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Advisory Board, Associate Editors, Reviewers and Editorial Board Members

Message From The Editor-in-Chief

It has been two years since I was given the privilege to serve as the Chief Editor of the ASEAN Journal of Psychiatry. It has been a great pleasure for me to have done my duty for the journal despite the constant demand that it required.

Recognizing the challenges faced by the 2-yearly rotating set of editorial board and the need for constant board members for stability of the journal, it was decided during the last AFPMH committee meeting that Malaysia should host the editorship for another two years. Again, I have been chosen to continue this honourable duty, a responsibility I accepted with great honour.

Over the past two years, the journal has not undergone a major change. However, important to its continuing growth, regular and timely publication has been ensured. On a positive note, there has been a steady increase of articles received for publication indicating a growing interest among researchers to publish their work in this journal. The journal has published per issue, an average of 14 articles of mixed variety, from Malaysia, Thailand, Singapore and Indonesia.

The board has taken an initiative in the direction of indexing the journal. The journal has been selected by the WPA Publication Task Force to receive technical guide on the process of indexation. It was represented by Assoc. Prof. Dr. Marhani Midin and Dr Ng Beng Yeong in a Workshop for Editors from Low and Middle Income Countries (LAMIC) held by the committee in August 2010. The strengths and weaknesses of the journal were highlighted by the committee. A few recommendations were made to increase chances for a successful indexation. These include the need for a more constant editorial board and to include, in the board, members from as many participating countries as well as renounced researchers from the larger international world; and the need for a more regular of at least a quarterly publication per year.

Important to note, it was also advised that a balance should be exercised between making changes to achieve indexation and ensuring enough resource capacity to maintain the new changes, otherwise, the survival of the journal may be put at stake.

We hope to be able to bring about gradual changes in the near future for a successful indexation and more importantly for the improvement of the journal. I would like to express my gratitude and thankfulness to those who have supported me during the last two years and to those who are going to be with me in our journey of bringing the journal to another height.

Hatta Sidi
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Professor of Psychiatry
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Cheras, Kuala Lumpur, Malaysia.

Message From The AFPMH President

It is a great pleasure for me to take over the presidenthood of the AFPMH from our Malaysian counterpart. The federation is now based in Singapore from 2011 until 2012. Since its birth in 1981, AFPMH has achieved many successes including our biennial congress and regular publications of the ASEAN Journal of Psychiatry, which is the formal journal of the federation. From its five original member countries of ASEAN (Malaysia, Thailand, Singapore, Indonesia and Philippines), the federation has, over the years, increased the participation from other ASEAN countries, now including the Indochina region. Not only that, it has gone beyond the region to forge links with China, Korea and Japan in 2006 through the "ASEAN Plus Three Partnership". The federation also joined as a founder member of the newly formed Asian Federation of Psychiatric Associations (AFPA) in 2007.

ASEAN Journal of Psychiatry was founded in 1991 and has since been receiving a steady increase in number of articles from the ASEAN region for publication. Notably, the journal, a peer-reviewed six-monthly publication, has been reaching its readers regularly since 2007 through its open access online publication. Through this journal, we share and learn from the work of many researchers from the different countries of ASEAN on a variety of mental health and psychiatric issues. Through the journal also, we get to know new people in our large community of mental health and psychiatric professionals. Despite the ability of its editorial board to ensure regular online publication since 2007, the journal has always been facing with the threat of disruption in publication due to the two-yearly rotation of editorship among the member countries. I think two years is a short time for any editorial board to get established and to make necessary changes for further growth of any journal. On that note, the AFPMH committee has rightly agreed during the last committee meeting in June 2010, to let Malaysia continue the editorship of the journal for another two years in effort to maintain the journal stability and for its further growth. However, this came with the condition that there should be co-editors selected from at least actively participating countries to ensure country's representativeness in the journal. It was also agreed that each country should contribute equally in financing the journal.

I believe mental health issues in ASEAN countries should be solved by ASEAN people and ASEAN Journal of Psychiatry is a good tool to achieve this purpose. Together, we are stronger to pave a new way in managing and improving our people's mental health, blended with the unique multi-ethnic variety and different traditions across the countries.

Lastly, I wish to take this opportunity to sincerely thank Professor Hatta Sidi from Universiti Kebangsaan Malaysia Medical Center, Kuala Lumpur, Malaysia for his outstanding work and for agreeing to continue his duty as the Chief Editor from 2009 to 2012. I also extend my special thanks to his newly appointed editorial team members from the region and to the Malaysian Psychiatric Association (MPA), especially on the financial aids for the maintenance and upgrading of the journal's web system.

DR. LEE EE LIAN,
President, ASEAN Federation of Psychiatry and Mental Health (2011 - 2012)
President, Singapore Psychiatric Association.

ORIGINAL ARTICLE

THE PREVALENCE OF ORGASMIC DYSFUNCTION AMONG MALAYSIAN WOMEN RECEIVING ANTIDEPRESSANT: A COMPARISON BETWEEN ESCITALOPRAM AND FLUOEXETINE

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Abstract

Objective: To investigate the prevalence of Female Orgasmic Dysfunction (FOD) focusing on the orgasm domain among female patients attending PPUKM Psychiatric clinic. To compare the prevalence of orgasmic dysfunction between female patients on Escitalopram and on Fluoxetine therapy. *Methods:* A validated questionnaire for sexual function was used to assess orgasmic function. A total of 112 women aged between 24 and 57 participated in this study. The orgasmic dysfunction was compared between patients on selective serotonin reuptake inhibitors (SSRIs) fluoxetine and escitalopram. *Results:* The prevalence of female orgasmic dysfunction was 58.9% (33/56) among patients treated with Fluoxetine and 41.1% (23/56) among patients treated with Escitalopram. However, there was no statistically significant difference between these two treatment groups (p=0.059). The odds to have FOD among patients on higher dose of antidepressants was found to be higher compared to those patients who were on lower dose of antidepressants (Odds ratio 5.32, p= 0.001). *Conclusion:* There was no significant difference of Female Orgasmic Dysfunction between patients on Fluoxetine and Escitalopram. ***ASEAN Journal of Psychiatry, Vol.12 (1), Jan – June 2011: 3-13***

Keywords: Orgasmic dysfunction, Malaysian women, antidepressant treatment

Introduction

Adequate sexual expression is an essential part of human relationships. It provides a sense of physical, psychological and social well-being, which results in enriching the quality of life. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), sexual response is defined into a four-phase cycle: desire; excitement; orgasm and resolution. Disorders of the sexual response may occur during one or more of these phases [1].

Orgasm is described by Schnarch (1997) [2] as "powerful feelings" formed after a person has achieved an adequate arousal threshold, enabling a person to experience the peaking of sexual pleasure (Sidi et al., 2008) [3]. It has been shown to be associated with the release of certain hormones and neurotransmitters in the brain. Oxytocin seems to be related to orgasm and have

influence on the feelings of desire. Norepinephrine stimulates sexual arousal and vasocongestion. On the other hand, the serotonin systems act as control mechanism by suspending the vasocongestion and turning off the arousal state. The serotonin systems also diminish nitric oxide functions and reduce genital sensation [4].

The concept that serotonin may inhibit the sexual responses helps explain the reduced sexual desire and functions associated with antidepressants [5]. Sexual dysfunction is a side effect attributed to the use of selective serotonin reuptake inhibitors (SSRIs), as documented by earlier studies [4, 6-10]. The prevalence differs between each type of SSRI, ranging from 36 to 65 %. This fact may be of substantial importance with regards to compliance to long term therapy of SSRIs. According to Classification DSM-IV-TR Classification of Female Sexual Dysfunction, orgasmic dysfunction is described as delayed or absence of orgasm after a normal sexual excitement phase.

The prevalence of female orgasmic dysfunction (FOD) among western population was cited as 24% [11] and a Malaysian study on women attending the primary care clinics found a prevalence of 51.9%[3]. Other Asian countries such as Singapore, Taiwan, Korea and Japan has cited the FOD prevalence between 24 to 43% [3,12,15]. A study in United States women found that the prevalence was 21.1% [16].

In Malaysia, there have not been many studies on female sexual dysfunction associated with antidepressants and the whole area of sexual dysfunction is still largely unexplored. There are no local studies focusing on the prevalence of orgasmic dysfunction in association with SSRI. The main objective of this study is to compare the prevalence of FOD among patients on escitalopram and fluoxetine.

Methods

This was a cross-sectional study to assess and compare the prevalence of FOD associated with escitalopram and fluoxetine among female patients who attended the Psychiatric Clinic Universiti Kebangsaan Malaysia Medical Centre during the study period. It was conducted over a period of six months, from 1st June 2009 until 30th November 2009. The study subjects were female patients on escitalopram and fluoxetine who fulfilled the inclusion criteria and consented to participate in the study. Due to the limitation of time and resources, the sampling method was based on convenient sampling.

The inclusion criteria were female patients who were i) between 18 and 65 years old ii) married and have a sexually active partner, iii) able to read and understand Malay Language (the national language), iv) diagnosed with major depressive disorder (MDD) based on the fourth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) using Structured Clinical Interview for DSM-IV Disorders (SCID) [17], and v) in full remission (defined by DSM-IV as during the past 2 months had no significant signs or symptoms of the disturbance and Montgomery-Asberg depression rating scale (MADRS) [18] score of ≤ 10).

The exclusion criteria were patients who were i) suffering from chronic and severe medical illness ii) pregnant or within 2 months postpartum period.

The instruments used in this study were i) the sociodemographic and marital profile form, ii) Structured Clinical Interview for

DSM-IV Disorders (SCID) iii) Montgomery-Asberg Depression Rating Scale (MADRS), iv) Malay Version of the Female Sexual Function Index (MVFSFI)[19-21]. In this study, the orgasm domain of MVFSFI with the cutoff value of ≤4 for orgasmic difficulties (sensitivity = 83%, specificity = 85%) was defined as FOD.

Data analysis was performed using the Statistical Package for Social Science (SPSS) version 12.0.1 (Chicago, IL, USA). The relationships between the study parameters were analyzed using Chi-Square test for categorical variables. Independent t-test was used to compare the means of continuous variables with normal distribution, while Mann-Whitney U test was used for not-normally distributed variables. Multivariate logistic regression analysis with 95% confidence interval was used to assess the predictors of FOD.

Results

One hundred and twelve female patients who attended the Psychiatric Clinic UKMMC participated in the study. There were 56 patients on fluoxetine and 56 patients on escitalopram.

Details of the socio-demographic characteristics of the patients are shown in Table 1. The majority of the respondents who were on escitalopram were Malays (n=29, 51.8%) followed by Chinese (n=20, 35.7%) and Indian (n=7, 12.5%). In the fluoxetine group, the percentage of Malay and Chinese respondents were almost the same, (n=26, 46.4%) and (n=23, 41.1%) respectively, followed by Indians (n=7, 12.5%). Majority of the fluoxetine patients had received only secondary or below education level, (n=34, 60.7%) compared to escitalopram patients where majority (n=33, 58.9%) of them received tertiary education. Majority (n=33, 58.9%) of fluoxetine compared to only (n=18, 32.1%) of escitalopram patients were employed. A total of 34 (60.7%) of escitalopram patients had 3 or more children, as compared to fluoxetine patients, (n=20, 35.7%). For both treatment groups, the duration of marriage was about 15 years. For frequency of sexual intercourse, majority (60.7%) of the fluoxetine group had sexual intercourse only once a week or less, compared to 48.2% in the escitalopram group. More than half (78.6%) of the fluoxetine patients were pre-menopausal compared to only 14.3% in the escitalopram group. Majority (85.7%) of the patients did not smoke. However, most (87.5%) of the fluoxetine patients consumed alcohol compared to only 5.4% from the escitalopram patients.

Table 2 shows the mean dosage of fluoxetine and escitalopram prescribed were 30.71mg (SD=10.76) mg and 12.32 mg (SD=4.15), respectively. The mean duration of fluoxetine usage was 50.0 months(SD=34.37) and escitalopram was 22.7 months (SD=11.87). Based on classification by Gartlehner et al (2007) [13], majority of patients in the escitalopram group (67.9%) had lower dose antidepressants compared to fluoxetine (48.2%).

Table 1 : Sociodemographics of the 112 respondents

Variables	Treatment group					
	Fluoxetine (n=56)			Escitalopram(n=56)		
	Mean (SD)	Median (IQR)	Freq (%)	Mean(SD)	Median (IQR)	Freq (%)
Age (year)	40.3(9.37)			40.8 (8.24)		
Race						
Malay			26(46.4)			29(51.8)
Chinese			23(41.1)			20(35.7)
Indian			7(12.5)			7 (12.5)
Education						
Secondary& below			34(60.7)			23 (41.1)
Tertiary			22(39.3)			33(58.9)
Employment						
Yes			33 (58.9)			18 (32.1)
No			23 (41.1)			38(67.9)
Number of children						
< 3			36 (64.3)			22 (39.3)
≥ 3			20 (35.7)			34(60.7)
Duration of marriage (years)	14.9(9.33)			15.6(8.64)		
Frequency of sexual intercourse						
< once a week			34 (60.7)			27 (48.2)
≥ once a week			22 (39.3)			29(51.8)
Menopause			12 (21.4)			48 (85.7)
Yes			44 (78.6)			8(14.3)
No						
Smoking						
Yes			8 (14.3)			8 (14.3)
No			48(85.7)			48(85.7)
Alcohol						
Yes			7 (12.5)			53 (94.6)
No			49(87.5)			3 (5.4)

SD=standard deviation IQR=Interquartile range Freq=frequency

Table 2 Dosage and duration of antidepressant usage of the subjects

Variable	Treatment group (mean and standard deviation)	
	Fluoxetine	**Escitalopram**
Dosage (mg)	30.71 (10.76)	12.32 (4.15)
Duration of antidepressant usage (months)	50.04 (34.37)	22.70 (11.87)
Dosing classification*		
Low	27 (48.2)	38 (67.9)
High	29 (51.8)	18 (32.1)

*** Low = (≤30mg for fluoxetine or ≤ 15mg for escitalopram)**
High = (> 30mg for fluoxetine or > 15mg for escitalopram)

Table 3 shows comparison of orgasmic difficulties between patients on fluoxetine and escitalopram. A total of 33 out of 56 patients (58.9%) on fluoxetine said they had FOD, and 23 out of 56 (41.1%) patients complained that they had FOD. However, using chi-square test, the difference between these two groups was not statistically significant different ($p = 0.059$).

Table 3 Comparison of FOD among patients on Fluoxetine and Escitalopram

		Orgasmic difficulties				
		Present N (%)	**Absent N (%)**	**χ^2**	***p* value**	**OR (95% CI)**
Antidepressant						
Fluoxetine	56	33 (58.9)	23 (41.1)	3.571	0.059	2.059 (0.970-4.371)
Escitalopram	56	23 (41.1)	33 (58.9)			

OR = Odds Ratio CI = Confidence Interval

Table 4 Univariate analysis of the associated factors for female orgasmic dysfunction(FOD) based on MVFSFI

Variable	Female orgasmic dysfunction(FOD)		χ^2(df)	*p* value	OR (95% CI)
	Yes	No			
Age (years)	43.7(8.21)	37.4 (8.23)	-	<0.001*†	6.3(-9.4, 3.3)
Duration of marriage(years)	18.5(8.90)	12.0(7.81)	-	< 0.001*†	6.5 (-9.7,3,4)
Antidepressant					
Fluoxetine	33 (58.9)	23(41.1)	3.571(1)	0.05†	2.059
Escitalopram	23(41.1)	33(58.9)			(0.970-4.371)
Dosing					
Medium to high	35 (74.5)	12 (25.5)	19.394(1)	<0.001†	6.111
Low	21 (32.3)	44 (67.7)			(2.647-14.109)
Race					
Malay	22(40.0)	33 (60.0)		0.038†	2.217
Non-Malay	34(60.71)	23(39.29)	4.323(1)		(1.042-4.721)
Education					
Secondary & below	41 (61.2)	26 (38.8)	3.020(1)	0.082†	0.259
Tertiary	15 (33.3)	30 (66.7)			(0.051-1.308)
Employment					
Yes	32 (45.1)	39(54.9)	1.885(1)	0.170	0.581
No	24 (58.5)	17 (41.5)			(0.267-1.265)
No of children					
< 3	29 (41.4)	41(58.6)	5.486(1)	0.019	2.545
≥ 3	25 (64.1)	14(35.9)			(1.155-5.609)
Menopause					
Yes	16 (80.0)	4 (20.0)	8.765	0.003†	5.200
No	41 (44.6)	51 (55.4)			(1.613-16.765)
Smoking					
Yes	10 (62.5)	6 (37.5)	2.625	0.105	2.493
No	47 (49.0)	49 (51.0)			(0.805-7.723)

*Independent t-test, †p<0.1, Female Organism Dysfunction (FOD) = (≤ 4 in MVFSFI organism domain score); OR = Odds Ratio; CI = Confidence Interval; df = degree of freedom

Table 4 showed that older age, longer duration of marriage, fluoxetine, moderate to high dosage of antidepressant, non-Malay, lower educational level, having 3 or more children and menopause were significantly associated with female orgasmic dysfunction (FOD) (p<0.1), while smoking and employment status were not significantly associated with FOD.

Table 5 Multivariate analysis of the associated factors for FOD

Variables	β	SE	*p* value	Adjusted Odds Ratio	95% Confidence Interval
Age (years)	0.034	0.065	0.600	1.034	0.911-1.174
Marital period (years)	0.057	0.070	0.413	1.059	0.923-1.215
Antidepressant Fluoxetine Escitalopram	0.461	0.469	0.178	1.861	0.753-4.597
Dosing Medium to high Low	1.671	0.484	0.001*	5.319	2.059-13.738
Race Malay Non-Malay	0.407	0.518	0.432	1.502	0.545-4.141
Education Primary Secondary and above	0.298	0.984	0.762	1.347	0.196-9.266
No of children < 3 ≥ 3	0.098	0.678	0.886	1.102	0.292-4.162
Menopause No Yes	-0.135	0.828	0.871	0.874	0.172-4.430

From the logistic regression analysis (Table 5), only the dosage of antidepressant were significantly associated with female orgasmic dysfunction (p<0.05). From this study, we found that those patients who received higher dosage of antidepressants have 5.32 times odds of having FOD compared to those who received lower dose of antidepressants.

Discussion

Orgasmic dysfunction is defined when a woman cannot reach orgasm or has difficulty to reach orgasm when sexually aroused. Primary orgasmic dysfunction occurs when a woman had never experienced orgasm and the prevalence is between 10 to 20% [22]. Secondary

orgasmic dysfunction arises when a woman who had experienced orgasm in the past but later is unable to achieve it due to various circumstances. These include having medical conditions that affect the nerve supply to the pelvis, hormonal disorders, chronic illnesses, psychiatric disorders and drugs including anti depressants (e.g. Fluoxetine, Paroxetine and Setraline); as well as cultural factors and going through different stages of life [14]. In Malaysia, female sexual dysfunction in general and female orgasmic dysfunction specifically, are still largely unexpressed. However, previous study among Malaysian women in primary health care setting showed a high prevalence of orgasmic disorder, 59.1% [3]. In comparison, western studies quoted a lower prevalence of 33% [15].

Among the factors that have been identified as higher risks for FOD in Malaysia, are non- Malay, older age, low education level, low socioeconomic status, married for more than 14 years, having more children, husband's age (more than 42 years old) and post-menopausal [3]. Various studies have described problems of orgasmic dysfunction and sexual disorders associated with antidepressants [10,17]. For example, Wernicke et al 2006 [10] stated that sexual desire and experience of orgasms are especially prominent at the seroninergic end of tricyclic antidepressants. Serretti & Chiesa (2009)[17] found SSRIs cause global sexual dysfunction, which also include orgasm. The highest rate of sexual dysfunction was seen among patients who were on Citalopram, Fluoxetine, Paroxetine and Ventalaxine.

The reduction of DA and NE levels induced by 5-HT2 activation is probably the cause of orgasmic dysfunction [23-26]. These changes, as explained by Pollack et al 1992 [23], result in alteration in the sympathetic and parasympathetic systems which have important functions in mediating orgasm. Studies found that SSRIs might affect orgasmic dysfunction more than other sex functions [27,28]. The selective serotonin reuptake inhibitors (SSRIs) have a negative impact on all phases of the sexual cycle (which includes desire, arousal, orgasm), and this is thought to involve stimulation of post synaptic serotonin 2A and 2C receptors, and serotonergic modulation of dopaminergic function [5,10,11].

These findings, and the significant differences of the prevalence of female sexual dysfunction and the percentage of desire problems that were demonstrated between patients on Fluoxetine and Escitalopram, may be explained by the treatment and the clinical factors, the selection of the groups, and various other components, as sexual dysfunction itself is a multifactorial condition, and that a woman's sexual desire may be affected by many factors, which includes menstrual cycle and hormonal changes[6,25,29,30].

Stahl (2008) stated that even though the selective serotonin reuptake inhibitors (SSRIs) share a common property, each drugs also has their own unique pharmacological properties that may account for the commonly observed clinical phenomena of different reaction to one SSRI versus another by individual patients [29]. It was also stated by Stahl (2006) [31], that Escitalopram may have less sexual dysfunction than some other SSRIs. A.K Ashton previously reported a single case of reversal of Fluoxetine-induced sexual dysfunction by switching to escitalopram, and improvement in selective-serotonin reuptake inhibitor/serotonin noradrenaline reuptake inhibitor (SSRI/SNRI) induced sexual dysfunction in 68.1% patients by switching their original serotonin agent to Escitalopram [8,32]. However, mechanisms

that are responsible for the lower likelihood of sexual dysfunction caused by Escitalopram have yet to be identified, and further long-term comparative studies are needed to examine whether Escitalopram has an advantage over other SSRIs in terms of sexual function [8, 25, 33].

In this study, we examined the risk of Female Orgasmic Dysfunction (FOD) associated with Fluoxetine and Escitalopram among 112 female patients who visited the Psychiatric Outpatient Clinic of Universiti Kebangsaan Malaysia Medical Centre (UKMMC). Our results showed that there was no significant difference among patients treated with Fluoxetine and patients treated with Escitalopram, with regards to having FOD ($p=0.178$).

The only significant difference ($p<0.05$) found was patients on moderate to high dose were 5.32 times at risk of having FOD compared to patients on low dose antidepressants. To date, this is the first study in Malaysia comparing the risk of FOD between Fluoxetine and Escitalopram, which are two types of selective serotonin reuptake inhibitors. There are some limitations in this study, the main one is the difference in the treatment duration of the two groups (Fluoxetine = 50.04 months; Escitalopram = 22.70 months). This could introduce bias towards the results as patients with orgasmic dysfunction would have abandoned the treatment. There was a significant difference in treatment duration between both groups (p value <0.0005). The explanation for this would be that Fluoxetine was first introduced in UKMMC very much earlier than Escitalopram, which was only officially prescribed in June 2005 in UKMMC. There are inherent limitations in interpreting the results of this study because of the point prevalence and cross-sectional design. Baseline assessment and pretreatment rates of sexual dysfunction in patients were not available for comparison, and the antidepressant groups were not balanced according to degree of sexual function at baseline. Since this was a cross-sectional study in nature, only an association could be determined and not a causal effect.

Conclusion

This study shows that the risk of Female Orgasmic Dysfunction increases in patients who were prescribed with high dose of antidepressants.

Acknowledgment and Ethical Considerations

This research project was approved by the Research Committee, Department of Psychiatry, Universiti Kebangsaan Malaysia Medical Centre Research Committee, 56000 Cheras, Kuala Lumpur, Malaysia.

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ORIGINAL ARTICLE

ANXIETY AND DEPRESSIVE SYMPTOMS AND HEALTH-RELATED QUALITY OF LIFE STATUS AMONG PATIENTS WITH CANCER IN TERENGGANU, MALAYSIA

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Abstract

Objective: **This study was aimed to determine the prevalence of anxiety and depressive symptoms , to examine their association with health-related quality of life (HRQoL) profiles and to determine the predictors on overall HRQoL.** ***Methods:*** **This was a cross-sectional study conducted in Hospital Sultanah Nur Zahirah, Kuala Terengganu, Malaysia. The Malay Hospital Anxiety and Depression Scale (HADS) and McGill Quality of Life Questionnaire (MMQoL) were administered to a sample of 150 cancer patients (mean age = 50.4 years). Chi-square test, correlation and multiple regression were utilised for data analysis.** ***Results:*** **The prevalence for mild anxiety and depressive symptoms was 30.7% and 23.3% respectively. The HADS-A correlated strongest with Total MMQoL Score (*r* = - 0.578*)* and Psychological Well-Being (*r* = -0.526). Only HADS-A (beta = - 0.486), and HADS-D (beta = -0.173) were significant in predicting overall health-related quality of life.** ***Conclusion:*** **Findings in our study indicated that the prevalence of anxiety and depressive symptoms in Terengganu cancer patients are moderate. If anxiety and depression are identified and treated, health-related quality of life among oncology patients appropriately could significantly be improved.** ***ASEAN Journal of Psychiatry, Vol.12(1): Jan – June 2011: 14-28***

Keywords: Anxiety, depression, health-related quality of life, cancer, prevalence

Introduction

The incidence of cancer is steadily increasing and had caused approximately 12% of all deaths worldwide [1]. It is expected that the prevalence of cancer will grow from 11.3 million cases in 2007 to 15.5 million cases by 2030 [2]. In Malaysia, cancer is one of the five principal causes of national mortality which also contributed 9.54 % of national death in 2004 and it has been estimated that about 30,000 new cases of cancer are being diagnosed annually [3]. The mushrooming of cancer prevalence has

resulted in more attention being directed towards the psychosocial outcomes of cancer sufferers globally.

Unsurprisingly, anxiety disorders occur frequently in patients with cancer compared to the general population[4]. It is generally agreed that cancer treatments such as surgery, chemotherapy and radiotherapy may produce various threats including possible disability or even loss of life, coping with new social situations, and deprivation of normal freedom which can all act as factors that induced psychological morbidity. Numerous studies in the clinical literature have documented the presence of raised anxiety levels in cancer patients especially those who will be undergoing treatment for the first time and those who had disease recurrence. Investigation on anxiety is less known than depression, however anxiety's disabling effects may as burdening as depression [5]. Undoubtedly, greater psychological morbidity in cancer patients is likely to speed up the disease progression and shorten survival. Another most prevalent psychological disorder in advanced and terminally ill palliative cancer care patients is depression [6]. The diagnosis of depression in cancer is usually complicated by the overlap of depression and sickness symptoms such as cancer-related fatigue (CRF) and pain. Many common symptoms of major depression were observed in cancer patients who do not endorse full depression symptoms [7]. The pathophysiology of cancer and the myelo-suppressive effects of cancer treatments can initiate inflammatory activation as well as lower haemoglobin levels. Anaemic patients may experience related symptoms such as fatigue, lethargy, palpitations and shortness of breath [8,9]. These symptoms further pose a significant risk of developing depression, hence impairing HRQoL [10,11]. Besides disease-related factors, lack of social support, social isolation, hopelessness and unstable financial status have also been found to contribute to the risk of depression in cancer patients [12,13]. Screening for depression in oncology patients is therefore important as those patients were at the highest risk of clinical depression. The diagnosis for depressions in these patients is challenging and many patients who were affected by subclinical depression remained undetected.

HRQoL in cancer patients has gained a crucial role as a measure for disease outcomes and it is commonly perceived as a multidimensional construct affected by both the treatment and the disease. These encompass a range of domains namely physical health, life satisfaction, psychological well-being and self-integrity and self-care activities. HRQoL is primarily a subjective feeling and therefore every patient's HRQoL will be unique [14]. Physical symptoms, existential issues and psychological distress need more attention in cancer care as patients commonly reported problems regarding these aspects [15]. If HRQoL is not assessed, patients would continue to suffer silently and this consequently may even hasten death [16]. Furthermore, the pathopsychology conditions such as anxiety and depression have been shown to be strongly correlated with patient's desire to hasten death [17].

Screening is the optimal strategy for anxiety and depression, which are prevalent, treatable and beneficial from prompt treatment. Early detection and treatment of both disorders are essential to enhance HRQoL in their remaining life. Furthermore, undiagnosed and untreated depression may enhance suicidal mindset, prolong psychological suffering for the patient and family members, adversely affect compliance with cancer treatment, and the

ability of self-care [18]. As a result, it may hinder the effectiveness of cancer outcomes and perhaps unfortunately shorten their survival time. Many studies had been conducted on psychological distress and quality of life, however very few studies relate anxiety, depression and HRQoL among Malaysian patients. The current prevalence of psychological distress in relation to among cancer patients in the state of Terengganu, Malaysia, is less-explored than in other states. Moreover, available data regarding the psychological functioning is also limited. This study aimed to: (i) identify the prevalence of anxiety and depressive symptoms among Terengganu cancer sufferers, (ii) compare symptoms of anxiety and depression according to gender and chemotherapy treatment (iii) to investigate the association between anxiety and depressive symptoms with HRQoL components, and (iv) to determine the extent of prediction imposed by anxiety and depressive symptoms and socio-demographic characteristic (age) on overall HRQoL.

Methods

This was a cross-sectional study conducted in surgical ward and palliative wards at Hospital Sultanah Nur Zahirah, 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 one out-patient clinic and four different wards of the hospital during a period of 11 months.

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. Participants who met the afore-mentioned inclusion criteria will be approached by the research assistants. Patients who were deemed too weak or too exhausted to complete the instruments, and those with unpredictable changes of condition or in immediate crisis that research involvement would impose a clinical burden that limit meaningful contribution of information were all excluded from the study.***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, type of cancer and staging. (Data was inserted into Table 1*)

Malay HADS. HADS is a self-screening questionnaire for psychopathological comorbidity which had also been used for wide range of patients from clinical to none clinical [19]. In this study, the validated Malay HADS was the instrument of choice [20,21]. Furthermore, according to Harter et al. (1997) HADS was a well-established screening instrument for anxiety and depression in cancer patients [22]. It consists of 14 questions, seven for anxiety (HADS-A) and seven for depression (HADS-D). The items were scored on a four-point scale from zero (not present) to three (considerable). HADS-A included item 2, 4, 6, 8, 11, 12, 14 and HADS-D included 1, 3, 5, 7, 9, 10, 13. HADS was used to screen the anxiety and depression level in “the past few days”. Each item score was summed, giving sub-scale scores on the HADS-A and the HADS-D from zero to 21. For each subscale, scores from 0-7 were categorised as "no problem", 8 to 10 "mild symptom", 12 to 14 “moderate

cases" and scores above 15 as "severe symptom". In brief, any domain score ≥ 8 was considered as "case".

