
*Conduct Disorder	59	40
Total	**147**	**100**

*Using the DSMIV criteria 40% (N=59) of the offenders met the criteria of Conduct Disorder before the age of 18.

From Table 2, the difficulties in school were described as having difficulty concentrating in class, finding the subjects too difficult to understand and follow, losing interest in their studies and getting into trouble with authorities. Of the group that described themselves as having many friends, they described their groups of friends were often

involved in fights, frequently played truant from school, threatening or intimidating others, and staying out without parental permission.

While half of the offenders reported no difficulties in their primary support group, the other half reported varied difficulties in their primary support group. 23% of came from poor families and the family were struggling, 15% came from broken families, 6% had positive family history of alcohol and drug use, 3% were brought up in abusive homes and another 3% with authoritarian parents. 29% of the offenders had not lived with their parents from the age of 16 years.

All the victims were females except for one. In Malaysia a person under the age of eighteen years is considered a child. More than half of the victims were below the age of 18 of which 10% of the victims were below the age of 12. 29% (N=45) of the victims were within the family, of which 4 offenders had caused the offence against more than one victim in the family. 36% (N=53) of the offenders had previous history of offending, of which 34% (N=18) of them has had multiple history of previous offence. Theft and assault were the most common offence committed. 8% (N=4) has had previous conviction for rape, had served their time and was released. For one of the offenders, this was his third conviction for rape.

In 25% of the cases, alcohol and/or drugs were used prior to the rape. In a quarter, other than the sexual assault, there was significant brutality used, weapon was used resulting in significant physical injury requiring hospitalization.

Alcohol drug-related problems and anger issues were difficulties stated by the offenders as troubles they felt they had (Table 3) and more than half of the offenders had a diagnosable co-morbid psychiatric disorder (Table 4).

Table 3. Co-morbid psychiatric difficulties

Psychiatric difficulties	**N**	**%**
Alcohol usage	8	6
Drugs usage	2	1
Drugs/ alcohol usage	38	26
Anger issues/ aggression	2	1
Substance use/ aggression	42	29
Denied difficulties	55	37
Total	**147**	**100**

Table 4. Presence of psychiatric disorder

Axis I disorder	**N**	**%**
Attention Deficit hyperactive disorder	59	40
Any substance use disorder	39	27
Mood disorder	1	<1
Axis II		
Personality disorder	31	21

Discussion

Though Malaysia has noted an increase in crime rate, the sudden and sharp increase in crime rate is most seen in property crime followed by violent crime especially murder, attempted murder and gang robbery[11]. Sexual crimes are much lesser in numbers as compared to the two previously stated crimes[11]. Despite this, sexual crimes remain a worrying issue for the community. Most studies regarding sexual offenders have

come from the western countries though interest in this field has steadily grown with increasing studies coming out from countries in Asia[12]. Researches have looked in the etiology of sexual offending behaviors, identifying possible links and major typologies. Significant links have been identified to mental health issues, specifically with regards to individual and environmental factors[13,14]. Major psychiatric disorders as antecedent and concurrent experiences have been identified as possibly enhancing or mitigating this heinous offence[13,14].

This is the first such attempt to gather information from the sex offenders incarcerated in Malaysian prisons in Malaysia. Are they similar in characteristics to the other offenders studied? Identification of possible risk factors present in the local sexual offenders would help us help us understand and formulate relevant contributing psychopathology as well look into potential improvements in our legal system and correctional interventions. The results demonstrated that the offenders are indeed a heterogeneous group with some similarities as well as differences with existing literature.

The incarcerated sex offenders in the Malaysian prisons are of older age at the index offence, with 12% of the offenders in the juvenile age group. We are uncertain if there has been an increasing trend of juvenile offenders as seen in Western countries. Juveniles have been noted to account for almost 20% of arrest for rape and other sexual offences[15-17].

A considerable number of the offenders reported that they faced difficulties (from problems in their primary support group to behavior and academic concerns) early in their childhood days. In the offenders that attended school, more than half reported having learning difficulties and lost interest in their studies during their schooling years. Though none of the offenders reported history of being abused, in the offenders who felt that they that had difficulties within their family, they felt their families were less expressive than other families they knew. They also reported that they felt their parents were distant and un-supportive. Though these are self-reports, several studies have reported higher prevalence of family dynamics e.g. abusive relationships and disturbed family functioning in the histories of sexual offenders[14,18]. Others have reported problems within the family environment such as lack of support from families[19-21] and greater negative childhood experiences especially of violence[19]. It is known that these early childhood experiences often leads to attachment and interpersonal deficits which often affects and undermine the development of secure and appropriate adult relationships[18]. Personological characteristics have also being identified as risk factors for sexual offending. There is growing evidence of strong association of anti-social orientation and sexual offences[14, 22]. The other factors that have been include interpersonal difficulties, hyperactivity and impulsivity, precocious sexual behavior, and empathy deficits[14]. Antisocial behaviour with onset early in childhood is likely to lead to a cascade of secondary problems, including academic failure, involvement with deviant peers, substance abuse, health risking sexual behaviour, and work failure[13,23,24,25]. Researchers[10,13,23,25] have found offenders who committed their first sexual offense in adolescence had histories of being disruptive with high levels of antisocial behavior in their schooling years. The anti-social behaviours were noted to be pervasive in the group studied and noted to have caused impairment from a very young age i.e. from

the adolescent years to their adult life. Though none of the offenders reported that they had use any sexually explicit material, more than half reported that they have been exposed X-rated magazines or videos from their adolescents years. More than half of the offenders reported having difficulties with their academic and losing interest to do well. Just eight percent of the offenders reached tertiary education level. 40% of the group studied met the criteria of ADHD and conduct disorder in their adolescent years. 43% of the group studied gave history of aggressive behaviour and reported experimenting with and using drugs and alcohol in their adolescent years. The anti-social orientation of these offenders are seen occurring through their adult life, a quarter reported having marital difficulties, a third having difficulties holding to steady employment and two-thirds of the offenders reported drug and/alcohol usage and aggression issues. The majority of the offenders were of medium to low income, with an average income of about RM1000/- per month, though a third had irregular employment.

Personality characteristics have been frequently reported amongst juvenile sexual offenders and it include lack of social interactional skills, a history of conduct disorder, serious learning problems, lack of impulse control and depressive symptomatology[14,17]. Personality sub-type has also been described from the antisocial/impulsive, unusual/isolated, over-controlling/reserved, and confident/aggressive[24]. The group of intra-familial offenders in our study described themselves as being shy and isolated. In the other larger group studied, it was the opposite. They described themselves as being sociable and having many acquaintances some of which ended up as their victims. Slightly more than half of the offenders knew their victims while the other half were strangers. In a quarter of the cases studied had used alcohol and/or drugs used prior to the rape, while in 10% of the offence, physical aggression was used. The anti-social behaviour thread were again seen significantly in the group studied, as 36% (N=53) of the offenders had past history of crimes, from theft, assault, drug related and 4 had history of prior for rape offence. Though Amar SS (2005) reported that there is no significant link to negative peer pressure, in the group studied, there is some concerned as these offenders indicate that aggregating towards other delinquent or antisocial persons produce harmful effects. About a third of the offenders had a previous history of conviction, 4 of who had been convicted, did time and was released for similar rape offence.

Malaysia has a multi-ethnic population with Islam being the major religion of the population, the Malay race makes up 53.3%, Chinese 26.0%, while the Indian race 7.7%. Though there is still a controversy regarding ethnic background of offenders, it is interesting to note that 85% of the perpetrators studied are Malay and Muslim in religion. It was also noted in that all the perpetrators of children sexually abused in the family were of the Malay ethnicity. As in most religion for Muslims, extra-marital sex and sex with children is strongly forbidden. Malays are the predominant ethnic group in the country, but that alone does not explain why the majority of the offenders were Malays especially in the context of intra-familial offence. Could there be under-reporting of such offences in the other ethnic group? The Indian ethnic group has been found to statistically form the major group in gangsterism and gang related activities in the country[11]. In Malaysia, sexual education has only recently been agreed upon to be introduced in schools

after much debate and strong objections from religious groups and associations.

There are many variables related to sexually abusive behavior. Though the factors noted above were discussed in compartmentalized sections, there are continuous and logical connections. The implication of the study is that it seems that we are dealing with a group of men with many problems and the problems are chronic. Their problems seemed related to their behavior, beginning in their childhood and persisting to their adulthood. The results seemed to suggest that there are possible risk factors that can be identified early in the lives of offenders: a) difficult family background b) academic difficulties c) peer relationship d) substance use and e) anger issues and their sexual behavior. Thus in terms of rehabilitation, these factors need to be taken into consideration and a diversity of intervention options made available.

Conclusion

There has been an increasing need to address the problems of sexual abuse and assault in this country. The need to understand the causes of sexual offending remains as an urgent and compelling matter. As seen in the study, are multiple pathways to offending, and the likely of various combinations of factors increase the likelihood for committing a sexual offense.

The authors hope this paper will provide guidelines regarding the necessary domains which should be addressed in ***a comprehensive assessment*** *of not only sex offenders in Malaysia but as well as important implication for all children presenting with behavior, academic or family difficulties.* The team felt that the exercise was useful, as it allowed the authors to identified domains where work could be improved to reflect better care in the group of offenders. While this paper does not seek to argue the merits of the country's legislation, it does however seek to explore where trained professional armed with current research knowledge in the area of sexual violence would be able to assist and meet a wide range of legal, forensic, and clinical needs.

Limitations

The number of offenders was relatively small thus statistical analysis was not able to be carried out and the assessment may not be generalized to all offenders in Malaysia. The data collected was self-reporting data thus the researchers are aware that information may be concealed or heightened by the offenders. The team was not allowed access to the records kept by the prison officers due to security reasons.

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References

1. Hanson R.K. & Bussiere M.T. Predictions of sexual offender recidivism: A Meta-analysis. User Report, No. 1996-04. Ottawa: Department of the Solicitor General of Canada; 1996.

