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Acknowledgements

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Example citations

Depression is a disease state affecting both the body and the brain, and it contributes to direct and indirect healthcare costs via consequent disability and reduced productivity [1]. Depression affects nearly 340 million people worldwide at any given time [2,3]. In clinical population with depression, physical symptoms are common [4-6].

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More than six authors:

- Rose ME, Huerbin MB, Melick J, Marion DW, Palmer AM, Schiding JK, et al. Regulation of interstitial excitatory amino acid concentrations after cortical contusion injury. *Brain Res*. 2002;935(1-2):40-6.

2. *Organization as author*

- Diabetes Prevention Program Research Group. Hypertension, insulin, and proinsulin in participants with impaired glucose tolerance. *Hypertension*. 2002;40(5):679-86.

3. *Both personal authors and an organization as author*

- Vallancien G, Emberton M, Harving N, van Moorselaar RJ; Alf-One Study Group. Sexual dysfunction in 1,274 European men suffering from lower urinary tract symptoms. *J Urol*. 2003;169(6):2257-61.

4. *No author given*

- 21st century heart solution may have a sting in the tail. *BMJ*. 2002;325(7357):184.

5. *Volume with supplement*

- Geraud G, Spierings EL, Keywood C. Tolerability and safety of frovatriptan with short- and long-term use for treatment of migraine and in comparison with sumatriptan. *Headache*. 2002;42 Suppl 2:S93-9.

6. *Issue with supplement*

- Glauser TA. Integrating clinical trial data into clinical practice. *Neurology*. 2002;58(12 Suppl 7):S6-12.

7. *Volume with part*

- Abend SM, Kulish N. The psychoanalytic method from an epistemological viewpoint. *Int J Psychoanal*. 2002;83(Pt 2):491-5.

8. *Issue with part*

- Ahrar K, Madoff DC, Gupta S, Wallace MJ, Price RE, Wright KC. Development of a large animal model for lung tumors. *J Vasc Interv Radiol*. 2002;13(9 Pt 1):923-8.

9. *Article published electronically ahead of the print version*

- Yu WM, Hawley TS, Hawley RG, Qu CK. Immortalization of yolk sac-derived precursor cells. *Blood*. 2002 Nov 15;100(10):3828-31. Epub 2002 Jul 5.

BOOKS AND OTHER MONOGRAPHS

10. *Personal author(s)*

- Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. *Medical microbiology*. 4th ed. St. Louis: Mosby; 2002.

11. *Editor(s), compiler(s) as author*

- Gilstrap LC 3rd, Cunningham FG, VanDorsten JP, editors. Operative obstetrics. 2nd ed. New York: McGraw-Hill; 2002.

12. *Author(s) and editor(s)*

- Breedlove GK, Schorfheide AM. Adolescent pregnancy. 2nd ed. Wiecezorek RR, editor. White Plains (NY): March of Dimes Education Services; 2001.

13. *Chapter in a book*

- Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93-113.

14. *Dissertation*

- Borkowski MM. Infant sleep and feeding: a telephone survey of Hispanic Americans [dissertation]. Mount Pleasant (MI): Central Michigan University; 2002.

OTHER PUBLISHED MATERIAL

15. *Newspaper article*

- Tynan T. Medical improvements lower homicide rate: study sees drop in assault rate. The Washington Post. 2002 Aug 12;Sect. A:2 (col. 4).

16. *Audiovisual material*

- Chason KW, Sallustio S. Hospital preparedness for bioterrorism [videocassette]. Secaucus (NJ): Network for Continuing Medical Education; 2002.

17. *Dictionary and similar references*

- Dorland's illustrated medical dictionary. 29th ed. Philadelphia: W.B. Saunders; 2000. Filamin; p. 675.

UNPUBLISHED MATERIAL

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- Tian D, Araki H, Stahl E, Bergelson J, Kreitman M. Signature of balancing selection in Arabidopsis. Proc Natl Acad Sci U S A. In press 2002.

ELECTRONIC MATERIAL

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- Abood S. Quality improvement initiative in nursing homes: the ANA acts in an advisory role. Am J Nurs [serial on the Internet]. 2002 Jun [cited 2002 Aug 12];102(6):[about 3 p.]. Available from: <http://www.nursingworld.org/AJN/2002/june/Wawatch.htm>

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ASEAN Journal of Psychiatry

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Contents

Original articles

- A weight management programme for patients with severe mental illness: a pilot project in a general hospital setting in Malaysia
Marhani Midin, Nik Ruzyani Nik Jaafar, Ruzanna Zam Zam & Che Khatijah Bee Mohd Ali.....1
- Malaysian postgraduate training in psychiatry: Are our trainees having consistent problem in basic science?
Hatta Sidi, Sharifah Ezat Wan Puteh & Fairuz Nari Abdul Rahman.....6
- Effects of foot reflexology on insomnia in patients with major depressive disorder
Wetid Pratoomsri, Kuntalee Jariyaprayuklert, Rodjana Poonnnnotok & Napaporn Aeamla-Or.....14
- Psychiatric disorders in children at two year after the tsunami disaster in Thailand
Vinadda Piyasil, Panom Ketumarn, Ratnotai Plubrukarn, Vajiraporn Jotipanut, Somsong Tanprasert, Sumitra Aowjinda & Somchit Thaeeromanophap.....20
- Psychiatric case management in a tertiary psychiatric hospital
Rathi Mahendran, Margaret Hendricks, Chan Yiong Huak, Vamadevan Thambyrajah, Thamilselvi Vellayan & Saifudin Maarof.....25

Review articles

- Bio-psychological perspectives of eating disorders and obesity: a revisited
Ainsah Omar & Osman Che Bakar.....33
- Prevalence of insomnia in the Thai population
Pichet Udomratn.....42

Short report

- Psychiatric out-patient's perspectives on medication information given by doctors
Hatta Sidi, Marhani Midin & Azlin Baharudin.....48

- Corrigendum.....52

ORIGINAL ARTICLE

A weight management programme for patients with severe mental illness: a pilot project in a general hospital setting in Malaysia

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Abstract

Objective: To describe the setting up of a pilot project on weight management programme for patients with severe mental illness (SMI) in a general hospital setting, the effectiveness of the programme on 5 patients and the feasibility of such programme to be developed in our local setting. **Methods:** Key staff members from relevant disciplines were involved through out the programme, which was based on dietary education, exercise and behavioural techniques. It was conducted weekly for physical exercise and biweekly for topic discussion with a total duration of 16 weeks. **Results:** Patients achieved means (SDs) weight loss of 1.78 (2.83) kg; BMI reduction of 0.92 (1.41) kg/m²; and reduction of waist circumference of 6.8 (4.97) cm. Factors associated with positive health outcome were high baseline BMI, high educational level and committed family members. **Conclusion:** The programme appears to be effective for patients and is feasible to be developed in Malaysian hospitals.

Key words: severe mental illness, weight interventions

Introduction

Patients with severe mental illness (SMI) have a greater propensity to gain weight, and its myriad of problems is comparable to the society at large [1-4]. This may be due to some symptoms of the illness that lead to idle lifestyle. Intra-abdominal fat of drug-naïve patients with schizophrenia was three folds higher than that of controls [5]. The risk of obesity is further implicated by the use of psychotropic medications [6,7], including atypical antipsychotics [8-10].

Obesity poses a serious threat to major physical comorbidity. The association of obesity and medical problems, including hypertension, type 2 diabetes mellitus,

coronary heart disease, stroke, osteoarthritis and respiratory problems, are well-documented [11]. Weight gain in patients with SMI may also complicate psychiatric management as it can lead to poor compliance to medications [12].

In general, treatment options for obese persons include diet, exercise, behavioural therapy, pharmacotherapy and surgery [13]. Diet, exercise and behavioural therapy are recommended for all BMI categories and those with comorbidity [11,13]. Two studies have reported the benefit of weight management programmes on weight gain reduction found in most patients with schizophrenia [14,15].

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In Malaysia, to our knowledge, this is the first programme on weight management strategy based on dietary education, exercise and behavioural techniques for patients with SMI. This paper aims to describe the setting up of this programme in resource limited settings, and also present its benefits on several physical health indices of patients with SMI, including weight, body mass indices (BMI) and waist circumferences.

Methods

This programme was a part of psychosocial services provided by the Community Psychiatric Unit, which was offered to all patients attending the Psychiatric Service in a general hospital, Hospital Universiti Kebangsaan Malaysia (HUKM). It was conducted in collaboration with other non-psychiatric units, namely the Physiotherapy and the Dietetic Units. Together with the staff from the Psychiatric Department, key staff members from these units were engaged throughout the planning process and the implementation of the programme. The programme was opened to patients with schizophrenia and major mood disorders, who were not in acute phases, had BMIs of 23 or above and motivated or having a motivated family member. They were recruited through the referrals of their treating doctors.

The programme had two aims: i) for patients to lose weight and ii) to acquire the skills of healthy living. It was designed based on simple behavioural techniques related to diet and exercise, which were easy to be learned and to be incorporated into the patients' daily routines. It was conducted weekly and individually for physical exercise but biweekly for group education with a total duration of 16 weeks. Totally, 24 sessions were provided throughout the programme (8 educational and 16 exercise sessions).

The educational sessions, which were delivered by a dietician, a physiotherapist

or a clinical psychologist accordingly, were divided into three parts: i) individual assessment; ii) discussion on the patient's diary (45 minutes) and iii) an interactive lecture based on structured modules (45 minutes). The topics for the lecture consisted of: i) diet and food preparation (Modules 1 and 4); ii) physical activity and exercise (Modules 2 and 6); iii) psychological factors related to weight gain and weight loss (Modules 3 and 7); and iv) quizzes/feedback (Module 8).