Malay McGill Quality of Life Questionnaire (MMQoL). The McGill QoL Questionnaire (MQoL) was designed to measure HRQoL for people with life threatening illness [23]. The validated Malay translation of MQoL was utilised [24,25]. 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 [26]. The MQoL had been widely used in palliative care population and it had been shown to be useful to healthcare providers in a clinical setting and was preferred by nurses over the Hospice Quality of Life Index-Revised instrument [27]. Through the open-ended question the patients could report issue which influences their HRQoL. 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 Score* was derived from the mean of all five domains. Both the sub-scale scores and *Total MMQoL Score* could range from 0 to 10, facilitating the identification of specific domains that need attention relative to overall HRQoL [28]. All questions in MMQoL could be answered using numerical value from 0 to 10. Larger numbers indicated more positive responses, except for items 1, 2, 3, 5, 6, 7, and 8. The first three questions allow the respondent to list down the three main physical symptoms that imposed the most problems which influenced their HRQoL. Scores for items 1 to 3 and 5 to 8 in MMQoL were transposed prior to data analysis. A score of 0 indicated the least desirable and 10 represented the most desirable situation. For *Physical Symptoms* questions, a transposed score of 10 was assigned when the patients did not experience any physical symptoms. In this study, the reference of frame of "the past 2 days" was used due to the unpredictable nature of patient condition. The responsiveness to change tests showed that *Total MMQoL Score* and its subscales were able to detect change between good, average, and bad days [29]. As a result, this instrument is valuable to detect differences between good, average, or bad days among palliative care patients [30].

The protocol for this study was approved by the Clinical Research Centre (CRC) of Hospital Sultanah Nur Zahirah and Medical Research and the Ethics Committee (MREC) of Ministry of Health Malaysia (reference number : KKM/NIHSEC/08). Upon these approvals, the investigators informed the study centre authorities to decide on the most suitable time and date to conduct the study. Participants who met all the inclusion criteria were approached by two trained research assistants. Upon initial approach, 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 Form, MMQoL and HADS questionnaires. The research assistants remained with the all patients during the time they completed the instruments to assist them whenever needed.

SPSS 16.0 for Windows were used for data analysis. Socio-demographic data was analyzed descriptively and presented as frequencies. Preliminary testing on normality, linearity, multicollinearity, and

homoscedasticity were carried out of which the Kolmorogov-Smirnov statistics produced value greater than 0.05, indicating that the assumption of normality test was not violated. Pearson's correlation coefficient (*r*) was used as a measure for linear associations between parametric variables. Chi-square test for relatedness was performed to determine the relationships between psychological co-morbidity with gender and different treatment groups (chemotherapy vs. no chemotherapy). Independent t-tests were also computed for groups score comparisons for *Total MMQol Score*, HADS-A and HADS-D. Multiple regression was used to determine the influence of anxiety and depression (in HADS) and socio-demographic variable (age) to predict patients' HRQoL status as measured by MMQoL. The value of $p < 0.05$ was considered significant.

Results

Responses were received from 150 out of 208 patients, hence with a participation rate of 78%. Fifty eight patients refused to participate due to unfavourable conditions such as fatigue, restlessness, nausea or febrility (n = 36), not interested (n = 20), and could not comprehend the purpose of study (n = 2). The mean age of participants were 50.4 years (SD = 12.3). Majority of the patients were Malays, and in total there were 60 males (40.0%) and 90 females (60.0%). At the time of the research nearly 75% of the patients were married and were staying with their family or partner. Over 50% of the patients had completed PMR education and majority earned less than RM 500 per month. Out of 150 patients, 64 (42.6%) were on chemotherapy treatment during the study period. The more comprehensive demographic and clinical characteristics of the recruited patients were presented in Table 1.

Table 1: Demographic and clinical characteristics of participants (n = 150).

Mean age ± SD (range)	**50.4 ± 12.3 (18 - 72)**		
	n	Percent (%)	*p* value*
Gender			
Female	90	60.0	< 0.05
Male	60	40.0	
Marital status			
Married	128	85.3	< 0.001
Single/ divorced /widowed	22	14.7	
Race			
Malay	138	92.0	< 0.001
Chinese	12	8.0	
Religion			
Islam	138	92.0	< 0.001
Buddhist	9	6.0	
Christian	3	2.0	
Level of education			
Nil-Primary	61	40.7	<0.05
Secondary (PMR/SPM)	72	48.0	
High school/College (STPM/Diploma)	13	8.7	
University (Bachelor/Master/PhD)	4	2.7	
Employment status			
Employed/Self-employed	48	32.0	< 0.001
Unemployed/Retired	70	78.0	
Income			
< RM 500 per month	107	71.3	< 0.001
> RM 500 per month	43	29.7	
Time since diagnosis			
Up to 1 year	100	66.7	< 0.001
Up to 2 years and above	50	33.3	
Living arrangement			
Alone	10	6.7	< 0.001
With family/partner	140	93.3	
On chemotherapy			
Yes	64	42.7	> 0.05
No	86	57.3	
Type of cancer			
Breast	53	35.3	< 0.001
Colorectal	41	27.3	
Gynaelogic	16	10.7	
Urologic	15	10.0	
Lung	8	5.3	
Others	17	11.4	
Stage of cancer*			
Unknown	75	50.0	< 0.001
Stage I	16	10.7	
Stage II	23	15.3	
Stage III	18	12.0	
Stage IV	18	12.0	

χ^2 tests for goodness of fit; $p < 0.05$ = significant.

Pilot study showed that the instruments used in the study were reliable tools. The level of internal consistency reliability for both HADS and MMQoL domains emerged as moderate to high. Again in this study, all Cronbach's α coefficient for both instruments exceeded 0.70 with the exception of *Support Issues* and *Total MMQoL Scores* (*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).

The prevalence of mild anxiety symptoms was found to be 30.7% and for depressive symptom, it was 23.3%. For moderate cases (HADS scores ≤ 11), the prevalence for anxiety symptoms was 14.0% (n = 21) and depression was 14.7% (n = 22) respectively. More than 50% of the patients had no problem with depression and anxiety. The overall status of anxiety and depressive symptoms were displayed in Figure 1. The prevalence for combined anxiety and depressive symptoms according to HADS was only 20.8% (HADS-subscales ≥ 8).

The prevalence of anxiety and depressive symptoms according to gender and chemotherapy was demonstrated in Table 2. There was no significant difference between groups with respect to gender. Although no significant difference was reported in depressive symptoms within gender, the proportions of female who were depressed and anxious, were consistently higher compared to male patients.

Table 2: Prevalence of anxiety and depression vs. gender and chemotherapy treatment (n = 150).

	HADS-A		***p* value***	**HADS-D**		***p* value***
	No **n (%)**	Yes **n (%)**		No **n (%)**	Yes **n (%)**	
Gender						
Female	51 (56.7%)	39 (43.3%)	> 0.05	60 (66.7%)	30 (33.3%)	> 0.05
Male	40 (66.7%)	20 (33.3%)		37 (61.7%)	23 (38.3%)	
Chemotherapy						
Yes	39(60.9 %)	33 (39.1%)	> 0.05	30 (46.9%)	34 (53.1%)	< 0.001
No	52 (60.5%)	34 (39.5%)		67 (77.9%)	19 (22.1%)	

*X^2 tests for independence; $p < 0.05$ = significant.

Significant differences in depression scores were shown in HADS-D both in patients "undergoing" or "not undergoing" chemotherapy ($p < 0.001$), of which the former patients were significantly more depressed. In Table 3, the detailed findings were displayed.

Table 3: Overall score description of HADS and MMQoL domains.

Domain/subscale	All patients		By gender		By chemotherapy status	
	Mean ± SD	Median (min-max)	Male (n = 60)	Female (n = 90)	Yes (n = 64)	No (n = 86)
			Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Physical Symptoms	6.49 ± 2.47	6.67 (0.67-10.0)	6.84 ± 2.35	6.27 ± 2.53	6.73 ± 2.40	6.33 (2.52)
Physical Well-Being	5.73 ± 2.21	5.50 (0.00-10.0)	5.50 ± 1.86	5.89 ± 2.42	5.44 ± 1.76	5.95 ± 2.48
Psychological Well-Being	5.09 ± 2.41	5.00 (0.00-10.0)	4.87 ± 2.22	5.24 ± 2.53	4.54 ± 2.04	5.50 ± 2.59
Existential Well-Being	7.69 ± 1.66	7.92 (1.33-10.0)	7.96 ± 1.55	7.52 ±1.72	8.13 ± 1.47	7.37 ± 1.73
Support Issues	8.68 ± 1.80	9.50 (1.00-10.0)	6.84 ± 2.35	8.58 ± 1.86	9.16 ± 1.33	6.33 ± 2.52
Total MMQoL Score	6.74 ± 1.39	6.00 (1.20-9.65)	6.80 ± 1.20	6.70 ± 1.51	6.80 ± 0.99	6.70 ± 1.63
HADS-A	6.29 ± 4.19	6.00 (0.00-19.0)	6.05 ± 4.15	6.44 ± 4.23	6.02 ± 3.95	6.49 ± 4.37
HADS-D	5.91 ± 4.31	5.00 (0.00-19.0)	6.25 ± 3.53	5.69 ± 4.76	7.53 ± 3.65	4.71 ± 4.38

Table 4: Relationships between anxiety and depression with HRQoL.

MMQoL Domain	Hospital Anxiety and Depression Scale			
	Anxiety (*r*)	*p* value*	Depression (*r*)	*p* value*
Physical Symptoms	- 0.335	< 0.001	- 0.205	0.012
Physical Well-Being	- 0.344	< 0.001	- 0.296	< 0.001
Psychological Well-Being	- 0.526	< 0.001	- 0.464	< 0.001
Existential Well-Being	- 0.336	< 0.001	- 0.195	0.017
Supportive Issues	- 0.334	< 0.001	- 0.215	0.008
Total MMQoL Score	- 0.578	< 0.001	- 0.430	< 0.001

The correlation between domains of MMQoL and HADS were shown in Table 4. HADS domains were found to have weak to moderate statistically significant negative relationships with all MMQoL domains. In general, the correlation coefficient for HADS-A vs. MMQoL were higher than HADS-D. The HADS-A had the strongest correlation with *Total MMQoL Score* (*r* = - 0.578*)* and *Psychological Well-Being* (*r* = - 0.526).

Multiple regression analysis was employed to determine if symptoms of anxiety and depression or age could contribute to the HRQoL among the cancer sufferers. The dependant variable was the *Total MMQoL Score* while HADS-A, HADS-D and age were the independent variables used in the regression model. No violation of regression assumption was identified. The total variance of *Total MMQoL Score* explained by HADS-A was 33.4%, F (1,148) = 74.21. Together both subscales of HADS

accounted for 35.5% of HRQoL variance, F (1, 147) = 40.53, $p < 0.05$. In the final regression model, only HADS-A ($p < 0.001$), and HADS-D ($p < 0.05$) were statistically significant in predicting overall HRQoL (Table 5). Additionally, HADS-A (beta = -0.486) produced the strongest contribution in explaining the variance of *Total MMQoL Score.* Multiple R for the relationship between independent variables and the dependents variables included in the analysis was 0.596, which would be characterised as moderate. The beta coefficient of both independent variables implied that there was negative but weak relationship, indicating that low anxiety and depression were associated with better HRQoL.

Table 5: Subset of predictors for HRQoL.

Model	Predictor variable	Beta coefficient	*p* value	R	R-square	Adjusted R-square	F
1	HADS-A	- 0.578	< 0.001	0.578	0.334	0.329	74.21
2	HADS-A	- 0.486	< 0.001	0.596	0.355	0.347	40.53
	HADS-D	- 0.173	0.028				

Discussion

HRQoL is a significant concern for patients with cancer and its disruption is often related to psychological distress. Earlier screening and detection of anxiety and depression are deemed essential as these psychological co-morbidities would exert a negative impact on HRQoL if left unnoticed and untreated. Consequently, prompt treatment of anxiety and depression will also enhance cancer treatment outcomes. Based on the scores of HADS-D, the prevalence of depressive symptoms in our sample was almost similar with previous studies in which the prevalence rate ranged from 10% to 40% [31,32]. When compared to data from local studies, our cancer patients were relatively more anxious than depressed [33,34]. However, the proportion of anxiety and depressive symptoms in our sample was interestingly higher than those obtained from previous studies [33 -35]. Ironically, the prevalence of combined anxiety and depressive symptoms as determined by HADS (HADS-subscales ≥ 8) was slightly lower than other samples [5,33,34].

The findings of this study also showed a gender difference in the prevalence of anxiety symptom. The female patients in our sample were generally more depressed and more anxious compared to male patients. An overall high percentage of anxiety cases, compared to depression were also demonstrated. In a former prospective study of ovarian cancer patients, there was a significant initial psychomorbidity, with clinical anxiety at 38% and depression at 33% [36]. Although anxiety is often present in oncology patients compared to depression but the literature about anxiety symptom is not as widespread as compared to depression [5]. Our results also supported several former studies. Women with lymphoma had a tendency to be more depressed and were more anxious than men with similar cancer [32]. While Pettingale, Burgess, and Greer (1987) also discovered that women were more anxious than men at 1 year follow-up

in a study on 168 cancer patients with either lymphoma or breast cancer. In addition, females were also possessed a higher rate of psychological symptoms than men [37,38].

Understandably, depression and anxiety represented the most common forms of psychiatric disorders among this cohort especially for those who underwent chemotherapy. In our study, we also found that more than 50% of the patients who underwent chemotherapy were depressed. The results reflect that screening of mental health in cancer patients who undergoing adjuvant therapy should be routinely emphasised. Patients with chemotherapy treatment were more likely to be depressed either due to the disease or by its treatment [39]. Furthermore, it has been well-known that the chemotherapy treatment is an intense procedure often associated with a number of debilitating side-effects such as alopecia, oral mucositis, anemic, lowered immune system, appetite loss and weight loss which could provoke mood disorders [16]. According to Takahashi et al. (2008), treatment-related symptoms are major stressors in cancer patients who undergo chemotherapy and of all symptoms, both anxiety and depressive symptoms are the most prevalent in cancer patients. In addition, anxiety and depression symptoms in cancer patients had been similarly examined and significant associations were found with chemotherapy [40,41]. These previous findings firmly supported our study outcomes.

In cancer care, HRQoL and psychological well-being are important aspects to evaluate the effectiveness of patient management and disease treatments. Patient needs and expectation during their limited survival time can be enhanced by investigating their HRQoL. Generally, majority of the cancer patients in this study rated their HRQoL reasonably well. Our findings showed that negative significant relationships were observed between overall domains score of HADS and MMQoL. Patients with anxiety and depression clearly experienced poorer HRQoL. These results were consistent to prior research which suggested that psychological disorders could have profound adverse effects on the *Psychosocial Well-Being* and the HRQoL of cancer patients especially during the cancer treatments [25,42,43]. The HRQoL outcomes in the present samples were also comparable to the results of a recent study which was conducted in Israel by Bentur and Resnizky (2005). They also discovered that psychological symptoms could elicit significant adverse effects on the HRQoL of cancer patients and the *Psychological Well-Being* domain had an independent effect on overall HRQoL of patients in Israel, as in other countries [43]. Nonetheless, a Hong Kong study conversely reported that anxiety did not negatively affect HRQoL of breast cancer respondents [39].

Physical distress and stage of disease have been shown to be consistent predictors HRQoL in patients with cancer but the relationship between disease burden and psychological distress could be generated by several individual and social factors including age, socioeconomic background, attachment security and spiritual well-being [44,45].

Overall, the results in our regression models revealed that anxiety and depressive symptoms can predict the overall HRQoL scores. These results were in parallel with prior studies that discovered significant associations between HRQoL and psychosocial variables among oncology patients [21,44,46]. Nonetheless, age did not contribute to HRQoL status in our cohort suggesting that it may play a limited role in

predicting HRQoL in our sample patients. Similarly, a study involved prostate cancer patients also elicited the same outcome [47]. In contrast, Gupta, Lis and Grutsch (2007), discovered that older age patients would have better HRQoL status compared to younger cancer sufferers [48]. Age may not predict HRQoL because our sample did not possess an even distribution of age ranges. Furthermore, age did not necessarily differentiate the prevalence of anxiety and depression as well as the level of HRQoL among patients with cancer [49].

There were a few limitations of this study. All the recruited patients were not highly educated, earning low income, and mostly came from a single geographic area. Therefore, it may not be possible to generalise the findings to other patients with different demography. Anxiety and depression are inter-related and co-existence of both disorders is common in general population and also among patients with cancer. Psychiatric diagnostic interview was not applied in this research which would have strengthened the diagnosis. However, if all patients received diagnostic interview, this would have placed an unrealistic burden both on the patients and on the clinical personnels. Instead, in many clinical settings, the screening process is frequently used involving initially self-report scales followed by the diagnostic interview [50]. Nevertheless, HADS has been shown to be a valid and reliable screening instrument in large series of cancer patients and even in the normal population. Most investigators had also interpreted HADS as a bidimensional instrument [51]. The MMQoL instrument was not intended, though, to explain the reasons for high or low HRQoL scores in the scales. We acknowledged that understanding the reasons behind HRQoL scores required a more in-depth qualitative discussion with the specific patients. This study has nevertheless shed some insight into the anxiety and depression status of cancer patients in relation to HRQoL in the Terengganu residents.

Living with cancer brings many challenges in life, particularly the experience of the existential dilemma of pain, psychological suffering, and potentially short survival time. All resources including psychological resources that encourage healing, adjustment and a better HRQoL for the patients should be provided in the clinical arena. A broad range of services such as emotional, nutritional, genetic and financial counselling, steering patients and their families to institutional and community resources are also important psychosocial support elements that should not be neglected for a better psychological well-being and HRQoL of cancer patients [13,52].

Conclusion

In conclusion, our study confirmed the findings of previous research with respect to moderate prevalence of anxiety and depression in cancer patients. Female cancer patients and those with chemotherapy treatments were comparatively more depressed. It was further revealed that anxiety and depression had a significant and concerning association with impairment of HRQoL in our cancer patients. Hence, anxiety and depressive symptoms play an essential role in predicting HRQoL of cancer patients. This study suggested that if anxiety and depression are well identified it may somehow reduce psychological suffering and improve HRQoL among oncology patients. Future longitudinal studies that aim to investigate the associations and reasons for the diminished emotional disorders especially anxiety, depression and HRQoL outcomes should be warranted as specific treatments interventions targeting anxiety

and depression and aiming to enhance patients' HRQoL could be evaluated.

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ORIGINAL ARTICLE

A RANDOMIZED TRIAL OF ORAL RISPERIDONE VERSUS INTRAMUSCULAR HALOPERIDOL IN THE EMERGENCY TREATMENT OF ACUTE PSYCHOTIC AGITATION

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Abstract

Objective: **The study aimed to compare the efficacy and tolerability of oral risperidone and oral clonazepam with intramuscular haloperidol and oral clonazepam in Filipino patients with acute psychotic agitation.** ***Methods:*** **This study used a prospective randomized design targeting patients who were referred to the emergency department or hospital inpatients exhibiting both psychosis and agitation. Patients were randomized into oral risperidone group or intramuscular haloperidol group. Both groups received oral clonazepam as part of treatment. Patients were observed for 24 hours. The main efficacy parameter was the PANSS agitation cluster score. Other parameters were total PANSS, other PANSS subscale scores, time and incidence of additional clonazepam usage. The safety parameter measured as incidence of adverse events.** ***Results:*** **There were 99 subjects enrolled in the study: 49 in the oral risperidone arm and 50 in the intramuscular haloperidol arm. There were significant reductions in the mean PANSS agitation cluster scores for both groups: -7.6±4.7 for oral risperidone group ($p<0.0001$) and -6.7±5.0 for intramuscular haloperidol group ($p<0.0001$). There was no statistical difference observed in the mean change in PANSS agitation cluster scores among the two groups ($p=0.3928$). Similar trends were observed in the total PANSS and other subscale scores. The incidence of additional clonazepam use is numerically higher in the oral risperidone arm than the intramuscular haloperidol arm (33% vs. 20%), but the difference did not attain statistical significance ($p=0.1370$). At the end of the study, 17 (33 %) and 18 (36%) of patients in the risperidone and haloperidol groups experienced varying degrees of sedation. No serious adverse event was reported.** ***Conclusion:*** **Oral risperidone is comparable to intramuscular haloperidol in the treatment of acute psychotic agitation in terms of efficacy and safety.** ***ASEAN Journal of Psychiatry, Vol.12(1): Jan – June 2011: 29-36***

Keywords: Risperidone; Haloperidol; Clonazepam; Agitation.

Introduction

Acute agitation secondary to an underlying psychotic condition is a common presentation in the psychiatric emergency room [1,2]. Standard treatment of acutely agitated psychotic patients involves parenteral administration of an antipsychotic and a benzodiazepine. Intramuscular (IM) Haloperidol is the antipsychotic preferred by most clinicians because of its reliable drug delivery, rapid onset and sedating effect. However, the use of IM neuroleptics has several drawbacks. The route of administration is perceived by some patients as coercive and abusive, thus oral medication is preferred. Furthermore, staff members are exposed to the risk of accidental needle pricks and blood borne pathogens. Increased risk of extrapyramidal symptoms (EPS) at the doses used, pain and bruising at the injection site, and other adverse physical effects such as confusion, disinhibition, ataxia and prolonged sedation are associated with standard IM treatment of acute psychotic agitation [3,4].

Various expert treatment guidelines recommend the use of oral therapy over parenteral treatment for behavioral emergencies. The American Association for Emergency Psychiatry has recommended the preferential use of oral over IM antipsychotics whenever possible.

The advantages and disadvantages of choosing the IM route need to be evaluated in terms of how they influence rapid behavioral control of agitation. Compliance with treatment, for example, may be influenced by patient's experience in emergency settings. The alternative oral antipsychotics have been proven just as effective as the intramuscular ones for first intervention in several studies. A survey also showed that most medical directors of psychiatric emergency programmes would prefer to use oral agents if they were proven to be effective, safe, reliable, and practical to use [5].

Risperidone, a benzisoxasole derivative, is available in liquid form and is an effective antipsychotic, ameliorating both positive and negative symptoms of schizophrenia and exhibiting a low rate of EPS. It is rapidly absorbed and reaches peak plasma concentration in one hour. At dosages of 4-6 mg/day, risperidone does not differ from placebo in producing EPS in subjects with psychosis [4]. Placebo-controlled prospective studies suggested risperidone is efficacious in controlling psychosis, aggression, and agitation associated with dementia and is more effective than haloperidol in controlling hostility associated with schizophrenia [6]. Several other studies displayed the superiority of risperidone over haloperidol. In a randomized controlled trial that compared efficacy and extrapyramidal symptoms with risperidone and haloperidol, there was less antiparkinson drug use and fewer dropouts for treatment failure with risperidone than with haloperidol [7].

In a pilot study, 60 agitated psychotic patients admitted to a large emergency hospital were given either risperidone (2 mg liquid concentrate) and oral lorazepam (2 mg) or haloperidol (5 mg IM) and lorazepam (2 mg IM). Both groups exhibited similar improvement in the 5 agitation subscales of PANSS, the Clinical Global Impressions Scale and time to sedation. Patients receiving risperidone experienced no adverse events while 1 patient receiving haloperidol developed acute dystonia [8]. However, this study did not randomly select patients into treatment groups, followed up subjects only during the initial emergency

period, and did not have enough statistical power [4].

A prospective, parallel-group, randomized, rater-blinded non-inferiority study compared oral treatment with risperidone and lorazepam versus IM treatment with haloperidol and lorazepam. Results showed that the oral regimen is an acceptable alternative to IM treatment. Mean acute-agitation cluster scores were similar at baseline. Mean score improvements were significant at 30, 60, and 120 minutes from baseline in both groups ($p<0.0001$) and were similar in both groups ($p>0.05$). Both treatments were also well tolerated [3].

Although data coming from initial studies are encouraging, there is a prevailing, unfortunate clinical impression that atypical antipsychotics are not as effective as the traditional antipsychotics like haloperidol in acutely agitated and psychotic patient and the IM route of administration is absolutely necessary in emergencies. Without evidence of necessity, this practice of overreliance on IM antipsychotics put the patients at risk of adverse effects of these agents and delays the start of treatment with novel antipsychotics with superior efficacy and safety profile [5].

Methods

This study used a prospective, randomized design. The primary aim of the study was to compare the efficacy and tolerability of oral risperidone with oral clonazepam and IM haloperidol with oral clonazepam in Filipino patients with acute psychotic agitation. Patients were included if they (1) were admitted to an emergency setting experiencing agitation associated with active psychosis or inpatients experiencing exacerbation or agitation with active psychosis (2) were aged 18 to 65 years old (3) had $\geq$ 14 on 5-item acute-agitation cluster PANSS and (4) had $\geq$ 3 CGI-S. Patients were excluded if (1) they had delirium, epilepsy or mental retardation (2) were intoxicated or had symptoms of withdrawal from CNS depressants, alcohol, benzodiazepines, narcotics or stimulants (3) had any serious unstable medical condition or (4) had a history of neuroleptic malignant syndrome.

Subjects were randomized into 2 groups: risperidone group and haloperidol group. Subjects received single doses of either oral 2 mg risperidone (1 mg/mL) and 2 mg clonazepam tablet or 5 mg IM haloperidol (5mg/mL) and 2 mg clonazepam (2 mg/mL). Risperidone and haloperidol were given every 8 hours, if necessary, depending on the patient's condition and investigator's discretion. A maximum of 8 mg of clonazepam were given, if necessary, depending on the patient's condition and the investigator's discretion.

Subjects were observed for 24 hours for changes in PANSS cluster scores and total PANSS scores. Time and frequency of clonazepam use were also analysed.

Results and Discussion

A total of 99 patients were enrolled in the study. There were 49 (49.5%) patients enrolled in the Risperidone arm and 50 (50.5%) enrolled in the Haloperidol arm. Demographic profile is summarized in Table 1. Mean age, gender distribution, mean weight and civil status distribution did not significantly differ in both arms ($p > 0.05$). Mean height was slightly higher in the risperidone arm (162.9cm vs. 159.2 cm, $p = 0.038$).

Table 1. Demographic Data

	Risperidone		Haloperidol		*p*-value
Age (years)					
Mean ± SD	32.837 ± 9.951		32.000 ± 8.106		0.647
Gender	No.	%	No.	%	
Female	23	46.9	20	40.0	0.488
Male	26	53.1	30	60.0	
Total	49	49.5	50	50.5	
Weight (kg)					
Mean ± SD	56.667 ± 10.783		56.447 ± 10.340		0.925
Height (cm)					
Mean ± SD	159.211 ± 7.984		162.921 ± 7.302		**0.038**
Civil Status	No.	%	No.	%	
Single	39	79.6	29	60.4	0.089
Married	9	18.4	17	35.4	
Widow	1	2.0	1	2.1	
Annulled	0	-	1	2.1	
Total	49	50.5	48	49.5	

(SD = Standard Deviation)

The PANSS baseline agitation cluster scores are presented in Table 2 and Figure 1. Mean scores were comparable for the risperidone and haloperidol groups (21.9 vs. 22.5, respectively; p=0.526). The end-study scores for risperidone and haloperidol groups were 14.3 ± 4.9 and 15.8 ± 5.3 respectively (p=0.161). There were significant changes for the risperidone group (-7.6 ± 4.7) and haloperidol group (-6.7 ± 5.0) from baseline to end-visit (p<0.0001) for both groups, however there was no significant difference in the magnitude of change between the two groups (p=0.393).

The mean total PANSS scores, PANSS disorganized thoughts cluster scores, PANSS uncontrolled excitement /hostility cluster scores and PANSS anxiety / depression cluster scores at baseline and end follow-up per treatment are presented in Table 2 and Figure 1. Baseline values were comparable for both groups on all parameters. Changes from baseline to end follow-up for both treatment arms on all parameters showed significant (p<0.0001). There were no significant differences in the magnitude of change between the two groups for all parameters observed.