2. Hanson R.K. and Bussiere M.T. Recidivism of Sex Offenders, CSOM Publications; 1998 from www.csom.org/pubs/recidsexof.html

3. Hanson R.K. and Bussiere M.T. Predicting relapse: A meta-analysis of sexual offender recidivism studies. Journal of Consulting and Clinical Psychology. 1998; 66 (2):338-362.

4. Hanson R.K. and Bussiere M.T. Predictions of sexual offender recidivism: A Meta-analysis. User Report, No. 1996-04. Ottawa: Department of the Solicitor General of Canada; 1996.

5. Becker J.V. and Jicks S.J. Characteristics, Interventions and Policy Issues. Ann New York Academy Science. 2003; 989:397-410.

6. Hanson R.K. and Andrew H. The Sex Offender Need Assessment Rating (SONAR): A Method for Measuring Change in Risk Levels. Corrections Research Department of the Solicitor General of Canada; 2000.

7. Harris A.J. Risk Assessment and Sex Offender Community Supervision: A Context-Specific Framework. Federal Probation, A Journal of Correctional Philosophy and Practice. 2003; 70 (2): 81-89.

8. Beech AR and Ward T. The integration of etiology and risk in sexual offenders: A theoretical framework. Aggression and Violent Behavior. 2004; 10 (1), November-December: 30-63.

9. Barbaree H.E., Langton C.M. and Peacock E.J. Different Actuarial Risk Measures Produce Different Risk Rankings for Sexual Offenders. Sex Abuse. 2006; 1(8):423–440.

10. van Wijk A.P., Vreugdenhil C., van Horn J., Vermeiren R., Doreleijers T.A.H. Incarcerated Dutch juvenile sex offenders compared with non-sex offenders. Journal of Child Sexual Abuse. 2007; 16 (2): 1-21.

11. Amar S.S. The Rise of Crime in Malaysia an Academic and Statistical Analysis. Journal of the Kuala Lumpur Royal Malaysia Police College. 2005; 4:25-35.

12. Lee C.Y., Chao S.S., Chen S.P., Chou F.H., Su C.Y., Ho W.W. The characteristics of and risk factors associated with incarcerated sex offenders in Taiwan. International Journal of Law & Psychiatry. 2010; 33 (3): 144-8.

13. Prentky R.A., Knight R.A., Lee A.F.S. Child Sexual Molestation: Research Issues National Institute of Justice, Research Report U.S. Department of Justice Office of Justice Programs; 1997.

14. Starzyk K.B. and Marshall W.L. Childhood family and personological risk factors for sexual offending. Aggression and Violent Behavior. 2003; 8:93–105.

15. Becker J.V., Harris C.D. and Sales B.D. Juveniles who commit sexual offenses: A critical review of research. In G.C.N. Hall, R. Hirschman, J. Graham & M. Zaragoza (Eds.), Sexual Aggression: Issues in Etiology and Assessment, Treatment, and Policy. Washington, DC: Taylor and Francis; 1993.

16. Becker J.V. and Hunter J.A. Understanding and treating child and

juvenile sexual offenders. Advances in Clinical Child Psychology. 1997; 19: 177-197.

17. Becker J.V. and Hicks S.J. Juvenile Sex Offenders. Characteristics, interventions, and policy issues. Annals of The New York Academy of Sciences. 2003; 989:397-410.

18. Ward T., Keenana T. and Hudson S.M. Understanding cognitive, affective, and intimacy deficits in sexual offenders A developmental perspective. Aggression and Violent Behavior. 2000; 5, 1 (2): 41-62.

19. Lewis D.O., Shankok S.S., Pincus J.H. and Glaser G. Violent Juvenile Delinquents: Psychiatric neurological, psychological and abuse factors. Journal of the American Academy of Child Psychiatry. 1979; 18: 297–309.

20. Bischof G.P., Stith S.M., Whitney M.L. Family environments of adolescent sex offenders and other juvenile delinquents. Adolescence. 1995; 29 (117): 157-170.

21. Boyd N.J., Hagan M. and Choa M.E. Characteristics of adolescent sex offenders: A review of the research. Aggression and Violent Behavior. 2000; 5(2) March-April: 137-146.

22. Hanson, R. K. and Morton-Bourgon, K.. Predictors of sexual recidivism: An updated meta-analysis. Journal of Consulting and Clinical Psychology. 2005; 73 (6): 1154–1163.

23. English K., Retzlaff P., Kleinsasser D., and Gardner J. The Colorado Sex Offender Risk Scale. Journal of Child Sexual Abuse. 2002; 11(2): 77-96.

24. Worling J.R. Personality-Based Typology of Adolescent Male Sexual Offenders: Differences in Recidivism Rates, Victim-Selection Characteristics, and Personal Victimization Histories. Sexual Abuse: A Journal of Research and Treatment. 2001; 13(3):149-166.

25. Wiesner M., Kim H.K. and Capaldi DM. Developmental trajectories of offending: Validation and prediction to young adult alcohol use, drug use, and depressive symptoms. Development and Psychopathology. 2005; 17: 251-270.

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ORIGINAL RESEARCH

A Community Clinician Led Review of Antidepressant Drugs in a Scottish Nursing Home

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Abstract

Background: **Prevalence rates for depression are consistently high in patients with dementia and it is known to increase morbidity and mortality levels. Management with antidepressant drugs, often viewed as innocuous medication, may have numerous adverse drug reactions (ADRs).** ***Objective:*** **The implementation of a clinician led review process of all antidepressant medications in a nursing home would reduce ADRs specifically related to antidepressant medications.** ***Methods:*** **All 49 patient records in a Dundee nursing home were reviewed. All patients who were >65-years-old with dementia and a diagnosis of unipolar depression treated with a single antidepressant agent were eligible for the study. Patients were excluded if they were on any other psychoactive medications or on ≥ 5 general medications. In total 12 patients were included in the study. ADRs were recorded by antidepressant drug-class for a 2-month period before and after a general practitioner (GP) review of antidepressant drugs.** ***Results:*** **Twelve of 49 patients (25%) received treatment with antidepressant drugs including SSRIs, SNRIs or TCAs. Various ADRs including hyponatremia (n=1), worsening of hypertension (n=1), increasing falls (n=3) and prolonged bleeding (n=2) were documented. The number of documented ADRs reduced from 5 in the control period to 2 in the study period, although this did not reach statistical significance (p = 0.06). Prescription of TCAs ceased after GP review with patients switched to SSRIs.** ***Conclusions:*** **Antidepressant drugs are commonly prescribed for residents in nursing homes. A clinician led antidepressant drug review resulted in treatment changes and a trend to reduced ADRs. Importantly, TCAs (high risk drugs associated with falls) were immediately stopped after review despite being prescribed on repeat prescriptions for months. The authors feel reviewing all psychoactive drug prescriptions and avoiding repeat prescriptions in nursing home residents may be beneficial in reducing ADRs.**

Keywords: Behavioural and Psychological Symptoms of Dementia (BPSD), Community Geriatrics, Nursing Homes, Adverse Drug Reactions

Introduction

Approximately 750,000 people in the United Kingdom (UK) have a confirmed diagnosis of dementia with many being cared for in care and nursing homes.[1] Work by Robert et al noted that up to 90% of these patients exhibit behavioural and psychological symptoms of dementia (BPSD), including depression.[2] Importantly, prevalence rates for depression are consistently high in patients with dementia when compared to the general population, particularly in the early stages of the disease or shortly after nursing home admission.[2,3] This relationship is crucial for clinicians to be aware of as a diagnosis of depression increases patients' overall morbidity and mortality levels.[4,5,6] Work by Nicholson et al showed that a depressive disorder is associated with an 80% increased risk in the development and mortality associated with coronary heart disease.[4] In addition, the UK based National Institute of Clinical Excellence (NICE) states that it is common for patients with depression to have psychiatric and physical co-morbidity.[7,8,9]

Importantly, older patients are disproportionately likely to develop a depressive disorder and commit suicide than age-matched controls.[10] The reasons for this are multi-factorial with long standing health problems, a reduced sense of purpose, loneliness and social isolation commonly quoted as the underlying causes.[11] In addition, older patients have an increased exposure to commonly used medications that have mood disorders as a side-effect (including statins, oestrogens, steroids, H2-receptor antagonists and β-blockers).[12]

Treatment for depression managed in primary care is often classified into two categories, drug therapy and non-drug therapy. Importantly, adverse drug reactions (ADRs) relating to antidepressant medication are more common in older patients (≥65 years) in line with age-related reductions in hepatic and renal functions.[7,8,9] Therefore, British guidelines recommend that non-drug options should be pursued as first line if possible.[7,8,9] British guidelines recognize the association between dementia and depression, and advocate regular depression screening in dementia patients (structured assessments such as Beck or Hamilton reviews) and psychosocial therapies including reminiscence therapy and multi-sensory stimulation.[13] However, there are clear challenges in attempting to deliver non-drug treatments for depression in patients with a co-morbid diagnosis of dementia. Indeed, NICE care guidelines question the clinical efficacy of some of these non-drug approaches, suggesting that patients even with early stages of dementia may struggle to engage in structured talking therapies such as cognitive behavioral therapy.[9,13]

Challenges in providing non-drug approaches to this patient group may go someway to explaining the fact that drug treatments for depression are commonly prescribed by health practitioners.[14] Work by Guthrie et al showed that up to one in six patients with dementia are currently prescribed antidepressants, the majority of which are on long-term repeat prescription.[14] Management with antidepressant drugs, often viewed as innocuous drugs by clinicians, have a wide array of ADRs (see table 1). Indeed, the risks associated with these drugs has been incorporated by NICE suggesting clinicians avoid tricyclic antidepressants (due to the risk of cognitive decline and increasing falls), commence therapy at the lowest clinically efficacious dose and provide regular monitoring for all patients.[7,8,9,13]

The importance of reviewing and avoiding repeat prescriptions in relation to neuroleptic drugs has become clear over the last few years.[14] Indeed, studies have shown that clinician review of medications can improve prescribing patterns in both community and hospital settings, although improvements can be hard to sustain.[14,15,16] The authors feel regular clinical review should be indicated for all psychoactive medications, including antidepressants. One such community clinician review programme noted that a single visit by a GP to a nursing home to commence a comprehensive prescribing review reduced the number of prescribed medications, lead to cost saving for health systems and may be associated with lower iatrogenic side-effects.[17]

This clinical study has reviewed the efficacy of a clinician led (general practitioner (GP)/Family Doctor) monthly review of all antidepressant medications for nursing homes residents with dementia upon ADRs. The researchers hypothesised that the implementation of a GP led review process would reduce ADRs specifically related to antidepressant medications.