Each exercise session took 45 minutes and was conducted at the Physiotherapy Unit using the facilities already available. Simple forms of exercise that could be easily done at home were taught and supervised by a physiotherapist according to the patients' individual fitness levels. In addition, each participant was taught the skills on self-monitoring and given a diary to record their diet and physical activity, including exercise. Achievement and challenges met by them were discussed during the educational sessions, when their self-monitoring skills were reinforced.

The authors aimed to recruit six to eight patients per group to ensure optimal level of interventions getting delivered to the patients during the group sessions. Each patient was assessed on his/her weight, BMI and waist circumference, at baseline, every visit and endpoint. Any change of medication was also recorded. Other data collected included patient's attendance rates and active involvement of patient's caregiver, which was encouraged.

Results

In this pilot project, six patients consented to participate in the programme. However, one patient could not complete the programme due to logistic inconvenience. Therefore, the results of five patients were presented.

Table 1 shows the sociodemographic data (i.e., sex, age, education and occupation),

Table 1: The sociodemographic, illness/treatment details and outcomes of the participants.

Variable	Patient				
	1	2	3	4	5
Sex	Female	Female	Female	Female	Male
Age (years)	32	27	37	24	35
Education	Tertiary	Secondary	Tertiary	Secondary	Secondary
Occupation	Unemployed	Unemployed	Teacher	Unemployed	Unemployed
Diagnosis	Schizo- phrenia	Schizo- phrenia	Bipolar Disorder	Schizo- phrenia	Schizo- phrenia
Duration of illness (years)	9	16	20	5	16
Medication	Olanzapine	Clozapine & Valproate	Quetiapine & Valproate	Olanzapine	Risperidone & Chlor- promazine
Motivation	High	Moderate	High	Moderate	Moderate
Attendance					
- Education	7/8	8/8	6/8	8/8	2/8
- Exercise	2/16	0/16	14/16	0/16	11/16
Exercise at home	Yes	No	Yes	No	Yes
Family active in- volvement	No	No	No	No	Yes
Baseline BMI	32	27	37	24	26
Change in weight (kg)	-6.6	-0.7	-0.1	+0.4	-1.9
Change in WC (cm)	-9.0	-6.0	-14.0	-4.0	-1.0
Change in BMI (kg/m ²)	-3.3	-0.5	0.0	+0.2	-1.0

BMI: Body mass index; WC: Waist circumference.

illness/treatment details and outcomes (i.e., changed weight, BMI and waist circumference) of the participants.

Mean age (SD) of 4 female and 1 male participants was 35.8 (8.6) years old. Only one participant was actually employed. A participant was diagnosed with bipolar disorder and the rest with schizophrenia. All were chronic patients with a mean (SD) illness duration of 13.2 (6.1) years. No medication was changed in any patient.

Overall, to a greater or lesser extent, all participants achieved positive change on weight, waist circumference or both. They achieved means (SDs) weight loss of 1.8 (2.8) kg, BMI reduction of 0.9 (1.4) kg/m²; and waist circumference reduction of 6.8 (5.0) cm. Three patients showed remarkable improvement, i.e. Patients 1 and 5 (lost 6.6 kg and 1.9 kg of weight, respectively) and Patient 3 (waist circumference reduction of 14 cm), as noted in table 1.

Increase in muscle bulk was postulated to be the reason behind the lesser weight reduction in Patient 3, who attended almost all exercise sessions and exercised more frequent than the recommendation. These three patients also reported a positive change on lifestyle in terms of dietary intake and physical activities.

Discussion

The preliminary results obtained from this pilot programme show that weight management may be effective and feasible. Several factors may be associated with positive outcomes. Level of motivation observed by the staff is a factor. High BMI (above 30 kg/m²) of patients 1 and 3 may be also related to high motivation. High educational status may reflect a better awareness of physical health. The reason behind the positive outcomes in Patient 5, despite of being half hearted in changing his lifestyle, is thought to be his committed sister actively participating in the programme.

Another factor which may also contribute to the positive outcomes is the attendance on both educational and exercise sessions. Three patients with positive outcomes attended both sessions unlike the other 2 patients who attended only the educational sessions. The first 2 sessions were thought to be the most important exercise sessions when fitness level was assessed and appropriate exercise was prescribed. None of the later two patients had any home exercise activity.

In this pilot project, the patients had their exercise sessions in the Physiotherapy Unit of the hospital, where, exercise services have already been offered for all patients with weight problem but was underutilized by the psychiatric patients. The programme does not actually incur much additional operating cost.

The only innovation brought about by the programme was the multidisciplinary team

approach, where key people from different services were brought together from the conception of the idea right through to the planning and implementation of the programme. This has enabled the planning of sound programme through the gathering of experts, improved monitoring of patients outcomes and trouble shooting mechanisms through better communication, reinforced a sense of programme ownership among all members. These are all important ingredients of a successful programme, from the service provider's perspective.

The amenities and expertise applied in the programme are available in many hospitals in Malaysia, therefore, this programme should be feasible in other hospitals in Malaysia.

This paper reports the preliminary results of a pilot programme. Due to the small sample size without a control group and descriptive data analyses, the findings may not be conclusive. However, this programme should create an impetus for a further study, which is currently ongoing.

Acknowledgements

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References

1. Daumit GL, Clark JM, Steinwards DM, Graham C, Lehman A, Ford DE. Prevalence and correlates of obesity in a community sample of individuals with severe and persistent mental illness. *J Nerv Ment Dis.* 2003;191:799-805.
2. Coodin S. Body mass index in persons with schizophrenia. *Can J Psychiatry.* 2001; 46:549-55.
3. McElroy SL, Frye MA, Suppes T, et al. Correlates of overweight and obesity in 644 patients with bipolar disorder. *J Clin Psychiatry.* 2002;63:207-13.

4. Hasler G, Pine DS, Gamma A, et al. The associations between psychopathology and being overweight: a 20-year prospective study. *Psychol Med*. 2004;34:1047-57.
5. Thakore JH. Metabolic syndrome and schizophrenia. *Br J Psychiatry*. 2005;186:455-6.
6. Allison DB, Mentore JL, Heo M. Antipsychotic-induced weight gain: a comprehensive research synthesis. *Am J Psychiatry*. 1999;156:1686-96.
7. Sussman N. The implications of weight changes with antipsychotic treatment. *J Clin Psychopharmacol*. 2003;23 (suppl 1): 21-6.
8. McIntyre RS, Trakas K, Lin D, Balshaw R, Hwang P, Robinson K, et al. Risk of weight gain associated with antipsychotic treatment: results from the Canadian National Outcomes Measurement Study in Schizophrenia. *Can J Psychiatry*. 2003;48: 689-94.
9. Sussman N. Review of atypical antipsychotics and weight gain. *J Clin Psychiatry*. 2001;62 (suppl 23):5-12.
10. Henderson DC. Clozapine: diabetes mellitus, weight gain, and lipid abnormalities. *J Clin Psychiatry*. 2001;62 (suppl 23): 39-44.
11. Louis JA. Epidemiology, morbidity and treatment of overweight and obesity. *J Clin Psychiatry*. 2001;62 (suppl 23):13-22.
12. Kurzthaler I, Fleischhacker WW. The clinical implications of weight gain in schizophrenia. *J Clin Psychiatry*. 2001;62 (suppl 7): 32-7.
13. Clinical practice guidelines on management of obesity. Kuala Lumpur: Ministry of Health Malaysia; 2004.
14. Wirshing DA, Wirshing WC, Kysar L, et al. Novel antipsychotics: comparison of weight gain liabilities. *J Clin Psychiatry*. 1999;60:358-63.
15. Littrell KH, Hilligoss NM, Kirshner CD, Petty RG, Johnson CG. The effects of an educational intervention on antipsychotic-induced weight gain. *J Nurs Scholarsh*. 2003; 35:237-41.

ORIGINAL ARTICLE

Malaysian postgraduate training in psychiatry: Are our trainees having consistent problem in basic science?

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Abstract

Objective: To assess postgraduate candidates' knowledge on basic sciences and to compare their achievement based on two years study in the Department of Psychiatry, National University of Malaysia (UKM), Kuala Lumpur, Malaysia. **Methods:** This is a study assessing areas of difficulties in basic sciences for the Malaysian postgraduate candidates sitting for mock MCQ examination papers in two consecutive years. **Results:** The candidates in both years failed on MCQ papers (scoring marks are only 43% and 40% for the year 2006 and 2005 respectively), which is consistent with their final examination outcomes. The candidates in the year 2006 were much superior in neuroanatomy (percentages of median scores: 47% vs. 31%, $p < 0.05$), neurophysiology (54% vs. 47%, $p < 0.05$) and psychology (44% vs. 41%, $p < 0.05$) domains compared to their counterparts taking examination in the year 2005. However, there was no difference in terms of other domains, such as neurochemistry, psychopathology and epidemiology in the examination outcomes for the year 2005 and 2006. Generally, the overall scores of the candidates participating in the year 2006 were much higher than their previous counterparts. However, the scores of the candidates of both years were still low in statistics (34.1% vs. 36.4%, $p > 0.05$) and stress/immunology (38.2% vs. 37.3%, $p > 0.05$). **Conclusion:** Medical statistics and stress/immunology remain difficult subjects compared to neurophysiology and psychopharmacology. Malaysian postgraduate candidates need more efforts to understand basic sciences, especially statistics.

Key words: *Malaysia, postgraduate education, basic sciences, outcome*

Introduction

Is psychiatry a relatively easier-to-study discipline compared to its counterparts like internal medicine and surgery? Or is it as difficult as other disciplines in medicine? It is the purpose of this study to partly address the above questions.