Figure 1. PANSS scores

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Figure 1. PANSS scores

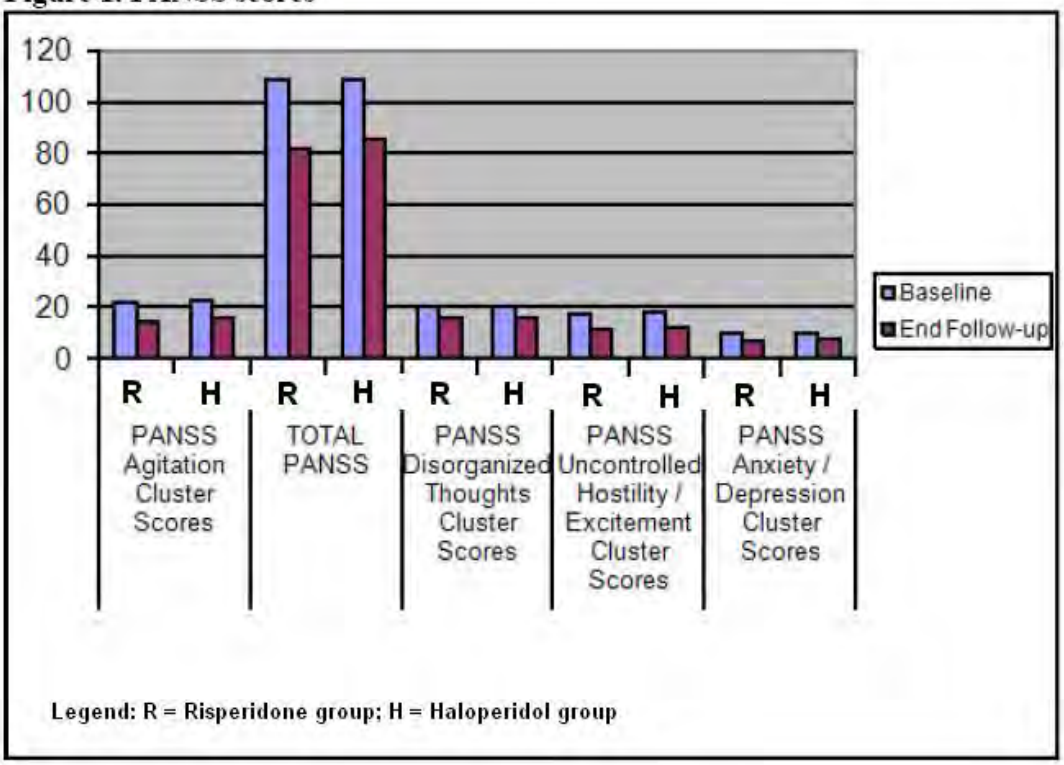


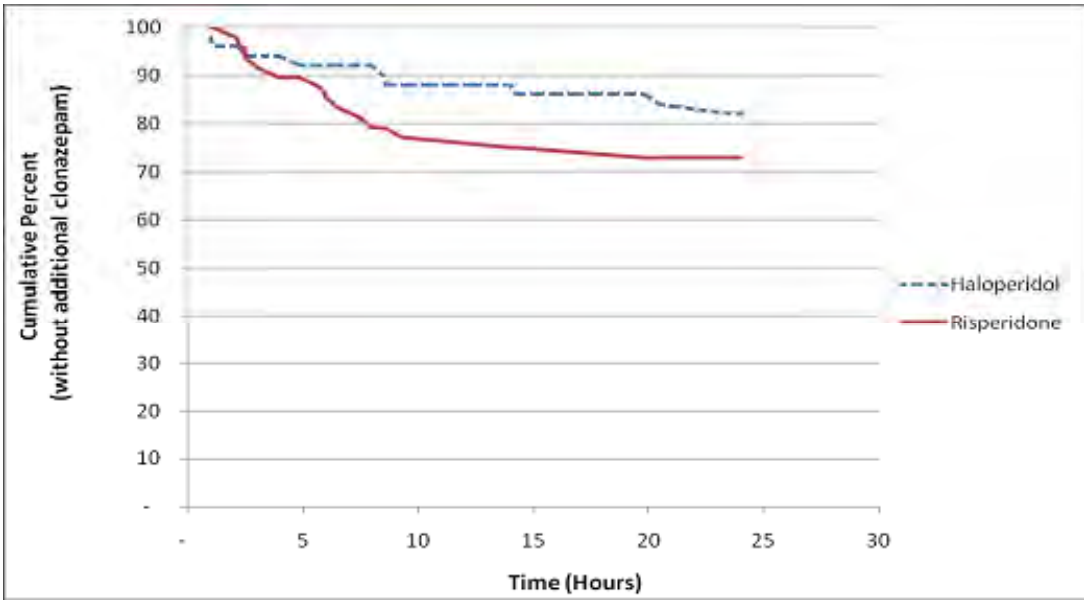
Table 2. PANSS scores

Mean ± SD	Baseline	End Follow-up	Change[1]	*p*-value (R vs. H)
PANSS Agitation Cluster Scores				
Risperidone	21.917 ± 4.068	14.333 ± 4.861	-7.583 + 4.708	0.393
Haloperidol	22.520 ± 5.215	15.780 ± 5.254	-6.74 + 5.005	
TOTAL PANSS				
Risperidone	108.479 ± 13.576	81.500 ± 20.012	-26.979 + 16.142	0.264
Haloperidol	108.820 ± 21.125	85.820 ± 21.710	-23 + 18.774	
PANSS Disorganized Thoughts Cluster Scores				
Risperidone	19.875 ± 3.728	15.750 ± 4.008	-4.125 + 3.133	0.827
Haloperidol	20.080 ± 4.948	16.120 ± 4.698	-3.96 + 4.228	
PANSS Uncontrolled Hostility / Excitement Cluster Scores				
Risperidone	17.167 ± 3.417	11.042 ± 4.016	-6.125 + 4.155	0.441
Haloperidol	17.640 ± 4.615	12.180 ± 4.341	-5.46 + 4.343	
PANSS Anxiety / Depression Cluster Scores				
Risperidone	9.958 ± 3.439	6.979 ± 2.436	-2.979 + 3.179	0.090
Haloperidol	9.460 ± 3.553	7.500 ± 2.873	-1.96 + 2.695	

[1] all change from baseline to end follow-up; $p<0.0001$; R vs. H = Risperidone vs. Haloperidol.

Figure 2 presents the time to additional clonazepam use as a survival curve. The mean time to additional clonazepam use for risperidone group is 19.39 hours and 21.38 hours for haloperidol group (p=0.2670).

Figure 2. Survival Curve of time to additional clonazepam use by treatment group



Log ranks test, p=0.2670

Table 3 presents the frequency of additional clonazepam use in both groups. The Table presents the clonazepam usage per treatment group. The proportion of at least one additional clonazepam dose as well as the incidence of additional clonazepam use is numerically higher in the risperidone group, but this has not achieved statistical significance (27% vs. 18%, p = 0.2818 and 33% vs. 20%, p=0.1370, respectively).

Table 3. Additional clonazepam use per treatment group

	Risperidone		Haloperidol	
	No.	%	No.	%
At least one additional dose of Clonazepam[1]	13	27.1	9	18.0
Incidence of Clonazepam use[2]	16	33.3	10	20.0

[1] p=0.2818, RR=1.50 (0.71 – 3.19)
[2] p=0.1370, RR=2.00 (0.80 – 5.00)

Efficacy wise, the results of the study indicates that use of risperidone oral solution coupled with clonazepam tablets improves not only the PANSS agitation cluster scores but the total PANSS scores and the other PANSS subscale scores of patients in the same degree as IM haloperidol. This confirms that what was observed in other studies with lorazepam as adjunct drug. [3-5,9].

The time to clonazepam use, the proportion of at least one additional dose of clonazepam and the incidence of clonazepam use was stistically similar in both groups. However, there seems to be a trend toward a higher incidence of total additional clonazepam use (33% vs. 20%, p=0.1370). A larger sample size would be necessary to establish if there is indeed a higher incidence of additional clonazepam use with oral risperidone in these patients. However, the magnitude of the difference is small and this should be seen in the light of the multiple benefits of oral administration vs. IM administration of antipsychotics in these patients. Achieving the same PANSS improvement, even at the expense of a slightly higher additional clonzepam use is clearly preferable considering that the risks associated with needle pricks and the perception of a coercive and abusive treatment modality are eliminated.

There was no serious adverse event reported in this 24-hour study. The only non-serious adverse event noted in both groups was sedation. At baseline, none of the risperidone group experienced sedation while 2 (4%) of the haloperidol group experienced slight sedation (p=0.495). At the end of follow-up, 33% of the risperidone group and 36% of the haloperidol group experienced at least slight sedation. The distribution of the proportion of slight sedation (21% vs. 22%), moderate sedation (8% vs. 10%) and fallen asleep (4% vs. 4%) did not significantly differ between both groups (*p*= 0.990).

Discussion

Oral risperidone was shown to be comparable to intramuscular haloperidol in the treatment of acute psychotic agitation in terms of efficacy and safety. Mean PANSS agitation cluster scores and total PANSS scores were similar at baseline and significantly improved in both groups. The magnitude of improvement were similar in both groups. The same is true for the other PANSS subscale cluster scores (disorganized thoughts, uncontrolled hostility/excitement, and anxiety/depression subscales) and clinical global impression. Mean time to clonazepam use and proportion of at least one additional dose of clonazepam, as well as the incidence of additional clonazepam use were also not statistically different between the two groups. No serious adverse event was reported in the 24-hour study and sedation was the only non-serious adverse event noted, the frequency of which also did not differ in both groups.

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ORIGINAL ARTCILE

DEVELOPMENT AND VALIDATION OF THE BRAIN FAG PROPENSITY SCALE

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Abstract

Objective: Brain Fag Syndrome (BFS) is a psychiatric disorder associated with study among African students. Among secondary school students, it affects two to four out of every ten students. One of the consequences of this illness is early foreclosure of education in affected students. However, clinical experience suggests that many students have sub-threshold symptoms of brain fag and are at risk for developing brain fag syndrome. This study aimed to develop a valid and reliable psychometric instrument that measures brain fag syndrome propensity. *Methods:* External and internal expert panels as well as a patient focus group evaluated a large pool of potential item stems gathered from the psychological and psychiatric literature. Potential scale items were then administered to 250 students along with a set of validating questionnaires. Final item selection was based upon rigorous empirical criteria and the psychometric properties of the final scale were examined. *Results:* A final four dimensional 20-item scale, the Brain Fag Syndrome Propensity Scale, has a Cronbach's alpha of 0.795, split half reliability of 0.813 for the part 1 (10 items) and 0.585 for the part 2 (10 items), and Spearman-Brown coefficient of 0.557. The intrinsic validity yielded a coefficient of 0.892. *Conclusion:* The current results indicate the BFPS has an excellent internal consistency as well as good content and concurrent validity and should have significant utility as a brief, valid measure of propensity to develop brain fag syndrome or sub-threshold cases of BFS. ***ASEAN Journal of Psychiatry, Vol.12(1), Jan – June 2011: 37-49.***

Keywords: Brain Fag Propensity, Factorial Validity, Nigerian

Introduction

Mental illnesses in general are among the most common, disabling and costly of medical conditions and are viable threats to the realization of the Millennium Development Goals [1 – 3]. The common mental disorders such as depression, anxiety, alcohol and substance use disorders readily come to mind. However, culture related psychiatric illnesses such as the Brain Fag Syndrome (BFS) which is prevalent in Africa are viable threats to the Millennium Development Goals. BFS is a psychiatric illness that affects academic performance and has important implications for the development of self, society and the nation.

Prince first described this psychiatric illness associated with study performance among African students in 1960 and he called this illness the Brain Fag Syndrome (BFS). The phrase “brain fag” named by which the students themselves was believed to be due to brain fatigue [4]. This psychological syndrome was a major challenge in the educational sector in Nigeria and Africa from the early sixties up until the very late nineties, resulting in parents preventing their children from taking any form of caffeinated substances or reading all through the night during examinations.

The BFS is a culture bound syndrome, just like *Koro* syndrome and other culture related syndromes [5]. This is because it is a collection of symptoms and signs that is restricted to a limited number of cultures primarily by reason of certain of their psychosocial features. "Brain tiredness" or fatigue from "too much thinking" is an idiom of distress in many cultures [6]. The construct of BFS underlies a tetrad of somatic complaints; cognitive impairment; sleep related complaints; and other somatic impairments. It is a distinct nosological entity that shares features of anxiety, somatisation, obsessive compulsive and depressive disorders [7-10].

BFS typically begins after an intensive period of intellectual activity. According to Prince, who first reported the syndrome, the specific symptoms of brain fag include difficulties in concentrating, remembering, and thinking [11]. Students often state that their brains are "fatigued", and they have unpleasant head symptoms; visual symptoms and other symptoms (inability to grasp meaning of printed symbols, spoken words, poor retention, poor concentration, fatigue, or sleepiness (in spite of adequate rest). Additional symptoms include pain, feelings of pressure in the head or neck, tightness, blurring of vision, heat, or burning sensation, rapid heartbeat, crawling sensations under the skin, feelings of weakness and depression .

BFS can be diagnosed using a self-report 7-item Brain Fag Syndrome Scale (BFSS) first developed by Prince in 1962 but in 1979 was modified by Morakinyo and Prince [7]. The use of BFSS in surveys of BFS has been sparse after reviewing published studies electronically. BFSS was used in about 38% of all published BFS articles [10]. Other studies of BFS have used other instruments apart from BFSS. Possible reasons include the idea that BFS is seen as equivalent to somatisation, anxiety or depressive disorders; or that BFSS is only reliable but not valid instrument. BFSS has been found to be a reliable instrument in a recent study [12]. However, its discriminant validity is questionable though no study has critically examined it. Second, the scale has been criticized on content grounds. The BFSS consist of items tapping various symptoms of anxiety and depression; the inclusion of this anxiety-related and depression content obviously contributes to the discriminant validity problems noted earlier. In addition to the tapping of overlapping syndromes, the instrument, from a review of existing literatures, also could be criticized because its content is not sufficiently comprehensive. The third limitation is that this measure originally was created to yield a single, overall score. This focus on overall scores ignores the heterogeneous and multidimensional nature of Brain Fag symptoms.

Although, the BFSS measure has made a valuable contribution to the clinical literature, the accumulating research has exposed some of its limitations, thereby establishing the need to develop alternative measures. As a result of brain-fag-like complaints by student population without the manifestation of BFS in the clinical practice of the authors, there arose the need to use an alternative measure to assess these complaints. Most of these complaints were Brain Fag related complaints but not Brain Fag Syndrome. It pointed to the fact that patients presenting such complaints had the proclivity or the propensity of the complaints exacerbating to brain fag syndrome. This study aimed to develop a scale to measure the propensity to brain fag syndrome and had the following objectives: (i) to develop a scale to measure brain fag propensity (the Brain Fag Propensity Scale (BFPS); (ii) to examine the reliability and validity of the BFPS, and (iii) to determine the factor structure of the BFPS.

Methods

In this section, the specific steps taken to develop the new scale, the rationale and items for the new scale are presented and the methods for the validation study are described.

Construct definition: The BFPS was operationalized based on previous conceptualizations of brain fag symptoms in the literature. Specifically, the BFPS construct was thought to comprise of four dimensions: Unpleasant Head Symptoms (UHS); Visual Disturbances (VD); Cognitive Impairment (CI) and Other Disturbances (OD). Item generation was based on considerations regarding the selection of complaints from the direct protocols of patients' complaints and a diligent electronic and manual search of brain fag literature. It was ensured that the items covered all aspects of the brain fag components and complaints.

Widely used instruments in the psychological and psychiatric literature were reviewed for item structure and content thought to be reflective of the dimensions described above. Most of the instruments reviewed contained items that were intended to measure a general construct but were not context-specific. In some instances, selected items thought to be extremely relevant to the current development of the BFPS were found as part of larger multidimensional instruments on depression and anxiety. Additional sample items were recommended based on the clinical observations of the authors. Items were constructed as questions or statements that could be presented in a self-report format. The resulting 22 sample items were presented to panels of external and internal experts in Brain fag as well as a focus group of patients with BFS to address content and face validity issues.

External panel: Four psychiatrists (OO, RC, KM, RE) and two psychologist researchers (FJ, MZ, see Acknowledgements) were asked, via mail, to assist in the evaluation of the items. After being provided with a theoretical rationale for the development effort, the operational definitions of the measurement domains, the sample of items, a set of instructions, and a score sheet, the panellists evaluated each item on the basis of (i) its 'relevance' to the concept of BFP as portrayed in the provided definitions, (ii) its

'conciseness' i.e. its ability to capture and adequately present to patients the main idea of the statement as concisely as possible, and (iii) its 'clarity' i.e. its level of understanding for the prototype patient with BFS that they saw in their research and/or practice. A 5-point ordinal scale (5 excellent, 4 very good, 3 fair, 2 poor, 1 very poor) was used for each rating and panellists provided an explanation of why and what suggestions they might make to improve the item receiving a rating of poor or very poor. Finally, they were asked to contribute additional items where they thought it would be relevant.

Patient focus group: A one hour focus group, moderated by one of the authors (DI) was convened to review the items and address eventual questionnaire format. Twenty participants (ages 13 until 44) meeting Prince and Morakinyo diagnostic criteria [7] for BFS were recruited and gave their reactions to selected items and formats. Consensus of the focus group was that items were best understood if item stems were formatted as statements and the response alternatives were given as ordinal categories from 'rarely or none of the time' to 'most or all of the time'. Based on the focus group results and comments from the expert panels, 27 potential items were generated (5 additional items were added based on comments made by the panellists). Each item was scored on a 4-point Likert Scale (0 rarely or none of the time, 1 a little of the time, 2 some of the time, and 3 most or all of the time).

A total of 250 participants were recruited for this study from two representative secondary schools in Ota, Nigeria. They were randomly selected from Senior Secondary School class 3 and Junior Secondary School class 3. Written consents were obtained from the students and their parents after they were briefed on the aims, objectives and procedure of the study. The students were also guaranteed strict confidentiality after which each of them was requested to respond to following instruments: The Brain Fag Propensity Scale (BFPS), the Brain Fag Syndrome Scale (BFSS), the Index of Peer Relations (IPR), and the Patient Health Questionnaire (PHQ).

A total of 250 questionnaires were administered but 234 were correctly responded to and used for this study (response rate = 93.6%). In order to assess concurrent validity for the candidate BFPS items, participants were administered the 20 BFPS items, the Brain Fag Syndrome Scale (BFSS), the Index of Peer Relations (IPR), and the Patient Health Questionnaire (PHQ). The BFSS was developed by Prince in 1962 and refined by Morakinyo in 1990 [7]. It is the foremost and only instrument developed to measure brain-fag. The BFSS has thee response options viz: 0, 1, 2, corresponding to never, sometimes and often. The highest score obtainable on the BFSS is 14 while the lowest score is 1. The highest score represents a manifestation of the syndrome while the lowest score represents a non manifestation of the syndrome. Diagnosis is reached from a score of 6 and above and an inclusion of either a response of 1 or 2 in items 4 and 5 in such a score. The scale has been in use for the past 48 years on a face validity level. Hence, it measures brain fag based on face validity and inclusion of brain-fag-like symptoms.

The PHQ-9 is the 9-item depression module from the full Patient Health Questionnaire (PHQ) developed by Spitzer, Kroenke and Williams [15]. The PHQ-9 scores each of the 9 DSM-IV criteria as "0" (not at all) to "3" (nearly every day). Major depression is diagnosed if 5 or more of the 9 depressive symptom criteria have been present at least "more than half the days" in the past 2 weeks, and 1 of the symptoms is depressed mood or anhedonia. Other depression is diagnosed if 2, 3, or 4 depressive symptoms have been present at least "more than half the days" in the past 2 weeks, and 1 of the symptoms is depressed mood or anhedonia. One of the 9 symptom criteria ("thoughts that you would be better off dead or of hurting yourself in some way") counts if present at all, regardless of duration. Good agreement has been reported between PHQ-9 diagnosis and that of independent mental health professionals - kappa = 0.65; overall accuracy, 85%; sensitivity, 75%; specificity, 90%13. In a review, PHQ-9 was reported to have a sensitivity of 0.77 (0.71-0.84) and a specificity of 0.94 (0.90-0.97) for the PHQ-9. The positive predictive value in an unselected primary care population was 59%, which increased to 85-90% when the prior probability increased to 30-40% [16].

The PHQ-9 has been validated among students in Nigeria [17]. The internal consistency of questions within the PHQ-9 was 0.85. The PHQ-9 had good concurrent validity with the BDI ($r=0.67$, $P<0.001$). It also had a good ($r=0.894$, $P<0.001$) one month test-retest reliability. Using the Receiver Operating Characteristic (ROC) curve, the optimal cut-off score for minor depressive disorder is 5 (sensitivity 0.897, specificity 0.989, Positive Predictive Value [PPV] 0.875, Negative Predictive Value [NPV] 0.981 and Overall Correct Classification [OCC] rate 0.973) while for major depressive disorder only is 10 (sensitivity 0.846, specificity 0.994, PPV 0.750, NPV 0.996 and OCC rate 0.992).

The IPR is a questionnaire developed in 1986 by Nuris, Hudson, Daley and Newstone [18]. It is a short-form, 25-item self-report questionnaire that is administered to individual adults and young adults over the age of 12 years. Those completing the questionnaire must be literate and have no severe cognitive impairment. The reading level for the IPR is grade 3 and higher. The Index of Peer Relations (IPR) measures the degree, severity or magnitude of problems a client is experiencing in relationships with peers. The IPR was developed specifically to capture information about problems a client is experiencing with peer relationships in general, or with a specific peer group. The client responds to all items on the test form by selecting one response from a 7-point scale ranging from "none of the time" to "all of the time". The IPR has both direct scoring (13) and reverse scoring (12) items. The IPR produces a score ranging from 0 to 100 where a low score indicates the relative absence of the problem being measured, and a higher score indicates the presence of a more severe problem. The cutting score of 30 is the score at which clients may have a clinically significant problem. A score of 70 or higher may indicate the client is experiencing severe distress. The reliability alpha is 0.94 indicating that the scale is internally consistent and that alternative forms should yield consistent results. The Standard Error of

Measurement is 4.44 indicating that the IPR is a relatively accurate measure. The IPR was validated in Nigeria by Anumba [19]. Anumba obtained a mean score of 29.13 for males and 26.83 for females and a divergent correlation coefficient of 0.62.

The Statistical Package for Social Sciences (SPSS-15) [20] was used for statistical analysis. The level of significance was set at 5%. Factor analysis (FA) was used to assess construct internal consistency, reliability and validity of the final selected scale items. Item retention for the final scale was guided by the following criteria: (1) Acceptable item content and face validity (2) Sufficient variation: item did not demonstrate distributional floor or ceiling effects (i.e. a mean difficulty <1 or >3). (3) Maximize internal consistency: only items with a moderate correlation (0.45) with the total scale were retained. (4) Concurrent validity items showing at least moderate relationship with BFSS, PHQ and IPR were included (so as not to exhibit excessive convergent validity with this construct).

Specifically, principal components analysis with varimax rotation was applied to determine the maximum number and nature of the factors comprising of the final scale. Reliability of the final scale was assessed using Cronbach's alpha and the mean inter-item correlation, an indicator of item homogeneity in a scale.

Results

In this study, 234 secondary school students (91 males, 143 females) with age range between 11 to 20 years (14.20 ± 2.14, mean ± S.D.) responded to the questionnaires used for this study. A hundred and twenty respondents were from a public secondary school while 60 from Junior Secondary (JSS3) and 60 from Senior Secondary (SS3) while 114 were from a private secondary school comprising of 60 from Junior Secondary (JSS3) and 53 from Senior Secondary (SS3).

The procedure for FA was conducted in four stages. Stage one involved data analysis in order to determine the data compatibility with FA, establishing the factors, factor rotation and naming or labelling the factors. The first stage was achieved using the Bartlett's test of Sphericity and Kaiser-Meyer-Olkin (KMO) sample sufficiency tests. The 20 items on the Brain Fag Propensity Scale (BFPS) showed a good inter item correlation pointing to the fact that the data was sufficient enough for FA to be applied. The KMO measure of sampling adequacy showed a value of 0.828. This value simply shows that the sample of 234 participants was enough to conduct a factor analysis.

The Bartlett's test of Sphericity showed a significant value (χ^2 (351) = 1742.072, $p < .001$). These values shows further the high correlation matrix found between items on the BFPS. 98% of the communalities on the BFPS were well above 0.31. Overall, the preliminary data analysis shows that the BFPS data was appropriate for FA. The FA was conducted with the Principal Component Analysis (PCA) which "provides a roadmap for how to reduce a complex data set to a lower dimension to reveal the sometimes hidden, simplified structure that often underlie it".

Twenty items were subjected to factor analysis and four factors emerged from the FA result. The four factors explained 43.43% of the total variance. Factor 1 explained 22.827% of the total variance, factor 2 explained 8.425%, factor 3 explained 6.802% of the total variance while factor 4 explained 5.378% of the total variance. The communalities, the variance shared by the variable with other variables, extracted from the FA which a good communality level ranging from 0.192 to 0.685. However, some of the communalities are low for instance; items 3, 23 and 4 have the following communalities 0.192, 0.253 and 0.276 respectively. These items were retained since the items did not load on two factors. We adopted a common cut-off score of 0.31 as the criteria for selection of factorially pure items [21,22].

From Table 1, it could be seen that the selected items on the factorial loading was between 0.816 and 0.346. Further, with regards to communalities, it was observed to be between 0.192 and 0.685. However, only items 4, 3, and 23 were below 0.3. These items were retained because they significantly loaded on different factors without being ambiguous by loading on other factors concurrently.

Table 1: Factor loadings and communalities on the BFPS with varimax rotation

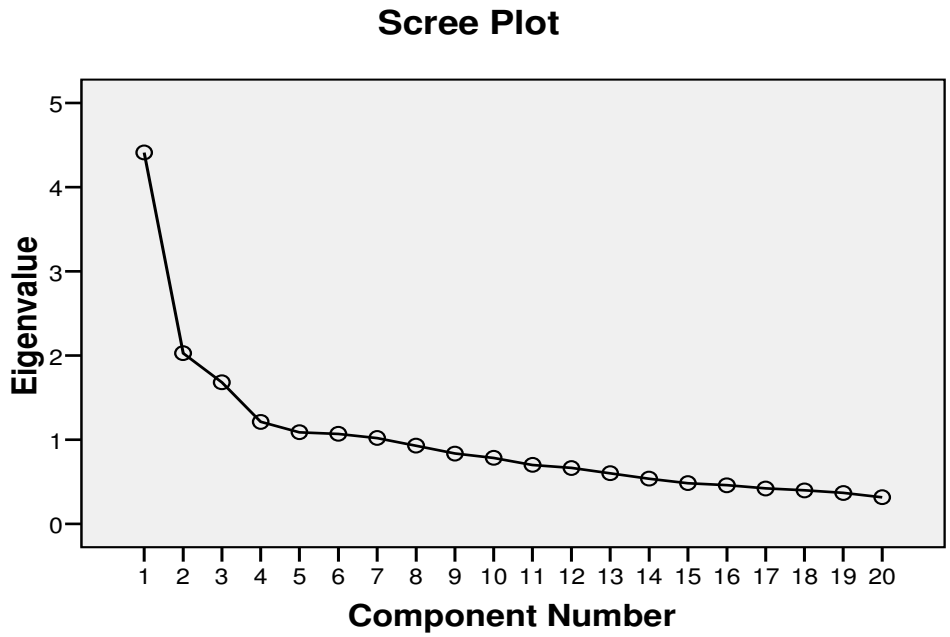
Item no	Item on BFPS	Factor 1 Cognitive Impairment	Factor 2 Other Disturbances	Factor 3 Visual Disturbances	Factor 4 Unpleasant Head Symptoms	Communalities
11	I find it difficult to remember things	.728				.539
12	I feel tired when I want to read	.679				.543
27	I find it difficult to concentrate while studying	.672				.474
8	I do not understand the meaning of what I am reading	.650				.523
9	I do not understand the meaning of what I am being taught	.628				.465
10	I lose concentration easily	.608				.404
18	I feel very tired while studying	.591				.423
19	I am under pressure to pass my examinations	.527				.305
25	I experience headaches during examinations	.470				.341
15	Some things are crawling inside my body		.743			.600
4	Some things crawl inside my head		.450			.276
7	I produce tears without any reason		.445			.304
6	I experience pain in my eyes			.706		.512
5	I cannot see properly after reading			.595		.418
2	I feel pain inside my head			.595		.391
13	My head spins [I feel dizzy] while reading			.566		.407
3	It seems my head is burning			.346		.192
21	I take coffee to keep awake during examinations				.816	.685
20	I take a form of energy drink to be able to keep awake and read for my examinations				.723	.450
23	I read all through the night during examination periods				.475	.253

Extraction Method: PCA with varimax rotation (Kaiser criteria). a Rotation converged in 6 iterations.

Out of the 27 items subjected to factor analysis, 7 items loaded on more than one factor. These are: items 1(factors 1 & 2), 14(factors 1 & 2), 16(factors 2 & 3), 17(factors 1 & 2), 22(factors 2 & 4), 24 (factors 1 & 2) and 26(factors 1 & 2). Hence, in line with Kline [22], we eliminated items which loaded significantly on more than one factor as a result of the ambiguity in explaining these items. After eliminating the ambiguous items, twenty (20) pure and valid items loaded differently only on each of the four factors. These are items 11, 12, 27, 8, 9, 10, 18, 19, 25, 15, 4, 7, 6, 5, 2, 13, 3, 21, 20, 23. These 20 items are the items on the factorially valid Brain Fag Propensity Scale.

Factor 1, which we labelled Cognitive Impairment, has 9 items (11, 12, 27, 8, 9, 10, 18, 19, 25,) loaded significantly on it. Factor 2, which we labelled Other Disturbances, has 3 items (15, 4, 7) loaded significantly on it. Factor 3, which we labelled Visual Disturbances, has 5 items (6, 5, 2, 13, 3) significantly loaded on it while Factor 4, which we labelled Unpleasant Head Symptoms, has 3 items (21, 20, 23) significantly loaded on it. In all, the factorially validated BFPS has a total of 20 valid items loaded significantly on it. It is important to note that the factors were labelled following the criteria by Prince [11].

Figure 1: Scree plot of the factorially validated version of the BFSS showing 20 valid items



We also plotted a scree graph of the BFPS for the 20 valid items which were as a result of the factor analysis. This is based on the eigen values [22,23]. From the scree plot (see Figure 1) of the BFPS, it could be seen that factors 1 to 4 contributed majorly to the curve before the graph gradually declined. However,

it important to note that each of the items including the ambiguous and eliminated items contributed to the scree plot while some significantly contributed, some did not.

Reliability and validity

We established the reliability of the 20-item factorially valid BFPS and got the following reliabilities: Cronbach Alpha: 0.795. Split half reliability of 0.813 for the part 1 (10 (a) items) and 0.585 for the part 2 (10 (b) items) with a spearman-Brown coefficient of 0.557 for equal and unequal length. The intrinsic validity[24] was also established for the BFPS which yielded a coefficient of 0.892. The empirical factor analysis and the analysis of internal consistency have shown the construct validity of the BFPS.