Table 1. Common Drug Cautions of Anti-Depressant Medications.[7,8,9]

Drug Class	Side Effect	Additional Note
Selective serotonin reuptake inhibitor [SSRI]	Increased risk of bleeding	Significant risks in elderly and patients on drugs known to damage gastric mucosa or interfere with clotting. I. Avoid SSRI drug class if possible and use safer alternative (such as Trazodone or Mirtazapine) II. Prescribe gastro-protective drug.
	SSRIs have the potential to exacerbate hyponatraemia in the elderly.	
	The duration of action of SSRIs can be increased in the elderly.	Fluoxetine has a longer half-life (which is further increased in the elderly with reduced liver metabolism)
Serotonin-norepinephrine reuptake inhibitor [SNRI]	Venlafaxine at high dose may exacerbate cardiac arrhythmias	Avoid in patients with high risk of suicide.
	Worsening of hypertension on venlafaxine and duloxetine	Regular BP monitoring required.
Tricyclic Antidepressants [TCA]	Postural hypotension, falls, cognitive impairment and arrhythmias are more common in >65.	

Methods

The study was undertaken in a Dundee (Scotland) nursing home, specialised for patients with severe dementia (Mini Mental State Examination (MMSE) score ≤9 points on admission), between August and November 2010. The MMSE is useful in establishing whether a patient has a degree of cognitive impairment.[18,19] The MMSE takes around 5-10 minutes to administer and assesses orientation in time and place (10

points), registration (3 points), attention and calculation (5 points), recall (3 points), language (2 points) repetition (1 point) and interpreting complex commands (6 points).[18,20] Scores below 25 out of 30 indicate a degree of cognitive impairment and scores ≤ 9 suggest severe dementia.[18,19,20] Ethical approval was granted from Four Seasons Healthcare Management as this study was part of a care home development programme. In addition, informed consent obtained from all patient families.

The unit was home to 49 Caucasian British residents throughout the study with an age range of 69 - 92 years [27 females & 22 males]. All patients who were >65-years-old with a confirmed diagnosis of both dementia and unipolar depression being treated with a single antidepressant agent were eligible for the study. Patients were excluded if they were on any other psychoactive medications or on ≥ 5 prescription medications. Psychoactive medications were defined according to the recently developed and validated central nervous system drug model, which included benzodiazepine receptor agonists, conventional & atypical neuroleptics and opioid receptor agonists.[21]

All 49 patient records were reviewed and inclusion and exclusion criteria applied accordingly, leaving a total of 12 patients in the study. All 12 patients had their antidepressant drug class and dose recorded at the start of the study. Baseline measurements were obtained by the research team and repeated weekly. These measurements included blood pressure (BP), electrolyte blood results and body mass index.

Prior to the commencement of the clinical study, a one-hour seminar was run by the research team for all nursing staff at the care home that outlined the key ADRs associated with antidepressant medication. Key ADRs associated with antidepressants were defined as those explicitly discussed in the NICE clinical care guidelines. These included nausea, indigestion, dry mouth, slight tremor, fast heartbeat, constipation, sleepiness, and weight gain.

Throughout the study period nursing staff recorded all clinical sign(s) that might be attributed to the patients' antidepressant medication. All nurses had been employed at the home for a minimum of 1.5 years and the research team assumed that they knew the residents baseline behaviour and general medical condition. Each claim was investigated by the research team (using clinical history and recorded BP/BMI) and after discussion with a local GP/family doctor (with specialist interest in old age psychiatry). They would then decide if the sign could be solely attributed to the antidepressant medication.

ADRs were recorded according to antidepressant drug-class for a 2-month period before and after (the control and study period respectively) a GP review of antidepressant drugs. In the control period the patients had their prescription collected and dispensed without any difference from normal practice. In the study period at the beginning of each month, three local GPs reviewed all antidepressant medications in the care home and made changes to drug class when they deemed clinically appropriate. Results were analysed with the non-parametric Mann Whitney U test.

The research team would manage potentially confounding factors as appropriate. Staffing levels were maintained at consistent skill mix and gross number throughout the control and study periods.

Results

Twelve of the 49 nursing home residents (25%) received treatment with antidepressant drugs for their unipolar depression and matched inclusion criteria. Patients were prescribed three different classes of antidepressants in the control period: SSRIs, SNRIs and TCAs. The name and dosage of each antidepressant are noted in Table 2.

Table 2. Breakdown of Drug Name & Dose at Start of Study [N =12 patients]

SSRI	SNRI	TCA
3 Patients Sertraline 100mg (od)	**2 Patients** Duloxetine 20mg (bd)	**2 Patients** Amitriptyline 50mg (od) *
3 Patients Citalopram 10mg (od)	-	
2 Patient Fluoxetine 60mg (od)	-	

* Patients on **50mg (od) Amitriptyline** were both **changed** to **Citalopram 10mg (od)**

There were significant changes in the drug classes prescribed between the control and study period (Table 3). Interestingly, prescription of TCAs ceased immediately after GP review with both patients on amitriptyline being switched to citalopram. Crucially, the GPs established that there was no other indication for these patients to be prescribed the higher risk drug class (e.g.- neuropathic pain). Amitriptyline had been continued on repeat prescriptions for at least 3 and 6 years (for each resident respectively), after drug charts from nursing home admission were reviewed.

Table 3. Drug treatment pre- and post-review

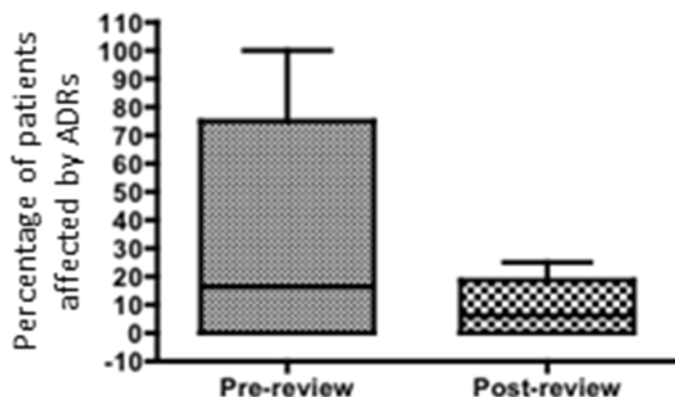
	SSRI	SNRI	TCA
Pre-review	6	4	2
Post-review	8	4	0

Over the four-month period nursing staff recorded a total of 19 occasions where a clinical sign(s) could have been attributed to the patients' antidepressant medication. Using clinical history and recorded data (BP, BMI & blood results) each claim was investigated by the research team and after discussion with a local GP, a total of 7 ADRs were noted to be specifically related to prescribed antidepressant medication.

Various forms of ADRs were documented including hyponatraemia, prolonged bleeding, worsening of hypertension and falls (Table 4). Analysis of the proportion of patients in each drug group affected by ADRs during the study revealed a reduction from 5 ADRs in the control period to 2 ADRs in the study period. However, despite the trend towards a reduction after the GP drug review it did not reach statistical significance (Fig 1). It should be noted that throughout the study no residents developed acute disease or were admitted to hospital. None of the 12 patients had any prescription medications changed by their GP, excluding their antidepressant medication.

Table 4. Nature of Documented ADRs

	SSRI	SNRI	TCA
Pre-review	2 (⇓Na^+, ⇑bleeding)	0	3 (falls)
Post-review	1 (⇑bleeding)	1 (⇑BP)	0



Non-parametric Mann Whitney U test: **p-value= 0.06**

Figure 1. Proportion of Patients in Each Drug Treatment Group Exhibiting ADRs ($p>0.05$)

Discussion

Unipolar depression is a disabling mental health condition that adversely affects a patient's life in multiple domains (family, work or school life). In line with the high prevalence of depression in dementia patients and challenges in providing non-drug treatments, antidepressant medications are commonly prescribed for residents in nursing homes. These drugs are known to have an array of class dependent and class independent side-effects explicitly discussed in UK care guidelines.[7,8,9] Prescribing of multiple drug classes in nursing homes has recently been an area of intense discussion[22,23,24] as age-related reductions in efficiency of elimination and metabolism of drugs and higher rates of poly-pharmacy (≥ 5 prescription medications) place older patients at an increased risk of ADRs.[25]

This study found that a GP led program of antidepressant review led to a 60% reduction in ADRs (from 5 to 2) associated with antidepressant medications as well as the cessation of tricyclic antidepressant prescription. The study appears to have similar findings to the literature noting that the review process is beneficial for the overall medical care of residents.[15,16,17] However, in contrast to Khunti et al this study noted that the net number of prescribed medications remained the same in the pre and post intervention period.[17] It should be noted that calculating cost savings in terms of prescribed medications and management of ADRs was beyond the scope of this report.

Guthrie et. al stressed the importance of reviewing and avoiding repeat prescriptions of neuroleptic (antipsychotic) drugs in nursing home residents due to an increased

risk of developing or worsening of cardiovascular and cerebrovascular disease.14 The authors feel that this approach is valid for other psychoactive medications including antidepressant drugs.