Postgraduate psychiatry is a branch of specialized clinical disciplines in medicine and starts to receive more trainees due to its increasing popularity among young doctors. Since Malaysian independence, to fulfill the specialist needs in our local

psychiatric services, postgraduate training programmes have been started in two local universities, in the 1970s and 1980s, respectively. Since then, the two local universities, Universiti Malaya (UM) and Universiti Kebangsaan Malaysia (UKM), have trained a substantial number of specialists to fill the vacant positions in local hospitals and mental institutions. At present, Universiti Sains Malaysia (USM) also offers a master degree program in psychiatry. The master degree, which is equivalent to the MRCPsych (Membership in the Royal College of Psychiatrists, Unit-ed

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Kingdom), is required for a Malaysian doctor wishing to hold a specialist position in a psychiatric institution. At the end of first year training, a postgraduate resident has to take Part 1 examination in basic sciences, such as neuroanatomy, neurophysiology, psychology, statistics and epidemiology, genetics, immunology and neuropathology. In Part II examination, knowledge on basic sciences, especially epidemiology, statistics and critical thinking, are evaluated again by the use of Critical Appraisal Paper (Critical Review in Psychiatry).

The master degree conferred by Universiti Malaya is called Master of Psychological Medicine (MPM). The master degree conferred by Universiti Kebangsaan Malaysia and Universiti Sains Malaysia is called Master of Medicine (Psychiatry) [MMed (Psych.)].

The general objective of the 4-year programs of Master of Medicine (Psychiatry) and Master of Psychological Medicine in Malaysia is to impart knowledge and skills to the candidates for enabling them to work independently as safe and competent psychiatrists. In terms of specific objectives, the candidate should: i) have thorough knowledge in the field of psychiatry (including basic sciences) and sufficient knowledge in psychiatric subspecialties, ii) have broad knowledge in the fields of psychopathology, etiology, symptomatology, treatment and management, iii) be capable of taking a detailed history, and carry out physical and mental state examinations, iv) be capable to lead and cooperate with other staff members (e.g., clinical psychologist, medical social worker, occupational therapist), v) show good attitude and a sense of responsibility while discussing with colleagues and taking care of patients, vi) be skillful in handling discussions and in communicating with patients and their family members, vii) be capable in advancing themselves in the current knowledge of psychiatry and keeping

abreast with the latest development in general medicine, viii) be able to undertake psychiatric research and ix) be able to work as a consultant, who is effective in raising the levels of expertise, practice and mental health standards in society.

In summary, there are three phases in the programs, namely: Phase I (year 1): basic medical sciences and basic psychiatry; Phase II (year 2 & 3): clinical psychiatry & research; and phase III (year 4): consultant in training. For medical doctors wishing to undergo their specialty degrees in psychiatry in Malaysia, they must complete at least three years of compulsory service upon graduation from medical schools. That is the reason why candidates are usually in their early or middle thirties.

In postgraduate psychiatry, many areas of assessment, including theory and clinical aspects are asked during the examination for assessing the students' knowledge and competencies [1]. The format of examination is contributed by local academicians, with some of its originating partly from the MRCPsych examination style. For both Part I paper I and paper II (theory papers), multiple choice questions (MCQ) make up the components for testing the amount and depth of the candidate's critical thinking in theoretical concerns. Paper I MCQs usually consists of basic sciences, such as neuroanatomy, neurophysiology, neurochemistry, genetics, neuropathology and immunology. Paper II MCQs usually consists of areas, such as psychology, sociology, ethology, statistics, epidemiology and psychopathology.

Multiple choice questions or items are a form of assessment for which candidates are asked to select one or more of the choices from a list. This type of questions is used in education, in market research, and other areas. Unlike essays and orals, the well-constructed MCQ format excludes the subjective bias of examiners and ensures that all candidates are examined on

the same material [2]. For a candidate who lacks essential learning skills or fails to apply active strategies, multiple choice examinations can be extremely difficult [2,3]. Some candidates have even gone so far as to label themselves incapable of answering multiple choice examinations effectively. Some have even taken the step of opting out of a major area of study to avoid the examinations in this format, but in postgraduate psychiatry, students cannot escape the MCQ papers and they have to adjust their style of learning and studying to equip themselves better for these often difficult examinations [3,4]. Debate on this issue has been growing out of a need to have an objective method of assessing and ranking candidates in psychiatry examinations [4,5].

Are basic sciences in postgraduate psychiatry really difficult subjects? If they are so, in what areas are candidates mostly weak and require supervision? It is the purpose of this study to examine these issues by assessing candidates' performance on Part I of the mock MCQ papers over two consecutive academic years, 2005 and 2006.

Methods

This is a descriptive and cross-sectional study carried out on data obtained from a group of postgraduate psychiatry students from Universiti Kebangsaan Malaysia (UKM) and Universiti Malaya (UM), who attended a revision course organized by the UKM Department of Psychiatry in January 2005 and March/April 2006.

Revision Course in Psychiatry is an annual intensive course organized by the UKM Department of Psychiatry to help young candidates refresh and consolidate their knowledge on basic sciences and clinical psychiatry. It was first initiated by the first author in the year 2000 and the basic sciences were usually taught by psychiatrists and lecturers having experiences in teaching those subjects for many years.

The candidates attending this revision

course are psychiatry trainees from UKM, UM and USM. Lecturers from UM and USM contribute to this program from time to time, such as by facilitating seminars and coordinating simple mock clinical examinations. Candidates from various universities plan to sit in Part I examination and complete their lectures and training in basic sciences are invited to attend this course held in Hospital UKM library, meeting rooms and auditorium. The candidates are required to pay minimal course fees covering their meals and some honorarium for the participating lecturers.

In January 2005, a set of MCQs consisting of 45 items with a total of 225 (45 x 5) statements was retrieved from a large MCQ mock examination question bank randomly. The set comprised well-balanced questions on neuroanatomy, neurophysiology, psychology, statistics/epidemiology, genetics, immunology and neuropathology. In March/April 2006, a set of MCQs consisting of 40 items with a total of 200 statements was used. The MRCPsych MCQ examination paper was repeatedly used by the students who participated in the revision course. The mock MCQ paper was a modified version of this. No mock MCQ questions are allowed to be taken out from the room before, during and after the discussion. This set of MCQ was reviewed twice by a group of consultant psychiatrists and lecturers from the psychiatry department between year 2001 and 2004.

For the revision course in 2006, another set of 40 item MCQs with a total of 200 statements was retrieved from the large MCQ mock examination question bank randomly, consisting of questions on neuroanatomy, neurophysiology, psychology, statistics and epidemiology, genetics, immunology, neuropathology, psychopathology and general psychiatry.

Each MCQ item has 5 statements (A, B, C, D and E) to be answered true or false. A marking system is used, where a minimum

mark of 0 or a maximum mark of 5 is given for each item. If a statement is answered wrongly, a minus mark is given, with a minimum mark of 0 for each item (e.g., if a candidate has 2 correct answers and 3 incorrect answers on 5 statements, he will get a mark of -1 but it would be considered as 0 for that item).

All candidates participating in this revision course were informed that their views and answers would be graded, discussed and researched. All candidates verbally gave consent and started answering the MCQs given by the first author. The MCQs include various areas of basic sciences, such as integrative neuroanatomy and neurophysiology, biostatistics and epidemiology, psychology, ethology, immunology, genetics, pharmacology and neurochemistry.

In January 2005, all 11 candidates who attended this MCQ workshop and participated in this study were from UKM. All 11 candidates attempted all 45 questions given to them (session 2005). The total scores calculated were based on the answers of 11 candidates. For example, the maximum score of an item would be $5 \times 11 = 55$. A few candidates did not answer one or two statements in a given MCQ item. Thus, they would end up having 0 marks for that particular statement(s).

In March/April 2006, out of 17 candidates (a different batch of candidates from 2005) attended this MCQ workshop and participated in this study. Eleven candidates were from UKM, with the remaining from UM. No candidates from USM attended due to short notice. All 17 candidates attempted all 40 questions given to them (session 2006). The total scores were calculated based on the answers of 17 candidates. Therefore, the maximum score were $5 \times 17 = 85$. A few candidates did not answer one or two statements in a given MCQ item. Thus, they would end up having 0 marks

for that particular statement(s). The mock MCQ questions on academic years 2005 and 2006 are almost similar with no more than 20% changes of the content made by the author.

Results

Sample of MCQs provided for postgraduate psychiatry revision course are in the Appendix. Table 1 shows percentages of the median scores of Postgraduate Students participating in the Revision Course of Psychiatry in 2005 and 2006.

Discussion

MCQ tests vast areas of knowledge from basic sciences to clinical syndromes in psychiatry. Unlike *vive voce* or short notes, an MCQ has advantages on assessing the breadth and depth of candidate's knowledge and critical thinking [3-5]. The advantages of having postgraduate MCQ examination in basic sciences would be: i) efficiency, ii) universality, iii) neutrality and (iv) response clarity. For example, the responses are independent of the candidate's ability to express himself clearly with language or handwriting. This eliminates a source of errors and makes grading simpler. However, there are also disadvantages of MCQ examination, such as i) ambiguity: failing to interpret information as the test maker intended can result in a "incorrect" response, for example to make the choice appear to be true despite the answer being false [6], ii) no partial credit: even if a candidate has some knowledge of a question. For example the candidate knows something but not everything of a certain topic in basic sciences.

Based on the results in Table 1, the scoring marks were only 43% and 40% for year 2006 and year 2005, respectively. If 50% is taken as a cut-point passing level, which is actually true for the real examination [6], most postgraduate candidates in both years failed in their MCQ examinations.

Table 1: The percentage median scores of postgraduate students participating in the Revision Course of Psychiatry in 2005 and 2006.

Domains		Postgraduate Candidate (Percentage median scores) ^a	
		Year 2006	Year 2005
1	Neuroanatomy*	47.0	30.9
2	Neurophysiology*	54.1	47.3
3	Neurochemistry	45.3	31.8
4	Neuropathology	33.5	40.9
5	Psychology*	43.5	31.8
6	Aetiology & psychiatric genetics	43.5	40.9
7	Stress & immunology	38.2	37.3
8	Psychopathology & general psychiatry	34.7	50.9
9	Psychopharmacology	52.9	46.4
10	Statistics	34.1	36.4
11	Epidemiology	41.2	47.3
Total average		42.7	40.3

^a Mann-Whitney U-test, *statistically significant, $p < 0.005$

According to the first author's experience in being an examiner since 1995, postgraduate students usually failed their final examinations in the MCQ part but had higher scores on short notes/essay papers. Due to the confidentiality reason, the total scores and patterns of real MCQ marking in the final examinations cannot be disclosed here.