Construct validity of the BFSS

Convergent Validity

The convergent validity of the BFPS was established using the Brain Fag Syndrome Scale (BFSS). The BFSS and the BFPS share a common denominator of Brain Fag Syndrome. To establish this empirically, a correlation coefficient was calculated with the BFSS. The analysis of the BFPS and the BFSS yielded a significant two-tailed correlation coefficient of 0.200, ($p = 0.0001$). We went further to attempt another convergent validity with another similar construct, depression, measured by the Patient Health Questionnaire and peer relations using Index of Peer Relations (IPR). We observed a correlation coefficient of 0.236 ($p = 0.0001$) with the PHQ and correlation coefficient of 0.242 ($p < 0.001$) with the IPR.

Discussion

In the current study, we report the development and validation of a novel instrument for the assessment of propensity to brain fag. We describe a multidimensional 20-item scale, the BFSP, which demonstrates excellent reliability as well as good content, and concurrent validity. There is growing evidence that psychological factors including certain forms of stress are at least partially responsible for maintenance and exacerbation of brain fag symptoms. BFS sufferers, especially those who seek medical attention, have increased levels of affective, anxiety symptoms [7,14,25]. However, many of these sufferers do not reach criteria for Brain Fag Syndrome, an affective disorder and many report normal levels of anxiety on standardized scales and these sub-threshold cases would be missed in clinical practice if they seek medical attention. We have hypothesized that most of these complaints were Brain Fag related complaints but not Brain Fag Syndrome and that patients presenting such complaints had the proclivity or the propensity of the complaints exacerbating to Brain Fag Syndrome. BFPS has the potential to be a suitable marker of the characteristic cognitive and affective processes in BFS.

The BFPS is a readily administered 20-item self-report questionnaire designed to measure unpleasant head symptoms, visual disturbances, cognitive and other disturbances that occur in the context of academia. Empirical validation in 234 students supported a multidimensional scale and concurrent validity. Face validity was supported by patient focus group and expert opinion endorsing the relevance of items to BFPS and the

concept of Brain Fag Propensity. The BFPS was shown to have high levels of convergent validity with other measures including the BFSS, the PHQ, and the IPR.

In bivariate relationships, the BFPS was moderately correlated with measures of brain fag syndrome, of depression and of anxiety in interpersonal relationship. Thus, brain fag propensity appears to fall within the larger class of brain fag and is also moderately, but not strongly, related to a similar domain of depression, and social anxiety.

The factor analysis in this study supported the construct validity of Brain Fag Syndrome and its factors. With regard to BFS, 4 conceptual factors emerged in literature [4,10]. This cluster of symptoms include somatic complaints such as pain and burning sensations around the head and neck; other somatic impairments such as blurring, eye pain and excessive tearing; cognitive impairments such as inability to grasp the meaning of written and sometimes spoken words, and inability to concentrate and inability to concentrate and poor retention; and fatigue and sleepiness in spite of adequate rest. This cluster of symptoms always occurs in relation to studying often militates against the student's ability to study. It is on the basis of this that the Brain Fag Syndrome Scale (BFSS), which was initially constructed by Prince in 1962, was refined by Morakinyo and Prince in 1980 [25]. However, the BFS scale showed two dimensional structures [12] which is in contrast to findings in the literature which focus on four dimensions. Hence, the 4 factor model of BFPS in our study represented a better fit to the original findings and conceptualization of Brain Fag Syndrome by Prince [11] than the two factor model of the BFSS.

The results of the scree graphic are based on eigenvalues and factorial analysis carried out in this study suggest that the scale structure should be four factorial. The four factorial structures are also more appropriate when considered in terms of the decreases in the scree graphics, and the ease of item identification and interpretation. The first factor of covers the items of somatic complaints such as pains and burning sensations around the head and neck and is labelled "Unpleasant Head symptoms". The second factor covers other somatic impairments such as blurring, eye pain and excessive tearing and is labelled "Visual disturbances". The third factor covers inability to grasp the meaning of written and sometimes spoken words, and inability to concentrate and inability to concentrate and poor retention and is therefore labelled "Cognitive impairments". The fourth factor covers fatigue and sleepiness in spite of adequate rest and is therefore labelled "Sleep disturbance". As a result, it can be said that the factorial structure of the BFPS is in accordance with 4 conceptually defined and empirically validated factors in the literature of BFS.

Despite the important contributions of this study, several caveats and future directions are noted. First, this study only focused on Yoruba adolescent students and findings may not be generalisable to students of other ethnic groups or of higher education. Further studies are needed to see if findings would be similar across ethnicity and strata of education. Second, the sample

size is small. However, even though the sample size is small, it can be said that the number is sufficient when the number of items and options are considered. Kass and Tinsley [26] suggest that in factor analysis, for a sample group up to 300 people, each scale item requires a participant distribution of 5 to 10. Third, although it was not possible to evaluate test-retest reliability in this sample due to the limited time the schools could contribute to future data collection; this would be an important aspect to evaluate in the future. However, the BFPS appeared to have good internal consistency.

Conclusion

The current results indicate the BFPS should have significant utility as a brief, valid measure of propensity to develop brain fag syndrome or sub-threshold cases of BFS. Further, empirical work to support the initial reliability and validity should include replication in other student samples, convergent/divergent validity studies with other measures thought to have important explanatory roles in BFS and assessment of sensitivity to treatment outcome/change.

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ORIGINAL ARTICLE

EFFECTIVENESS OF GROUP COGNITIVE BEHAVIOUR THERAPY AUGMENTATION IN REDUCING NEGATIVE COGNITIONS IN THE TREATMENT OF DEPRESSION IN MALAYSIA

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Abstract

Objective*: Cognitive Behaviour Therapy (CBT) for depression is popular in Western countries. In the context of Malaysia, CBT has been applied as an individual session in a clinical setting. However, there is limited research in the area of group CBT for depression among Malays. The aim of this study is to investigate the effectiveness of Group Cognitive Behavioural Therapy (GCBT) in reducing the negative cognitions that are related to depression in a group of Malay patients. *Methods*: One hundred and thirteen patients, diagnosed with depression, were randomly allocated to either a Treatment As Usual (TAU) group (*n* = 55), or a TAU plus GCBT group (*n* = 58). All participants completed two questionnaires that measured maladaptive cognitions at pre-treatment, midway through treatment, post-treatment (week 4), and at follow-ups after three (week 16) and six months (week 28). *Results*: The TAU+GCBT patients improved significantly more, and at a faster rate, than the TAU group; which showed minimal improvement. The effect size (Cohen's *d*) of the treatment group was 0.93 and 96.55% of the treatment group achieved a clinically significant change. *Conclusions*: The findings suggest that GCBT, when used in addition to the TAU, is effective in reducing negative thoughts and maladaptive attitudes of Malaysian patients suffering from depression. *ASEAN Journal of Psychiatry, Vol.12(1), Jan – June 2011: 50-65.

Keywords: Group Cognitive Behaviour Therapy, augmentation, cognition, depression, Malaysia

Introduction

The World Health Organisation (WHO) predicts that depression will be among the leading causes of worldwide disability by the year 2020 [1-4]. In the Pacific region,major depression (of at least one month in duration) has recently been measured at a rate of 1.3 to 5.5% in the general population [5]. Epidemiological studies indicate that rates of depression in the Asia Pacific are comparable to those in Western countries; and Malaysia is no exception. Depression is the most common mental illness reported in Malaysia, yet it

remains under-detected and under-treated [6-8].

It is generally accepted that two forms of treatment are associated with reasonably good results in terms of reducing depression, namely pharmacotherapy and Cognitive Behaviour Therapy (CBT) [9]. For more than 40 years, Beck's cognitive model of depression and CBT, have received significant attention as the subject of more randomised controlled trials, than any other psychotherapy for depression [10-11]. Numerous studies, including several meta-analyses, have examined the efficacy of treatments for depression [12-18]. Group-based CBT (GCBT) has been shown to be at least, as effective than as the individual approach [19-21].

To date, the majority of research into the efficacy of treatments for depression has been undertaken with Western populations, and thus, the applicability of Beck's theory of depression (and hence CBT) to Eastern populations is unknown. Although a small number of studies examining CBT have been reported in Asian countries (for example Hong Kong [22], China [23-25], Indonesia [26], India [27], and Japan [28]), these studies have usually lacked a randomised or controlled design. Thus, while GCBT and ICBT have gained popularity in Asia, few well-controlled studies are available to demonstrate their applicability for Asian populations; particularly for Malay patients.

This study investigated the suitability of CBT for the Malay subgroup of the Malaysian population, which has been shown to have a very specific set of aetiologies, psychopathologies, cultures, values, and belief systems [29]. In a comprehensive review of literature by Mukhtar and Oei [29], only two religious psychotherapy studies [30-31] and one psychodynamic study [32] could be identified in relation to Malaysian patients with depression. The feasibility of GCBT for treatment of depressed Malaysian patients is therefore worthy of investigation.

The objective of this study was to evaluate the effectiveness of GCBT in conjunction with Treatment As Usual (TAU), in treating patients with major depression in Malaysia. It was hypothesised that treatment with TAU+GCBT would be more effective in reducing negative cognitions than TAU alone. Patients in the TAU+GCBT group were expected to demonstrate a more reliable and clinically significant change in cognitive measures than the patients in the TAU group.

Methods

A total of 113 patients (51 male and 62 female), diagnosed with major depressive disorder or dysthymia, were randomly allocated to either the TAU+GCBT group (n = 58) or the TAU only group (n = 55). The patients were aged between 20 and 59 years old, with a mean age of 40.46 years. Nine patients (8%) had completed primary school only, 84 (74.3%) had completed secondary school, 13 (11.5%) had obtained certificates/diplomas, and seven (6.2%) patients had completed undergraduate studies. The majority (90.5%) of patients were taking antidepressant medication during the course of therapy.

The Automatic Thoughts Questionnaire-Malay (ATQ-Malay) [33] was also implemented in this study. The 17-item ATQ-Malay is a Malay-translated version of the original 30-item ATQ [34] that was designed to measure depressogenic cognitions. The Cronbach's alpha coefficient was found to range from .83 to .93 [33]. Evidence was also identified that supports the concurrent and discriminant validity of the ATQ-Malay. Scores ranged between 17

and 85, where the higher the score, the more negative were the thoughts that the patient was experiencing. For example, patients were asked to rank the frequency of the thought "I am a loser," and were given five options, from 1 (not at all) to 5 (all the time). The ATQ-Malay is a reliable and valid instrument for measuring negative automatic thoughts in the Malay population.

The Dysfunctional Attitude Scale-Malay (DAS-Malay) [35] was administered to participants in this study. The 19-item DAS-Malay is a Malay language version of the 40-item DAS [36], which was originally designed to measure beliefs constituting a predisposition to depression. The Cronbach's alpha coefficient was found to range from .79 to .86 [35]. Evidence was also found that supports the concurrent and discriminant validity of the questionnaire. One example question in this scale is "If a person asks for help, is it a sign of weakness?" and asks the participant to rate this statement from 1 (totally agree) to 7 (totally disagree). Scores ranged from 19 to 133, where the higher scores reflected a greater predisposition to depression.

Patients were recruited from psychiatric clinics in major local hospitals representing both east and west coasts of the Malaysian peninsular. For east coast Malaysia, studies were carried out at Hospital Raja Perempuan Zainab II and Hospital Universiti Sains Malaysia, whilst west coast Malaysia was represented by Hospital Kuala Lumpur and Hospital Selayang. Figure 1 depicts the steps taken to recruit and allocate participants to groups in the study.

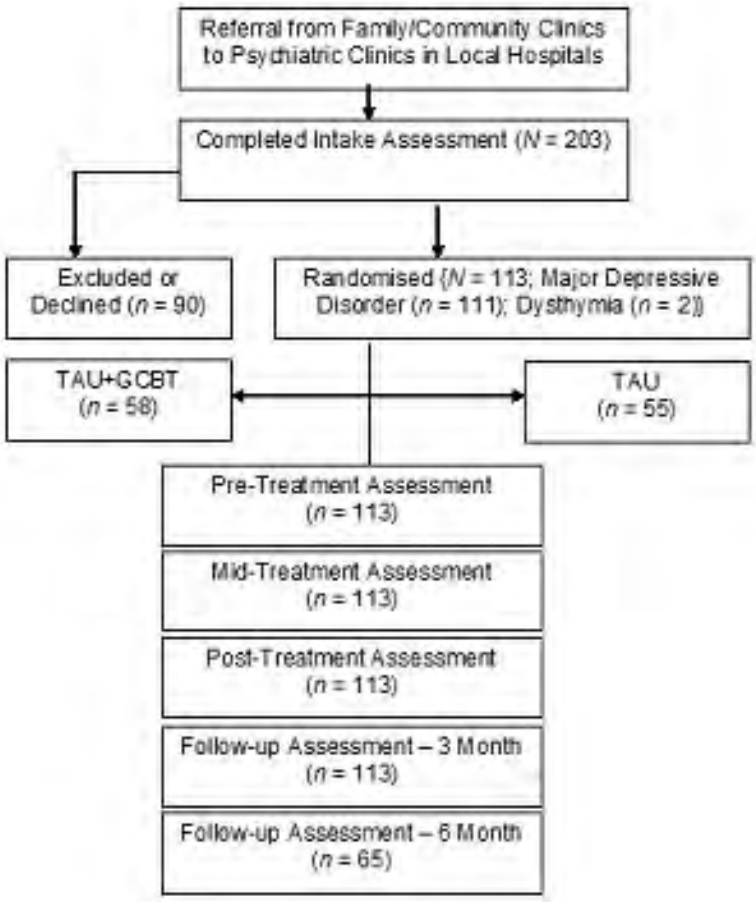

Figure 1 Steps in the recruitment and allocation of participants to treatment groups.

Initial diagnoses were made by psychiatrists according to the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) [9]. A total of 203 patients completed the initial intake assessment, of which 90 were either excluded from the study according to the criteria, or declined to participate. Further verification of diagnoses using the Structured Clinical Interview of DSM-IV (SCID) was also arranged by the researcher prior to the implementation of treatment. The inclusion criteria required that participating patients were aged between 20 and 60 years old, Malay literate, had never been treated with CBT, and met the DSM-IV criteria for Major Depressive Disorder (either single episode or recurrent) or Dysthymia. Exclusion criteria for the study included a DSM-IV-determined diagnosis of bipolar mood disorder or another major psychiatric disorder (e.g., schizophrenia, personality disorder), organic brain disorder, abuse of drugs and/or alcohol, major physical illness, or an inability to read, write, or speak in Bahasa Melayu. Patients with a co-morbidity diagnosis were then referred to another appropriate source. After the initial intake assessment was completed, the remaining 113 patients were randomly allocated to one of two groups. Altogether, there were seven groups (TAU=GCBT) in this study that consisted of 7 to 10 participants in each. Two groups attended the GCBT program twice a week, and in one and a half years, all groups completed the program. Only one therapist (the first author) conducted the CBT program.

In this study, the term 'Treatment As Usual' means that patients received medication prescribed by their psychiatrists, or received other forms of treatment, such as those administered by traditional healers. No medical profile details on the length of history of illness, type of medication taken, and type of other resources sought by patients, were noted prior to study intake. Patients attended any follow-up psychiatrist appointments that were required. The psychiatrists monitored the dosage of medication taken by the patients. No structured follow-up was undertaken to monitor the treatment of the TAU group, except for the administration of the assessment point questionnaires.

Simple odd-even numbering was used to randomly allocate patients to study groups. The control group in this study (n = 55) received TAU only, whereas the study group (n = 58) received TAU plus an additional two sessions a week for the four weeks of the GCBT program. Each GCBT session lasted approximately 3.5 hours. Both measures described above (i.e., ATQ-Malay, DAS-Malay) were administered to patients pre-treatment, mid-treatment, post-treatment (week 4), at follow-up after three months (week 16), and at follow-up after six months (week 28).

Treatment Manual

The GCBT treatment manual used in this study is based on the CBT manual for mood disorders developed by Oei [37], and was translated into the Malay language by the first author. The manual describes a total of eight CBT sessions, and provides a detailed description of CBT aims and strategies, classroom exercises, guided readings, and homework tasks. Sessions one and two provided a general orientation to cognitive therapy and taught participants to identify activities that stimulated their sense of achievement and accomplishment, aiming to replace patients' dysfunctional behaviours with positive thoughts. Sessions three and four taught participants to identify their automatic thoughts and core irrational beliefs, and asked them to create a strong,

motivational short sentence, which could act as an alarm for their dysfunctional condition. Sessions five and six taught patients to dispute or challenge the validity of their unhelpful beliefs, and identify core unhelpful beliefs using the vertical arrow method. Sessions seven and eight covered aspects of support system networking and techniques to prevent relapse of the symptoms of depression. Basically, the GCBT program in this study does not differ from that guided by Beck's approach [38]. The idea of an active self-help approach, rather than a passive "treatment" approach, focuses on education and training [37].

The program was delivered by the first author, who holds a doctorate degree in Clinical Psychology (Australia), and had previous training and clinical experience applying CBT in Malaysia and Australia. Two research assistants helped to distribute, explain, and collect the assessments during the treatment and at follow-ups. Patients in the control group were mailed the questionnaires along with a stamped envelope; once completed, patients could either mail the questionnaire back or deposit them at their psychiatric clinic. Most communication with the control group patients, regarding completion of the assessment, was undertaken via telephone.

Data was explored using the Statistical Package for the Social Sciences (SPSS). All of the analyses used data from all 113 patients, in accordance with the intent-to-treat approach [39]. The analyses used a series of 2 x 5 repeated measures analysis of variances (ANOVAs), with the two treatment conditions (TAU group and TAU+GCBT group) and the five assessment points (pre-treatment, mid-treatment, post-treatment [week 4], three-month follow-up [week 16], and six-month follow-up [week 28]) as independent variables. The dependent variables in the analyses were the patients' total scores from their assessment questionnaires. Paired t-tests and one-way ANOVAs were used to follow-up any significant main effects or interactions. Cohen's [40] commonly used guidelines for effect size were adopted (0.2 = small effect, 0.5 = moderate effect, and 0.8 = large effect). In addition, assessments of reliable statistically significant change and clinically significant change [41] over time were conducted to explore the nature of the differences in scores on the ATQ-Malay and the DAS-Malay over the five assessment points for the two treatment conditions. Jacobson and Truax [41] argue that there is a need to establish clinical significance of any therapy-related effect. By defining a clinically significant change, as a return to normal functioning, they provide a means of operationalizing this process by considering the level of functioning (after treatment) in relation to the range of the functional population.

All participants returned all of their questionnaires, except for at the six-month follow-up, where only 44 participants from the TAU+GCBT group and 21 participants from the TAU group returned their questionnaires. In light of this, Intent-To-Treat (ITT) analyses were used, whereby scores from the last assessment (at three-month follow-up) were used in place of the six-month follow-ups where necessary. ITT analyses are most reflective of treatment outcome for a population, as all randomised participants are included in the analyses. In addition, this technique does not affect the reliability of the effect size and the reliable and clinically significant changes, as there is no missing data at either pre- or post-treatment across all measures. Preliminary analyses revealed that there were no significant differences in the findings when using data from those who completed all

questionnaires only (N = 65), or from the completers plus substituted values. Thus, only the results from the ITT analyses are reported in the following section.

Results

Automatic Thoughts Questionnaire-Malay

Effect of treatment and maintenance at follow-ups. The means and standard deviations of the ATQ-Malay scores for the TAU+GCBT and the TAU groups at pre-treatment, mid-treatment, post-treatment, and the 3 and 6-month follow-ups, are presented in Table 1.

Table 1: Means and standard deviations of dependent variables at pre-treatment, mid-treatment, post-treatment, and at three and six-months follow-ups, using intent-to-treat analysis.

	TAU+GCBT			TAU		
Measure	*N*	*M*	*SD*	*n*	*M*	*SD*
ATQ-Malay						
Pre-treatment	58	50.52	15.7	55	43.3	15.3
Mid-treatment (week 2)	58	43.07	19.8	55	48.49	16.4
Post-treatment (week 4)	58	20.36	8.45	55	43.47	14.5
Follow-up (week 16)	58	18.17	3.01	55	52.11	16.6
DAS-Malay						
Pre-treatment	58	93.06	19.5	55	98.07	22.0
Mid-treatment (week 2)	58	51.02	23.0	55	97.85	23.3
Post-treatment (week 4)	58	41.29	21.8	55	107.8	22.7
Follow-up (week 16)	58	43.55	22.2	55	116.6	20.9
Follow-up (week 28)	58	18.40	3.88	55	49.62	16.2

A repeated measures ANOVA, using scores on the ATQ-Malay as the dependent variable, revealed significant main effects for group ($F(1, 111) = 76.82$, $p < .001$), and time ($F(2.43, 269.47) = 51.14$, $p < .001$). Follow-up paired t-tests then were used to analyse the differences in scores between the various assessment points in time, for each treatment group, independently. For the TAU+GCBT group, the ATQ-Malay scores showed significant decreases from pre-treatment to mid-treatment ($t(57) = 3.67$, $p < .001$), pre-treatment to post-treatment ($t(57) = 12.25$, $p < .0001$), pre-treatment to three-month follow-up ($t(57) = 14.23$, $p < .0001$), and pre-treatment to six-month follow-up ($t(57) = 14.24$, $p < .0001$). There were no significant differences between the scores at post-treatment and the three and six-month follow-ups points ($t(57) = 2.05$, $p = .045$; $t(57) = 1.62$, $p = .111$).

The TAU group experienced significant increase in ATQ-Malay scores from pre-treatment to mid-treatment ($t(54) = -4.13$, $p < .0001$), but no significant change was evident between pre-treatment and post-treatment ($t(54) = -0.337$, $p = 737$), indicating that scores on the TAU remained largely unchanged from the baseline. However, significantly higher ATQ-Malay scores were reported by this group at the three-month

follow-up, compared with those at pre-treatment ($t(54) = -6.51$, $p < .0001$). There was no significant change in ATQ scores between pre-treatment and the six-month follow-up ($t(54) = -2.81$, $p > .001$). The scores showed slight fluctuations between post-treatment and follow-up assessments. The post-treatment to three-month follow-up comparison was significant ($t(54) = -6.69$, $p < .0001$), with ATQ scores decreasing over time, but the ATQ-Malay scores showed a significant rise between post-treatment and the six-month follow-up ($t(54) = -2.81$, $p > .001$).

Overall, these results suggest that the TAU+GCBT group showed a significant reduction in ATQ-Malay scores from the baseline to post-treatment; with this reduction remaining stable across the two follow-up assessments. In contrast, the ATQ-Malay scores for the TAU group increased from pre-treatment to post-treatment and were consistently higher than those of the TAU+GCBT group at the follow-up assessments. This supports the claim that the use of CBT techniques could alleviate the negative automatic thoughts of patients with depression. The repeated measures ANOVA also revealed a significant time x treatment interaction ($F(2.43, 269.47) = 80.47$, $p < .001$). Further analyses using one-way ANOVAs were undertaken. Initially, scores on the ATQ-Malay were significantly different between the two groups ($F(1, 111) = 6.10$, $p < .05$), with the TAU+GCBT showing slightly higher scores than the TAU group. However, the results revealed that there were no significant changes in ATQ-Malay scores for the groups at the mid-treatment assessment ($F(1, 111) = 2.49$, *ns*). Furthermore, both the TAU+GCBT and TAU groups showed significant changes in ATQ-Malay scores at post-test, with the TAU+GCBT group's reduction in scores, larger than that of the TAU group ($F(1, 111) = 108.26$, $p < .0001$). At the follow-ups, both groups' scores remained stable after three and six months ($F(1, 111) = 235.54$, $p < .0001$; $F(1, 111) = 203.32$, $p < .0001$). Thus the TAU group consistently reported higher ATQ-Malay scores, and the TAU+GCBT group consistently maintained lower scores.

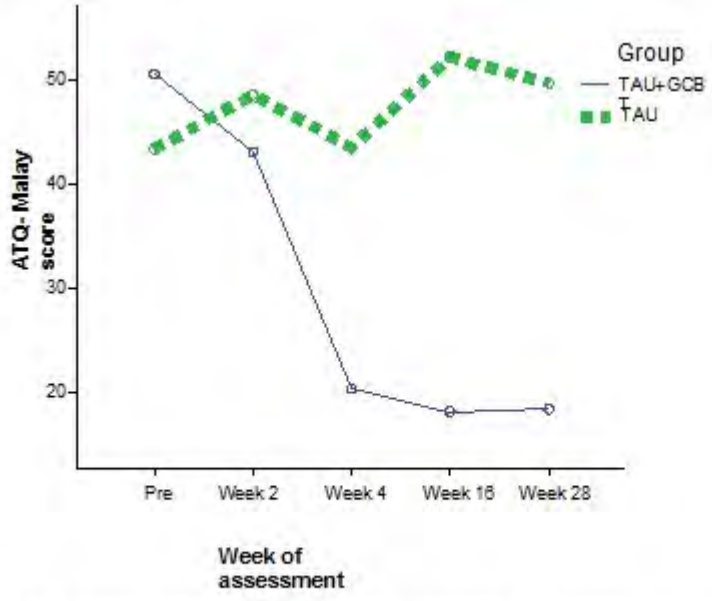

Figure 2 Mean scores of the ATQ-Malay at pre-treatment, mid-treatment (week 2), post-treatment (week 4), and follow-ups (weeks 16 and 28).

As is apparent in Figure 2, while the rate of change initially fluctuated for both groups, ultimately, the reduction in scores was observed faster in the TAU+GCBT group than in the TAU group at post-treatment, and large differences were maintained at both follow-ups.

Effect sizes. As depicted in Table 2, the treatment effect experienced by the TAU+GCBT group was of a moderate effect size (0.73), whereas the TAU group showed only a small effect size (0.002), from pre- to post-treatment. These results support the findings of the ANOVAs reported above. The treatment received by the TAU+GCBT group, was therefore more effective in reducing negative automatic thoughts in patients than TAU alone.

Table 2: Effect sizes (Cohen's d) between pre- and post-treatment for the TAU and TAU+GCBT groups for each of the dependent variables.

Measure	Group	*d*
Automatic Thoughts Questionnaire-Malay	TAU+GCBT	0.73
	TAU	0.002
Dysfunctional Attitude Scale-Malay	TAU-GCBT	0.77
	TAU	0.17

Note. TAU = Treatment-as-Usual; GCBT = Group Cognitive Behaviour Therapy.

Reliable and clinically significant change. The TAU+GCBT group results indicated that 82.75% of patients showed a reliable and clinically significant change in ATQ-Malay scores (see Table 3). However, only 1.81% of the control group demonstrated a reliable and significant change, and none showed a clinically significant change.

Table 3: Percentage of participants in each group who achieved a reliable and clinically significant change on the ATQ-Malay, and DAS-Malay.

Measure	Group (*n*)	Reliable Change (*n*, %)	Clinically Significant Change (*n*, %)
ATQ-Malay	TAU+GCBT (*n* = 58)	48 (82.75%)	48 (82.75%)
	TAU (*n* = 55)	1 (1.81%)	Nil
DAS-Malay	TAU+GCBT (*n* = 58)	50 (86.2%)	50 (86.2%)
	TAU (*n* = 55)	2 (5.45%)	1 (1.81%)

Overall, these findings suggest that the TAU+GCBT group experienced reduction in negative automatic thoughts during the treatment program, while the negative thoughts reported by the TAU group, increased over time. Therefore, adding CBT techniques to the treatment of patients with depression could help to alleviate negative automatic thoughts faster than treatment using medication only.

Dysfunctional Attitude Scale-Malay

Effect of treatment and maintenance at follow-ups. The means and standard deviations of the DAS-Malay scores for the

TAU+GCBT and the TAU groups at pre-treatment, mid-treatment, post-treatment, and three and six-month follow-ups, are presented in Table 1. The results of a repeated measures ANOVA revealed significant main effects for group ($F(1, 111) = 299.7$, $p < .0001$), and time ($F(3.075, 341.28) = 36.09$, $p < .0001$), and a significant time x treatment interaction ($F(4, 3.07) = 106.95$, $p < .001$). Paired t-tests were used to follow-up the significant main effect, examining the differences between scores at various assessment points for each treatment group. For the TAU+GCBT group, the DAS-Malay scores showed significant decreases from pre-treatment to mid-treatment ($t(57) = 10.36$, $p < .0001$), pre-treatment to post-treatment ($t(57) = 13.94$, $p < .0001$), pre-treatment to three-month follow-up ($t(57) = 13.03$, $p < .0001$), and pre-treatment to six-month follow-up ($t(57) = 16.48$, $p < .0001$). The differences in scores between post-treatment and the two follow-up assessments, were not significant ($t(57) = -1.22$, $p = .224$; $t(57) = 1.61$, $p = .112$).

The TAU group results revealed no significant changes in DAS-Malay scores from pre-treatment to post-treatment ($t(54) = 0.085$, $p = .933$), and from pre-treatment to post-treatment ($t(54) = -3.303$, $p > .001$), indicating that medication had no significant impact on dysfunctional attitudes from pre-treatment to post-treatment. However, the TAU group showed a significant increase in DAS-Malay scores between pre-treatment and both follow-up assessments ($t(54) = -4.47$, $p < .0001$; $t(54) = -7.23$, $p < .0001$), and between post-treatment and both follow-up assessment points ($t(54) = -4.092$, $p < .0001$; $t(54) = -4.14$, $p < .0001$).

In summary, the TAU+GCBT group showed significant reductions in DAS-Malay scores from baseline to post-treatment, and the reduction in dysfunctional attitudes remained stable at the two follow-ups. In contrast, the DAS-Malay scores for the TAU group increased from pre-treatment to post-treatment and remained high at follow-ups. Therefore, the DAS scores of the TAU group worsened over the course of the study.