There are a number of limitations to this research that should be noted when interpreting the findings. Firstly, this is only a single centre study with a homogenous study population (Caucasian group of severely demented patients in deprived area of Scotland). The small sample size meant that results highlighted a trend towards reduction of ADRs without statistical significance. Studies in other centers are required to determine if these findings can be reproduced in other UK nursing homes with different ethnic and socio-economic groups. In addition, larger more comprehensive studies are important to assess whether ADR reduction associated with clinician review can be statistically significant. However, as this study found similar results to previous work in the field[15,16,17] the researchers strongly feel that this would be the case or at the very least stop the prescription of higher risk medications.

Secondly, the study was only 4 month long and only focused upon antidepressant medication ADRs. The researchers would have ideally liked to increase the follow-up period to assess whether the improvements are long lasting and review ADR reductions in multiple classes of psychoactive drugs. Thirdly, there are significant challenges associated with diagnosing some subtle ADRs in patients with dementia. The study attempted to address this challenge by reviewing all nursing staff suggestions of ADRs using clinical history, lab results and the experience of a long standing GP with a specialist interest in old age psychiatry. Although the research team attempted to fully assess each potential ADR with experienced clinicians before deciding that an ADR could be attributed to the antidepressant medications and all patients remained on the same medications for the entire study, it is possible that some of the side-effects were related to other medications. Finally, and perhaps most importantly in this current political climate, the economic cost of the long-term implementation of our clinician led review needs to be ascertained.

However, despite these limitations this research project highlights the pivotal role that a once monthly review of medication can have upon ADRs and antidepressant drug prescription. Patients prescribed high-risk TCA agents had their medication stopped after the first drug review by local GPs despite these medications previously being prescribed on repeat prescription for years. The study also noted a trend towards reduction of ADRs and an increase in nursing staff satisfaction associated with increased contact with local clinicians. It is hoped that this study provides the starting point for further research in this topical area.

Competing Interest Declaration

LDH and GR were employees of Four Seasons throughout this project. CN has no interests to declare.

Ethical Approval

Ethical approval was granted from Four Seasons Healthcare Management as part of a care home development programme and informed consent obtained from all families of the patients involved.

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References

1. Alzheimer Society UK. 'National Alzheimers Statistics'. Cited 2012 April 5; Available from: http://www.alzheimers.org.uk/site/scripts/documents_info.php?categoryID=200120&documentID=341.

2. Robert PH, Verhey FR, Byrne EJ, Hurt C, De Deyn PP, Nobili F, Riello R, Rodrigeuz G, Frisoni GB, Tsolaki M, Kyriazopoulou N, Bullock R, Burns A, Vellas B Grouping for behavioral and psychological symptoms in dementia: clinical and biological aspects. Consensus paper of the European Alzheimer disease consortium. European Psychiatry 2005; 20(7): 490-496.

3. Jorm, A.F Is depression a risk factor for dementia or cognitive decline? A review. Gerontology 2000; 46(4): 219-227.

4. Nicholson A, Kuper H, Hemingway H Depression as an aetiologic and prognostic factor in coronary heart disease: a meta-analysis of 6362 events among 146 538 participants in 54 observational studies. Eur Heart J. 2006; 27(23): 2763-2774.

5. Kojima M Epidemiologic studies of psychosocial factors associated with quality of life among patients with chronic diseases in Japan. J Epidemiol. 2012; 22(1): 7-11.

6. Department of Health's publication. Everybody's Business. Integrated Mental Health Services for Older Adults: a Service Development Guide. London: Department of Health Publications. 2005.

7. National Institute for Health and Clinical Excellence. Depression: the treatment and management of depression in adults. London: National Institute for Health and Clinical Excellence. 2009.

8. National Institute for Health and Clinical Excellence. Depression in adults with a chronic physical health problem: treatment and management. London: National Institute for Health and Clinical Excellence. 2009.

9. National Institute for Health and Clinical Excellence. Common mental health disorders – Identification and pathways to cure. London: National Institute for Health and Clinical Excellence. 2011.

10. The National Institute for Mental Health. 'Older Adults – Depression and Suicide Statistics.' Cited 2012 April 5. Available from: http://www.nimh.nih.gov/health/publ

ications/older-adults-depression-and-suicide-facts-fact-sheet/index.shtml.

11. Hybels CF & Blazer DG. Epidemiology of late-life mental disorders. Clin Geriatr Med. 2003; 19(4):663-696.

12. Alexopoulos GS Mood disorders. In: Sadock BJ, Sadock VA, eds. Comprehensive Textbook of Psychiatry, 7th Edition. 2000; 2: Baltimore: Williams and Wilkins.

13. National Institute for Health and Clinical Excellence. Dementia – Supporting people with dementia and their carers in health and social care. London: National Institute for Health and Clinical Excellence. 2011.

14. Guthrie, B; Clark S & McCowan C. The burden of psychotropic drug prescribing in people with dementia: a population database study. Ageing and Ageing, 2010; 39(7): 637-642.

15. Sandoo VW, McAughtry P, Mavani F & Conroy S STOPP/START tool in older inpatients. Geriatric Medicine. 2012; 42 (4): 27-30.

16. Sorensen L, Stokes JA, Purdie DM, Woodward M, Elliott R, Roberts MS. Medication reviews in the community: results of a randomized controlled effectiveness trial. Br J Clin Pharmacol. 2004; 58(6): 648-664.

17. Khunti K & Kinsella B Effect of a systematic review of medication by general practitioner on drug consumption among nursing home residients. Age and Ageing 2000; 29: 451-453.

18. Mini Mental State Examination. Patient UK Website. Cited 2012 April 5. Available from: http://www.patient.co.uk/doctor/Mini-Mental-State-Examination-(MMSE).htm.

19. Hughes L, Mthembu M & Adams L Diagnostic Work-up and Treatment of Dementia. Geriatric Medicine 2011; 41(11): 595-600.

20. Mini Mental State Examination. General Practitioner Training Website Cited 2012 April 5. Available from: http://www.gp-training.net/protocol/psychiatry/mini_mental_state.htm.

21. Taipale HT, Hartikainen S, Bell JS. A comparison of four methods to quantify the cumulative effect of taking multiple drugs with sedative properties. Am J Geriatr Pharmacother. 2010; 8(5): 460-471.

22. Scott I & Jayathissa S. Quality of drug prescribing in older patients: is there a problem and can we improve it? Intern Med J. 2010; 40 (1): 7-18.

23. Bowman CE Education, guidance, and equality are needed to address problem of antipsychotic prescribing in nursing homes. BMJ. 2012; 344:e2421.

24. McClean P, Tunney M, Gilpin D, Parsons C, Hughes C Antimicrobial prescribing in residential homes. J Antimicrob Chemother. [2012. Epub ahead of print].

25. Boss GR & Seegmiller JE. Age-related physiological changes and their clinical significance. West J Med 1981;135(6): 434-440.

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ORIGINAL PAPER

Self-Esteem and Anorectic Eating Concerns among Female University Students in Malaysia

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Abstract

Background: **Self-esteem is a person's appraisal of his own worth, significance, attractiveness, and competence. Low self-esteem could also lead to social, health and psychological problems including eating disorders. Eating disorder is when a person uses measures such as dieting, restricting intake of food or purging to control his or her body weight.** ***Objective:*** **The current study explores the relationship between self-esteem and anorectic eating concerns among female university students in Malaysia.** ***Method:*** **217 female university students were studied, using Rosenberg's Self Esteem Scale (SE-10) and Eating Attitude Test (EAT-40). Results: Students with low self-esteem had higher anorectic eating concerns. Race of the student had no significance in predicting eating disorder. Age plays an important role in eating disorder. Young students with low self-esteem are more vulnerable to anorectic eating concerns than older students.** ***Conclusion:*** **It was found that there exists an inverse but low correlation between the two variables self-esteem and anorectic eating concerns.**

Keywords: Anorectic Eating Concerns, Self-Esteem

Introduction

A number of authors have emphasimportance of self-esteem in the etiology of eating disorders[1]. Guindon[2] has defined self-esteem as the attitudinal, evaluative component of the self; the affective judgments placed on the self-concept consisting of feelings of worth and acceptance, which are developed and maintained as a consequence of awareness of competence, sense of achievement, and feedback from the external world.

Negative self-concept feelings and attitude could lead to social, health and psychological problems including eating disorders and depression[3]. Studies done by Mas et all[4] have shown the role of self-esteem as the main mediating variable in the effect exerted by certain personality traits in eating disorder.

Eating disorders are a complex set of illnesses that encompass a wide spectrum of abnormal eating patterns and can occur in all stages of life, from infancy to the elderly. The disturbances in eating behavior involve

the manner, type, quantity, and rate of consumption of food[5].

Dieting in Western culture has become a cultural preoccupation and it may even be argued that eating disorders are simply extensions of normal and socially acceptable modes of behaviour[6]. In non-Western cultures eating disorders have, until recently, been considered rare and plumpness is the ideal for body weight and feminine beauty[6]. The increasing number of new cases of anorexia nervosa and bulimia nervosa among Asian immigrants to Western countries and the consistent findings of abnormal eating attitudes and eating disorders among Asian and Arab teenagers indicate that these Eastern women have been exposed to Western values[6]. The prevalence in Western countries of abnormal eating attitudes among female samples based on EAT-26 scores, ranged from 8.3% among college students in Switzerland to 26% among samples aged 22 years old in the USA. For nonwestern samples, prevalence ranged from 6.5% among adults in Hong Kong to 31.4% among nursing students in Pakistan[7].

The objectives of this study are;

1. To examine the level of self-esteem among female university students in Malaysia.
2. To study anorectic eating concerns among female university students in Malaysia.
3. To explore the relationship between self-esteem and anorectic eating concerns.

This study focuses on the normal variation of eating problems and not on the pathological variants of eating disorder. Eating disorder problem is how an individual experiences selected attitudes, behavior or traits related to food or eating. It may be hypothesized that lower the self-esteem lower the anorectic eating concerns.