Postgraduate candidates in the year 2006 were doing much better in their neuroanatomy (percentage of median scores: 47% vs. 31%, $p < 0.05$), neurophysiology (54% vs. 47%, $p < 0.05$) and psychology (44% vs. 41%, $p < 0.05$) compared to their counterparts in the year 2005. However, there was no difference in other domains, such as neurochemistry, psychopathology and epidemiology. Generally, the candidates' overall scores in the year 2006 are much better than their previous counterparts, but they had lower scores in statistics (34.1% vs. 36.4%, $p > 0.05$) and stress/immunology (38.2% vs. 37.3%, $p > 0.05$) consistently in both years. In 2006, their scoring was relatively poor especially in neuropathology, psychopathology and statistics for candidates sitting mock MCQ exam; and in

2005 for neuroanatomy, neurochemistry and aetiology/psychiatric genetics

In this study, many candidates did well on neurophysiology and psychopharmacology. Neurophysiology is a relatively easier than neuroanatomy, as it needs less memorization [6,7]. Psychopharmacology is a discipline commonly read by the candidates, and they have experiences in using almost all antipsychotics/antidepressants in their teaching hospitals [6]. For questions on statistics, postgraduate students found that they were more difficult than those of epidemiology – as statistics was rather not commonly encountered – except during journal club sessions. As statistics become increasingly important, especially during the third year postgraduate study, the authors believe that postgraduate students have to put in more effort to understand it in the future.

In general, postgraduate examinations can be very stressful, especially the MCQ part concerning statistics and epidemiology. However, it is too simplistic to say that this study adequately brings to light the real

problems in basic sciences – as questions in an area that is usually easy can be very difficult at times – depending on whether the candidate has read the particular area being tested. The questions can be very straightforward or complex and require further critical thinking – for example, when doing a question on statistics – candidates have to think and carry out some calculation ,e.g., finding the mean of Hamilton scores.

According to Hatta and Fairuz (2006), the difficulty in answering MCQ is not usually based on the subject itself [8], but rather due to inadequacy of knowledge, choosing answers hastily (based on assumption), guessing or not meticulous in reading the statement questions properly. Some trainees, who do very poorly, need extensive revisions, or if they repeatedly fail, they should be advised to leave the course.

Basic statistics is usually considered as a difficult subject during discussion because it is not encountered in the daily lives of postgraduate students [8]. It is only discussed in journal clubs, or when there is a statistics class.

Structure of the examinations should be given more priority than the difficulty levels of the materials. In familiar areas like psychopathology, many candidates assume that MCQs in this area would be simple and do not require a rigorous approach to study. However, actual questions are more difficult than their expectations. For example, the year 2005 candidates gave more priority to neuroanatomy than psychopathology and failed on the later part. Besides knowledge, the inability to analyze the structure of MCQs prevents candidates from making a clearer sense of how to take the guess work out of multiple choice examinations.

The use of multiple choice questions in education is sometimes contested due to some negative aspects, whether actual or

perceived, but the format remains popular due to its utility [9].

Candidates tend to answer all the questions from the mock MCQ paper on basic sciences – this risk-taking behaviour would invite guessing despite a penalty for wrong answers (-1 mark for each wrong answer on each question). With these characteristics, it is not surprising that multiple choice tests are both underestimated by some candidates and revered by others. In our study on the two consecutive years, statistics remains the most difficult area. This is perhaps partly due to: i) lack of teaching; ii) ineffective teaching; iii) attitude of post-graduate students towards the mathematical concept of statistics; and iv) lack of exposure. In addition, statistics/epidemiology is only discussed briefly during journal clubs. To improve, it is wise to begin with a series of in-test strategies and then apply these to a few example questions, highlighting the structure and purpose of each question. For example, the students should watch for words like "all", "always", "never", "none", "few", "many", "can" and "sometimes." [10,11].

Interestingly, a report carried out by the College's Research Unit in United Kingdom [12] indicates that a significant number of trainees were dissatisfied with the amount of supervision they received, including for MCQ papers. The following areas were highlighted: i) a trainee should receive one hour of individual consultant supervision per week, ii) presenting one new out-patient per week is not sufficient for supervision, iii) supervision in a ward round or out-patient department is not adequate, iv) individual supervision is still necessary for experienced medical officers and registrars, v) supervision should be planned in advance, vi) supervision is an important source of supports for the trainee. In our local settings in Malaysia, there is a lack of enthusiasm for supervision being conducted by supervisors as they are burdened by so much teaching, research and

clinical workload. The major point of recent discussion with trainees would be that there must be a lot of initiative, self-motivation and then only consult their supervisors in the areas that they are uncertain. On the supervisor part, they must update their knowledge not only in clinical issues but also in basic sciences. It is concluded that future surveys may provide a basis for the development of improved guidelines for educational supervision of trainees.

There were some limitations of our study. Firstly, our study is only a mock MCQ examination and may not reflect the true first part MMed examination. However, it is very interesting to see the same pattern of achievement in their real examination, as they also failed the MCQ paper in the first part of MMed final examination. Secondly, our MCQ samples were selected and reviewed by only a few psychiatrists and lecturers and might not reflect the exact questions in final examination in which the questions were finalized by more than 10 experts and lecturers in the Department of Psychiatry, UKM. Thirdly, USM candidates were excluded in the year 2006 due to short notice. However, USM have only 2 candidates sitting for examination in that time. The strength of our study would be that this is the first study in Malaysia on postgraduate examination in psychiatry looking into candidates' performance for two consecutive years, especially in the knowledge of basic sciences. To our knowledge, it is difficult to research the real examination results among psychiatric trainees, as this would involve confidentiality issues, especially involving the three medical faculties of UKM, UM and USM.

References

1. Royal College of Psychiatrists. General information and regulations for the MRCPsych examinations. London. Royal College of Psychiatrist; 1994.
2. Anderson J. The multiple choice question in medicine. Tunbridge Wells: Pitman Medical; 1976.

3. Anderson J. The multiple choice questions. *Med Teach*. 1979;1:37.
4. Anderson J. The MCQ controversy—a review. *Med Teach*. 1981;3:150-6.
5. Malhi GS. The multiple choice question for the MRCPsych: part II basic sciences examination. Butterworth: Heine-man; 2000.
6. Sidi H. Assessment in postgraduate psychiatry: how to answer an MCQ. *Malaysian Psychiatric Bulletin* 1997;3:85-6.
7. Sidi H. Written exam questions (postgraduate psychiatry)". *Malaysian Psychiatric Bulletin* 1996;2:76-8.
8. Sidi H, Fairuz Nazri AR. Are our postgraduate students having problems in basic sciences or general psychiatry? An experience with mock MCQ papers. *Malaysian Journal of Psychiatry* 2006;15:40-5.
9. Strauss GD, Yager J, Strauss GE. Assessing assessment: the content and quality of the psychiatry in-training examination. *Am J Psychiatry*;1982;139:85-8.
10. Bisson JI. The psychiatric MCQ: are "possibles" always true? *Psychiatr Bull*. 1991; 15:90-1.
11. Slade PD, Dewey ME. Role of grammatical clues in multiple choice questions: an empirical study. *Medical Teacher* 1983;5:146-8.
12. Herriot P, Bhui K, Lelliott P. Supervision of trainees. *Psychiatr Bull*. 1994;18: 474–6.

Appendix

Sample MCQs provided for postgraduate psychiatry revision course (from each of the basic neurosciences, psychology/sociology, epidemiology / statistics) (The answer "T" for true and "F" for false will not appear in the questions sheet):

Neurophysiology

1. The action potential of a nerve:
 - TA. is initiated by a depolarization of the membrane
 - FB. is a change from -70mV resting potential to a more hyperpolarized state
 - FC. is associated with a decrease in membrane permeability to potassium ions
 - FD. is activated by the sodium-potassium pump
 - TE. follows "all or none" law.

Neuroanatomy

2. The following are true regarding the hypothalamus:
 - FA. It is well-defined anatomically than the thalamus

- TB. It arises from the neural crest
- FC. It is mainly formed from white matter
- FD. It forms the wall of the third ventricle
- TE. Preoptic nuclei is located anteriorly

Neurochemistry

- 3. Monoamine oxidase:
 - TA. is involved in the breakdown of serotonin
 - FB. is found mainly in the liver and kidneys
 - TC. Converts 3-methoxy-4-hydroxyphenylglycol aldehyde to vanillylmandelic acid
 - FD. is a rate-limiting enzyme
 - FE. metabolizes acetylcholine

Psychopharmacology

- 4. The following are true regarding benzodiazepines (BDZ):
 - TA. The long-acting BDZ have the common metabolite N-dismethyldiazepam
 - FB. It acts primarily on the potassium channel
 - FC. It stimulates excitatory neurotransmitter in the brain
 - TD. It produces disinhibition
 - FE. It increases REM sleep

Psychology

- 5. The following are features of the pre-operational stage of Piaget's theory of cognitive development:
 - FA. High morality
 - TB. Conservation concept
 - TC. Animism
 - TD. Egocentrism
 - FE. Ability to grasp a concept

Statistics

- 6. The following are the Hamilton depression scores of your 5 patients found during your interview: 10,20,20,20,5
 - TA. The median score is 20
 - TB. The mode is 20
 - TC. The mean and standard deviation (SD) is

15 ± 25

- TD. SD would be reduced if the sample size increased
- FE. The mean is a measurement of spread