Further analysis of the differences between the groups at each assessment point was undertaken using one-way ANOVAs. Initially, the pre-treatment DAS-Malay scores for the TAU+GCBT and TAU groups were not significantly different ($F(1, 111) = 1.640$, $p = .203$), indicating that the groups were similar prior to treatment. However, the results revealed significant decreases in the DAS-Malay scores for the TAU+GCBT group, and significant increases for the TAU group at mid-treatment and post-treatment ($F(1, 111) = 115.24$, $p < .0001$; $F(1, 111) = 251.80$, $p < .0001$). These differences were maintained at both follow-up assessments, with the TAU+GCBT group scoring significantly lower on the DAS than the TAU group ($F(1, 111) = 319.52$, $p < .0001$; $F(1, 111) = 429.10$, $p < .0001$). Figure 3 clearly shows that the rate of change from pre-treatment to post-treatment was faster for the TAU+GCBT group than it was for the TAU group. At the follow-up assessments, the TAU+GCBT group maintained their lower DAS-Malay scores and the TAU group retained their higher scores; thereby supporting the above interpretation.

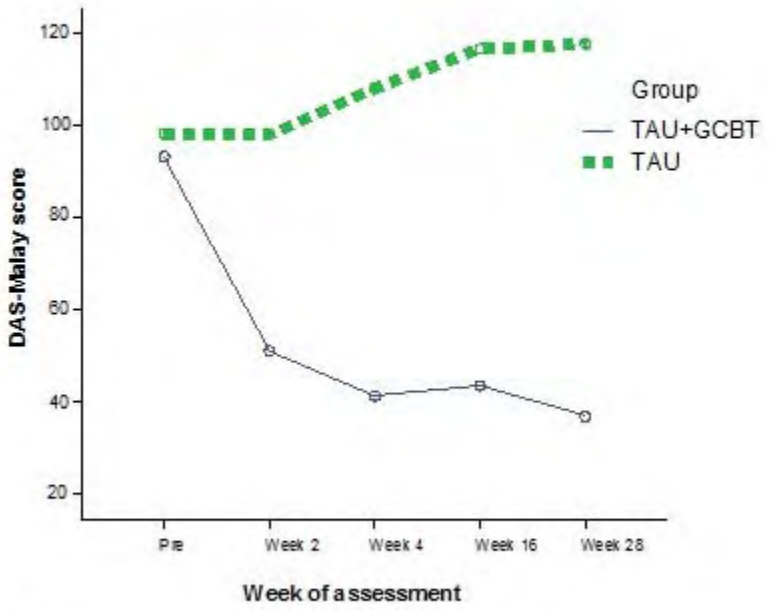

Figure 3 Mean scores on the DAS-Malay at pre-treatment, mid-treatment (week 2), post-treatment (week 4), and follow-ups (weeks 16 and 28).

Effect sizes. The pre-treatment to post-treatment effect sizes for the TAU+GCBT and TAU groups were calculated using the DAS-Malay scores as a measure of depressive symptoms (see Table 2). The TAU+GCBT group showed a moderate effect size of the treatment (0.77) and the TAU group showed a small effect size (0.17). Therefore, these findings support the results of the ANOVAs reported above, suggesting that the treatment received by the TAU+GCBT group was more effective in reducing the severity of depression, as indexed by the DAS-Malay.

Reliable and clinically significant change. The results of the TAU+GCBT group indicated that 86.2% of the patients showed a reliable and clinically significant change in DAS-Malay scores (see Table 3). However, only 5.45% of the TAU group showed a reliable and clinically significant change; and of these, only 1.81% demonstrated a clinically significant change. In short, the TAU+GCBT group showed a reduction in dysfunctional attitudes of depression during the treatment program, while dysfunctional attitudes in the TAU group, actually increased over time. These results suggest that using CBT techniques to treat patients with depression could help to alleviate the dysfunctional attitudes of depression faster than medication alone.

Discussion

The findings of this study support the experimental hypotheses. First, with respect to efficacy, the TAU+GCBT group consistently reported a significantly greater change in cognition, in the expected direction, compared with the TAU group. This change was maintained at both the three and six-month follow-ups for both measures. The strength of the effect was also evident through the larger effect sizes noted in the

scores of the TAU+GCBT group and the reliable and clinically significant change measures. These findings are consistent with the extant literature [13-14, 19, 42-45] that support Beck's cognitive model of psychopathology and CBT. Beck's theory would particularly suggest that CBT treatments should be associated with a reduction in scores on the symptoms, as well as the ATQ and the DAS. For example, Kwon and Oei [42] found such predicted reductions in reported scores, and also described non-significant changes between the eighth and final sessions in their study. That study also suggested that the therapeutic effects of CBT tend to be stabilised by the final phase of the treatment; a result confirmed in this study.

As the results have indicated that the TAU+GCBT group showed a greater change than the TAU group, it can be argued that GCBT contributed to the change in symptoms of depression. However, careful interpretation is required to explain the minimal change in symptoms reported by the TAU group. Informal reports from patients, and the author's observations, suggest three major reasons for the findings of the TAU group, namely technical difficulties, failure to monitor the TAU group's progress appropriately, and a lack of understanding of commitment in research. First, in terms of technical difficulties, patients in the control group failed to visit their psychiatrists regularly. Reasons given included side-effects of medication, long queues for an appointment, long waits at the clinic, transportation and location difficulties, simply forgetting the appointment date, and non-compliance with medication regimes. Second, in this study the researcher had little contact with the TAU group, only requesting that assessment measures be completed and returned at the assigned points, and informing the patients that they may seek any treatment for their depression. Finally, in terms of inadequate commitment in research contribution, there were informal reports among patients and family members that the patients did not clearly understood the reasons for filling in the questionnaires. This may be due to the lack of regular contact with the researcher and the lack of regular monitoring of the TAU patients.

Many TAU+GCBT patients reported that they were unlikely to miss any appointments with their psychiatrists, because they could change the appointment date to the same day as their therapy program. A therapeutic alliance appeared to develop throughout the sessions, and group processes (supporting and motivating each member; sharing their experiences) contributed to the success of the TAU+GCBT group. Interestingly, the lack of change in the TAU group does not imply that pharmacotherapy is not effective in treating MDD. This is simply because the TAU group in this study was not the same as the drugs trials reported in the literature. Further experiments are not needed to clarify the role of TAU in the treatment of MDD in Malaysia.

The findings of the current study make a significant contribution to both research and clinical practice, with respect to the treatment of depression. The results particularly suggest that GCBT is applicable not only in Western populations, but also Eastern populations; particularly for Malays in Malaysia. First, in terms of clinical implications, the group format therapy allows patients to encourage, correct, and motivate each other. Members tend to have negative thoughts, beliefs, or maladaptive behaviours regarding their problems, but are able to deal with these with help from their peers and by using the cognitive techniques that they learn during the sessions. Second, in terms of cultural issues, it has been

reported that many Malays are quite reserved with respect to expressing psychological problems [46], but tend to display characteristics of loyalty and obedience [47]. Therapists should be aware of this characteristic of Malay individuals and use cultural sensitivity. Compared to Western societies, Eastern populations (particularly Malays) do not easily or commonly associate their depression with thoughts. The idea that mood, cognitions, and behaviour, are associated with depression is rarely discussed in Eastern populations [35]. Therefore, at the beginning of the GCBT sessions, it was expected that patients would not be expressive and that discussions about thoughts would be difficult. However, by using simple language in the client's own dialect, and clear interpretation and examples, these issues can be overcome. Thus, by understanding the cultural and religious factors of the Malay population, therapists can attain optimal results that are beneficial to patients. One of the strengths of this study is that the research design has been clearly stated, and thus, future researchers can readily replicate the method and subsequent findings. Nathan, Stuart, and Dolan [48] note that one criterion for study efficacy is the inclusion of an appropriate control condition. The use of a treatment manual, a competent CBT therapist, and specific measures of pathology, (such as the ATQ and the DAS), all provide support for the efficacy criteria mentioned by Nathan and his colleagues [48].

This was the first study to compare treatment outcomes for a TAU+GCBT group with a TAU group, and the first to have assessed changes in two cognition measures in Malaysia; specifically using a Malay population. This study can be generalised to all Malays in Malaysia, because participants were recruited from both the east and west coasts of the Malaysian peninsular. In contrast to Western studies, the number of drop-outs from the study group was very low, which is consistent with the findings of a local psychotherapy study that Malays tend to show loyalty and obedience [49]. This finding might also signify that psychological treatment is acceptable for patients, or perhaps, merely because patients were given breaks and refreshment from time to time during the sessions.

In summary, consistent with studies using Western populations, this study has provided results which support the application of GCBT for the treatment of major depressive disorders or dysthymia in Malaysia. Specifically, results from this study confirm that GCBT is an effective intervention for Malays suffering from mood disorders.

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ORIGINAL ARTICLE

CONCURRENT VALIDITY OF THE DEPRESSION AND ANXIETY COMPONENTS IN THE BAHASA MALAYSIA VERSION OF THE DEPRESSION ANXIETY AND STRESS SCALES (DASS).

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Abstract

Objectives: **The Bahasa Malaysia (BM) version of Depression Anxiety Stress Scales 21-item (DASS-21) has been widely used ever since the establishment of its validity. To consolidate the evidence of the BM DASS-21 validity by examining its concurrent validity.** ***Methods:*** **The BM DASS was administered together with the Hospital Anxiety and Depressive Scale (HADS) to a total of 246 patients at International Islamic University Malaysia (IIUM) Infertility Centre.** ***Results*****: The anxiety domain of BM DASS-21 had good correlation with anxiety domain in HADS (0.61) but for DASS depressive domain, it had modest correlation with its respective domain in HADS (0.49).** ***Conclusions:*** **The results of this study further ensconced the evidence that the BM DASS-21 had relatively satisfactory psychometric properties for clinical subjects in Malaysia.** ***ASEAN Journal of Psychiatry, Vol.12(1), Jan – June 2011: 66-70.***

Keywords: depression, anxiety, stress, scale, validity

Introduction

The Depression Anxiety Stress Scales (DASS) has 3 domains namely depression, anxiety and stress. The original version of DASS is 42-item and DASS 21-item is a short version [1]. It is not a diagnostic questionnaire but rather as a severity measurement [2]. The DASS-21 has been translated into Malay language (Bahasa Malaysia (BM)) by adopting the guideline of the US Census Bureau on questionnaire translation in which 2 forward and 2 back translations were done in parallel. Based on 2 previous publications, the BM DASS-21 is proven to have good psychometric properties among clinical and non-clinical populations [3, 4]. It has good Cronbach's alpha values for depression (0.84 & 0.75), anxiety (0.74 & 0.74) and stress domains (0.79 & 0.79) as recorded in the past 2 studies. For validity, it also had good factor loading values for most of its items [3, 4].

The good aspect of DASS that author found is all 21 items in this questionnaire are

relatively cultural free as none of its item mentioned any aspects on culture or religion. The studies in overseas also showed the DASS is suitable to be used for clinical and non-clinical samples [5]. The aim of this study is to examine the concurent validity of depressive & anxiety domains in BM DASS-21. This was done by comparing the 2 domains in DASS with HADS which is readily validated locally.

Methods

This study is a part of the bigger research project to study on the psychological profiles among couples who attended the International Islamic University Malaysia (IIUM) Infertility Centre. This project received a grant from IIUM endowment fund.

Since the BM version of HADS has been validated to the Malaysian population, we used this questionnaire as our reference or "gold standard" to perform the concurrent validity of BM-DASS. **[6]** The concurrent validity of the BM-DASS was compared to Malay version of HADS. All the couples who attended the clinic during the period of 2 years (2008 to 2010) and fulfilled the inclusion criteria were recruited into the study. The inclusion criteria were those could understand Bahasa Malaysia and able to give written consents. Both the BM HADS and the BM DASS-21 were administered concurrently to every subject after they were explained on the study procedure.

Results

From a total of 248 subjects came to the centre during the study period, only 2 refused to participate in this study due to language barrier. The analysis was based on the remaining 246 subjects.

Table 1: Demographic profiles

Characteristics	Number (%)
Age (years)	32 (median)
Race	
Malay	230(93.5)
Chinese	7(2.8
Indian	6(2.4)
Others	3(1.2)
Gender	
Male	123 (50.0)
Female	123 (50.0)
Educational Level	
secondary school	92(37.4)
university/college	154(62.6)
Level of education *(244 subjects)	
Professional	118(48)
Others	123(50)
Income per month(RM)*(220 subjects)	2316(mean)

Table 1 shows the demographic profiles of the subjects. The median age of the subjects was 32 years old, 94% were Malays, 63% obtained tertiary education, and 48% were professionals. The mean income of the subjects was RM 2316 per month.

Table 2: Means and standard deviations of total scores of items in DASS and HADS.

	N	Mean	Std. Deviation
Total score of anxiety items in DASS	246	9.09	6.46
Total score of depression items in DASS	246	7.49	6.21
Total score of stress items in DASS	246	12.67	7.44
Total score of depression items in HADS	246	3.16	2.30
Total score of anxiety items in HADS	246	5.78	2.81
Total DASS score	246	29.24	18.04
Total HADS score	246	8.94	4.47

Concurrent validity

Concurrent validity of BM-DASS was compared to HADS by analysis of Spearman's correlation coefficient. The correlation analysis showed the value of 0.61 and 0.49 respectively for anxiety and depressive domains in DASS as compared to their respective domains in HADS. The correlation between these 2 domains between the 2 scales is further visualized in figure 1 and figure 2.

Figure 1: Scatter graph between total scores of anxiety items in DASS vs. HADS.

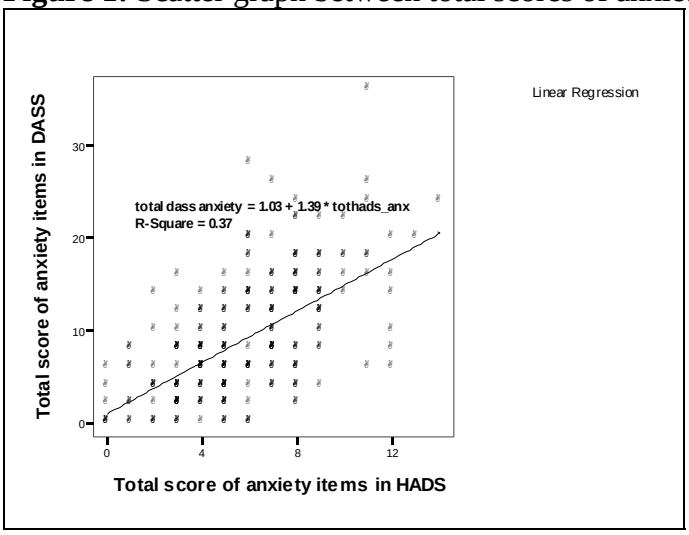
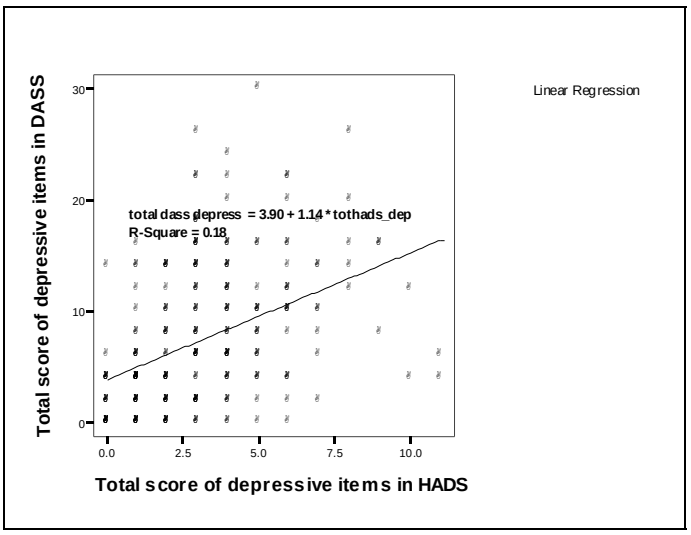


Figure2: Scatter graph between total scores of depressive items in DASS **vs.** HADS



Since HADS does not have stress domain, we could not compare stress domain in DASS to HADS. When we analyzed the correlation of total DASS score versus total HADS score, we found the correlation value was good; 0.67 (r^2 = 0.40). Since the R-square value (r^2) of the correlation is 0.40, this means it explains 40% of the variance.

Discussion

The HADS was developed by Zigmond and Snaith in 1983. The aim to design this scale was to provide a brief assessment on severity of depression and anxiety. It consists of 14 items, of which seven measure depression and the other seven for anxiety [7]. HADS has a high degree of internal consistency for all 14 items in Malaysian population. The Cronbach's alpha values at baseline were between 0.81 and 0.83 whereas for test retest, the values were from 0.82 to 0.84 [6]. This scale is suitable for clinical or hospital subjects. The non-clinical population is less sensitive to the scale.

As compared to HADS, DASS is designed for research in both clinical and non-clinical populations. Its psychometric properties in both clinical and non-clinical populations are good. In this study our population was clinical, hence this is not a hampering factor which may influence the psychometric result for both scales.

Items in both HADS and DASS scales are culturally neutral. None of the items in both scales is bond to any culture. The correlations between the domains were fair comparisons as we compared 7 items each from both scales. At glance, anxiety items in DASS are more focus on somatic symptoms as compared to HADS. These questions are assessing on the presence of mouth dryness (item 2), rapid breathing (item 4), hands tremor (item 7), and fast heart beat (item 19). A few items in depressive domain in HADS are assessing the element of anhedonia or loss of enjoyment in life as a form of depressive symptom. This element can be seen in item 2, 10 and 14. Since there are a few different dimensions in both scales, it would give minor effect on the correlation between the scales. This could explain on the modest to good correlations between the domains in DASS and HADS.

The ultimate validity of a scale is its criterion validation in which we can do it by making comparisons to the gold standard.

The concurrent validity is as a form of criterion validity and result of this study is complementing the previous studies in the effort to validate the DASS.

Conclusion

The depressive and anxiety domains in BM DASS-21 are fairly correlated to HADS in the clinical population. Therefore the result of this current study further strengthens the past evidence that the Bahasa Malaysia version of DASS-21 is validated and suitable as a research tool in Malaysian population.

Acknowledgement

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ORIGINAL ARTICLE

EFFECTS OF A BRIEF STRESS REDUCTION INTERVENTION ON MEDICAL STUDENTS' DEPRESSION, ANXIETY AND STRESS LEVEL DURING STRESSFUL PERIOD.

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Abstract

Objective*: The objective of this study was to evaluate whether students exposed to a brief stress reduction intervention would have lesser stress, anxiety and depression levels compared to their non-exposed classmates during stressful events. *Methods*: The Ex Post Facto design was applied in this study. Students who were exposed and not exposed to a brief stress reduction intervention were surveyed during a continuous examination and during the final examination. The Depression Anxiety Stress Scales (DASS) was used to examine effects on anxiety, stress, and depression levels. *Results*: The exposed students statistically had lower anxiety and depression scores than the non-exposed students during the stressful period. Reduction of stress, anxiety and depression scores was sustained during the stressful period. *Conclusion*: The significant reduction of anxiety and depression scores suggested that brief intervention was effective in the enhancement of the psychological wellbeing of exposed medical students during stressful period. *ASEAN Journal of Psychiatry, Vol.12(1): Jan – June 2011: 71-84.

Keyword: Medical Student, Brief Stress Management, Anxiety, Stress, Depression.

Introduction

In 2003, the World Health Organization (WHO) reported that mental health is the fourth leading contributor to the global burden of diseases; about 450 million people suffer from a mental or behavioral disorder and nearly 1 million people commit suicide in a year [1, 2]. WHO projected that in 2020 mental health will be the second leading contributor to the global burden of diseases behind the cardiovascular related diseases [2]. These facts suggest a substantial growth of pressure in individuals' daily lives.

Medical students and professionals are not immune from this. In fact, studies have found that the prevalence of mental disorder among them are higher compared to the normal population [3-7]. Studying in Medicine is often considered difficult and highly competitive. That is the reason why medical training is regarded as a highly stressful period by most medical students. Studies have revealed a high prevalence of psychological distress among medical students, ranging from 30% to 50%, particularly in first-year medical students as they are facing a period of adjustment to the

new environment of medical training [5]. The psychological distress among medical students is associated with anxiety and depression [8, 9], interpersonal conflict [10], sleeping problems [11], and lower academic and clinical performance [12]. It was also found to decrease attention, reduce concentration, impinge on decision making, and reduce students' abilities to establish good relationships with patients resulting in a feeling of inadequacy and dissatisfaction with clinical practice in the future [10]. It was highlighted that the depression among medical students was twice as prevalent between the beginning and end of the first year [13, 14]. On top of that, it was linked to suicide [15], immune system alterations [16], drug abuse [17, 18] and abuse of alcohol [19]. Numerous studies have emphasized that these psychological morbidities occur in medical students at various stages of their training [14, 20-22]. The literature consistently reports that markers of medical student wellbeing deteriorate with time with the lowest point being found in the pre-exam periods [23]. It is worth noting that, these unwanted consequences were related to some aspects of medical training and it might hinder the noble ambitions and values of medical education which is to produce healthy and competent doctors to serve society [24].

Several medical education constituencies have emphasized the importance of teaching stress management and self-care skills to medical students [25, 26]. This emphasis is reflected in accreditation standards for medical education which requires medical schools to have programs promoting the well-being of students and facilitating their adjustment to the emotional, spiritual, mental and physical demands of medical school [27]. Realising that, many medical schools have developed a variety of programmes to tone down stress such as mindfulness-based stress reduction course [28, 29], wellness electives [23, 30], mind-body medicine course [31], and stress reduction workshops [32, 33]. A recent literature review discovered that, although more than 600 articles addressed the importance of stress management programs in medical curricula, only 24 reported intervention programs with accompanying data [28]. This means that although there is literature on stress management in general, their specific and scientific application to medical education has been largely unexplored [28]. It is worth mentioning that teaching future physicians a set of skills to cope with the stress of their profession will likely aid both their future career success and personal well-being [34]. It is commonly believed that the decline in wellbeing of medical students is avoidable [23].

At the School of Medical Sciences, Universiti Sains Malaysia, a short-duration stress management intervention called the Medical Student Wellbeing Workshop was conducted in response to this realisation. This workshop was reported as a well-accepted and promising stress reduction intervention for medical students [32, 35, 36]. From that notion, the primary objective of this study was to evaluate whether the students who were exposed to the intervention would have lesser stress, anxiety and depression levels compared to their classmates who were not exposed to it during stressful events particularly during examinations. If the objective was met, then a secondary objective was to determine whether any noted improvement would be sustainable. It is hoped that the results obtained will provide better evidence on the potential benefits of the intervention.

Methods

The School of Medical Sciences (SMS), Universiti Sains Malaysia (USM) practices an integrated, problem-based and community-oriented medical curriculum. This five year programme is divided into three phases. Phase I (year 1) is the fundamental year focusing on organ-based systems. Phase II (year 2 and 3) continues the system-based approach and introduces the basics of clinical clerkship. Phase III (year 4 and 5) is the clinical phase whereby the students are rotated through all the clinical disciplines.

The year 1 medical students have to go through three continuous examinations and one final examination before they can progress to the second year of study. The final examination contributes 70% to the total marks and the other 30% are contributed by the three continuous examinations, each contributing 10%. The students must obtain a total examination mark of more than 50% for them to progress to the second year. Otherwise, they have to repeat the phase. The author believes that the final examination is a more stressful period for the students compared to the continuous examination.

There were 19 students who were exposed to the intervention and about 177 students who were not exposed to it. All of them were the new first-year medical students of the 2009/2010 academic session. The total number of the new first year medical students registered in the 2009/2010 academic session was 196.

A causal-comparative study (Ex Post Facto) design was applied in this study. In this type of study, subjects in the intervention group were selected from the students who were exposed to the intervention. While, the subject in the control group were selected from the students who were not exposed to the intervention. The list of the students was obtained from the organizer. The outcomes that were measured were stress, anxiety and depression scores. Sample size was determined based on the data obtained from a previous study [32]. Population standard deviation was 2.79 and the expected difference mean was 2.38. The sample size calculated by the SPPC software [44] based on power of study at 0.8 and significant level at 0.05 was 23 subjects per group (intervention group and control group). Since the total number of students who were eligible for intervention group was 19, therefore, sample size for control group was recalculated to maintain the power of study. Recalculation indicated that the minimum acceptable sample size for control group was 29 students to maintain the power of study. The adjusted sample sizes for intervention and control groups were 19 and 29 students respectively. All of the 19 students who were exposed to the intervention were selected as subjects for intervention group. Simple random sampling was applied to select subjects for the control group from the list of the students that were not exposed to the intervention. All of the student names were given a number from 1 to 177. Random numbers were generated by the SPPC software [44].

Demographic data such as gender, race, entry qualification, age, and matrix number were obtained from the study subjects. The DASS was administered to measure depression, anxiety and stress level [45, 46] of the students during the third continuous examination (time 1) and the final examination (time 2) which were held approximately three and six months respectively after the workshop ended. Face-to-face sessions were held with the students in an examination hall just after the examinations ended. Data was collected by guided self-administration. The time taken

by the students to fill in the inventory was around 10 minutes and it was returned on the same day.

The DASS was developed by Lovibond in 1993 for people aged 17 and older however it may be suitable for people of younger age [45]. It is used to assess the severity of core symptoms of depression, anxiety and tension (or stress) over the previous week; in general it provides a broad spectrum measure of psychological distress, indicating the severity and frequency of symptoms (46). It is a self-reporting instrument and available in two versions; 42 items (DASS-42) and 21 items (DASS-21). The DASS-42 and DASS-21 has three main scales which are depression (DASS-D), anxiety (DASS-A) and stress (DASS-S); each scale has 14 items and 7 items respectively. Each item uses four-point response scale and separate depression, anxiety and stress scores are calculated by summing item scores. This instrument is suitable for tracking change in severity over time, e.g. before and after intervention (45). Based on the DASS manual, for student samples the scale scores are classified into normal (0 to 77), mild disorder (78 to 86), moderate disorder (87 to 94), severe disorder (95 to 97) and extremely severe disorder (98 to 100) [46]. The scale scores of DASS-21 must be multiplied by two to simulate the full-scale version. The reliability coefficient of depression, anxiety and stress range from 0.81 to 0.97, and the three subscales showed discriminative ability to differentiate between psychiatric patient and non-psychiatric patients [45]. The DASS-21 was used in this study because it requires less time to administer; furthermore, studies showed that it is superior and more consistent compared to the full-scale version [46].

The investigator had obtained permission from the School of Medical Sciences and the Student Affairs and Development Department, Universiti Sains Malaysia prior to the study start. Each participant was given an identity code.

Data were analysed using Statistical Package for Social Sciences (SPSS) version 18. Significant level (α) was at 0.05 and confidence interval was 95%. Descriptive statistics were applied for analysis of the demographic data. Independent-t test was used to compare the mean depression, anxiety and stress scores between the two groups of students. The repeated measure ANOVA (group x time) test was used to determine sustainability of noted effects of the intervention on the depression, anxiety and stress scores of the two groups. The mean change of score was obtained by subtracting score at time 2 with the score at the time 1.

Overview of the intervention

Students had participated in the medical student wellbeing workshop as the brief stress reduction intervention voluntarily. The intervention was offered as a one-off session lasting for a duration of three to four hours in a weekend by the Student Affairs and Development Department, Universiti Sains Malaysia.

In the first 75 minutes, participants were given three mini lectures, 25 minutes each, related to stress concepts, stressors related to medical training, and coping strategies. In the second session, participants were given 25 minutes to fill in three inventories which were the 12-item General Health Questionnaire (GHQ-12), the Medical Student Stressor Questionnaire (MSSQ) and the Brief Coping Orientation of Problem Experienced (COPE) to help them identify their individual stress level, stressors and

coping strategies respectively. Then 60 minutes were allocated to them for discussion on the findings of the inventories with the facilitator. During the third session participants were given a 30-minutes mini lecture related to ways of handling stress and followed by 30 minutes of discussion and sharing of experience between peers and the facilitator. The last 20-minutes was allocated for the conclusion and feedback session to consolidate what they have learnt and gained as a result of attending this workshop.

The intervention objectives were to enable students to measure their stress level by the GHQ-12 (37-41), to recognize main stressors they are facing by the MSSQ (42) and to be aware of their main coping strategies by the Brief COPE (43). At the end of the intervention, it was hoped that participants would be able to:

a. increase self-awareness concerning their stress, stressors and coping strategies.
b. promote self-development of positive coping abilities toward stressors.
c. develop self-improvement strategies to improve their stress management skills.

Results

A total of 48 year 1 medical students responded to the both surveys. The Chi-square and Independent-t tests showed that both groups were roughly homogenous in terms of gender, race, qualification and age distributions (Table 1).

Table 1: Demographic profile of participants

Variable	Intervention (N=19)	Comparison (N=29)	X^2-statistics[a]	t-statistics[b]	p-value
Gender, n (%)					
Male	5 (26.3)	14 (48.3)	2.315		0.128
Female	14 (73.7)	15 (51.7)			
Race, n (%)					
Malay	11 (57.9)	11 (37.9)	1.843		0.175
Non-Malay	8 (42.1)	18 (62.1)			
Qualification, n (%)					
Matriculation	16 (84.2)	26 (89.7)	1.008		0.604
HSC	2 (10.5)	1 (3.4)			
A-level	1 (5.3)	2 (6.9)			
Age, mean (SD)	19.00 (0.58)	18.93 (0.37)		0.505	0.616

[a] Chi-square test, p-value < 0.05 considered as significant different.
[b] Independent-t test, p-value < 0.05 considered as significant different

Table 2: Independent-t test results for the stress, anxiety and depression scores between groups at the time 1 and time 2.

Time	Variable [c, d]	Intervention (N=19)	Control (N=29)	t-statistics	p-value**
Time 1[a]	Stress score, mean (SD)	8.84 (7.25)	12.41 (9.79)	-1.362	0.180
	Anxiety score, mean (SD)	10.11 (8.10)	11.72 (10.61)	-0.565	0.575
	Depression score, mean (SD)	6.42 (8.10)	9.31 (9.56)	-1.085	0.283
Time 2[b]	Stress score, mean (SD)	8.84 (7.16)	14.14 (10.81)	-2.879	0.067
	Anxiety score, mean (SD)	8.32 (7.92)	15.38 (11.47)	-2.338	**0.024**
	Depression score, mean (SD)	3.79 (5.92)	11.45 (11.72)	-2.630	**0.012**

** Independent-t test, p-value < 0.05 was considered as significant different

[a] Data was collected during the third continuous examination of the year 1

[b] Data was collected during the final examination of the year 1

[c] Kolmogorov-Smirnov normality test was applied to test the normal distribution of each outcome. The normality test showed the p values were more than 0.05 indicating normal distribution.