Methods

Purpose: The purpose of this study was to find out the relationship between self-esteem and anorectic eating concerns, in female college students. ***Study site:*** The study was conducted in one of the universities at Sarawak, Malaysia. The study was approved by the university research committee. Data was collected in November, 2011. Study design: Questionnaire which focused on demographic aspects of students namely age and race. **Instrument-rated:** Consisted self-rated scales The Rosenberg's Self Esteem Scale (SE-10) and the Eating Attitude Test (EAT-40). ***Sample selection:*** The survey was carried out on convenience sampling of 217 female university students. Students from second year and third year undergraduate classes who were available and willing to participate were studied. ***Criteria:*** Only those students who volunteered to participate in the study were included. They were explained the implications of the study. The only condition was that they should be from Sarawak; this was done to assure that the population selected is a homogeneous population. ***Participants:*** Students' were given a questionnaire to study the demographic profile of students, the Rosenberg's Self Esteem Scale (SE-10)[8] and the Eating Attitude Test (EAT-40) that was developed by Garner and Garfinkel (1979)[9]. Data was analyzed using SPSS.

Rosenberg's Self Esteem Scale. (SE-10)

Rosenberg's Self Esteem scale[8] was used to assess self-esteem. Respondents completed the scale by indicating their agreement with each of the 10 items on a 4 point scale. (3= 'strongly agree', 0= 'strongly disagree').

Five items in this scale are in reverse valence. A total Self-esteem score was obtained by summing the 10 responses. The score ranges from 0-30. Scores between 15 and 25 are within normal range. The scale generally has high reliability: test-retest correlations are typically in the range of .82 to .88, and Cronbach's alpha for various samples are in the range of .77 to .88.

Eating Attitude Test (EAT-40)

The Eating Attitude Test (EAT-40) was developed by Garner and Garfinkel[9]. It is a 40 item multidimensional self-report scale designed to assess the attitudes, behavior, and traits present in eating disorders particularly anorexia nervosa and bulimia nervosa. The average time to complete the scale is 10 minutes. Garner and Garfinkel (1979)[9], reported an alpha coefficient of 0.94 to demonstrate internal consistency. Responses are rated on a 1 (Always) to 6 (Never) spectrum. Scores for each item differ from one another. Total score is the sum of each item. A score greater than 30 is considered to be an indicator of a possible anorectic eating concerns.

Results

Demographic Characteristics of students are as follow: Age: 23 % were in the age group 19-21 years and 77 % were in the age group 22 -24 years. Race: 43% were Malays, 40 % Chinese and 17% other ethnic group including Indians.

Self Esteem (SE-10)

The least one has scored on this scale was 9 and maximum was 28. ($\bar{x}$=17.12, SD=4.95). A vast majority (60%) had a normal self-esteem in the range of 15 - 25. ($\bar{x}$=18.58, SD=3.89). Almost 33% had a low self-esteem and were in the low range (0-14). ($\bar{x}$=12.48, SD=1.36). A very marginal number (7%) had a high self-esteem (>26). ($\bar{x}$=26.73, SD=0.79). (F=96.72, p<0.0001). Cronbach's alpha was 0.87 for the Malaysia population.

Age and Self-esteem

Mean self-esteem for those in the age group 19-21 years was lower ($\bar{x}$=16.10) compared to those in the age group 22-24 years ($\bar{x}$=17.42).

Eating Attitude Test (EAT-40)

In this study the least score on the EAT-40 was 3 and the maximum score was 39. ($\bar{x}$=18.28, SD=9.40). About 87% of the students scored less than 30 on this scale with no eating disorders. ($\bar{x}$=16.01, SD=7.78). Marginal number of students, 13% scored greater than 30, which may be a sign of anorectic eating concerns. ($\bar{x}$=33.60, SD=2.37). (t=11.84, d.f=215, p<0.0001). The reliability of the scale in Malaysia population was found to be good, Cronhach's alpha was 0.79.

Age and Eating Disorder

Those in the age group 19–21 years had higher anorectic eating concerns ($\bar{x}$=19.18) compared to the age group 22–24 years ($\bar{x}$=18.02). There is a significant difference between the two age groups namely 19 to 21 years and 22-24 years. ($\chi2$ =629 p<0.001).

Race and Eating Disorder

In this study, the mean EAT-40 score for Chinese students was $\bar{x}$=19.11 compared to the Malay students $\bar{x}$=17.45 (t-test not significant).

Hypothesis: Lower the self-esteem lower the anorectic eating concerns. It was found that there exists an inverse and low correlation between the two variables self-esteem and EAT-40, eating disorders. (cor = -0.38. ($p<0.05$). Hence, the hypothesis is rejected.

Self Esteem and Eating Disorder

Table 1. Self Esteem and Eating Disorder

	EAT-40 (Normal <30)	EAT-40(Eating concerns >30)
SE-10 Low	53 (24%)	20 (9%)
SE-10 Normal	121 (56%)	8 (4%)
SE-10 High	15 (7%)	0
TOTAL	189 (87%)	28 (13%)

Table 2 shows, 56% of the students were in the normal range of SE-10 and EAT-40. 24% students scored low on the SE-10 normal range of EAT-40, 9% scored low on SE-10 and had high on EAT-40. 4% scored low on SE-10 and had high on EAT-40. None of the students scored high on the SE-10 and EAT-40.

Correlation between self-esteem and eating disorder.

A moderate Pearson's correlation (r=0.61, $p<0.001$) is observed between students with low self-esteem and high EAT-40. $\mathbf{R^2}$ change is 0.37 or 37% of the variation in the outcome is determined by the predictor variable and 63 % of the variation is caused by other factors.

Discussion

Eating disorders are good examples of psychological disorders that are not produced by genetic inheritance, infectious organisms, or environmental toxins. It is most likely that they result from the influences from our social environment[10]. Eating disorder can best be viewed as a 'symptom' of chronic low self-esteem[11]. In particular, the ideation of the thin body type has been identified as a possible factor leading to the development of eating disorder[12]. In this study, 217 female university students from Sarawak were asked to complete the EAT-40 and SE-10. The purpose of this study was to find out the relationship between self-esteem and anorectic eating concerns in female college students.

Low self-esteem has been shown to one of the most important factors involving the development of eating disorders[13]. In this study, about 33% scored low on the SE-10.

Power, Power & Cabadas[14] conducted a similar study on eating disorders study in Ecuador. They found that the mean EAT-40 was 17.12, with 14% filling criteria. The mean EAT score for the researched Malaysian student population[15] was 12.26 with a high standard deviation of 7.36. In this study, the mean EAT-40 was 18.28 and standard deviation was 9.40. The result is bit

higher compared to the Malaysian study[15] but almost similar to the Ecuador study[14].

Gender is a known risk factor for eating disorders: these disorders are much more common in women than in men[16]. Men have been less likely to develop eating disorders, which is consistent with lower levels of social emphasis on male body weight and shape[12].

Social roles of urban and rural women can be very different. Depending on where they are born and reside, women in Malaysia may lead very different lives and experience their body differently.

For young urban women who enjoy education, career development and mate choice, sliminess is emblematic of attractiveness and competence in both social and work related domains. Rural women's lives are still under substantial patriarchal influence, and in this rural context, body fullness may symbolize family fertility and wealth[12].

Eating disorders are also associated with ethnic differences in socio cultural standards of ideal body weight and shape. Among Chinese, plumpness is viewed as a sign of good health, longevity, prosperity and fertility whereas thinness is linked to poor health and bad luck[17]. In a study done by Edman[18], it was found that Malay students scored higher on the EAT-26 than the Chinese students. In contrast, this study showed that the Chinese students scored higher on the EAT-26 compared to Malays students.

Indran and Hatta[15] examined the eating attitudes among a multi ethnic group of Malaysian school girls and found approximately 7 percent were at risk for eating disorders. Body shame, feeling negatively about the self when cultural body standards are not achieved, explains the internalized effect of cultural body ideals. Appearance control beliefs reflect the extent to which an individual believes she/he can control her/his appearance, and emphasize the contradictory relationship some have with their bodies[19].

There is a relationship between stressful life events and adolescent dysfunction, such as low self-esteem[20]. University students may encounter personal, family, social, and financial stresses while trying to cope with their academic challenges. Stress, anxiety and depressed mood have shown high co morbidity with and the potential to trigger bouts of addiction-like eating behavior in humans[21]. Such conditions could affect their eating behavior and health status which, in turn may have negative effects on their studies[3]. Stress experienced by younger generation of female in a rapid developing modernized country like Malaysia may also account for the obtained prevalence of abnormal eating attitudes that is comparable to the studies done in Western population[17].

In this study it was found, as the age increases the anorectic eating concerns gradually decreases. Interestingly, it was found that the mean self-esteem for those in the age group 19-21 years was lower compared to those in the age group 22-24 years. During transition period such as entering a university from high school the young adults may often experience increased self-consciousness and lowered self-esteem.

Young adults may be under pressure to look good and be accepted by their peer group. Individuals with low self-esteem are generally suggestible to comments on their physical appearances by their peer group. Schutz & Paxton[22] found a significant co relation between body dissatisfaction and

disorder eating, and negative friendship qualities.

Self-esteem uniquely predicted body surveillance, body comparison, and body shame, which illustrates the importance of including self-esteem as a variable within the objectification theory framework. Given that women with high self-esteem are generally satisfied with their inner qualities as well as appearance, they may be more likely to accept their body as it is rather than vigilantly monitoring it and comparing it against other women's bodies. In contrast, women with low self-esteem tend to lack confidence in their inner qualities and their outer appearance and are likely to turn to societal ideals for guidance, which encourages them to focus on their appearance and to gauge their appearance against other women's appearance[23].

Correlation was done to test this hypothesis; lower the self-esteem lower the anorectic eating concerns. It was found that there exists an inverse and low correlation between the two variables self-esteem and EAT-40, eating disorders. Hence we reject the hypotheses. In other words, lower the self-esteem higher the anorectic eating concerns. This result supports previous studies done by Kansi & Wichstorm, Bergman [24] and also by Eiber et al, [25] that states that eating disorders are associated with low self-esteem. Self-esteem in people with eating disorder is excessively based on body dissatisfaction Eiber et al, [25]. However, this study reports a very small variance in relation to low self-esteem and high EAT-40. 63 % of the variance was caused by other factors.