Epidemiology

- 7. The following are concepts of validity:
 - FA. Split-half
 - TB. Content
 - TC. Divergent
 - TD. Cross
 - FE. Test-retest

Stress and psychiatric aetiology

- 8. The following are true regarding psychoneuroimmunology:
 - FA. Viral stimulation stimulates production of antibodies by β -lymphocyte
 - FB. Eosinophils increase during bacterial infection.
 - TC. Nitric oxide is found in large amounts during depressive state
 - FD. β -lymphocyte produces killer cells
 - TE. Glucocorticoids suppress antibody reaction

Psychopathology

- 9. The following are types of hallucination:
 - TA. Gedankenlautwerden
 - FB. Pareidolia
 - TC. Reflex
 - TD. Functional
 - TE. Thought echo

General psychiatry

- 10. The following concepts are based on the Diagnostic and Statistical Manual, 4th edition:
 - FA. Psychotic depression
 - FB. Sexual pain disorder
 - FC. Postpartum psychosis
 - FD. Hysterical conversion
 - TE. Somatoform disorder

ORIGINAL ARTICLE

Effects of foot reflexology on insomnia in patients with major depressive disorder

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Abstract

Objective: To assess the sedative effect of foot reflexology on major depressive disorder patients. **Methods:** Of the 31 patients recruited in total, 16 were randomly assigned as controls and 15 were in the treatment (experimental) group. **Results:** The mean values of Chachoengsao Sleep Questionnaire (CSQ) were obtained from both groups before and after treatment and were significantly decreased from baseline. The CSQ scores in the experimental group were significantly lower than those of the control group on days 3, 4 and 5 of the study. **Conclusion:** Foot reflexology improves the quantity and quality of sleep in major depressive disorder patients.

Key words: foot reflexology, major depressive disorder, insomnia

Introduction

The number of patients diagnosed with major depressive disorder is increasing around the world. The World Health Organization has reported that 121 million people have suffered from depression since the economic crisis in 1997 [1]. The major cause of Disability Adjusted Life Years (DALY) in 1999 was depression, and the DALY of premature death from suicide in major depression was high. The Department of Mental Health in Thailand has surveyed the prevalence of depression and reported that 66.2, 99.5 and 57.5 per 100,000 patients visiting general public health service settings, and 31.5, 31.1 and 37.6 per 100,000 patients of the mental health department service, suffered from depression in the years 1999, 2000, and 2002, respectively [2]. Suicidality and insomnia are common symptoms of depression, which have enormous impact

on the lives of patients. Insomnia is usually treated with sedative medications such as benzodiazepines and antidepressants [3]. However, there are some nonpharmacologic alternatives available for the treatment of insomnia, such as foot reflexology.

Therapeutic foot reflexology has been used for disease prevention and treatment since the ancient era in many cultural regions. It is a type of Chinese medicine which relies on the belief that there is a relationship and reaction between internal organs and surface areas of the body. This tenet also stipulates that the human body is connected by an energy line called the "Meridian" consisting of 12 paths, each of which runs through specific organs of the body. Energy which maintains lives has different names in different cultures. It is called "chi" and "prana" in China and India, respectively

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[4]. The functions of bodily organs will be abnormal if energy cannot flow smoothly within that Meridian line.

In foot reflexology, the body surface is separated into 10 equal areas called vertical zones, which are the routes of forces from the head to lower parts of the body. Each organ has its own reflex area represented on palms of the hands and soles of the feet. A foot can be generally divided into 3 parts: the distal part which represents the head, the middle part which represents the thorax and abdomen, and the heel which represents the pelvic organs. Foot reflexology involves the use of fingers or other instruments to press and massage on the part of the feet representing the desired bodily organs, in order to adjust and stabilize the functions of those organs [5]. It elicits an involuntary response to produce a physiological change in those represented organs connected to the energy line [6]. Applying pressure on a given area will affect the organ(s) represented by that area, alleviating the stress immediately. Reflexologists believe that blockage of energy flow may be one mechanism by which toxic substances cause diseases. Foot reflexology helps to decrease the stagnation of energy, thereby promoting the healing process. Clients typically report the feeling of comfort or a flow of energy throughout the body following reflexology-based foot massages. This technique also promotes blood circulation to increase oxygen and nutrition supply and to eliminate waste products through the lymphatic and circulatory systems. It can improve nerve conduction and induce deep relaxation [7].

Foot reflexology is currently used for treating various ailments such as insomnia, indigestion, hormonal imbalance, heart disease, kidney disease, constipation, migraine, sinusitis, back pain, and neck pain. This method can connect the body, mind and spirit, with the aim of treatment being a return of the feeling of balance back to the body. Recent literature has

documented the effects of reflexology on insomnia. One study reported a case in which a 58-year-old patient responded to 5 sessions of foot reflexology treatment for insomnia, and another 10 cases which showed positive effects of this treatment [8]. However, there are many weak points in this study including poor methodology, the small number of participants, the non-randomized design of the study, and subjective evaluation of data. Another, quasi-experimental study has found that foot reflexology was effective in reducing fatigue and insomnia in the experimental group (N=29) compared to the control group (N=30) of coal workers experiencing pneumoconiosis [9]. In a different report, 22 members of the British Reflexology Association applied foot reflexology on 35 patients suffering from insomnia and found that insomnia and associated symptoms were reduced by 25% and 18%, respectively [10]. Another study randomly divided 70 patients suffering from insomnia into two groups. Patients in group A received 20-minute reflexology sessions twice a day for 10 days while those in group B received 20-minute sessions once daily for 10 days. Assessment at day 10 indicated that reflexology was effective for treating 100% and 91.43% of patients in group A and group B, respectively [11]. The relative efficacy of foot reflexology therapy was compared against other forms of non-medication-based therapies in a study carried out by McCullough and colleagues, which showed improvements of 5 participants receiving acupuncture treatment and 4 patients receiving reflexology therapy, but not those in the music therapy group (N=4) [12]. There are, however, many weak points in this study including questionable methodology, small sample size, lack of randomization, and subjective evaluation.

The rationale behind the use of foot reflexology in the treatment of insomnia is based on the presence on the feet of representations for organs affecting

insomnia, including the abdomen (represented by the middle of the sole), neck and spine (connecting areas between sole and big toe), and shoulders (connecting areas between sole and small toes) [13]. A few studies have indicated the effectiveness of foot reflexology for treating sleep disorders. Further studies are therefore needed to confirm their effects. In addition, the effects of foot reflexology on major depressive disorder have not yet been determined, thus prompting us to undertake the present study to assess the efficacy of foot reflexology for the treatment of insomnia in patients with major depressive disorder.

Methods

After receiving the approval from the institutional review board, patients with DSM-IV major depressive disorder diagnosed by psychiatrists were invited to participate in this single-blind study. All subjects were outpatients visiting Chachoengsao Hospital between September 2004 and May 2005.

Subjects

Each individual was initially screened to determine that he or she was at least 20 years old, had been treated with sleeping pills for at least 1 month without showing any response to treatment, had no significant physical illnesses, and had no suicidal ideas. All patients signed the consent forms before entering the study. During the 5-day study period, all of the participants continued to receive the same doses and medications, including antidepressants and hypnotics. No other therapeutic intervention, such as psychotherapy, sleep hygiene, was given to participants at any point during the study period.

Outcome measurement

The measures used in this study were: i) Hamilton Rating Scale for Depression (HAM-D 17-item), Thai version; and ii) Chachoengsao Sleep Questionnaire (CSQ)

(adapted from St Mary's Hospital Sleep Questionnaire, SMH sleep) (14). This Thai questionnaire consists of questions about the quantity and quality of sleep. The quantity of sleep is determined by a number of factors including time to sleep, early morning awakening, number of sleeping hours, and night time awakening. The quality of sleep is assessed by the evaluation of day time fatigue, functional disturbances, adequacy of sleep, anxiety about going to sleep, difficulty falling asleep and physical symptoms associated with such anxiety. This 15-item questionnaire uses a 5-point Likert scale, where responses to each question are graded into 5 levels of severity. The responses in each questionnaire were scrutinized by 3 experts. The reliability of the scale is 0.91 and the score value, which ranges from 0 to 60, is inversely related to the quality and quantity of sleep.

Procedure

All participants completed the HAM-D and CSQ at baseline and were then randomly assigned to the experimental or control group using coin flipping technique. They received intervention in the form of foot reflexology or sham treatment on days 1, 3 and 5 of the study but scored the CSQ every morning on each of the 5 days during the study period. One professional therapist involving in the study had received standard training for foot reflexology and was trained and informed about the technique used in this study ahead of time.

The technique of massage used was as follows. Tips of the thumbs were placed on the desired area on the soles of the feet as mentioned previously, and pressure was applied and slowly increased until slight pain was experienced in the area for 30 seconds. Pressure was then slowly decreased while fingers were extended. This process was repeated for 15-20 minutes, depending on the client. All patients received basic foot exercise massage for 10-15 minutes prior to the

reflexology session. In the control group, participants received foot reflexology in areas believed to be unrelated to sleep regulation, for the same duration.

Statistical Analysis

We compared mean CSQ scores between the experimental group and the control group using unpaired t-tests and compared

within each group using one-way ANOVA. A *p*-value of less than 0.05 was considered statistically significant.

Results

Fifteen and sixteen participants were randomly assigned to the experimental and control groups, respectively. The demographic data are shown in Table 1.