[d] Levene's test for equality of variances also showed the p values were more than 0.05 which indicated the variances were equal.

The independent-t test showed that the intervention group had significantly lower mean anxiety and depression scores compared to the control group (Table 2) during the final examination (time 2). The intervention and control groups had approximately equal mean stress, anxiety and depression scores (Table 2) during the third continuous examination (time 1). These findings suggested that students who were exposed to the intervention significantly had lower anxiety and depression levels during the final examination.

Table 3: Paired-t tests results for stress, anxiety and depression scores.

Group	Pair	Variable [c]	Time 1[a]	Time 2[b]	t-statistics	p-value**
Intervention (N=19)	**1**	Stress score, mean (SD)	8.84 (7.25)	8.84 (7.25)	0.000	1.000
	2	Anxiety score, mean (SD)	10.11 (8.10)	8.32 (7.92)	0.794	0.437
	3	Depression score, mean (SD)	6.42 (8.10)	3.79 (5.92)	1.386	0.183
Control (N=29)	**4**	Stress score, mean (SD)	12.41 (9.78)	14.14 (10.81)	-1.345	0.189
	5	Anxiety score, mean (SD)	11.72 (10.61)	15.38 (11.47)	-2.412	**0.023**
	6	Depression score, mean (SD)	9.31 (9.56)	11.45 (11.72)	-1.360	0.185

** Paired-t test, p-value < 0.05 was considered as significant different
[a] Data was collected during the third continuous examination of the year 1
[b] Data was collected during the final examination of the year 1
[c] Kolmogorov-Smirnov normality test was applied to test the normal distribution of mean different (Time 2 – Time 1) for each outcome. The normality test showed the p values were more than 0.05 indicating normal distribution.

The paired-sample t test showed that anxiety score of the control were significantly increased during the final examination (Table 3). Other scores were not significantly increased during the final examination.

Table 4: Repeated Measure ANOVA results for stress, anxiety and depression scores.

	Stress			***Anxiety***			***Depression***		
Source	df	MS	F	df	MS	F	df	MS	F
Between subject									
Group	1	451.32	3.102	1	432.67	2.71	1	638.60	**4.45***
Subject/group	46	145.49		46	159.75		46	143.51	
Within subject									
Time	1	17.06	0.69	1	19.98	0.51	1	1.40	0.04
Time*Group	1	17.06	0.69	1	170.15	**4.35***	1	130.57	3.71
Time*subject/group	46	24.59		46	39.13		46	35.22	

MS = mean square, df = degree of freedom, F = F-statistics * p < 0.05

Mauchly's test of sphericity was applied to determine the equality of variances of stress, anxiety and depression scores. The test showed the p values were more than 0.05 indicating variances were equal.

The results of a 2 x 2(time x group) repeated measure ANOVA, conducted to examine group-time interaction effects as well as group and time effects, are displayed in the table 3. When taking both group and time effects and their interaction effect into consideration, observed differences in depression scores (p = 0.040) were statistically significant, however stress (p = 0.085) and anxiety (p = 0.107) scores failed to reach significance. This finding indicated that depression scores between intervention and control group were significantly different, while the stress and anxiety scores between the groups were approximately equal.

Figure 1 shows the magnitude of the intervention group's mean depression scores at times 1 and time 2 by contrast with those of the control group. The intervention and control groups, which were not differed significantly at the time 1, were distinguishable significantly from each other at the time 2 (table 2 and table 4). However, changes of depression scores over time for both groups were not significant (Table 3 and Table 4).

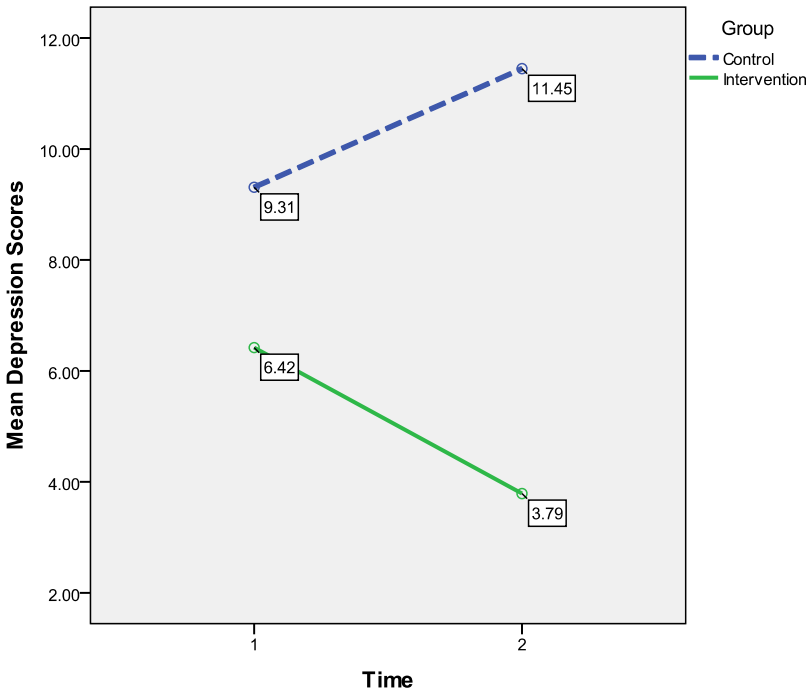

Figure 1: The comparison of mean depression scores between intervention and control group at the time 1 and time 2.

The results shows that there were significant interaction effect (p = 0.043) for anxiety scores, however its time effect (p = 0.478) failed to reach significance. It was also found that there were no significant time or interaction effects for stress and depression scores. This finding indicated that the changes of anxiety scores between time 1 and time 2 were significantly different, but the observed means between the groups were approximately equal. The stress and depression scores between the groups and over the times were roughly equal (Table 4).

Figure 2 shows the changes magnitude (score at times 2 – score at time 1) of the intervention group's mean anxiety scores by contrast with those of the control group. The result clearly shows that there was a reduction of anxiety scores in the intervention and an increased of anxiety scores in the control group (Table 4).

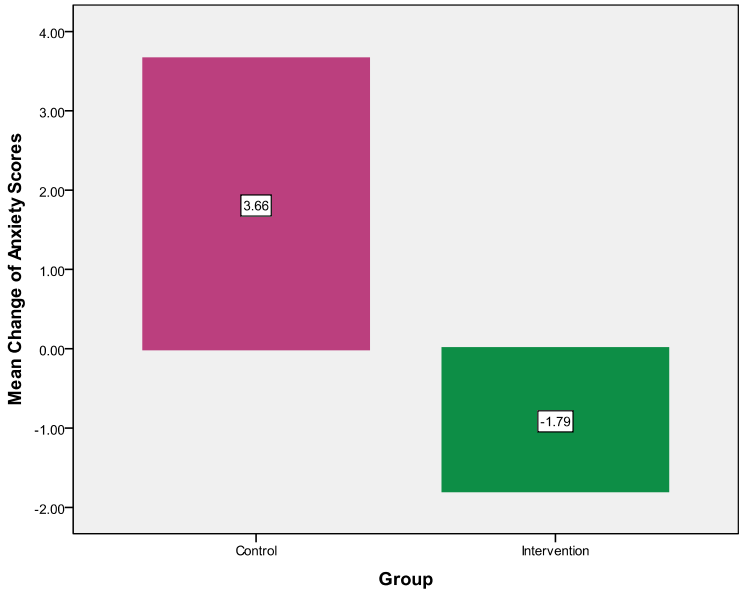

Figure 2: The mean change (time 2 – time 1) of anxiety scores between intervention and control groups.

Discussion

The brief stress reduction intervention was offered as part of the student development activities run by the Student Affairs and Development Department, Universiti Sains Malaysia for the new first year medical students. Merit points which would grant them privilege to get accommodation in the campus were given to students who voluntarily participated in the intervention. It was done as an effort by the university to address issues related to medical students stress, anxiety and depression during medical training as it was prevalent among them [3-6, 8-14].

It is clear that medical school training may affect medical student's health, in fact, it may be a health hazard to them [47]. This is the reason why many medical schools internationally, particularly in US, are attempting to change curricula to address those issues [8, 31]. To date numerous interventions were done to tone down the widely known stresses of medical training [8]. These interventions varied from short duration interventions such as the stress management workshop [33] to long duration courses such as mindfulness-based stress reduction courses [28, 29], wellness electives [23, 30] and the mind-body medicine course [31]. The outcomes of these interventions were varied [8].

The current study results suggested that students who were exposed to the brief stress reduction workshop developed skills that enabled them to cope more effectively with the stresses of medical training. These can be seen clearly during the final examination (time 2) where they had significantly reduction of anxiety level and lower depression level compared to their non-exposed classmates. Even more remarkable, the decreases of stress, anxiety and depression levels were decreased or sustained for duration of three months following the time 1. These findings suggest that the effects of the workshop may be sustainable. Therefore, a longer duration of follow up of this cohort is vital to confirm the sustainability of the effects. The author

postulates that the significant reduction of the intervention group's anxiety levels compared to the comparison group over time may be due to the students having intrinsically developed positive coping skills and improved stress management skills that allowed them to cope with stressful events much more effectively [48]. Even though this was not directly studied here, clearly it is an area of interest for further study.

It is worth noting that the literature consistently reported that medical students' psychological wellbeing deteriorates throughout the medical school training with the lowest point being found within examination periods [16, 23, 47]. For that reason data in this study demonstrates enhancement of medical student psychological wellbeing at a time when it would be expected to be at its lowest [16, 23]. These findings suggested that the brief stress reduction intervention has beneficial effects in toning down medical students' stress, anxiety and depression levels. The encouraging effects of the brief intervention found in this study are comparable with the effects found in the longer duration interventions such as mind-body medicine course and mindfulness-based stress reduction program [8, 28, 29, 31]. Although this was not the study objective, obviously it is an area of interest for further study. It is noteworthy that this study finding conforms to the previous findings of a previous study done by the author where the intervention was found to be an effective way in reduction of stress level and enhancement of psychological wellbeing among medical students [32]. In the light of this, it is worth noting that teaching future doctors on how to cope effectively with the stress of their profession will likely help both their future career success and development of positive personal qualities and well-being [34].

Clearly, the current study had several limitations. The first limitation is that both groups were not randomised. It can be said that the voluntary nature of the intervention was more likely to attract students who were highly motivated to change and thus more sensitive to any intervention process done. However, having students voluntarily participating in the intervention and comparing them to their classmates was found to be more practical and feasible [31]. The second limitation is that the stress, anxiety and depression level before the intervention was not measured due to the major limitation of the Ex Post Facto study design because of the fixed independent variables. Thus, post improvement as a result of the intervention cannot be concluded. Finally, the unequal sample size between the intervention and comparison groups may compromise generalisability of the results to the medical student population. Considering all these limitations, better study design such as a randomised control trial with a better student representation from pre-clinical and clinical years should be conducted in the future to confirm the findings of this study.

Even though the sample size for the intervention group in this study was small, this study used a validated instrument to measure the intended outcomes and had a control group to compare with. Nevertheless, this study has provided encouraging information on the potential benefits of the one-off brief stress reduction intervention. Furthermore, this brief stress reduction intervention can be easily replicated, adopted and implemented in any medical school due to the minimal time required and utilisation of non-specialist facilitators.

Conclusion

The current study findings consistently showed that student who were exposed to the stress reduction intervention had lower anxiety and depression levels compared to the non-exposed students during the stressful period of examinations. The decreases of the stress, anxiety and depression scores were sustained for three months after the continuous examination, suggesting that benefits of the brief intervention may be sustainable. Perhaps, the brief stress reduction intervention could be adopted by medical schools for their students since it can be easily replicated, adopted and implemented with a minimum duration of time as well as utilisation of non-specialist facilitators.

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ORIGINAL ARTICLE

STRESS, STRESSORS AND COPING STRATEGIES AMONG HOUSE OFFICERS IN A MALAYSIAN HOSPITAL

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Abstract

Objective: **Medical housemanship training has always been regarded as a highly stressful environment to doctors. This article described findings on stress, stressors and coping strategies among house officers in a Malaysian hospital.** ***Methods*****: A cross-sectional study was conducted on house officers in a Malaysian hospital. The 12 items General Health Questionnaire (GHQ-12), General Stressors Questionnaire (GSQ) and Brief COPE inventory were administered to measure perceived stress, sources of stress and coping strategies among house officers respectively. Data was analysed using SPSS version 12.** ***Results*****: Forty two house officers participated in this study. This study found that approximately 31% of the house officers were in distress. The top five stressors were fears of making mistakes that can lead to serious consequences, work overload, working with uncooperative colleagues, doing work that mentally straining and feeling of being underpaid. The most frequent coping strategies used by house officers were religion, acceptance and self-distraction.** ***Conclusion*****: This study found that there was a high percentage of distressed house officers. It also found that major stressors were related to performance pressure. The main coping strategy used by house officer was emotion-focused coping.** ***ASEAN Journal of Psychiatry, Vol.12(1), Jan – June 2011: 85-94.***

Keywords: medical housemanship training, stressors, stress, coping, house officer.

Introduction

Medical housemanship is a period of hospital-based service training of new medical graduates by close supervision of attending physicians. It transforms an academic medical student into a medical practitioner who is fully conversant with the daily requirements, workload and pressures of the doctors' roles. It is considered an important phase in the journey of medical practitioners. They are regarded as first line service providers in a hospital.

Studies have shown that the house officers still feel overburdened with work expectations and this had a negative effect on their health (1-5). In Malaysia, according

to a local newspaper report, a majority of doctors quit from medical career due to being over stressed (6). Hence, they were encouraged by the authorities to undergo stress management programme in order to improve their wellbeing. These facts suggested that the prevalence of work related stress was growing among doctors to an alarming level.

A previous study has shown that high workload, poor communication skills and feeling concern about missed or making wrong or missed diagnoses were major sources of stress to house officers (3). The stressors can lead to various negative consequences on their mental, emotional and physical health such as low self-esteem, job dissatisfaction and poor work performance (1, 3, 4). Sources of stress among house officers generally can be grouped into six groups: nature of job, interpersonal relationships, organizational working environment, work-family conflicts, and profession prospects (7). It is noteworthy that the stressors may vary between institutions. Therefore, understanding the nature of stressors may help authorities find ways to reduce the unwanted consequences of the stressors on the house officers' wellbeing in the future.

Coping strategies can be grouped into two general types; problem-focused and emotion-focused coping (8, 9). Problem-focused coping is aimed at problem solving or doing something to alter the source of stress. Emotion-focused coping is aimed at reducing or managing the emotional distress that is associated with the situation. Although most stressors elicit both types of coping, problem-focused coping tends to predominate when people feel that something constructive can be done, whereas emotion-focused coping tends to predominate when people feel that the stressor is something that must be endured (8, 9). Carver et al. (10) and Carver (11) have proposed 16 dimensions of coping: five dimensions assess conceptually distinct aspects of problem-focused coping (active coping, planning, suppression of competing activities, restraint coping, seeking of instrumental social support); five dimensions assess aspects of what might be viewed as emotion-focused coping (seeking of emotional social support, positive reinterpretation, acceptance, denial, turning to religion); and six dimensions assess coping responses that are less useful (focus on and venting of emotions (venting), behavioral disengagement, mental disengagement (self-distraction), humor, substance use, self-blame). These coping strategies if used effectively might buffer the unwanted impacts of stressful situation on physical, emotional and mental wellbeing (12).

Based on previous studies, prevalence and sources of stress among undergraduate medical students was well established (13, 14), however, there is very limited data for house officers. The purpose of this study is therefore to investigate stress condition among house officers, the factors that cause stress on them and their coping methods. It is hoped that the data obtained from this study will provide useful information for future studies.

Methods

There were a total of 58 house officers available in the year of 2009 for study selection from Universiti Sains Malaysia Hospital which is an accredited teaching hospital for undergraduate and postgraduate medical education.

A cross-sectional study design was used in this preliminary study. Sample size was

determined based on the Roscoe rule of thumb which recommended that 30 subjects were adequate for a preliminary study (15). The study sample size calculated after taking 30 percent dropout rate into consideration was 43 subjects. Non-probability convenient sampling method was applied in selecting study subjects.

The 12-item General Health Questionnaire (GHQ-12) was used to measure participants' perceived stress level, the General Stressor Questionnaire (GSQ) was used to identify sources of stress, and the Brief COPE was used to identify coping strategies. The questionnaires were self-administered. It was administered to the participants during face to face sessions in a hall. All data collection was done by investigators. The participants were told to follow the instructions. The process of filling the questionnaire took about 15 to 25 minutes and the questionnaires were to be returned on the same day.

The GHQ-12 is a well-validated instrument used to measure overall emotional wellbeing and commonly used in studies looking into distress in populations (16-22). It is one of the most widely used measurement tool to measure perceived stress level. Reliability coefficients of the questionnaire have ranged from 0.78 to 0.95 in various studies (17). The items of GHQ-12 represent 12 manifestations of stress and respondents were asked to rate the presence of each of the manifestations in themselves during recent weeks. This is done by choosing from four responses, typically being 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. The scoring method is a binary scoring method where the two least symptomatic answers score 0 and the two most symptomatic answers score 1 – i.e. 0-0-1-1. The GHQ-12 scores range from 0 to 12. The sensitivity and specificity of the GHQ-12 score at cut-off point of 4 were 81.3% and 75.3% respectively with positive predictive value of 62.9% (16, 21, 22). Participants who scored GHQ-12 equal to 4 and above were considered as having significant distress and taken as 'cases' in this study.

The GSQ was designed and developed based on two validated stressor questionnaire designed by Chan et al. (23) and Yusoff et al. (24). The GSQ has 28 items with 7 domains; family, performance pressure, work-family conflicts, bureaucratic constraints, poor relationship with superior, poor relationship with colleagues and poor job prospect. Each of these domains consists of four items. The items of GSQ were rated under 5 categories of responses (causing no stress at all, causing mild stress, causing moderate stress, causing high stress, causing severe stress) to indicate intensity of stress caused by them.

The Brief COPE is a validated inventory and it is used to identify ways in managing stress (10, 11). This inventory consists of 30 items and were rated under 4 categories of responses (I haven't been doing this at all, I've been doing this a little bit, I've been doing this a medium amount, I've been doing this a lot) to indicate how frequent they have been doing what the items say. There are 15 domains covered in this form which are behavioral and mental disengagement, active coping, seeking of instrumental support, seeking of mental support, focus, positive interpretations, planning, humor, acceptance, turning to religion, restraint coping, denial, substance abuse, suppression of competing activities and self blame.

Consent was obtained from the participants. Clearance was obtained from the Human Ethical Committee of the university prior to

the start of the study. The collected data were analysed using Statistical Package for Social Sciences (SPSS) version 12. Data were entered, checked for data entry errors, explored and cleaned. Reliability analysis was applied to test the internal consistency (reliability) of the GSQ; it is considered as having high internal consistency if the Cronbach's alpha value is more than 0.7 (25). Descriptive statistics was applied for analysis of the demographic data, the percentage of distressed students was determined based on GHQ-12 score, stress intensity caused by the stressors, and frequency of coping strategies used by them.

Results

Table 1 shows that a total of 42 house officers responded to this survey, out of whom 25 (59.5%) were female. Majority of participants were Malays, 38 (90.5%), and Muslims, 39 (92.9). Participants graduated from various universities such as UM, UKM and USM. The mean working experience and working duration of participants were 17 months and 10 hours per day respectively as shown in table 1.

Table 1: Profile of participants.

Variable		**House Officers, (n = 42)**
Gender, n (%)	Male	17 (40.5)
	Female	25 (59.5)
Graduated from university, n (%)	UM	4 (9.5)
	UKM	3 (7.1)
	USM	9 (21.4)
	UPM	3 (7.1)
	UMS	1 (2.4)
	UNIMAS	3 (7.1)
	Others	18 (42.9)
Race, n (%)	Malay	38 (90.5)
	Chinese	3 (7.1)
	Indian	1 (2.4)
Religion, n (%)	Islam	39 (92.8)
	Buddha	1 (2.4)
	Christian	1 (2.4)
	Hindu	1 (2.4)
Marriage status, n (%)	Bachelor	25 (459.5)
	Married	16 (38.1)
Working experience in month, mean ± SD (minimum, maximum)		17.46 ± 3.16 (8, 24)
Working duration per day in hour, mean ± SD (minimum, maximum)		10.98 ± 5.71 (7, 36)

(UKM = Universiti Kebangsaan Malaysia; USM = Universiti Sains Malaysia; UPM = Universityi Putra Malaysia; UMS = Universiti Malaysia Sabah, UNIMAS = Universiti Malaysia Sarawak)

Reliability analysis shows that the Cronbach's alpha value for the GSQ was 0.94. Whereas, Cronbach's alpha values for family, poor relationship with superior, bureaucratic constraints, work-family conflicts, poor relationship with colleagues, performance pressure, and poor job prospect domains were 0.70, 0.78, 0.66, 0.69, 0.78, 0.80, and 0.72 respectively. The analysis shows the GSQ is a reliable tool in identifying house officers' stressors. The percentage of distressed house officers was 31% which is in the high side.

Table 2: Rank of stressors according to the stress intensity perceived by house officers.

Rank	Item	Stress intensity perceived by house officers*	
		Mean	Standard Deviation
1	Fear of making mistakes that can lead to serious consequences	2.29	0.92
2	Work overload	2.05	1.01
3	Working with uncooperative colleagues	1.86	0.95
4	My work is mentally straining	1.81	1.11
5	Feeling of being underpaid	1.71	1.23
6	My life is too centered on my work	1.67	1.09
7	Work demands affect my personal/home life	1.67	0.93
8	Having to do work outside of my competence	1.64	0.93
9	Time pressures and deadlines to meet	1.62	1.01
10	Lack of support from superior	1.57	1.02
11	Working with incompetence colleagues	1.52	0.97
12	Insufficient knowledge in educating and building child/children characters	1.52	0.97
13	Advancing a career at the expense of home/personal life	1.50	0.97
14	Unable to make full use of my skills and ability	1.43	0.70
15	Lack of authority to carry out my job duties	1.40	0.89
16	Lack of promotion prospects	1.33	1.09
17	Inadequate preparation for dealing with more difficult aspects of family matters	1.33	1.05

18	Unfair assessment from superior	1.33	0.98
19	Difficulty in maintaining relationship with superior	1.33	0.95
20	Poor relationship with spouse	1.31	1.20
21	Feeling insecure in this job	1.24	1.01
22	Cannot participate in decision making	1.24	0.76
23	Relationship problems with colleagues/ subordinates	1.21	0.95
24	Absence of emotional support from family	1.10	1.14
25	Competition among colleagues	1.07	0.81
26	My beliefs contradict with those of my superior	1.00	0.88
27	Society does not think highly of my profession	0.90	1.03
28	Poor communication and relationship with family members	0.86	0.90

*0.00 – 1.00 = Causing none to mild stress, 1.01 – 2.00 = Causing mild to moderate stress, 2.01 – 3.00 = Causing moderate to high stress, 3.01 – 4.00 = Causing high to severe stress

Table 2 lists the stressors rated by participants. The top five stressors were fears of making mistakes that can lead to serious consequences, work overload, working with uncooperative colleagues, doing work that mentally straining and feeling of being underpaid. Most of the stressors were related to performance pressure as shown in Table 3.

Table 3: Rank of stressor domains according to the stress intensity perceived by house officers.

Stressor domain	Stress intensity perceived by house officers*	
	Mean	Standard Deviation
Performance pressure	1.98	0.91
Poor relationship with colleagues	1.49	0.81
Bureaucratic constraints	1.49	0.68
Work-family conflicts	1.37	0.89
Poor Job prospect	1.32	0.91
Poor relationship with superior	1.27	0.84
Family	1.27	0.78

*0.00 – 1.00 = Causing none to mild stress, 1.01 – 2.00 = Causing mild to moderate stress, 2.01 – 3.00 = Causing moderate to high stress, 3.01 – 4.00 = Causing high to severe stress

Table 4: Rank of coping strategies according to mean score as rated by house officers.

Rank	Coping Strategy	Mean*	Std. Deviation
1	Religion	6.83	1.32
2	Acceptance	5.95	1.56
3	Self-distraction (Mental Disengagement)	5.68	1.33
4	Positive reinterpretation	5.20	1.71
5	Use of emotional support	5.15	1.87
6	Active Coping	5.10	1.18
7	Use of instrumental support	5.02	1.57
8	Planning	4.93	1.81
9	Restraint coping	4.44	1.42
10	Self-blame	4.39	1.63
11	Humour	4.22	1.57
12	Focus on and Venting of emotion	4.00	1.29
13	Behavioural Disengagement	3.39	1.70
14	Denial	3.37	1.58
15	Substance Abuse	2.39	1.12

*minimum score is 0 and maximum score is 8. Mean score interpretations are as below:
2.00=haven't been doing this at all, 2.01-4.00=have been doing this a little bit,
4.01-6.00=have been doing this a medium amount, 6.01-8.00=have been doing this a lot.

Discussion

The percentage of distressed house officers found in this study was relatively higher compared to the figure mentioned by the Malaysian Director-General of Health Tan Sri Dr Mohd Ismail Merican where every month, at least five doctors (20%) were found to be suffering from mental illnesses (26). The percentage is relatively similar to the stress prevalence in undergraduate medical students and postgraduate trainees as reported in previous studies (13, 14). The similarity was perhaps due to similar medical environment that the groups faced. This alarming finding suggested a sense of growing pressure among the doctors. However, since this a preliminary data, further study with larger sample size should be done to confirm this finding.

This present study found that the major stressors among house officers were related to performance pressure. The sources of stress among house officers were relatively similar to the stressors of postgraduate medical trainees as reported by a previous study (14). Perhaps, the possible reason for this is due to the similar intensity of workload they were responsible for. This present study also showed that fears of making mistakes that could lead to serious

consequences, work overload, and working with uncooperative colleagues were the three most stressful events perceived by the house officers followed by other stressors as shown in table 2. It is noteworthy that the stressors rated highly by the house officers were relatively different to those rated highly by undergraduate and postgraduate such as test and examinations, too much content to be learnt, lack of time to do revision, and time pressures as reported by previous studies (13, 14, 26). The dissimilarity is perhaps due to the difference focus of the groups where undergraduate and postgraduate medical trainee focuses are more on academic, whereas for house officers are more on services to patient.

It is interesting to highlight that, compared to undergraduate and postgraduate medical students (13, 14, 21), fears of making mistakes that can lead to serious consequences and working with uncooperative colleagues were perceived as stressful events by the house officers. Obviously, social support from superiors and colleagues influenced the stress level of the house officers (27, 28). Further studies should be conducted to confirm this hypothesis and to explore further the risk factors that contribute to house officers' stress level.

Coping strategies is defined as how a person react or response toward a stressor (29). Effective and appropriate coping strategies may minimize the impact of encountered stressful situations on one's wellbeing (12). This study found that the main coping strategies practiced by the house officers were turning to religion, acceptance and self-distraction; all of the coping strategies are classified under emotion-focused coping where it is usually used when stressors were something that must be endured and cannot be removed (10, 11, 29). Two of the coping strategies (religion and acceptance) were positive coping strategies which have been reported in previous studies as very adaptive and hasten the recovery from distress, however self-distraction is a maladaptive coping strategies which can delay recovery from distress (10, 11, 30). It should be noted that, despite positive coping strategies used dominantly by the interns, the prevalence of distress was still very high. Perhaps their condition could be improved if they can avoid using self-distraction as their coping method and to adopt better coping methods such as positive reinterpretation, active coping and planning. It will be interesting to explore this matter further in the future studies.

This study has several limitations that should be considered in the future studies. The sample size in this pilot study was relatively small and not representing the actual distribution of the study population in term of gender, ethnic groups, years of study and religion. Furthermore, convenient sampling method that was used in this study may lead to sample bias which may compromise accuracy of the result. Even more, the GHQ cut-off point used in this study was based on other population cut-off point which may lead to inaccuracy of the result; either it can be lower or higher. Therefore, findings of this study should be interpreted cautiously. Apart from that, this pilot study has provided a useful data for future studies in such areas.

Conclusion

This study has shown that the prevalence of distressed house officers is high and alarming. The major stressors that were faced by them were related to performance pressure. The main coping strategies of the house officers were emotion-focused coping.

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REVIEW ARTICLE

DEMENTIA IN MALAYSIA: ISSUES AND CHALLENGES

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Abstract

Objective: **The number of people surviving until old age has been increasing worldwide. Reductions in both fertility and mortality rates, better living standards, nutrition and health care are claimed to be the key factors that increase the proportion of aged people within the population. Nevertheless, growing numbers of older adults also increases the susceptibility to diseases that commonly afflict the elderly, such as dementia. In this article, we discuss on the current issues of dementia in Malaysia and its challenge in providing a better management and services for this population.** ***Methods and Results:*** **Review of literature by searching the databases CINAHL, SCOPUS, MEDLINE and PsychINFO from June 2010 to November 2010 was done on the issues involving dementia patients in Malaysia such as ageing trend, awareness and availability of services.** ***Conclusion:*** **Despite a limited number of studies on dementia in Malaysia, literature revealed the importance of acknowledging the issues and improving the services for the patients. Efforts should be made by the government and private sectors to promote healthy ageing in Malaysia.** ***ASEAN Journal of Psychiatry, Vol.12(1): Jan – June 2011: 95-101***

Keywords: Dementia, Cognitive impairment, Malaysia, Elderly

Introduction

Malaysia is one of the developing countries located in Southeast Asia. It consists of thirteen states and three Federal Territories with a total landmass of 329,845 square kilometers (127,354 sq mi)**.** The population stands at over 28 million people with proportions of 50.4% Malay, 23.7% Chinese, 11% indigenous, 7.1% Indian and 7.8% others. The population growth rate for the country in 2009 is about 1.7% per annum with life expectancies at birth for males and females at 70.5 years and 76.2 years respectively [1].