The goal of the current study was to determine whether there is a relationship between self-esteem and anorectic eating concerns, in female college students. In may be concluded from this study that, self-esteem play an important role in eating disorders. Students with low self-esteem had higher anorectic eating concerns. Race of the student had no significance in predicting eating disorder. Age plays an important role in eating disorder. Young students with low self-esteem are more vulnerable to anorectic eating concerns than older students.

One of the limitations of this study is it in not clear whether the students have fully understood the items in the scale before answering them, due to difficulty in understanding the items in the scale particularly the EAT-40 which was lengthy. Another limitation's that the students selected consisted of only those residing in Sarawak, Malaysia. It is hoped that findings from this study adds to knowledge of the phenomenological aspects of the relationship between self-esteem and anorectic eating concerns. The result of the current study also demonstrates the potential bias in methodological issues.

References

1. Gonzalez MAM & Viveros GRO. Eating disorder and its relationship with body image and self-esteem in adolescents. Terapia Psicologica. 2009; 27(2):181-190.

2. Guindon M H. Toward Accountability in the Use of the Self-Esteem Construct: J Counsel Develop. 2002; 80: 204-214.

3. Lin GK, Cobiac L & Skrzypiec G. Gender differences in eating behavior and social self-concept among Malaysian university students. Malaysian J Nutrition. 2002; 8(1):75-98.

4. Mas MB, Navarro MLA, Jiménez AML, Pérez IT & Sánchez CDR, San Gregorio MAP. Personality traits and eating disorders: Mediating effects of self-esteem and perfectionism. Int J Clin Health Psychol. 2011; 11(2): 205-227.

5. Prak HG & Bell CK. Eating Disorders. In: A Guerrero and M Piasecki, ed.2008. Problem-Based Behavioural Science and Psychiatry. Springer. 2008; 27:293-407.

6. Shuriquie N. Eating disorders: a transcultural perspective. Eastern Mediterranean Health J. 1999; 5(2): 354-360.

7. Makino M, Hashizume M, Yasushi M, Tsuboi K, & Dennerstein L. Factors associated with abnormal eating attitudes among female college students in Japan. Arch Womens Ment Health J. 2006; 9: 203-208.

8. Rosenberg M. Society and the Adolescent Self-Image. Revised edition. (1989). Wesleyan University Press. Middletown.

9. Garner & Garfinkel (1979).In: M Sajatovi and LF Ramirez, ed. Rating Scales in Mental Health (2003). Panther publishers Limited. Bangalore.

10. Silverstein A, Silverstein V & Nunn LS (2008). The Eating Disorders Update: Understanding Anorexia, Bulimia, and Binge Eating. Enslow Publishers. New Jersey.

11. Silverstone P. Is chronic low self-esteem the cause of eating disorder. Med Hypotheses. 1992; 39(4):311-315.

12. Swamy VS. Female Physical Attractiveness and Body Image Disorders in Malaysia. Malaysian J Psychiatry. 2006; 14(1):3-7.

13. Button EJ, Sonuga-Barke EJS, Davis J & Thompson MA. Prospective study of self-esteem in the prediction of eating problems in adolescent school girls: Questionnaire findings. Br J Clin Psychol. 1996; 35(2): 193-203.

14. Power Y, Power L & Cabadas MB. Low Socioeconomic Status Predicts Abnormal Eating Attitudes in Latin American Female Adolescents. Eating Disorders. 2008; 16(2) 136-145.

15. Indran SK & Hatta SM. Eating attitudes among adolescent girls in a Malaysian secondary school using the Eat Questionnaire. Int J Soc Psychiatry. 1995; 41(4):299-302.

16. Burrows A & Cooper M. Possible risk factors in the development of eating disorders in overweight pre-adolescent girls. Int J Obes. 2002; 26(9):1268-1273.

17. Kee PW & Ho BKW. Psychosocial factors associated with abnormal eating attitudes amongst Malaysian undergraduates. Malaysian J Psychiatry.2003; 11(1): 41-47.

18. Edman JL & Yates A. Eating attitudes among college students in Malaysia: an ethnic and gender comparison. Eur Eating Disorder Rev. 2004; 12 (3):190-196.

19. John HD & Ebbeck V. Gender-Differentiated Associations among Objectified Body Consciousness, Self-Conceptions and Physical Activity. Sex Roles J. 2008; 59:623–632.

20. Baldwin SA & Hoffmann JP. The Dynamics of Self-Esteem: A Growth-Curve Analysis. J Youth and Adolescence. 2002; 31(2): 101–11.

21. Parylak SL, Koob GF & Zorrilla EP. The dark side of food addiction. Physiol Behav. 2011; 104(1): 149-156.

22. Schutz HK & Paxton SJ .Friendship quality, body dissatisfaction, dieting and disordered eating in adolescent girls. Br J Clin Psychol.2007; 46(1): 67-83.

23. Tylka LT & Sabik NJ. Integrating Social Comparison Theory and Self-Esteem within Objectification Theory to Predict Women's Disordered Eating. Sex Roles J. 2010; 63:18–31.

24. Kansi J, Wichstorm L & Bergman LR. Eating and the Self-concept: Results based on a representative sample of Norwegian adolescent girls. J Youth and Adolescence. 2003; 32(5): 325-335.

25. Eiber R, Vera L, Mirabel-Saron C, & Guelfi JD. Self-esteem: a comparison study between eating disorders and social phobia. L'Encéphale. 2003; 29(1): 35-41.

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CASE REPORT

The Gains From Inner Child Work

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Abstract

Inner child work is a therapeutic tool that has been known to be very beneficial in working through issues from one's past that can largely influence one's present life. However, it is apparently not widely applied in the local therapy setting. This paper describes the use of inner child work in dealing with a patient who presented with anger and marital problems, and who was carrying a lot of emotional baggage.

Keywords: Inner Child, Inner Child Work, Therapy

Introduction

The inner child has been referred to in different ways: Jung called it "Divine Child"; Fox spoke about "Wonder Child"; Whitfield referred to "Child Within"; Horney and Masterson termed it "real self"; while Winnicott and Miller spoke about "true self". It essentially reflects our inherent potential to explore, be amazed and creative[1]. When the age-appropriate needs of a child cannot be integrated, they are repressed or split off, producing serious repercussions [2]. Unresolved grief from childhood is a result of abandonment, abuse, neglect and enmeshment[1]. The past constantly determines an individual's present actions [2]. The concepts of inner child and subpersonality can be linked. Rowan defined subpersonality as "a semi-permanent and semi-autonomous region of the personality capable of acting as a person"[3]. The presence of both concepts is recognized when we find ourselves acting against our interests, which cannot be changed by conscious decision[3].

Inner child work is a new, important therapeutic tool[1]. In a way, a form of it had been done by Freud, but in his approach, the therapist did the re-parenting of the wounded inner child. This took a lot of time and money, and often made the patient become unhealthily dependent on the therapist [1]. The inner child work of present times involves the patient using their adult self to re-parent their inner child – true nurturing[1]. The therapist acts as a guide. The healing process involves confronting childhood traumas and revealing the child's numerous defense mechanisms[4].

The inner child work approach is not known to be widely used by therapists locally. This paper aims to illustrate the use of inner child

work in the management of a patient who presented with anger and marital issues.

Case Report

TA is a 47 year-old Malay woman, married with 2 children (from her first marriage). She presented to the therapist at the age of 44 with the main complaints of marital issues and anger.

TA reported a tumultuous marriage with her second husband. He was verbally abusive towards her and harsh in his parenting. She described feeling oppressed. All the problems caused TA to become angry and resentful.

As TA was not allowed to express her anger when she was young, she did not know how to handle it. Her anger goes as far back as when she was 11, due to her mother making her feel unimportant and being critical of her. Her mother was physically available but emotionally unavailable. TA's father was always away for work. He was described as a man with his own set of unresolved issues who still tries to interfere into patient's life now. She expressed anger at him for cheating her out of an emotional relationship.

TA's parents discouraged the emotional aspects of TA. She was not allowed to speak up. She eventually shut down during adolescence. TA came to realize that she has always chosen boyfriends and husbands that are emotionally unavailable, just like her parents, which compounded her emotions.

Along the way, TA revealed that she has been depressed since adolescence. Growing up, TA felt very disconnected with life and the real world. She shared about her "secret garden", a comfortable place in her mind that she would be in internally – an obvious form of escape.

Considering TA's issues and the fact that she is psychological minded, inner child work was applied in the course of therapy. The first step was to get in touch with her inner child. TA described her inner child, "G", (aged 9), as a serious, uptight child who led a programmed life. She was alone quite a bit, spending little quality time with her parents. "G" was an achiever and very disciplined. She completed her primary education at an earlier age and felt like an outsider in secondary school. She only came into her own at 13. "G" was a good child with a strong sense of duty and obligation. Her achievements seemed mainly for her parents. Whenever "G" spoke up, she was reprimanded and slapped by her mother.

TA was asked to bring in photos of "G". In the course of getting connected with "G", TA shared specific significant memories. "G" coped by escaping through books, sleep, studying, and doing a lot of things at once, which TA identified that she still engaged in the latter as an adult. TA also spoke about how dancing reflects her, the happy personality.

"G" was moody and bad-tempered as an adolescent, and that is when "R" came along to protect "G". "R" was more of a mental attitude and described as the embodiment of power as a person. "G" had anger inside her which was described as a "black and green" kind of anger – very poisonous. She suppressed it and only brought it out when in rebellion.

Subsequently, in the course of therapy, therapist and TA discussed how "G", "R" and the adult views the world. "G" saw the world as scary and worked very hard according to rigid rules as the only way to

address her fear. She felt she had to take care of herself. On the other hand, "R" was more confident and not daunted by the challenging world. She was self-sufficient and full of natural energy. The adult had been seeing the world and living her life mostly the way "G" did. However, at that point in therapy, the adult had become a little more balanced and felt more validated.