Table 1: Clinical characteristics of participants (N = 31)

Characteristics		Experimental group (N=15)		Control group (N=15)	
		<i>n</i>	%	<i>n</i>	%
Age	20-30	3	20.0	2	12.5
	30-40	4	26.7	5	31.3
	40-50	5	33.3	5	31.3
	50-60	3	20.0	4	25
Marital status	Single	2	13.3	2	12.5
	Couple	9	60.0	8	50
	Divorced	3	20.0	5	31.3
	Separated	1	6.7	1	6.3
Education	Primary	5	33.3	6	37.5
	Secondary	2	13.3	1	6.3
	Tertiary	8	53.4	9	56.2
Employment status	Employed	10	66.7	11	68.8
	Unemployed	2	13.3	2	12.5
	Home duties	3	20.0	3	18.8

Table 2: Comparison of the mean scores of HAM-D and CSQ between the experimental and control groups and comparison of the mean scores of CSQ over 5 days of treatment within groups

Measure	Experimental group (N=15)				Control group (N=16)				t-value*	p-value*
	mean	SD	t-value#	p-value#	Mean	SD	t-value#	p-value#		
HAM-D	12.5	6.0	-	-	12.6	5.8	-	-	.05	.96
CSQ- baseline	28.7	7.3	-	-	26.8	7.7	-	-	-.78	.44
day 1	15.9	8.3	4.89	.000**	21.6	10.7	1.97	.07	1.65	.11
day 2	13.8	10.8	4.79	.000**	21.2	11.0	2.46	.03*	1.89	.07
day 3	7.4	4.1	10.26	.000**	20.2	10.4	2.68	.02*	4.55	.000**
day 4	9.3	10.3	5.69	.000**	17.6	10.0	3.61	.003**	2.28	.03*
day 5	6.4	4.8	8.34	.000**	16.6	10.3	3.50	.003**	3.57	.002**

- **p*<0.05, ** *p*<0.01; considered significantly different.
- t-value# and p-value# were used for comparison within each group.
- t-value* and p-value* were used for comparison between groups.

From Table 2, the mean scores of the HAM-D in the experimental and control groups were 12.5 and 12.6, respectively, which were not different statistically. The severity of depression in a patient of either group was mild. By comparing the CSQ mean scores between groups at baseline ("pre") and 5 days of reflexology, we found the scores on days 3, 4 and 5 to be significantly lowered in the experimental group relative to controls (see Table 2).

Table 2 also illustrates the comparison of mean CSQ scores over time (baseline compared with each of days 1 to 5 following intervention) within each group (experimental or control). The mean scores on the CSQ were found to be significantly lowered in each day subsequent to the start of intervention, with the exception of the control group on day 1 of sham treatment.

Discussion

Foot reflexology can improve insomnia in major depressive patients according to the results of this study. The demographic data and baseline mean scores on the HAM-D were not significantly different in patients of either group, placing them in the mildly depressed range. The baseline mean scores on the CSQ were also not significantly different between the two groups. Patients in the experimental group (N=15) showed significant improvement in the quality and quantity of sleep on days 3, 4 and 5 compared to the control group (N=16), and the scores on the CSQ were progressively decreased from days 1 to 5 reflecting the continuous improvement with additional treatment sessions during the study. When scores were compared between baseline (pre-intervention) and days 1 to 5 (during the intervention) within each group, sleep was found to be improved during the 5-day period of applied intervention in both groups except on the first day of intervention in the control group. In the control group, the modest amount of sleep improvement observed effect may be the

result of stress relief through talking with the researchers during the follow-up period, or else massage in a nearby area of the foot which could stimulate and improve blood circulation of represented organs affecting insomnia. In the experimental group where sleep improvement was more pronounced, the effectiveness of the intervention could be explained by a reduction in stagnation of energy and by improvement of blood circulation in the mentioned areas related to insomnia, through the use of foot reflexology. The data from follow-up interviews suggest that patients were highly satisfied with the results of intervention which was found to be beneficial and therapeutic. In conclusion, this study found that foot reflexology can improve the quality and quantity of sleep in major depressive disorder patients with mild depressive symptoms. Our study therefore demonstrates the usefulness of this approach in the treatment of such conditions.

Limitations of this study include the relatively small sample size and short duration of study. Further studies involving larger, randomized-controlled trials and the follow-up of patients from diverse demographic backgrounds for longer periods of treatment will be helpful in clarifying the efficacy of this therapy in the larger population.

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References

1. Mental Health Department, Ministry of

- Public Health Thailand. Situation and tendency of factors related to mental health; 2001. September 6. Available from: <http://www.dmh.moph.go.th/situation.asp>.
2. Mental Health Department, Ministry of Public Health Thailand. Situation and tendency of mental illness in Thai population; 2001. December 16. Available from: <http://www.dmh.moph.go.th/trend.asp>.
3. Lortrakul M. Psychiatry Ramathibodi. 4th ed. Bangkok; 1997.
4. Jackson C, Jackson J. Modern reflexology. London: Caxton Editions; 2002.
5. Nuanjai T. Hand and Foot Massage and acupressure: new dimension in healthcare. 2nd ed. Bangkok: Kumkaew; 2004.
6. Dougans I. Reflexology - a practical introduction. Melbourne: Element; 1998.
7. Keet M, Keet L. Hand reflexology. London: Hamlyn; 2003.
8. Dougans I. Complete illustrated guide to reflexology. London : Element; 2002.
9. Lee YM, Sohng KY. The effects of foot reflexology of fatigue and insomnia in patients suffering from coal workers' pneumoconiosis. Taehan Knaho Hakhoe Chi (Korean language), 2005;35:1221-8.
10. The British Reflexology Association (B.R.A). Survey of the Effects of Reflexology on Insomnia. B.R.A Survey, 2004.
11. Gao W. Preliminary Exploration of Treatment for Insomnia. China Reflexology Symposium Report (The Women and Infantile Health Center of Inner Mongolia), 1996.
12. McCullough CA, Hughes CM, McDonough SM. The effectiveness of acupuncture and reflexology in primary insomnia. FACT 2005;10 (Suppl 1):36.
13. Poonying C. Foot Reflexology. 3rd ed. Bangkok: Nanmee Book, 2003.
14. Ellis B, Johns M, Lancaster R, Raptopoulos P, Angelopoulos N, Priest R. The St.Mary's Hospital sleep questionnaire: a study of reliability. Sleep 1981;4:93-7.

ORIGINAL ARTICLE

Psychiatric disorders in children at two year after the tsunami disaster in Thailand

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Abstract

Objective: Psychiatric disorders caused by the tsunami disaster were investigated during two years after the event. Psychiatric diagnosis and management were evaluated at one and two years after the disaster. **Methods:** One thousand three hundreds and sixty four students from 2 schools were enrolled. Three tests were used according to the students' grades. Those included pediatric symptoms checklist, Childhood Depressive Inventory and the Revised Child Impact of Events scale (CRIES). DSM-IV psychiatric disorders were diagnosed by child and adolescent psychiatrists. **Results:** Psychiatric disorders were found in 142 students (10.4%) at one year after the tsunami disaster. Of these, ninety students (6.3%) did develop psychiatric disorders after the event. At two years after the disaster, psychiatric disorders were found in 22 students (1.6%). The most common psychiatric problem was post traumatic stress disorder. One per cent of grade 4-6 students and 0.3% of grade 7-9 students had psychiatric disorders. The prevalence was lower in kindergarten (0.1%) and in grade 1-3 students (0.1%). **Conclusion:** The prevalence of psychiatric disorders declined from 10.4% at one year after the event to 1.6% at two years after the event. The prevalence of psychiatric disorders in grade 4-6 and 7-9 students was higher than that in kindergarten and grade 1-3 students. The most common psychiatric problem is post-traumatic stress disorder.

Key words: tsunami, disaster, post-traumatic stress disorder, Thailand

Introduction

The 26th of December 2004 tsunami disaster in South and South-East Asia was the most catastrophic in Thailand's history. Enormous destruction to physical structures, social structure (family and community), as well as the economic structure, transcends to both short-term and long-term devastation. The lives of many people in these regions have been changed since then.

Psychological problems were found in 40-84% of the people affected by the catastrophic event. Those included sadness, depression, worries, panic attacks, adjustment, physical complications, which may be caused by elevated stress and post traumatic stress disorder (PTSD). Substance abuse also increased in children, adolescents and adults [1-2]. The authors were a team providing psychological supports for people in the areas affected by the disaster. Some data obtained in the first

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two years after the event are presented in this report.

Methods

After the tsunami in 2004, an emergency team was dispatched to tally and report the personal losses among school children. Of the six provinces severely devastated by the event, the death toll was highest in Phang-Nga. In this province: Bang Muang and Suthin Anusorn Schools at Takuapa (1,364 students) were chosen as the sites for psychiatric monitoring and supports.

A school is the best center for the psychiatric team to support the victims [8]. In this study, the psychiatric team initiated the assistance program starting from day 10 after the tsunami, providing initial psychological first aids, as well as providing psychological supports for school children and their parents. As the involvement of schools was deemed, necessary teacher orientation, education and training sessions were given to the teachers in order to facilitate their awareness and understanding of PTSD and depression. Our team also provided medical and psychotherapeutic supports throughout the period in which the schools served as the administrative center for the care and monitoring of the children.

Not only the 57% of school children faced direct personal loss but also the teachers and their families also suffered from loss due to death, injuries and the destruction of their home, etc. Supports were given to affected school teachers as well. Parents were also invited to meet with the team in order to gain more awareness of PTSD and insight about treatment and interventions. Parents with PTSD were given treatment and interventions for their mental problems. Financial supports, including scholarships were available for children of the families directly affected by the tsunami disaster. To monitor, counsel and provide medical care, the team visited the schools eight times in the first year and three times

in the second years after the disaster.

A cross sectional study was done at one and two years after the event. Three tests were used according to the student's grade. Problems of the kindergarten students were tested by using pediatric symptoms checklist for evaluating children's problems, a developmental screening test and an evaluation of mental status. Grade 1-3 students were examined by the use of pediatric symptoms checklist for evaluating children's problems, Childhood Depressive Inventory and an evaluation of mental status. Grade 4-6 and 7-9 students did the tests themselves. The tests used were the Revised Child Impact of Events scale (CRIES), Post traumatic stress disorder checklist, Childhood Depressive Inventory and an evaluation of mental status. Psychiatric disorders, defined by the DSM-IV criteria, were diagnosed by child and adolescent psychiatrists.