Using United Nations (UN) and the Malaysian Ministry of Health recommendations to define elderly or 'old age' in Malaysia, Karim [2] reported that the proportion of the total population who were elderly had increased steadily from 4.6% in 1957 to 5.7% in 1990. It is also predicted that the proportion will continue to increase from 6.3% in 2000 to 12% by the year 2030 [3]. The details are shown in Figure 1.

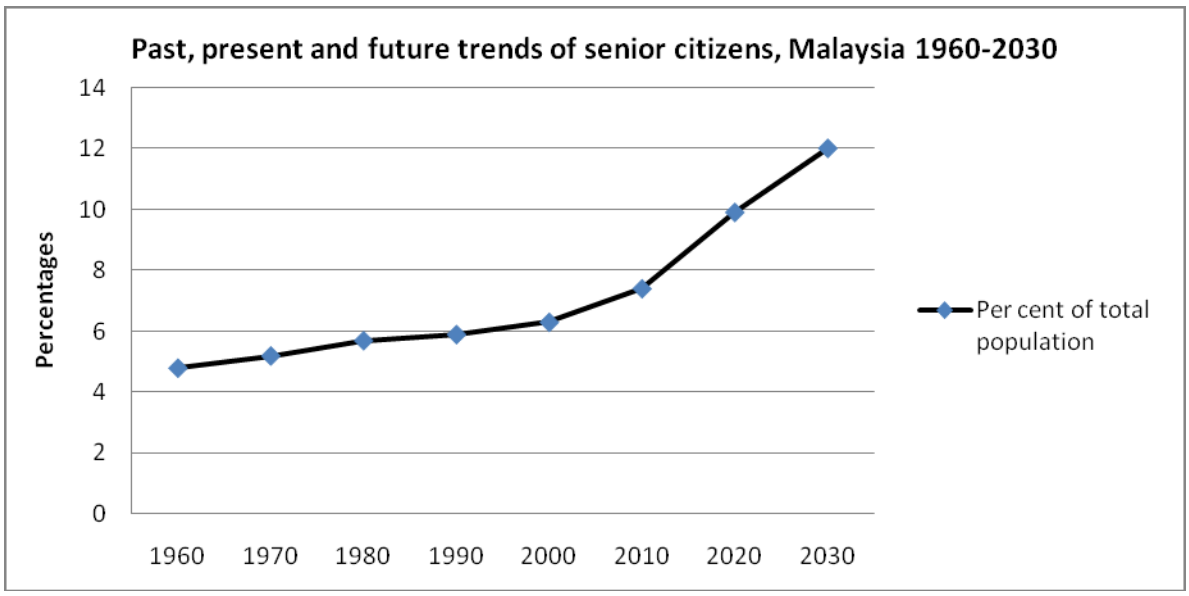

Figure 1: Past, present and future trends of senior citizens, Malaysia 1960-2030. **Source**: Department of Statisics of Malaysia

Whilst the number of people reaching old age is increasing, it is of concern to health care providers and government [4,5]. Among the issues causing this concern are the social, economic and wellbeing effects [6]. For example, the most common disabling illness associated with old age is dementia [5], of which there are many types including Alzheimer's Disease, vascular dementia and dementia due to general medical conditions (substance abuse, head trauma, HIV) [7]. According to the Alzheimer Disease International report, the prevalence of dementia in Malaysia in 2005 was 0.063% and the annual incidence rate 0.020% [5]. It is projected that this figure will increase to 0.126% and 0.454% in 2020 and 2050 respectively [5]. With its rapid growth and morbidity, it ranks the second on the burden of disease in Asia Pacific Region compared to sexually transmitted diseases (excluding HIV/AIDS), poisoning, peptic ulcer, malaria and breast cancer [8].

However, Malaysia, like other countries in the Asia Pacific region may not be well prepared to provide quality health and care services for people with dementia and their caregivers [5]. Among the challenges in dealing with dementia in Asia include limited awareness of the disease itself, the existence of stigma, underutilization of services, urbanization and migration, and credibility of health care professionals [5,6, 9 – 12].

Methods

A systematic review of English articles was conducted by searching the databases CINAHL, SCOPUS, MEDLINE and PsychINFO from June 2010 to November 2010. Keywords used include dementia, cognitive impairment, Malaysia, elderly, problem and issues.

Results

A total of 407 studies matched the search and were screened using the following selection criteria: (i) studies on dementia patients in Malaysia (ii) studies involving elderly in Malaysia. Studies that focus on pharmacotherapy, validation of instruments and other psychological and medical problem (ie: depression, schizophrenia and

HIV related) were excluded. Relevant literatures mostly discussed on three issues: Awareness and stigma related to dementia, the availability of resources and services and the credibility of health care professional in recognising the symptoms and providing supports to the patients and their caregivers.

Discussion

Awareness of dementia and stigma

The main issues and challenges in dealing with dementia in Malaysia are awareness and stigma. Both awareness and stigma associated with an illness are important factors in determining how people response towards it [10]. Regarding dementia awareness, most people in Asian countries like Malaysia, perceive dementia as a normal part of aging instead of a specific condition that needs to be treated [13-15]. According to Tsolaki et al [15], 73% of caregivers in their study did not recognize the signs of dementia and misinterpreted these as a normal sign of aging. As a result, it took about 6 to 16 months for the care givers to seek medical advice from health professionals [15].

Delay in illness detection subsequently leads to poor quality of life and may induce excessive stress and strain for families [14, 16]. In addition, it also hinders people with dementia and their relatives from seeking medical and social welfare services as they may not be aware of what help is available, they may perceive it as not appropriate for them, there are issues of time commitment and cost of care [5,10,17,18].

Stigma is another issue that plays an important role in determining responses to dementia. Findings from a study by La Fontaine in exploring people's perceptions of ageing and dementia revealed that stigma and ignorance were two major issues that hindered people from seeking help [10]. This is further supported by other study by McKenzie where carers acknowledged that having a family member with dementia would invite condemnation from others in their own community. As a result, there was a loss of social connectedness with friends or other family members for the carers [19].

Resources and services

The resources and services available within the country were explored based on the information available from the Ministry of Women, Family and Community Development of Malaysia and relevant Non-Government Organisations (NGOs) websites.

To date, various community health and support services are available to assist older adults with dementia and their caregivers. In Malaysia, these services are under the responsibility of Social Welfare Department of Malaysia. Services provided by the ministry include health care, guidance, counseling, recreation, religious teaching and welfare services [20]. Welfare services in this context refer to financial assistance and institutional care which are predominantly for those without family and the indigent. Persons age 60 and above who are registered with the Social Welfare Department will be given a monthly allowance of RM200 under the scheme called Aid for Older Persons and they are also entitled a discount when purchasing artificial/orthopedic appliances and spectacles or domestic travel [20].

The Ministry also administers 13 Homes for the Older Persons to accommodate those without the next of kin and 15 Day Care Centers for the elderly who live in the community [20]. A number of NGO's are also involved in providing services to older people. In May 2000, it was reported that

3,218 NGO's were involved in welfare and with majority of them involved in providing support for the needs of the elderly. In addition, 157 institutional care and shelters run by the NGOs were built to cater the growing demands for services from people of different social situations [20].

In addition, community support services were introduced with an aim to assist people with health or social problems maintain the highest possible level of social functioning and quality of life. In Malaysia, the most common type of community support services are palliative home care provided by Hospis Malaysia and day care centres. The Palliative home care team consists of palliative care doctors, nurses, pharmacist, clinical psychologist and occupational therapists who visit patients at home, hospitals and nursing homes [21]. Day care centers on the other hand provide care for the elderly who lived alone while their caregiver went to work. Activities that were offered at the day care centers include recreation, sports, rehabilitation, religious class and skill development [22]. Nevertheless, despite the advantages of having these resources, the availability of psychiatric care is still lacking especially in rural areas. It is reported that the ratio for psychiatrist in Malaysia is around 0.05 to 0.60 per 100 000 population. This is significantly differ when compared to other developed countries like Australia and other European countries which have a ratio of 9 to 28.5 per 100 000 population [23].

Furthermore, ignorance on the resources and services available can leads to the underutilization of these facilities [11,24,25]. In a study done by Brodaty on 109 dementia caregivers in Australia, out of 7 services offered in the community, 34.9% of the respondents did not receive any community services, 25.7% used only one service, 14.7% used two services and 12.8% used three services. Only 11.9% of the respondents used more than 3 services [24]. The most common reasons given for non-use were: perceived lack of need, with 65.2% for non-use respite and 91.7% for non-use community nursing; and resistance to accepting help from services, with 12% for non-use respite and 9% for general home help [24].

Credibility of the health care professionals

Another issue in dementia care relates to the credibility of health care professionals. Providing mental health services to a multicultural community is a challenge to the health care system [11,18, 26]. Differences in religious belief, language and perceptions of mental illness which varies across ethnic groups has been acknowledged as factors that coloured help seeking behaviours in this population [27].

These difference are acknowledged as factors that colour help seeking behaviours in this population [27]. In a study done by La Fontaine and colleagues in exploring the perceptions of ageing, dementia and associated mental health difficulties amongst British South Asians of Punjabi Indian origin, one of the respondent quoted: 'we are afraid to come to mental health services because no one will speak our language…it's so difficult to express emotional difficulties in another language' (group 3) [10]. In other study on care-giving among minorities, caregivers acknowledged that they might consider using the health care services if the provider was trained and sensitive to religious and cultural issues [28].

In addition, studies have also found that lack of knowledge among physicians hindered the caregiver from reaching out to available services and supports provided for dementia patients and their caregivers [9,26]. Bruce

and Paterson, for example, revealed that several carers complained about the credibility of the general practitioners (GP) to refer dementia patients to appropriate services; and three respondents reported that their GP had no knowledge of what support services were available [9]. Additionally, there are issues around the poor quality of some services and ethnocentric issues that hinder the elderly and the caregiver from using available services [9,19,28,29].

Conclusion

Dementia has been recognized as one of the troubling illnesses among the elderly. As the population ages, it is predicted that dementia will become increasingly important. Although care management for the elderly in Malaysia is still under development, efforts are being made by the government to improve the care provided for the elderly with dementia. A range of services and incentives have been introduced for the benefits of dementia patients and their caregivers. Nevertheless, these benefits will be useless if the end-users do not utilize the services provided for them.

Therefore, importantly, efforts should be made to develop awareness and increase the knowledge about dementia among the general public and health care providers. This can be achieved by providing appropriate training to the health care providers such as nurses, physicians, geriatricians, etc. In addition, communication with patient and their care givers are also important to encourage understanding about the disease, its progression, services available and other resources. Government and private sectors also need to share responsibility in order to promote healthy ageing.

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REVIEW ARTICLE

PARANOID DELUSIONS: A REVIEW OF THEORETICAL EXPLANATIONS

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Abstract
Objective: There are two general theoretical explanations for delusions, the deficit and the motivational. In the deficit approach, scientists have argued that delusions are the consequences of fundamental perceptual or reasoning deficits which cause the individual to misunderstand what is happening in the world. The second approach views delusions as serving a defensive, palliative function, as representing an attempt to relieve pain, tension and distress. *Methods:* The present review article is based on literature review about Paranoid Delusion theories. *Results and Conclusion:* This article reviews the most important theories in the above mentioned approaches and it has found that we need more studies to verify the results of these approaches. The deficits in reasoning ability for example, need more explanations to show how and why these deficits occur and cause persecutory delusions. In this article I suggest that there are basic cognitive impairments that lead to disturbances in the mental imagination. These disturbances result on the two cognitive deficits (two losses) and force a person to have delusional beliefs. This study is a qualitative study based on judgments of some cases which the researcher has had the opportunity to study. ***ASEAN Journal of Psychiatry, Vol.12(1), Jan – June 2011: 102-110***

Keywords: **Persecutory delusion, paranoid delusion, mental imagination, problem solving method.**

Introduction

Delusions are defined as fixed false beliefs which are unfounded, unrealistic, and idiosyncratic [1]. These false beliefs are held despite the presence of evidence to the contrary [2]. It is "based on incorrect inference about external reality that is firmly sustained in spite of what almost everyone else believes and in spite of what usually constitutes incontrovertible and obvious proof or evidence to the contrary. The belief is not one ordinarily accepted by other members of the person's culture or subculture (e.g., it is not an article of religious faith)" [3].

Definitions of this sort have been criticized because it is not obvious, but what constitutes an ''incorrect inference'' or "incontrovertible and obvious proof or evidence" [4]. However, these definitions of delusions have a qualitative difference from normal beliefs. The delusional beliefs are false in that they are not justified by the evidence [5] and are held with unusual conviction, whose absurdity is manifested to others and which are not amenable to logic. These monolithic definitions also have been modified in the light of so many recent

phenomenological studies, which lead to now conceptualizations as "dimensional entities rather than categorical ones, lying at the extreme end of a “belief continuum” " [6].

On the other hand, "delusion is a key clinical manifestation of psychosis" [7] and with hallucination it constitutes first-rank symptoms in disorders of schizophrenia such as schizophrenia, schizoaffective disorder, and delusional disorder [8,9]. Although, the DSM- IV A criteria for schizophrenia may be met in the absence of delusional ideas [3] "delusions also occur in dementia, temporal lobe epilepsy, Huntington’s disease, Parkinson’s disease, multiple sclerosis, and traumatic brain injury" [9]. So delusions have been referred to as “the sine qua non of psychosis” in general [10] and for schizophrenia in particular [8].

According to the primary themes, delusions also can vary ranging from the bizarre to the moderate humdrum [9] and divided into more subsymptoms such as delusions of control, persecutory delusion, grandiose delusions, and delusions of reference. Grandiose and Persecutory (Paranoid) delusions have received more attention than other kinds of abnormal beliefs because they are very commonly observed in clinical practice [11].

These observations probably have some cross-cultural validity, for example Sartorius, and colleagues [12] present findings from a World Health Organization prospective study in ten countries of individuals with signs of schizophrenia making first contact with services (N=1379) show that the persecutory delusions are the second most common symptom of psychosis, after delusions of reference, occurring in almost 50% of cases. Zolotova and Brune [13] compared between two samples of German and Russian patients with delusions of persecution, and they found (57.1%) from German patients and (53.44%) from Russian patients were classified correctly on the basis of the model for " identity of persecutors." Jorgensen and Jensen (14) found that 37 of 88 deluded patients had persecutory beliefs. These findings show that the persecutory delusions have high prevalence rates among patients of schizophrenia, and it shows the importance of studying this phenomenon.

Theories of Paranoid Delusions

We can distinguish between two general classes of theoretical explanation for delusion: the deficit and the motivational [11,15,16]. In the deficit approaches, scientists have argued that "abnormal beliefs are the consequences of fundamental perceptual or reasoning deficits which cause the individual to misunderstand what is happening in the world, whereas, others have held that they are motivated beliefs — beliefs that despite their apparent bizarreness serve some intra-psychic function for the individual" [11].

The deficits theories involve the notion of deficits or defects, which view delusions as the consequence of fundamental cognitive or perceptual abnormalities, ranging from wholesale failures in certain crucial elements of cognitive-perceptual machinery, to milder dysfunctions involving the distorted operation of particular processes.

Maher [17] has proposed that “delusions arise from the application of normal reasoning processes to abnormal

experiences" [18]. And the delusions reflect rational attempts to explain anomalous experiences. According to this view delusions arise when a patient applies normal logic to abnormal experience or perception; thus, someone who is hearing voices may deduce that a group of scientists have invented a special machine that "broadcasts" these voices [19]. Maher [20] thus emphasizes that delusional ideas spring from unusual internal experiences. He maintains that delusions do not arise via defective reasoning, but rather constitute rational responses to unusual perceptual experiences, which are, in turn, caused by a spectrum of neuropsychological abnormalities.

Maher highlights how hearing impairment, conceived as an anomalous experience, can lead to paranoid thoughts. Some studies found evidences about associations of paranoia and hearing difficulties in older adults [21], although this result is not always found [22,23]. In the recent study Freeman [24] concludes that "the anomalous experiences account is a difficult and under- researched area of study and it is frequently found in individuals with delusions but the nature of their relationship remains to be tested convincingly".

The current model of delusion formation and maintenance is known as the "two deficits" or "two factors" models, [25,26]. These models incorporate an empiricist perspective on delusion formation [27].

In addition to Maher's theory, Coltheart and colleagues [9] "identify perceptual anomalies that may potentially be involved in a series of other delusions. They note that such first deficit experiences are not sufficient for the development of delusions. Coltheart and his colleagues thus claim that Maher's account is incomplete, and invoke a second explanatory factor — a deficit in the machinery of belief revision". And it is "hypothesized that the individuals with this second deficit are unable to reject implausible candidates for belief, once they are suggested by first-factor perceptual anomalies" [9].

In the other deficit theory, David Hemsley and his colleagues have various hypotheses about logical reasoning. They suggest that "delusions are more than statements of experience, and involve an abnormal evaluative judgment arising from reasoning biases" [18]. And it is probable, delusions may arise through defective Bayesian reasoning [28].

Brennan and Hemsley [29] observed that paranoid patients perceived illusory correlations between pairs of words that had only appeared together at random, particularly when these words are related to their delusion. Hemsley and Garety [28] have suggested that "some delusions result from deficits in the ability to weigh new evidence and adjust beliefs accordingly" [19].

Both of these last accounts [17, 20, 15] suggest that deluded patients reach conclusions about the world in much the same way that scientists reach about theoretical beliefs, but assume that the processes leading from evidence to deduction are somehow dysfunctional in the psychotic patient [11], although evidence for reasoning ability impaired in deluded patients is far from convincing. Simpson & Done [16] found the performance by the deluded group was certainly impaired when compared with the depressed and non-psychiatric control groups though less

convincingly so when compared with the non-deluded schizophrenia group. The impairment shown by the deluded schizophrenia group seemed to occur at the initial stage of the reasoning task.

However, comparisons between paranoid and non-paranoid subgroups, while finding no evidence of gross reasoning impairment on the part of the paranoid subjects, have indicated specific cognitive styles. Nicholson and Neufeld [30] found impairments in specific reasoning ability in paranoid patients who have particular difficulty in extracting from their environment the stimulus properties necessary for informed responses. Interestingly, McKenna [31] found problems in semantic memory could lead to delusion formation. Studies, also, found deficits in semantic memory in deluded patients [32].

This field of theory has been supported from a number of resources, for example "there is a large body of evidence documenting the disruption of information processing in psychotic individuals leading to a variety of perceptual disturbances" [18]. Delusions also occur in a large number of medical and psychological conditions [33]. And those irrational beliefs can be induced in the general population under anomalous environmental conditions [18].

However, there is a growing body of evidence demonstrating reasoning and attribution biases in people with delusions [34, 35]. This attempt presents challenges for Maher's position. "Garety and her colleagues demonstrated that deluded people have a 'jump-to-conclusions' (JTC) reasoning style on a probabilistic reasoning task (the 'beads' task). They require less information before making a decision, and are more likely to revise their hypothesis in the light of disconfirmatory evidence. These results suggest that "limited amount of information represent sufficient evidence for a hypothesis to be accepted, thereby increasing the likelihood of inaccurate beliefs being formed hastily" [18].

The second type of delusional theories view delusions as serving a defensive, palliative function, as representing an attempt to relieve pain, tension, and distress. Such theories regard delusions as providing a kind of psychological refuge or spiritual salve, and consider delusions explicable in terms of the emotional benefits they confer. "This approach to theorizing about delusions has been prominently exemplified by the psychodynamic tradition with its concept of defense, and by the philosophical notion of self-deception. From a motivational perspective, delusions constitute psychologically dexterous (sleights of mind)" [39] deft mental maneuvers executed for the maintenance of psychic integrity and the reduction of anxiety [9]. The important theory in this field is Firth's theory [19]. He suggested the **"Inability to monitor the beliefs and intentions of others leads to delusions of reference, paranoid delusions, certain kinds of incoherence, and third person hallucinations (p.115)".**

He thinks the paranoid delusions and delusions of reference both occur because the patient has made incorrect inferences about the intentions of other people. Patients, with delusions of reference incorrectly, believe that other people are intending to communicate with them; this means a person with schizophrenia mistakenly labels an action as having an intention behind it. "Will patients with paranoid delusions unlike autistic individual, know that

other people have minds, but have lost the full capacity to make appropriate inferences concerning the contents of other people's minds" [36]. And they believe that other people are intending them harm, so other peoples' actions have become opaque and surmises that a conspiracy exists [24].

Frith [19, 37] proposes that symptoms of schizophrenia develop from newly acquired difficulties in a person's 'theory of mind' skills (ToM), and refers to the ability to understand mental states (beliefs, desires, feelings, and intentions) in the self or others. But he notes the (ToM) findings for paranoia may be more equivocal [37]. This is because ToM difficulties have been hypothesized to explain several symptoms of psychosis, the majority of studies have tested a group of people with schizophrenia and examined associations between symptoms of psychosis and ToM performance, but the majority results of these studies did not support ToM theory [24].

Discussion and New Suggestions

In this review the author focuses on two general classes of delusional theories, the deficit and the motivational, especially the theories of Maher, Hemsley, and Frith. According to Maher's theory [15,20] delusions arise when the individual applies normal logic to abnormal perception (Reasoning Deficits). But this view is not clear, so the author need more studies to verify it. We do not know how or why the reasoning deficits occur, thus the deficits in reasoning ability need more explanations about the primary causes of this deficit, thus I suggest that there are other basic cognitive impairments lead to reasoning deficits in deluded patients.

In the other hand, I do not think that the failure in the monitor of beliefs and intentions of others can lead to delusions of reference or paranoid delusions. The disturbing question here is how this process leads to forming fixed false beliefs. The paranoid beliefs are more fixed beliefs, and some paranoid beliefs are more false compared with social culture. So to get this type of delusions it is necessary to find an interaction between three etiological groups of factors. The first group contains the poor circumstances (this means: adverse life events, non-equality in educational opportunities, low economic level), upbringing dependent on suspicion, lower social support, repeated failure, low self-esteem, and anxiety. These variables lead to a cognitive –intellectual structure basics depend on suspicious thought or mind (second group). But all these variables in the first and second groups cannot be the causes factors of paranoid delusions until it has negitive effects on the mental imagination in the way related to delusional thinking style –type paranoid. And the contents of mental imagination conforms with patient's needs, motives, hopes, and fears. The mental imagination continue over and over in the person's thoughts. These cognitive processes lead to occupy his thought because he uses imagination as a method of problem solving and as an instrument to extenuate the painful daily events, such as with Bentall and colleagues [11] who understand persecutory delusions to be the result of a psychological defense against underlying negative emotion and low self-esteem.

The disturbances in this cognitive functions (Mental imagination, Thinking Style –paranoid type- and the problem solving method) will affect in the other cognitive processes, and the impairment

will be found with different conditions in the other cognitive operations such as: 1- confusion in the attention, concentration, and perception. 2- slow information processing and encoding, which delay of information processing for the new information and ignore or delete some of this information. So, depending on little information causes the insufficiency of ideas (information possessing deficits) which lead to the impairment in the reasoning processes (abnormal logic) and perception (false interpretation).

In order to solve her/ his daily problems, a deluded person will find the imagination as an easy way to have good feelings, to escape from the psychosocial problems, and to overcome the feeling of frustration, or to satisfy the hidden wishes [38]. This makes him return to imagination mostly so that he becomes preoccupied with mental imagination. Because of this preoccupation an individual may have two losses: the first is the loss of healthy interaction style with other people, especially with persons who criticize the patient's behavior. The Second loss is more important, because it's related to the ability of distinguishing between reality and imaginary ideas. This state occurs because he/she daily depends on the delusional thinking style which is used as problem solving method and because she/ he is daily suffering from preoccupation with mental imagination. Then, the patient will think that the imaginary (delusional) ideas are real, and will try to show to his friends and other people.

Finally, the logical conclusion is that interaction between the three groups of cognitive factors results on the two cognitive deficits (two losses) and force a person to have delusional beliefs.

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REVIEW ARTICLE

THE ROLE OF TREATING NICOTINE ADDICTION PRIOR TO TREATMENT OF PERIODONTAL DISEASES

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ABSTRACT

Introduction and Objective*: Tobacco use is a significant risk factor for oral diseases. Periodontal disease has been known to be associated with tobacco use for over twenty years. Despite that, dentists and particularly periodontist does not include tobacco use cessation as part of their initial treatment in treating periodontal disease or placing implants in patients who use tobacco. The increase in prevalence and severity of periodontitis among smokers cannot be explained by differences in the amount of plaque between smokers and nonsmokers. A possible explanation is that smoking may alter the quality of the flora. Dental professionals also have a crucial role to play in tobacco cessation counseling, particularly for patients with chronic periodontitis. More patients will be affected by periodontitis than will ever be affected by oral cancer. *Methods and Results*: Reviews of literatures were done on a clearly formulated question on the need of smoking cessation intervention to increase positive outcome of treatment on periodontal disease. *Conclusion*: Various epidemiological studies strongly suggest that tobacco use cessation is beneficial to patients following periodontal treatments for a better outcome. *ASEAN Journal of Psychiatry, Vol. 12(1) Jan – June 2011: 111-114.

Key words: tobacco cessation, periodontal disease, periodontitis, dentist

Introduction

Nicotine is the principle addictive component of tobacco smoke or the act of smoking [1,2]. Nicotine addiction is a chronic, relapsing disorder that may require many attempts at quitting smoking and may even necessitate long-term use of medications [3]. Smoking and smokeless tobacco use is a significant public health problem worldwide. It is the single most important cause of preventable ill-health. Periodontal disease has been known to be associated with tobacco use for over twenty years. Despite this, dentist and particularly periodontist do not include tobacco use cessation as part of their initial treatment in treating periodontal disease or placing implants in patients who use tobacco.

Of late, smoking has been shown to persist due to the individual's addiction towards nicotine. Some researchers have identified this process as

the result of nicotine acting at the α4β2 receptor [4]. Action at this receptor, in particular those within the limbic system lead to a surge of dopamine resulting in a surge of pleasure feelings [5]. This feeling is learnt and leads to a reinforcing effect of maintaining the addiction, similar process that affects those addicted to heroin and also cocaine [4]. So why do people keep on smoking? Peer pressure appears to be a big contributing factor as is other psychological issues like stress and even depression [6]. The connection of the latter with smoking has yet to be established [7]. Whether smoking causes or exacerbates the condition, whether it make it more likely that the sufferer will smoke or whether there is a common underlying cause has yet to be established[7]. However, abrupt cessation also leads to withdrawals and significant distress, causing the individual to have difficulty stopping despite the difficulties faced [4]. Although no single psychological approach has been found to be superior, psychological intervention contribute significantly to the successful outcome in smoking cessation [8].

Smoking cessation programs are often initiated by the medical practitioners. This same group is also expected to champion its success. Lately, other health professionals have taken the interest including the dentist.

Since early 1970s, dental professionals have become increasingly aware of the damage that smoke and smokeless tobacco caused to tissues in and around the oral cavity. Ranging from mild to life-threatening, the following tobacco-related oral conditions may develop: halitosis, hairy tongue, dental calculus, periodontal disease, acute necrotizing ulcerative gingivitis, abrasion, discoloration of teeth and restorative materials, miscellaneous tissue changes, delayed wound healing, sinusitis, leukoplakia and oral cancer [9]. By assisting patients to quit smoking, the important causative factor for a number of oral conditions can be eliminated, the outcome of dental treatments improves, the number of years and the quality of life are added.

The dental literature is replete with data from numerous studies, all of which conclude that smoking is a highly significant factor associated with deteriorating periodontal health. Tobacco use increases and complicates treatment risks by compromising the prognosis for periodontal disease [10]. The purpose of this paper is to review the significant of tobacco use cessation as a psychological strategy and as a part of initial treatment in treating periodontal disease or placing implants in patients who use tobacco.

The emphasis in behavioral management for the treatment of periodontal disease has traditionally been placed on plaque control. While there is no reason to reduce our efforts to improve oral hygiene in our patients there is a significant need also to address the issue of tobacco use cessation in the management of periodontitis [11].

Approximately half of periodontitis cases have been attributed to either current or former smoking. Both cigar and cigarette smokers have significantly greater loss of bone height than nonsmokers, and there is a trend for pipe smokers to have more bone loss than nonsmokers [6]. Smokers are four times as likely as non smokers to have periodontitis, have greater attachment loss, greater risk of bone loss and greater calculus deposits [11]. High prevalence of furcation involvement and severity of furcation attachment loss were also found in smokers. Thus, there is a greater experience of tooth loss among smokers. Refractory periodontitis has been shown to occur almost exclusively among current smokers and tobacco use cessation is recommended prior to periodontal treatment [12].

Pathogenesis of smoking-related periodontal destruction

The increase in prevalence and severity of periodontitis in smokers cannot be explained by differences in the amount of plaque between smokers and nonsmokers. A possible explanation is that smoking may alter the quality of the flora. The oxygen tension in the periodontal pocket is lower in smokers, which may favor anaerobic species [11]. Smokers

were 3.1 times more likely to exhibit Actinobacillus actinomycetemcomitans infection and 2.3 times more likely to be infected with Bacteroides forsythus than former or never smokers [13].

Impact of smoking on host response

There is strong evidence that smoking affects the innate and immune host response. Smoking impairs gingival blood flow, revascularization of bone and soft tissues, which could have a major impact on wound healing, particularly as it relates to regenerative and periodontal and implant therapies [11].

Effectiveness of treatment of chronic periodontitis in smokers and non-smokers.

Heasman et al (2006) observed that the majority of clinical trials show significantly greater reductions in probing depths and bleeding on probing, and significantly greater gain of clinical attachment following non-surgical and surgical treatments in non-smokers compared with smokers [14]. A study by Tonetti et al (1995) concluded that cigarette smoking is associated with reduced healing response after Guided Tissue Regeneration (GTR) treatment although consistently higher plaque levels in smokers will also have influenced outcomes [15]. Treated infra-bony defects are adversely affected smokers compared with non-smokers suggested that smoking adversely affects treatment outcomes [15].