Following that, the therapist explored with TA regarding significant adult figures in her life between the ages of 7 to 12, and whether they had been nurturing or spiritually wounding. It was recounted that most of the significant adult figures in her life then were nurturing, except for her mother and piano teacher. Ironically, although her life during that time was generally nurturing, that period was depicted as a rollercoaster ride. "G" had no control but psyched herself to be in control. Some time was also spent exploring traumatic events that caused the greatest spiritual wounding during that period. The spiritual wounding was in the form of pain, shame, fear, and wounding of her self-image. TA was also asked to look at photos from that period, reflect on what she had shared in session up to that point, and reconnect with the emotions. TA later shared her observation that "G" was likely depressed. In actual fact, she was angry at her "artificial parents".

The next step in inner child work with TA was getting her to write 3 letters: from the adult to "G"; from "G" to the adult (in reply to adult's letter); and from "G" to her parents. TA later shared the letters with the therapist in session. The letter from the adult to "G" was easy to write. She was aware that "G" was lonely and TA can still feel the loneliness. She described feeling the loneliness in her upper chest and upper back. In sharing the reply letter from "G", TA spoke about the child's tiredness, which has pervaded TA's life for so long. Her parents had high expectations and measured "G" by her attainment, not her effort. "G" had always looked for her parents' approval and the adult carried on the same. The lost childhood of "G" was recognized, and TA became tearful. "G" always needed to take care of herself, to the point that the adult still feels nobody cares for her although the present reality is different. The letter from "G" to her parents was most poignant whereby TA stopped reading halfway and broke down. The sadness of the child was clearly felt.

In the process of re-parenting the child, TA was told to give permission to "G" to verbalize her anger. Once "G" was given a voice and allowed to speak, she became louder. TA was encouraged to continue speaking with "G". In time, TA reported that the hurt was not so raw, and anger and rage had subsided considerably.

Memories continued to surface and TA continued to experience anger in particular. However, being able to express her feelings in therapy helped her to deal with the emotions. The therapist made it a point to check in with "G" and "R" from time to time. Subsequently, TA reported that her underlying sense of anger and sadness that she had had for a very long time was gone and it was evident that "G" was happy.

At this point, the therapist decided to do a review of the therapeutic process to see what had been achieved thus far. TA's relationship with her husband improved. The sense of ambivalence and abandonment had vanished. Loneliness and emotional fatigue was also non-existent. Anger was expressed more constructively. She could see herself as essentially one being – the adult and the inner children integrated.

Discussion

In the course of inner child work, TA was first made to connect with her inner child. As it was the inner child who first organized experiences, connecting with the inner child is a way to change one's core material[1]. Feeling the feelings is crucial. "You can't heal what you can't feel"[1]. This was ultimately a huge chunk of the work done with TA, that is having her feel her feelings which she had suppressed for a long time as a child.

Depression is the denial of one's emotional reactions[2]. When a child is not allowed to experience his/her feelings, the child suppresses those feelings. Over time, this continued suppression can very likely result in depression. Alice Miller has given examples of her patients that prove this point[2]. In TA's case, it was her denial of anger at her parents. Physical symptoms experienced by an individual force the cognitive engagement with the facts of one's childhood history, and the eventual ability to communicate with the inner child[5]. For TA, the physical symptoms were in the form of tiredness which was more of emotional fatigue, whereby she managed to cognitively perceive it, and help her communicate with her inner child.

TA is still in therapy but has definitely made tremendous progress. The inner child brings about regeneration and a newfound vitality once there is integration[1], as in TA's case. Even though she still experiences difficult emotions from time to time, which she sometimes recognizes as belonging to her inner child, that awareness and talking things through in therapy helps. She can continue to use the tools she has learnt to deal with feelings from the past that may still arise[2].

Many societies still disregard the importance of childhood experiences in an adult's life[6]. Inner child work aims to create an awareness of that importance. Working on one's own childhood can give rich insight, especially when other modes of therapy have failed[4]. Inner child work can reap many benefits when applied in suitable circumstances, taking into account patient's presentation, patient factor and readiness. The striking impact lies in the depth and sustainability of change in the individual[1].

References

1. Bradshaw J. Homecoming: reclaiming and championing your inner child. New York: Bantam Books; 1990

2. Miller A. The drama of the gifted child: the search for the true self. New York: Basic Books; 1997

3. Rowan J. Subpersonalities: the people inside us. London: Routledge; 1990

4. Miller A. The truth will set you free: overcoming emotional blindness and finding your true adult self. New York: Basic Books; 2001

5. Miller A. The body never lies: the lingering effects of hurtful parenting. New York: W.W.Norton & Company; 2005

6. Miller A. For your own good: hidden cruelty in child-rearing and the roots of violence. New York: Farrar, Straus and Giroux; 2002.

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CASE REPORT

Clozapine: Is it too Early?

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Abstract

Clozapine is an effective anti-psychotic and has long been used as an intervention for treatment-resistant schizophrenia. This case report will highlight the use of Clozapine up to 100 mg ON as a second-line medication to achieve satisfactory response after 5 weeks in an adolescent who was recently diagnosed with schizophrenia.

Keywords: Clozapine, Schizophrenia, Treatment-resistant

Introduction

Clozapine, the prototypical 'atypical' anti-psychotic, has been used since the 1960s. It is the most effective treatment for patients with refractory schizophrenia and improves both positive and negative symptoms. However, there is a lot of hesitancy in using it in clinical practice given its side-effects. The case presented here highlights the use of Clozapine as a second-line medication despite the commonly practice of adequate trial of two anti-psychotic.

Case Report

MFMN is a 17-year-old Malay adolescent who was brought by his family to Universiti Malaya Medical Centre due to sudden onset of abnormal behaviour for the past five days. He was talking irrationally and his family noticed that he was talking-to-himself as if he was having conversations with a real person. He was also irritable, and started to quarrel and picked fights with his siblings. MFMN was also having difficulties to sleep at night and had been spending majority of his time at the internet café. He also neglected his personal hygiene and refused to clean himself or to take his meals. He has been absent from school since the beginning of the current problems. Further history from his family revealed that a similar episode of talking-to-himself, pre-occupation with the internet and sleeping difficulties occurred about one year ago. The symptoms resolved after five days of regular benzodiazepines from a general practitioner. There was no proper psychiatric consultation after the resolution of the acute episode. However, MFMN was never back fully to his normal self as he became socially withdrawn. There was no history of psychiatric illness in his family. During the assessment, he was not co-operative, was easily distractible and he could not establish adequate eye contact. Rapport was not obtained and at the same time he was making abnormal acts as if he was performing the traditional Malay martial arts

of '*silat'* which he was never known to have learnt before. His speech was irrelevant, incoherent and irrational with looseness of association. His affect was inappropriate to his thoughts and mood. He was hallucinating during the interview and was noted to be having conversations with invisible figures regarding his life. His cognitive functions and physical examinations were generally intact.

MFMN was subsequently investigated for any organic cause to his bizarre behaviour but the basic blood investigations and neuroimaging including CT scan of the brain produced normal results. He was subsequently diagnosed as a case of adolescent-onset schizophrenia and treated as an out-patient basis at the request of his family who was willing to monitor him and supervise his medications. He was initially started on oral Risperidone 1 mg ON with oral Clonazepam 0.5 mg ON and was subsequently seen three days after commencing treatment. His oral Risperidone was slowly increased up to 4 mg daily over the next six weeks. Although his disorganized behaviour responded to Risperidone, he was still experiencing other positive symptoms such as disorganized thoughts and delusion of thought broadcasting and also persecutory delusion. Compliance was ensured with close supervision from his parents. Also at this dose, MFMN showed clinically significant extra pyramidal symptoms (EPS) such as akathisia, parkinsonism and siallorhoea.

After careful consideration regarding the possible history of a year with prodromal or negative symptoms before the breakthrough of current psychotic episode, a decision was taken to start MFMN on Clozapine. This was discussed with the family. This was planned to be done as an out-patient basis and the Risperidone was slowly tailed down. After his baseline blood count showed results within the normal range, MFMN was started on low dose of Clozapine at 12.5 mg ON for the first three days followed by an increase to 25 mg ON before his next appointment. The oral Risperidone was stopped completely after 3 weeks on Clozapine. At week 5 of Clozapine at the dose of 100 mg ON, MFMN showed significant improvement in his positive symptoms. The disorganized speech and behaviour was totally absent with only residual elementary auditory hallucination that occasionally comes and goes. There were no more episodes of agitation and aggression and his relationship with his family has improved. He was able to help out in doing the house chores and occasionally went out to play football with his friends. His EPS problems have improved and both he and his family was happy regarding the progress. The dose of Clozapine was further increased to achieve full remission of the symptoms.

Discussion

Schizophrenia is a chronic and debilitating disease. It is rare before the age of 13, although its symptomatology becomes quite similar to those in adults as the age increases[1]. Aggressive intervention is needed in adolescent-onset schizophrenia due to its poor prognosis because of early onset of illness. Clozapine is the only drug licensed for the treatment of schizophrenia in individuals as young as 16 years who are unresponsive to or intolerant of conventional medications (US Food and Drug, 1989). Usual clinical practice advocates the trial of at least two prior typical anti-psychotics at an adequate dose for an adequate amount of time or failed at least three atypical anti-psychotics before switching to Clozapine[2]. However, time is not a luxury when treating an adolescent who has wasted a year of his

life due to untreated psychosis. It has been suggested that Clozapine should be selected as a second-line treatment for those with a first-episode schizophrenia who have failed one trial of a second-generation antipsychotic[3,4]. Although many subjects dropped-out from a study comparing Clozapine to Haloperidol due to neutropenia and seizures[5], reluctance to use Clozapine due to fear of side-effects is unjustifiable as its efficacy in children and adolescent schizophrenia has been proven[6,7]. The general guidelines for the use of Clozapine in children and adolescents population are similar to those of adults. It is recommended that lower doses of anti-psychotics than adults be used in this population[8].