Results

Of 1,364 students, 272 were the disaster victims. One year after the tsunami, 142 of 1,364 students were found to have psychiatric problems. However, not all of the students with psychiatric problems were the victims. Psychiatric disorders were found in 90 (66%) and 22 (1.6%) of the 272 victims at one and two years after the event, respectively. It should be noted that a student had more than one diagnosis. The most common psychiatric problem was post traumatic stress disorder (see Table 1).

The number of students with PTSD was decreased from 86 ones (6.3% of the total students or 31.6% of the victims) at 1 year after the disaster to 16 cases (1.2% of the total students or 7.1% of the victims) at 2 years after the event. Psychiatric disorders were found in 11 cases of the kindergarten group (2.3% of a total of 471 kindergarten students), 12 cases in grade 1-3 students (3.8% of 316 students in these grades), 48 cases in grade 4-6 students (10.9% of 439 students in these grades) and 19 cases in

grade 7-9 students (11 % of 118 students in these grades). Two years after the tsunami, **Table 1:** Psychiatric disorders at 1 and 2 years after the tsunami (more than one diagnosis for 1 person)

Psychiatric disorders	Cases (% of the total students) (N=1,364)		Cases (% of the tsunami victims) (N=272)	
	<i>1 year after the tsunami</i>	<i>2 year after the tsunami</i>	<i>1 year after the tsunami</i>	<i>2 year after the tsunami</i>
Post traumatic stress disorder	86 (6.3)	16(1.2)	86 (31.6)	16 (7.1)
Major depressive disorder	15 (1.1)	16(1.2)	15 (5.5)	16 (7.1)
Anxiety disorder	5 (0.4)	2 (0.2)	5 (1.9)	2 (0.9)
Others	6 (0.4)	14 (1)	6 (2.2)	14 (6.6)
Total	90 (6.6)	22(1.6)	90 (33.1)	22 (10.4)

Note: a case had more than one psychiatric disorder

Table 2: Psychiatric disorder at 1 and 2 year after tsunami

Grade	Cases (% of the total students in group)	
	<i>1 year after the tsunami</i>	<i>2 year after the tsunami</i>
Kindergarten group (n = 471)	11 (2.3)	2 (0.1)
Grade 1-3 group (n = 316)	12 (3.8)	12 (3.8)
Grade 4-6 group (n = 439)	48 (10.9)	48 (10.9)
Grade 7-9 group (n = 118)	19 (11.0)	19 (11.0)

only the number of cases in kindergarten groups was decreased (see Table 2).

Discussion

Catastrophic events caused by either nature or men can result in substantial loss of property, life, community, family, economic, social system and even immeasurable personal or emotional loss. The tsunami disaster in South and South-East Asia on the 26th of December 2004 is the most severe catastrophic in Thailand history. The death toll and number of people missing were 5,309 and 3,810, respectively. Among the six devastated provinces, the number of lives lose was largest in Phang-Nga.

Life threatening in confronting of severe natural disasters, such as a tsunami, can be a horrific and traumatic experience. Physical and emotional responses to trauma may vary due to age and ability to adjust themselves with new life situations.

Biochemical changes in the body are early survival responses to trauma or threats. Over a period of time, it gradually changes in most cases depending on the victim's sense of personal stress and how to cope with the stressful life events. Severely stressful life events may result in a variety of abnormal reactions (e.g., denial, blurring cognition, being easily started, etc.), which last longer than four weeks. In this case, PTSD should be screened. [3-7].

The prevalence rates of PTSD in children are between 6% and 51% [4-7]. This disorder is relatively rare in children under the age of 10 years old. However, there is a report of PTSD in 51% of 200 children surviving from the Jupiter shipwreck. Most cases developed PTSD within weeks after the catastrophic event. In addition, after 5-7 years of the event, 15% of the victims still suffered from PTSD [6]. Another report is the calamitous event involving a landslide in Aberfan. It was found that as many as

29% of the survivors still suffered from PTSD even after 33 years had passed [5]. All of the evidence mentioned here demonstrates that PTSD is common in children who had unfortunately experienced natural disasters or catastrophic events. It also indicates that PTSD may be chronic in many children [2,4,6-7]. Because epidemiological data of PTSD in Thailand are rarely available, it is not yet known whether the above-mentioned course of PTSD is applicable in Thai children.

The prevalence of PTSD in the victim children was 31.6% after a year of the tsunami disaster and declined to 7.1% at two years later. The prevalence in this report is clearly lowered than those in other countries. The distinctions may be caused by different social structures and basic supports.

Among children and adolescents, several PTSD symptoms may not be observed [7-9]. Superficially, these individuals may look normal and be able to perform activities almost normally, such as playing games and catching up with classroom lessons. However, in this study, the decline in academic achievement was noticeable. Some subtle signs included personality changes, such as a tendency to isolate oneself from friends and family, gazing into space or day dreaming, poor concentration, sleep difficulties with nightmares in some of which he/she is reliving the traumatic experiences [11-12]. It was found in this study that a number of students had PTSD symptoms, but they are not severe enough or too fewer to meet the DSM-IV diagnostic criteria for PTSD.

Conclusion

The prevalence rate of psychiatric disorders declines from 31.6% of the victims at one year after the tsunami disaster to 7.1% at two years after the event. The disorders are more prevalence in older students. The most common one is PTSD.

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References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington DC: American Psychiatric Press; 1994.
2. American Academy of Child and Adolescent Psychiatry. Practice parameters for the assessment and treatment of children and adolescents with post-traumatic stress disorder. *J Am Acad Child Adolesc Psychiatry* 1998;37 (Suppl 10):S4-S26.
3. Eranen L, Liebkind K. Coping with disaster: The helping behavior of communities and individuals. In: Wilson JP, Raphael B, editors. *International handbook of traumatic stress syndromes*. New York: Plenum Press; 1993. p.957-64.
4. Galante R, Foa D. An epidemiological study of psychic trauma and treatment effectiveness for children after a natural disaster. *J Am Acad Child Psychiatry* 1996; 25:357-63.
5. Kassam-Adams N, Winston FK. Predicting child PTSD: the relationship between acute stress disorder and PTSD in injured children. *J Am Acad Child Adolesc Psychiatry* 2004;43:403-11.
6. Broberg AG, Dyregrov A, Lilled L. The Goteborg discotheque fire: posttraumatic stress, and school adjustment as reported by the primary victims 18 months later. *J Child Psychol Psychiatry* 2005; 46:1279-86.
7. Yule W, Bolton D, Udwin O, Boyle S, O’Ryan D, Nurrish J. The long-term psychological effects of a disaster experienced in adolescence: I: The incidence and course of PTSD. *J Child Psychol Psychiatry* 2000; 41:503-11.

8. Wolmer L, Laor N, Dedeoglu C, Siev J, Yazgan Y. Teacher-mediated intervention after disaster: a controlled three-year follow-up of children's functioning. *J Child Psychol Psychiatry* 2005;46:1161-8.
9. Curle CE, Williams C. Post-traumatic stress reactions in children: gender differences in the incidence of trauma reactions at two years and examination of factors influencing adjustment. *Br J Clin Psychol* 1996;35:297-309.
10. Giaconia RM, Reinherz HZ, Silverman AB, Pakiz B, Frost AK, Cohen E. Traumas and posttraumatic stress disorder in a community population of older adolescents. *J Am Acad Child Adolesc Psychiatry* 1995; 34:1369-80.
11. Pynoos RS, Goenjian AK, Steinberg AM. A public mental health approach to the post disaster treatment of children and adolescents. *Child Adolesc Psychiatr Clin North Am* 1998;7:195-210.
12. Murphy JM, Reede J, Jellinek MS, Bishop SJ. Screening for psychosocial dysfunction in inner city children: Further validation of the Pediatric Symptom Checklist. *J of Am Acad Child Adolesc Psychiatry* 1992;31:221-33.

ORIGINAL ARTICLE

Psychiatric case management in a tertiary psychiatric hospital

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Abstract

Objective: Psychiatric case management was introduced in inpatient general psychiatry wards in a tertiary psychiatric hospital in late 2003. A brokerage model of case management is used espousing advocacy with case managers acting in their patient's best interest to encourage and facilitate use of appropriate psychiatric care and reduce fragmentation and costs. Data on patients' case managed in 2004 and 2005 was analysed to determine the effectiveness of the service in terms of clinical outcomes and service linkages provided. **Methods:** Psychiatric case managers maintained databases on the patients referred to them. There were 231 patients in 2004 and 375 patients in 2005. Analyses were performed by using SPSS 13.0 with statistical significance set at $P < 0.05$. Descriptive statistics was used and differences between the 2 cohorts in outcome measures were assessed using Chi-square or Fisher's Exact test. **Results:** The service developed with a 62.3% increase in the number of cases accepted for case management in the second year. There was improvement in clinical outcomes, such as reductions in unplanned re-admissions within 28 days from 4.8% in the first year to 2.1% in the second year. A reduction in suicide attempts and forensic complications was also found. There were significant reductions in re-hospitalisation in 2004, from 28.1% to just 6.9% after case management was provided ($p < 0.001$). **Conclusion:** The brokerage model of case management used in this setting was effective in reducing re-hospitalisation, unplanned readmissions, suicide attempts and forensic complications for psychiatric patients

Key words: brokerage model, psychiatric case management, psychiatric hospital

Introduction

Case management is a system of care delivery that has been developed and in use in Western countries for the past 2 to 3 decades [1]. It became especially relevant in psychiatric care when many psychiatric hospitals were closed and patients with serious mental illnesses began to be treated as outpatients. Case management became a means of ensuring care and support for these patients and reducing the risk that

they would lose contact with services [2]. As case management began to be used in different settings, objectives specific to these settings grew, resulting in the development of several case management models [3]. Successful models in psychiatry such as brokerage case management, clinic case management, strengths model of case management and assertive community treatment involve intensive work with individual patients [4].