Recommendations and effective strategy for tobacco use cessation

The current recommendations for tobacco use cessation and the primary healthcare team advise the following: (a) to assess the smoking status of our patients at every opportunity, (b) to advise all smokers to stop, (c) to assist those interested in doing so, (d) to offer follow up and (d) to refer to specialist cessation services where necessary [9]. In summary an effective strategy to address tobacco use habits in patients presenting with periodontitis could include: (i) a widely disseminated health promotion campaign directed at the education of young and adult individuals on the effects of tobacco use, (ii) documentation of smoking histories as a routine in patient's notes, (iii) training of dental professionals in both tobacco use cessation counseling and on the indications and use of Nicotine Replacement Therapy, and (iv) integration of tobacco use cessation advice into general clinical practice [9]. Psychological intervention has also been identified to be as important. Although individual intervention is assumed to be effective, the evidence for psychological intervention for smoking cessation lies with group intervention [16]. For smoking intervention, less is more with minimal intervention like physician advice being equally effective as more intensive interventions [17].

Conclusion

While there is no reason to reduce our efforts to improve oral hygiene in our patients, there is significant need to address the issue of tobacco cessation in the management of periodontitis. The dental profession has a crucial role to play in tobacco cessation counseling, particularly for patients with chronic periodontitis. Very many more patients will be affected by periodontitis than will ever be affected by oral cancer. Data from epidemiological, cross-sectional and case-control studies strongly suggest that tobacco use cessation is beneficial to patients following periodontal treatments for a better outcome.

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OPINION

BEYOND A CERTAIN CREATIVITY: THOUGHTS AND COMMENTARY

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Abstract

The origin of human creativity is discussed and the evolution of the human brain and its death avoiding actions conceptualized in relation to how we should discover our true nature. ***ASEAN Journal of Psychiatry, Vol.12(1): Jan – June 2011: 115-116***

Opinion

Is human creativity a spark of divine creativity? This question begs another question concerning the origin of our species. Many would find acceptability in the theory that man was evolved from a lower life form. Charles Darwin [1] in the concluding paragraph of his book held the view that "life was originally breathed by the Creator into a few forms or into one". His co- discoverer, Alfred Russel Wallace believed that "He (the Creator) created living matter by bridging the gulf between the complicated protein matter and the first truly living entity".

Throughout history, our brain has evolved to cope with death avoiding actions and with time, a single mindedness deviation into sense. A man who is bereft of his senses becomes irrational. Philosophers have endeavoured to understand human actions and to interpret the ultimate ethics in these actions as biological. Freud convinced us to focus our deliberate attention on our unconscious mind and see in our dreams a means of making contact with the hidden part of the mind. Jung added the collective unconscious to psychiatric thought and by so doing expanded the horizon of psychiatry.

But alas, humankind has not taken more than a few infant steps beyond the spot where the first seeds of creativity were spawned and where the first incident or some might prefer "accident" of the big bang occurred. In our short history we have mindlessly obsessed ourselves with making carbon copies of parts or whole of ourselves and other creatures extinct or otherwise on the planet through DNA hybridisation and other genomic techniques. We are merely taking a leaf out of HG Well's book as in the Island of Dr Moreau. So what if we can invent life forms. The Creator had long ago already granted us the license of

procreation of our own life forms. Mankind has for too long been immersed in extraversion. It is time we take stock of ourselves and focus on harnessing our revitalizing spiritual nuclear energy, pay attention to our untutored reveries and move away from our synthetic fantasies in order to discover the true nature of our latent creativity.

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CASE REPORT

SECOND OPINION ON INSANITY PLEA IN A MURDER AND ATTEMPTED SUICIDE CASE: A CASE REPORT

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Abstract

Objectives: **This paper aims to discuss the issue related to the application of temporary insanity plea through a case report of a man who was earlier certified as mentally sound following a murder and suicide attempt.** ***Methods:*** **We report a man who committed murder and attempted suicide 7 years ago, had a psychiatric certification of not having mental illness and recently requested for a second psychiatric assessment. The factors taken into consideration in arriving at the final diagnosis are discussed.** ***Results:*** **The man was found to have brief psychotic disorder precipitated by psychological blow and sleep deprivation with underlying undiagnosed borderline mental retardation.*Conclusion:* In assessing patient with temporary insanity plea, various areas in the history need to be explored deeply with thorough investigations to be done in order to arrive at a fair conclusion for the patient's and victim's sake.** ***ASEAN Journal of Psychiatry, Vol.12(1): Jan – June 2011: 117-121***

Keywords: Temporary insanity, mental retardation, sleeps deprivation, brief psychotic disorder, automatism

Introduction

Insanity is "a legal term of mental illness in such degree that the individual is not responsible for his or her acts" [1]. Temporary insanity, as the name implies, applies to the time period during the occurrence of the crime after which the person recovers his/her sanity. It is still a debatable concept and it is a "greatest single cause for continuing battle between the law and psychiatry" [2]. As to what type of illness temporary insanity could be applied to, there has not been a clear delineation but brief psychotic episode [3] and automatism [4] are diagnoses in which the concept can be used. This paper aims to look at the factors influencing insanity plea in a man charged for a murder and suicide attempt.

Case report

Mr. ABC is a 31 year old Chinese man who was admitted to our centre in January 2010 after being charged under the 342 Criminal Procedure Code (CPC); 302 penal code for stabbing her girlfriend 16 times to death and 309 penal code for attempted suicide on 6th September 2004 at 6.30am. It is all started when the victim sent an SMS to the patient telling him she

wants to break up with him after being in the relationship for 3 months. Following that, she did not respond to any of his SMS or phone calls. There was no argument or abnormality noticed by the victim's family for both the victim as well as patient on the day before the incident. Patient was very disturbed as that was the fourth time the victim tried to break up with him. She was also the fourth girl who did this. He then made an impulsive decision to kill himself in front of her to prove his love for her. He took a paring knife, put it in his pocket, and walked to the girl's house which was 30 minutes away. It was spontaneous and without specific plan. The security guards noticed him entering the apartment area but did not stop him as they thought he was a visitor. He was pacing along the corridor that night on the 4th floor of the apartment while the victim's house was on the 2nd floor. He claimed his emotion was numb and was unable to describe it. He was exhausted for not sleeping for almost 24 hours at that time but still found himself to be alert.

After a few hours, he started to experience derealization symptoms and soon he experienced auditory hallucination of an old man telling him to instead of killing himself he should kill his girlfriend together with him. He also had auditory hallucination of a group of 7 other men telling him not to do both. He was torn and distraught with the voices, when he then heard someone unlocking the door and walked towards the stairs where he was at. As he stood up he saw the victim in her school uniform (on her way to school) looking at him. He denied any anxiety, anger or sadness when he saw his girlfriend and that was the last thing he remembered.

What comes after was, he had slashed his own throat and stabbed his abdomen but was still alive. The girl had died lying in a massive pool of blood beside him. He tried to stab himself again but he was stopped by a neighbour. He was brought to the hospital, subsequently undergone several surgeries as he was severely injured and was put on tracheostomy. The hallucination of the 8 voices persisted for sometime before it gradually disappeared but patient was unsure of the duration. He was sent to the prison after discharge from ward. He was diagnosed to have Major Depressive Disorder in a government hospital in 2005 after he attempted suicide in the prison. Later in 2009, he was sent for forensic assessment for temporary insanity plea to a mental institution in which the final report concluded that he had no mental illness.

He had no criminal record prior to the crime. There was also no known family history of mental illness. His mother was abusive and abandoned the family when he was 2 years old. The father was never around. He was taken care of by his paternal grandmother, who was also caring for his sister and other cousins. During his schooling age, he was very poor in academic and was socially inept. He had few friends and the teacher used to tell him that he was stupid. He stopped schooling at the age of 13 years old and started to work. At 18 years old he went to work in Singapore. He worked there for a year before he was forced to quit after he acted out by pouring an unknown solution taken from the factory into a co-worker drinking water secretly after an argument, which to him was just a prank. He then came back to Kuala Lumpur. He had a few jobs and his last job was as a mobile phone sales person which he did for a year until the incident and he was renting a flat with a co-worker.

He had four love relationships since he was 18. He was in the first relationship at that time. The second and third relationship was a year before the incident when he was 24 years old. All his girlfriends were 16 years old when they were in relationship with him and all

decided to leave him after some time. There was no sexual contact with the four girls but he did have protected sex occasionally with prostitutes. He did not take the first three relationships seriously and had childish behaviour when he made prank phone calls or put up nasty notes about the girls in public area near the girls' houses which he claimed was done just for fun. The victim was the fourth girlfriend and she herself had tried to break up 4 times before the incident. The patient views the fourth relationship differently in the sense that he had deep emotional attachment to her. She showed concern, motivated him and was always there for him. However, the patient started to become too attach to the victim and the victim admitted to her friends that she felt "suffocated" with the relationship leading to break up attempts but the patient refused to let her go. He was also advised by the victim's parents on this, but still no changes. In this patient abandonment and rejection is a recurrent theme in his life, from maternal rejection, to his father leaving the family, grandmother's divided attention, friends' and teachers' rejection and the multiple rejections in his love life.

Mental state examination shows a cheerful young man, smiling most of the time, speaks with limited vocabulary in Malay language, used simple Cantonese mostly and was translated to Malay. Rapport was established and maintained. There was no abnormality in speech and mood and no thought and perceptual disturbance detected. Cognitive wise, he could not perform simple mathematical equation, could not read. His judgment and insight was also found to be poor as for someone who is facing death penalty, he volunteers a lot of information as if he is not aware that it can be used against him such as his impulsive behaviour after ending relationship and him pouring the unknown solution into his co-worker's drinking water. Physical examination reveals no abnormality except for a horizontal scar on the neck with a tracheostomy scar, and a vertical scar on his abdomen.

All the biological investigations were normal. Weschler Adult Intelligence Scale – third edition (WAIS-III) was performed by a clinical showed he had borderline mental retardation; with poor logical abstract reasoning, inflexible thinking, low adherence to conventional standards of behaviour, poorly developed conscience, poor judgment and impulsive. Social investigation was also done by corroborative history from patient's family, his previous employer, and victim's family. We also reviewed the case investigation reports from the investigating officer. All these social investigation results have integrated in this case report.

Discussion

In view of all the information gathered, we arrived at the diagnosis of brief psychotic disorder with borderline mental retardation. A number of factors are considered in discussing his temporary insanity plea. It was a difficult task assessing insanity in a legal case especially after the crime had happened 7 years ago. There are issues of validity of information to arrive at a diagnosis in the report.

Intelligence quotient (IQ) assessment confirmed he had borderline mental retardation. The reason it was done based on the outcome of the social investigation suggesting his poor social skill and low intelligence, combining with poor cognitive function and poor judgment elicited in the ward. We also think of the possibilities of the patient having brief psychotic disorder. Karl Jasper in 1913 described that an identifiable traumatic stressor with a close relationship between psychosis is an essential feature in diagnosing reactive psychosis [5]. Sleep deprivation defined as the lack of "four

hours of continuous sleep during the preceding 24 hours" [6] also contribute him to develop the psychotic episode. Sleep deprivation has been known to cause derealisation, psychosis [7], difficulty in thinking and recent memory deficit [8], as what experienced by the patient.

Another issue that we consider is automatism. "Automatism can be broadly defined as a state in which an individual's mind does not accompany his or her physical bodily actions" [9] and the patient did describe his inability to recall what had happen. His condition does fit automatism description. Throughout history, there are a lot of murder cases using insanity plea based on "psychological trauma (psychological blow) automatism [9], leading to dissociated states in which violent acts can occur has been accepted by the courts as a form of sane automatism" [10]. However, for this factor, is also it is a self proclaimed and cannot be confirmed.

In conclusion, doubtful factors are still present at the end of our assessment as his psychotic symptoms and memory loss experienced by the patient are self proclaimed and there was no witness during the crime. However other aspects that we have discussed are also cannot be ignored, leading to our conclusion. We as doctors gave our expert opinions on the case and later the judge will decide whether these factors are beyond reasonable doubt before giving out the verdict.

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CASE REPORT

THROMBOCYTOPENIA WITH VALPROATE AND CLOZAPINE COMBINATION THERAPY

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Abstract

Objective: The occurrence of thrombocytopenia with valproate and clozapine combination therapy has not been noted in the literature. This case report highlights thrombocytopenia as a potential outcome of drug-drug interaction between valproate and clozapine, and serves to remind practitioners that regular monitoring of platelet counts is necessary in such combination therapy. *Method:* We report on a patient on valproate therapy who developed thrombocytopenia when clozapine was added to her treatment regime. *Results:* Thrombocytopenia resolved 1 week after valproate was tailed off and the patient was placed on clozapine monotherapy. *Conclusions:* A precise pathophysiologic understanding of valproate and clozapine-induced thrombocytopenia is lacking, and further studies are required. ***ASEAN Journal of Psychiatry, Vol.12(1), Jan – June 2011: 122-125***

Keywords: Thrombocytopenia; Valproate; Clozapine

Introduction

Valproate is commonly used in the treatment of bipolar disorder and schizoaffective disorder, or as augmentation to antipsychotics in schizophrenia. A range of blood dyscrasias can occur with valproate including thrombocytopenia, macrocytic anemia and leucopenia. Clozapine is an atypical antipsychotic agent with superior efficacy for the management of treatment resistant schizophrenia. Common hematological adverse effects include agranulocytosis, neutropenia, leukocytosis, and eosinophilia. Thrombocytopenia as a complication of clozapine therapy is seldom reported.

We present the case of a 29-year-old lady on valproate therapy who developed thrombocytopenia when clozapine was added to her treatment regime. The occurrence of thrombocytopenia with valproate and clozapine combination therapy has not been noted in the literature. We discuss the possible mechanisms for this drug-drug interaction.

Case Report

The patient, Miss N, is a Malay lady who suffered from schizophrenia and first presented in 2003 at the age of 22. Throughout the years, Miss N was treated with various antipsychotic medications at therapeutic doses and adequate durations, and received both oral and depot formulations. Antipsychotics prescribed included haloperidol, chlorpromazine,

risperidone, olanzapine, flupenthixol, and zuclopenthixol.

During an admission in 2008, Miss N had affective features such as elevated mood, increased irritability, and aggressiveness. Valproate was added and titrated to 800 mg per day. Her baseline full blood count (FBC) yielded normal results: Hemoglobin (Hb) 11.2 g/dL; white blood cell (WBC) count 9.88 x 10^9/L; platelet count 353 x 10^9/L; absolute neutrophil count (ANC) 6.32 x 10^9/L. In September 2009, Miss N suffered a relapse of her schizophrenia illness. During this admission, valproate was titrated to 1500 mg per day, and her antipsychotic was switched to clozapine. Physical examination and laboratory investigations then were normal. Hematological indices were: WBC count 7.9 x 10^9/L; platelet count 341 x 10^9/L; ANC 4.7 x 10^9/L. Her clozapine dose was gradually titrated over 1 week to 150 mg per day. A week after starting clozapine, a repeat FBC showed a drop in platelet count to 99 x 10^9/L. WBC count and ANC were normal at 8.4 x 10^9/L, and 5.7 x 10^9/L respectively. FBC repeated 2 days later showed falling platelet count to 88 x 10^9/L; WBC count 10.1 x 10^9/L; ANC 7.2 x 10^9/L.

Miss N's mental state had improved significantly with clozapine. Thus a decision was made to decrease and tail off valproate, but titrate the dose of clozapine to 250 mg per day. FBC done 3 days after reducing valproate yielded these results: platelet count 92 x 10^9/L; WBC count 6.7 x 10^9/L; ANC 3.9 x 10^9/L. One week after the patient was taken off valproate and placed on clozapine monotherapy, her platelet count had normalized to 346 x 10^9/L; WBC count 8.7 x 10^9/L; ANC 4.8 x 10^9/L. The patient's mental state continued to improve on clozapine 250 mg per day monotherapy and she was eventually discharged with outpatient follow-up.

Discussion

Thrombocytopenia is one of the commonest side effects associated with valproate therapy. However, the exact mechanism of valproate-associated thrombocytopenia is unclear. Kishi et al have shown that a high serum concentration of valproate is associated with bone marrow suppression [1]. On the other hand, supporting an immune-mediated hypothesis, Barr et al demonstrated that 82% of cases of thrombocytopenia was associated with an increased platelet-associated immunoglobulin (Ig) G level, and that the platelet count was inversely correlated to the level of platelet-associated IgG [2].

Clozapine-associated agranulocytosis has been reported extensively, but how clozapine affects hematopoiesis is still unknown. The existence of a peripheral immune-mediated mechanism is supported by the common side effect of eosinophilia, and the fact that antibodies to IgM attenuate the cytotoxic activity observed in the serum of patients with agranulocytosis [3]. However, a direct toxic effect on hematopoiesis seems more likely, and a number of clinical observations support this: firstly, the agranulocytosis has a delayed onset, is not dose-dependent, and has a rapid course even if the drug is discontinued; secondly, bone marrow examination reveals an absence of myeloid precursors. Furthermore, in vitro culture experiments indicate that clozapine and its metabolite N-desmethylclozapine have toxic effects on bone marrow progenitor cells [4]. The relationship between clozapine and thrombocytopenia is even more of an enigma. Occurrences of thrombocytopenia both with and without agranulocytosis have been reported, suggesting the independent

nature of clozapine-induced platelet abnormality.

In this patient, there was a temporal relationship between valproate and clozapine combination therapy, and the development of thrombocytopenia. Prior to starting clozapine, the patient was prescribed approximately 2 months of valproate therapy without any decrease in platelet count. One week after clozapine was added to the treatment regime, the platelet count had dropped drastically from 341 x 10^9/L to 99 x 10^9/L. Immediately after cessation of valproate, there was a rapid return of the platelet count to normal levels despite being on clozapine monotherapy.

Pharmacokinetically, clozapine has minimal interactions with valproate. A study on the effects of co-treatment of valproate and clozapine showed only a minor increase in serum concentration of total clozapine metabolites [5]. Therefore, it is unlikely that thrombocytopenia is a consequence of clozapine increasing serum valproate levels and hence toxicity.

A possible explanation would be the synergistic effects of both drugs on bone marrow suppression. However, the white and red blood cell lines were not affected in our patient, suggesting that other mechanisms may have been involved in rendering the platelet cell lineage more vulnerable to valproate and clozapine toxicity.

Given the rapid onset and resolution of thrombocytopenia with the introduction of clozapine and discontinuation of valproate respectively, a more likely postulation would be that of an immune-mediated mechanism. Clozapine may have enhanced the immune-mediated peripheral platelet destruction effect of valproate, leading to the development of thrombocytopenia in a patient who is able to tolerate both drugs independently.

A precise pathophysiologic understanding of valproate and clozapine-induced thrombocytopenia is lacking, and further studies are required. Nevertheless, this case report highlights thrombocytopenia as a potential outcome of drug-drug interaction between valproate and clozapine combination therapy, and serves to remind practitioners that regular monitoring of platelet counts is warranted, particularly for patients who require two or more agents with thrombocytopenic potential.

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CASE REPORT

MASTERING TASKS OF ADOLESCENCE: THE KEY TO OPTIMUM END -OF-LIFE CARE OF AN ADOLESCENT DYING OF CANCER.

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Abstract

Objective: This case report highlights the optimum end-of-life care of an adolescent dying of cancer. *Method:* We report our experience, as part of a multidisciplinary team in managing the cancers of a female student who died an untimely death at the age of 15. *Results:* Our role of motivating her for chemotherapy of her initial treatable carcinoma, became that of palliative care upon discovery of a second malignancy. We helped the patient "live life to the fullest" during her last days, she helped us realize that helping her master the tasks of adolescence was optimum "end-of-life care" as well. *Conclusion:* to help an ill adolescent die with dignity is to help her live whatever time she has left of her life. Allowing her to participate in decisions regarding her treatment and in other bio-psycho-social needs of that stage of life is crucial in helping her prepare for the end of life. ***ASEAN Journal of Psychiatry, Vol.12(1), Jan – June 2011: 126-128.***

Keywords: Adolescence, mastery of adolescent tasks, end-of-life care, death and dying.

Introduction

The Malaysia National Cancer Registry demonstrates that the Crude Incidence of paediatric malignancy aged from birth to19 years for males and females were 18.0 and 14.0 per 100,000 populations, respectively [1]. For some young people this exciting period of individuation, increasing independence and freedom is profoundly altered and scarred by the unwelcome physical changes due to their cancer treatment.

The care of adolescent patients produce unique communication and management challenges because all aspects of their medical treatment are played out against a background of rapid physical, psychological, and social developmental changes [2].

The objectives of this case report are to highlight (i) the paradox that only by helping the seriously ill adolescent master her tasks of adolescence optimally, can we help her accept and cope with the impact of serious illness and its potential physical and psychological disfiguring treatment, and (ii) that accurate, honest and sensitive communication between members of the multidisciplinary medical together with understanding, loving and supportive family plays a pivotal role to achieve this outcome.

Case report

Z was a 15 year-old girl diagnosed to have ovarian carcinoma stage IV, of the juvenile metaplastic granulosa cell tumour type with liver and bone metastases. She had a total abdominal hysterectomy with bilateral salpingo-oopherectomy (TABHSO) and resection of involved areas of the gastrointestinal tract. She defaulted chemotherapy (Bleomycin, Etoposide, Cisplatin regime) after just 1

cycle done and was referred to child and adolescent psychiatry because she was lost her motivation to undergo treatment. This was because she could not tolerate the pain experienced during chemotherapy. The loss of her uterus after the TABHSO resulted in her perception that she had lost her femininity. Alopecia side effects of chemotherapy greatly affected her self-image. She had persistent depressed mood, anhedonia, poor appetite and death wishes. She believed all cancer patients would die. This was reinforced by dreams of her aunt who had died of cancer, wanting to 'take her away'. Premorbidly, she was a shy girl but active in sports and had won 3 gold medals in long jump whilst representing her district.

She was diagnosed to have Major Depressive Disorder and was started on Escitalopram 5mg daily. She learnt relaxation techniques to help with pain management such as breathing exercise, imagery and even enjoyed reading illustrated books which taught relaxation. She was happy to start chemotherapy after we had explained the process of treatment and likened it to her preparation for a sports competition but the goal of 'going through the pain' was to 'kill the bad cancer cells'. Local anaesthetic applied before blood taking and other invasive procedures relieved her fears of the recurrent pain. Discussions about the possible cosmetic use of a wig for alopecia put a smile on her face. Her mood improved and she was asking when the chemotherapy was going to start because she wanted to 'win the battle' against cancer.

The course of events changed drastically when she noticed a breast lump after one month in the ward, the histopathology showed infiltrative ductal carcinoma stage 111-BRCA2 hormonal negative. A multidisciplinary conference concurred that in view of the double malignancy, chances of response to active treatment of both cancers would not be good. The primary team broke the bad news to Z and her family, taking care to discuss the options including palliative care and helping them understand the possible outcomes of each choice. Z did not speak but she understood all that was discussed. She still welcomed our visits and expressed interest in visiting the stadium where she won the gold medal. However, when the visit was actually planned and she realised she would need to go in a wheel chair because of her debilitating condition, she declined. She was still able to smile when treated to a box of chocolates, something the family did not usually indulge in. She decided to be discharged and three weeks after discharge the family called up to inform us that Z had breathed her last, lying on her sister's lap on the way back from seeing a traditional healer in Malacca. They thanked us for making Z's last days meaningful.

Discussion

Adolescents have their own unique concept of death [3]. The Hungarian psychologist Mary Nagy described that children aged 9 and above can understand the concept that death is permanent, universal and inevitable[3]. Adolescents also are capable of understanding the physiological, psychological, and religious or spiritual aspects of death [4].

Adolescents face unique developmental challenges that require special consideration particularly when death from disease is likely. The primary challenges are (i) the achievement of biological and sexual maturation, (ii) the development of personal identity, (iii) the development of intimate sexual relationships with an appropriate peer, and (iv) establishment of independence and autonomy in the context of the socio-cultural environment [2].

The ultimate goal in discussing death with them is to optimize his/her comfort and alleviate any fears. Katz [5] has listed three inter-related principles for good end-of-life care (i) to enable the dying person to die with dignity, (ii) to retain the dying person in his/her familiar surroundings till death and (iii) good pain control and nursing care [6]. Depending on their religious belief and cultural practices, it is necessary to prepare them spiritually for the final everlasting place. This way he/she will be able to avoid bewilderment and the fear of an early death and leaving loved ones.

Decisions to continue or withdraw treatment can be facilitated when the patient's parents or next of kin and physician actively advocate the patient's best interests and communicates accurately, frequently and openly. In Z's case, the patient chose to go home and she died surrounded by her family in minimal discomfort.

In conclusion, accurate, honest and sensitive communication between member of the multidisciplinary team and the understanding, loving and supportive family are crucial to facilitate good quality of end-of-life care of a dying adolescent.

Paradoxically, quality end-of-life care of a dying adolescent is to help her master her tasks of adolescence optimally; as if she is going to continue to live and grow up...for death is but part of life.

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BOOK REVIEW

COUNTRY MADNESS: AN ENGLISH COUNTRY DIARY OF A SINGAPOREAN PSYCHIATRIST

Author: Ong Yong Lock, MBBS, DPM, FRCPsych, Published in 2010 by Monsoon Books Pte Ltd. ISBN: 978-981-08-5432-4 (Available in bookshops in Singapore and Malaysia). ***ASEAN Journal of Psychiatry, Vol.11(2), Jan – June 2011: 129-130***

All psychiatrists appreciate the power of words. Spoken, mumbled, expressed as thought disorder, defined as a neologism and written. More than in other medical specialties, words and language define our trade in psychiatry. We tend to assess our patients using narratives. We are taught to reflect on situations and to analyse recurring and non-recurring themes of import. To formulate ideas and themes into diagnosable scenarios. Then, as appropriate to weave in dreams, the royal road to the unconscious mind. These variables are the tenets of story telling. This is the process of how stories come into being and accrue their meaning.

My psychiatric training was therefore the basis of my motivation to write this book. I was living a life in Norfolk that presented so many strange yet familiar images. Challenged by living in a personal cross-cultural relationship, working in a culture I inherited through colonialism. Familiar yet unfamiliar, regonisable and strange. All were proving to be thought provoking circumstances. Aware of a heightened arousal and with a cacophony of expressed emotion, I wrote this book. When pheasants could become phoenixes, when moon goddess hold sway over herbaceous borders. To make sense of all that I was feeling, all would then be well. The process of writing to publication and beyond was a learning curve far beyond my expectations. Many of you, as established authors would know this process. For all other psychiatrists who have a book within you but as yet, unpublished, this is the pathway. From the moment of seeing a pile of your own book displayed in a book shop to:

- The early days of writing, writing and writing.
- Navel gazing resulting in an anxiety induced state.
- Talking with the artists over cups of tea and glasses of wine. They furnished the twelve drawings.
- Working with a desk editor who shaped the book into a publishable form
- Finding a publisher. The single most important variable.

Thanks to www.monsoonbooks.com.sg , there was a further process of learning of the publishing industry:

- A vote in the choice of cover design. Over ruled by publisher. (An extensive catalogue of interesting books by this publishing house , with a diversity of covers is available on line).
- Working with a copy editor who drilled me into the correct grammar and punctuation for the final version of this book.
- The importance of 'blurbers' for the cover review.
- The first book sale: the Irish cover designer bought two books. One for herself and one for her General Practitioner in Dublin who happens to be Chinese!
- Holding the first copy of the book, hot of the press in one's hands.

The book is published. My indulgent bonfire of vanities, achieved. There have been critical opinions of the book being too slender, slim and short at eighty pages. Psychiatrists are often thought to be circumstantial and over-inclusive especially by our surgical colleagues. I wanted this book to be succinct and to cut to the chase. I challenged the desk editor's suggestion to write more. " Whatever for?" I asked as I felt I had written all that I wanted to record. He smiled in empathy.

Richard Alan Lord, author, playwright and editor who was invaluable as my desk editor wrote a review of this book for newspapers and magazines to encourage press coverage for the book. I am using parts of his review a slightly biased take perhaps as he clearly discloses his role as one of the editors, however it gives a good idea of what the book is about.

Country Madness is a short but delightful book that rewards the few hours one needs to read it from cover to cover. So what is this book exactly? Actually, one of its mercurial charms is that it does not fit into any one category: it is part memoir, part philosophical speculation, part comparative mythology, part intro into psychology, part sociological scavenging and part, a love declaration to a muse. And somehow, all these parts manage to come together to create a pleasing whole.

As is often the case with perceptive transplants, the author captures the flavour of the English countryside and its pull and repulsions for someone who grew up in a largely urban environment such as Singapore. But he does it in an easy-going at times meandering way. Almost meandering as there is quite a bit of method in this ***Madness.*** *The main organising device is to look at his life in England and Singapore through the lens of the different seasons.*

The book is structured around the five seasons, which also provide the chapter titles. No that is no typo error there: five seasons In addition to the usual line-up of spring, summer, autumn, winter, Ong gives a deep consideration to what he calls the Fifth Season (borrowing the phrase from the Chinese calculations), somewhat akin to the West's notion of an Indian summer. This becomes the starting ground of the book. In the rest of the volume, the seasons open up to reveal their special qualities and how they affect people for the better and worse.

The author is himself something of a bridge between cultures and this book can certainly serve as a bridge between two cultures. Western readers will learn quite a few fascinating facts about Chinese culture and mythologies, while Asian readers will learn a lot about the wonderful idiosyncrasies of English country life and the loveable types who live there outside the main British urban centres. Non Britons should also learn a lot about these things and people. It is remarkable how such a slim and easy-to-digest book is able to reveal and introduce it readers too.

Well, the above paragraphs are Richard's views but I think they do give an idea about what my book is about. So, finally and again using Richard's words, this book is offered to all readers "in the spirit of friendship and collegiality." A personal thanks to the co-editor of this Journal, Dr. Ng Beng Yeong for suggesting this piece of writing.

Dr Ong Yong Lock, Retired Singaporean Psychiatrist, Singapore.
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