It is hoped that this case report will help in contributing more evidence regarding the use of Clozapine in treating schizophrenia for the children and adolescent population. This is because it is likely that more cases of children and adolescent-onset schizophrenia will be seen with the expansion of the child and adolescent psychiatry services and time is not a luxury to spare in their treatment.

References

1. Remschmidt H. Definition and classification. In: Remschmidt H, editor. Schizophrenia in children and adolescents. Cambridge: Cambridge University Press 2001; 24-39

2. Findling R L et al. Is There a Role for Clozapine in the Treatment of Children and Adolescents? J Am Acad Child & Adolesc Psychiatry 2007; 46:3: 423-28

3. Agid O, Kapur S, Arenovich T, et al. Delayed-onset hypothesis of antipsychotic action: a hypothesis tested and rejected. Arch Gen Psychiatry 2003; 60(12):1228-1235

4. Kane J, Honigfeld G, Singer J, Meltzer H and the Clozaril study Group. Clozapine for the Treatment Resistant Schizophrenic. Arch Gen Psychiatry 1988; 45: 789 -796

5. Kumra S, Frazier J, Jacobsen L, et al. Childhood-onset schizophrenia: a double-blind Clozapine-Haloperidol comparison. Arch Gen Psychiatry 1996;53:1090-1097

6. Frazier JA, Gordon CT, McKenna K, Lenane MC, Jih D, Rapoport JL. An open trial of clozapine in 11 adolescents with childhood-onset schizophrenia. J Am Acad Child & Adolesc Psychiatry 1994;33:658-663

7. Turetz M, Mozes T, Toren P, Chernauzan N, Yoran-Hegesh R, Mester R, Wittenberg N, Tyano S, Weizman A. An open trial of clozapine in neuroleptic-resistant childhood-onset schizophrenia. Br J Psychiatry 1997;170:507-510

8. Findling R L et al. Is There a Role for Clozapine in the Treatment of Children and Adolescents? J Am. Acad Child & Adolesc Psychiatry 2007; 46:3: 423-28

9. U.S Food and Drug Administration (homepage on the internet) Rockville: FDA; c2004 -2007. Patient Information Sheet Clozapine.

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CASE REPORT

Ganser Syndrome in Schizophrenia: A Case from India

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Abstract

***Objective*: The aim of this paper is to report the symptom of approximate answers in a case of schizophrenia with abnormal MRI findings, who improved with the antipsychotic drugs and to discuss whether it is part of schizophrenic thought disorder or structural brain involvement. *Method:* A case report and review of the literature of Ganser syndrome in a case of schizophrenia is presented. *Results*: The subject recovered from her symptoms of approximate answers and schizophrenia. Relatively few cases have been reported about Ganser syndrome in schizophrenia. The majority of articles published were either related to organic cause or dissociative disorder. *Conclusions:* There is a need to reconsider Ganser syndrome in schizophrenia where it has responded to antipsychotic medications. The current diagnostic classification of Ganser syndrome as Dissociative disorder does not mention about the occurrence in schizophrenia or consider the symptom of approximate answers as a formal thought disorder of schizophrenia.**

Keywords: Ganser Syndrome, Symptoms of Approximate Answer, Schizophrenia

Introduction

The symptom of approximate answers is the hallmark of Ganser syndrome which was originally considered as a part of transitory hysterical twilight state by Ganser.[1] The etiology is controversial, with researchers reporting hysteria, malingering, factitious disorder, brain damage or psychosis as the underlying cause. It has been noted in cases of head injury and stroke,[2] alcoholism with Korsakoff's psychosis,[3] dementia,[4] AIDS,[5] schizophrenia[6] and affective disorders.[7] We present here a case of Ganser syndrome in schizophrenia with coincident neuroimaging findings of structural brain involvement.

Case Report

A 22 year-old emaciated lady had a cesarean section in the ninth month of pregnancy for anhydramnios with fetal distress. After delivery she became irritable, refused to accept her male child and did not look after her baby. She was observed to be addressing all the males in the ward as well as her male relatives with her husband's name.

A detailed psychiatric evaluation revealed a change in behavior about a year ago immediately after patient's love marriage when she had become irritable, abusive and expressed fearfulness about her life being in danger with somebody coming to harm her. She was taken to native place for faith-healing which is a frequent Indian custom. Following this her behavior quietened and she did her routine household chores.

When she was five months pregnant, she visited her parents for a week where they noticed her to be withdrawn, staring and being abusive with sleep disturbances. Later her behavior worsened with patient laughing and muttering to self, not recognizing her in-laws, wandering aimlessly outside the home and severely neglecting herself in the form of refusal to eat, not taking bath and passing urine in clothes. This behavior continued for the next 4 months and it was then she was seen in the emergency services of our hospital.

In view of her symptoms, she was diagnosed as schizophrenia and transferred to the psychiatric inpatient ward. Initially, she was hostile and did not talk to the doctors. She was seen muttering and smiling to self, showed delusion of persecution and her sleep and self care were inadequate. Patient was started on oral antipsychotic medications Tab. Risperidone (4mg), Tab. Trihexyphenidyl (4mg) in divided doses and Tab. Lorazepam (2mg) at bed time and within a week patient's symptoms improved. It was then, when her delusion of persecution improved that a new symptom was observed.

In response to questions about her name and age she would give approximate answers. She identified the female doctors as her mother and the male doctors as her father. On asking her simple calculations (e.g., 2+2 = 6, 2+3= 2, 5+4 =7), identification of colors (red as white, green as blue), duration of her stay in hospital, sex of her baby etc. she gave all erroneous but approximate answers which persisted during 3 weeks of inpatient stay, though psychotic symptoms had improved. Patient was taking self care, was co-operative and understood all the questions asked. A magnetic resonance imaging (MRI) study of brain and neuropsychological testing were done. MRI brain revealed generalized cortico-cerebral atrophy with periventricular white matter hyperintensities predominantly in frontal region with "capping" of frontal horns of the lateral ventricles. Patient was tested on Bender Gestalt test which revealed severe organicity or severe psychosis. There was some improvement seen in her response to certain questions like identifying the doctors and relatives, naming colors. However patient still gave approximate answers in response to calculations, day, date etc. She was discharged and regular follow up was advised. Her medications continued in the same dose and currently after 5 months of being on medications she has reached premorbid level of functioning. Since 2 months there is no evidence of Ganser syndrome and now patient gives correct answer to all personal details, recent events, colors, calculations etc.

Discussion

The syndrome originally described by Ganser had four major features: giving approximate answers, clouding of consciousness, somatic or conversion symptoms, and hallucinations.[6] The current classification of Ganser syndrome according to the ICD-10[8] and DSM-IV-TR[9] as 'Dissociative disorder not otherwise specified' necessitates "the giving of approximate answers to questions (e.g., "2 plus 2 equals 5") when not associated with

Dissociative Amnesia or Dissociative Fugue" and does not actually require any other symptoms for diagnosis.

Our patient had florid psychotic symptoms which were untreated for a year. As her psychosis got controlled the symptoms of approximate answers became evident. What was interesting was that she had the symptoms of giving approximate answers with symptoms of schizophrenia and abnormal MRI brain findings. The periventricular white matter hyperintensities with frontal capping have been reported following ischemic changes10 as well as in normal asymptomatic individuals.11There was no history of any brain insult or trauma in our patient and hence the MRI finding was difficult to explain. The existence of this finding with the symptom of approximate answers made us consider this symptom as some form of 'dysphasia' following organic brain involvement or a part of the 'schizophrenic thought disorder'. However, the complete resolution of her symptoms during the course of her antipsychotic treatment does suggest the fact that it may be a part of schizophrenic thought disorder which improved over a period of 3 months with medication and the structural brain involvement could just be co-incidental. Whitlock 1967, after consideration of Ganser's original cases in his studies had opined that the condition occurs most frequently either after acute cerebral trauma or in the course of acute psychotic illness, commonly of a schizophreniform or psychogenic kind.[3]

The current diagnostic classification of Ganser syndrome as Dissociative disorder does not mention about the occurrence of symptom of approximate answers in schizophrenia or consider approximate answers as the disorganized thought of schizophrenia. Thus, there is a need to reconsider Ganser syndrome (approximate answers) in schizophrenic illness where it responds to antipsychotic medications.

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References

1. Richard Latcham, Alfred White and Andrew Sims. Ganser syndrome: the aetiological argument. J Neurol Neurosurg Psychiatry. 1978; 41:851-854

2. Lee BH, Koeinig T. A case of Ganser syndrome: Organic or hysterical? Gen Hosp Psychiatry. 2001;23:230-231

3. Whitlock FA. The Ganser syndrome. Br J Psychiatry. 1967;113:19-29

4. Hampel H, Berger C, Muller N. A case of Ganser's state presenting as a dementia syndrome. Psychopathology. 1996;29(4):236-241.

5. Marla WD, Candice H, James R, et al. Ganser's syndrome in a man with AIDS. Psychosomatics. 2003;44:342-345

6. Enoch MD, Ball HN. Ganser's syndrome. In: Uncommon psychiatric syndromes, 4th ed. London: Arnold Publishers; 2004. p. 74-94

7. Duggal HS, Subash CG, Soumay B, et al. Ganser syndrome: A report of

two unusual presentations. Indian J Psychiatry. 2001;43:273-275

8. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical description and diagnostic guidelines. 2nd ed. Geneva: 2007

9. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed Text rev. Washington, DC: 2000

10. Launer LJ. Epidemiology of white-matter lesions. International Psychogeriatrics. 2003;15:99-103

11. M. Neema, Z.D. Guss, J.M. Stankiewicz, A. Arora, B.C. Healy, and R. Bakshi. Normal Findings on Brain Fluid-Attenuated Inversion Recovery MR Images at 3T. AJNR Am. J. Neuroradiol. 2009;30:911-916

12. Stern EE, Whiles WH. Three Ganser states and Hamlet. J. Ment. Sci. 1942;88:134-141

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