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Psychiatric case management has only been introduced fairly recently in the Institute of Mental Health/Woodbridge Hospital (IMH/WH) in Singapore. This is a large psychiatric hospital providing tertiary and subspecialized care for acute and chronic patients. Psychiatric case management was introduced in 2000 as part of an Early Psychosis Intervention Program and was later introduced for the adult general psychiatry inpatient service in late 2003. The hospital's objectives were to provide comprehensive quality care for the patient, to reduce the burden of severe and chronic illnesses on the family and society, and to ensure that patients benefited from the available community mental health resources the hospital had developed. These included Community Psychiatric Nursing (CPN), Assertive Community Treatment (ACT), Mobile Crisis Team (MCT), psycho-education programs for patient and family, and occupational rehabilitation at day centers. There are also step-down care facilities for those with mental illness provided by voluntary welfare organisations (VWO) in the country. However, community resources tend to be poorly coordinated and fragmented. So a secondary objective was to use case management to coordinate services and care for the patients prior to discharge from the hospital.

Thornicrofts' description of case management as the "coordination, integration and allocation of individualised care within limited resources" was used in developing the service in the hospital [5]. A brokerage model of case management was adopted in IMH/WH despite the fact that this model had sometimes been criticised for providing little direct service to patients [6]. We felt that the brokerage model was most applicable to our setting and allowed for service coordination and linkage from amongst those services available in the hospital and the community.

Functions outlined by Stein and Diamond

[7] were included in planning the delivery of care. These included: psychosocial needs assessment, care plans, linkage to appropriate community services and resources, regular assessments of mental state and treatment response, treatment compliance and side effects, the therapeutic relationship, counseling, supportive therapy and psycho-education.

The case managers' role and responsibilities were defined. This entailed: i) Case Management role: development of care plans, coordination and continuity of care from hospital to community and patient advocacy; ii) Brokerage role: assessor, planner, evaluator and linkage; and iii) Therapeutic role: providing psycho-education for patient and family, counseling and supportive therapy.

Inclusion and exclusion criteria for referral to case managers were established to enable appropriate referrals. These included an age criteria (only those eighteen years and above), repeat admissions, those with certain deficits (functional and cognitive deficits) and those with high risk social factors. These include financial difficulties, poor social support, absence of caregivers and when there are likely to be discharge placement problems [8]. The case managers categorised the level of care they provided for the purpose of standardisation. This ranged from Level I case management involving assessment and counseling with supportive therapy and psycho-education, Level II case management which includes additional telephonic case management; Level III case management is similar to level II except that the frequency of telephonic case management is increased to monthly calls and finally to Level IV case management entailing intensive patient and family work and fortnightly telephonic case management. There are operating procedures to ensure standardization and consistency in the delivery of care.

Three psychiatric nurses were recruited as

psychiatric case managers. They received a 1 month initial training in case management and on-the-job supervision in addition to a part-time course (Advanced Diploma in Case Management) at a local polytechnic. Their ongoing training and education included peer supervision, monthly journal clubs and case discussions with a psychiatrist and bi-monthly learning sessions with case managers from other hospital settings. The case managers were assigned to the general psychiatry department in the hospital. The reporting structure required case managers to be accountable to their Department Chief for all clinical matters and to the Head of the Case Management Unit for administrative and training matters.

This paper presents a review of the data and findings after 2 years of providing case management in the acute adult general psychiatry inpatient wards of the psychiatric hospital. Services provided by the case managers and their referrals to other services in the hospital and in the community were reviewed. In addition, outcomes for each cohort related to the case managers' work were reviewed.

Methods

All cases, referred to the psychiatric case managers between January 2004 and December 2005, were included in this mental health service review. The psychiatric case managers maintained databases and recorded information in the patient's hospital medical records as well. They functioned as part of the ward's multidisciplinary team led by the ward psychiatrist, coordinated the care and integrated the services to best benefit each patient. Length of follow-up for each patient depended on patients' needs and level of care provided. It varied from a minimum of 3 months to a maximum of 6 months to a year.

Outcome measures were introduced at the start as a mean of assessing the effectiveness of the service. The case managers monitored their own workload and the

following outcomes:

- (1) Unplanned readmission rates within 28 days with the aim of keeping this below the hospital's rate of 9% (hospital Key Performance Indicator)
- (2) Readmissions rates >28 days and less than a year
- (3) Readmissions requiring police assistance; these patients were either disturbed and brought in by police or their family had called the police for help in bringing the patient to the hospital
- (4) The number of suicide attempts and completed suicides amongst their cases each year
- (5) The number of forensic complications that occurred; these included any legal and/or criminal offences involving their patients
- (6) Crisis management provided by the case managers (in the hospital crisis management refers to urgent intervention provided to patient and family members when problems arise at home and carry the risk of rapid or serious decompensation, or have the potential to seriously endanger an individual or the family)
- (7) Telephonic case management
- (8) Psycho-education sessions provided. For these sessions standardized material was used.
- (9) Individual patient counseling sessions
- (10) Family counseling sessions
- (11) The number of Home Visits the case managers had made and
- (12) Cases disengaged from case management

All analyses were performed by using SPSS 13.0 with statistical significance set at $p < 0.05$. Descriptive statistics were presented using frequencies and percentages. Differences between the 2 cohorts in outcome measures were assessed using Chi-square or Fisher's Exact test with odds ratios presented where applicable.

Results

Demography

There were a total of 1,191 referrals to the

Table 1: Demographic profile of case management patients

	2004 (n=231)	2005 (n=375)	<i>p</i> -value
<i>Gender</i>			
Male	127 (54.9%)	203 (54.1%)	0.84
Female	104 (45.1%)	172 (45.9%)	
<i>Race</i>			
Chinese	179 (77.5%)	281 (74.9%)	0.80
Malay	26 (11.3%)	51 (13.7%)	
Indian	24 (10.3%)	41 (10.9%)	
Others	2 (0.9%)	2 (0.5%)	
<i>Marital Status</i>			
Single	169 (73.1%)	254 (67.7%)	0.27
Married	48 (20.8%)	103 (27.5%)	
Divorced	8 (3.5%)	12 (3.2%)	
Widowed	6 (2.6%)	6 (1.6%)	

Table 2: Diagnosis of patients on case management

Diagnosis	2004 (n=231)	2005 (n=375)
Schizophrenia	170 (73.6%)	298 (79.5%)
Depression	23 (9.9%)	19 (5.1%)
Bipolar Disorder	19 (8.3%)	26 (6.9%)
Schizoaffective Disorder	5 (2.3%)	12 (3.2%)
Acute Stress Reaction	5 (2.3%)	1 (0.3%)
Obsessive Compulsive Disorder	3 (1.3%)	0 (0.0%)
Antisocial Personality Disorder	3 (1.3%)	0 (0.0%)
Organic Brain Syndrome	1 (0.4%)	5 (1.3%)
Alcoholism	1 (0.4%)	6 (1.6%)
Others	1 (0.4%)	8 (2.1%)

case managers in 2004 and 1,066 in 2005.

Of these, 231 (19.4%) were accepted for case management in the first year with a significant increase to 375 (35.2%) in the second year ($p < 0.001$, OR=2.3, 95% CI 1.9-2.7). Table 1 shows the demographic distributions for both cohorts. There was an almost equal number of males and females in both years (1.22:1 in 2004 and 1.18:1 in 2005) and a predominance of Chinese patients. The race distribution closely followed that of the population. The majority, almost three-quarters, were single. The main diagnosis was schizophrenia followed by depression in 2004 and bipolar disorder in 2005 (see Table 2). In 2004 the Levels of

Care provided was as follows: Level II 74 patients, Level III 44 patients and level IV 113 patients. In 2005, this was Level II 118 patients, Level III 106 patients and level IV 151 patients.

Services provided

In 2004, 896 of both group and individual sessions (averaging 3.88 sessions per patient) of psycho-education were provided but only a half of that number (448 sessions, averaging 1.30 sessions per patient) was provided in 2005. Similarly for counselling, fewer individual counseling sessions were conducted in 2005 (0.77 vs. 1.63 sessions per patient in 2004) as the case managers improved upon their link-

Table 3: Services provided to patients on case management

Service	2004 (n = 231)	2005 (n = 375)	P-value
Crisis management	14 (6.1%)	8 (2.1%)	0.012
Home visits	27 (11.7%)	5 (1.3%)	<0.001
Cases disengaged	37 (16.0%)	263 (70.1%)	<0.001

Table 4: Linkages provided to other services

	2004 (n = 231)	2005 (n = 375)	P-value
<i>Referrals to Community Psychiatric Dept</i>			
CPN	35 (15.1%)	51 (13.6%)	0.595
ACT	32 (13.8%)	90 (24.0%)	0.002
MCT	2 (0.9%)	9 (2.4%)	0.220
<i>Referrals to Allied Health Dept</i>			
OTD	58 (25.1%)	119 (31.7%)	0.082
Day centre	25 (10.8%)	19 (5.1%)	0.008
MSW	28 (12.1%)	10 (2.7%)	<0.001
Psychologist	13 (5.6%)	5 (1.3%)	<0.001
<i>Voluntary Welfare Organisation</i>			
Group home	2 (0.9%)	9 (2.4%)	0.220
VWO care centre	27 (11.7%)	47 (12.5%)	0.758
Referral to CAMP	0 (0.0%)	16 (4.3%)	0.001

Table 5: Outcomes for Patients on Case Management

Outcome	2004 (n = 231)	2005 (n = 375)	P-value
Suicide attempts	16 (6.9%)	1 (0.27%)	<0.001
Completed suicides	1 (0.4%)	0 (0.0%)	0.381
Forensic complications	4 (1.7%)	2 (0.53%)	0.208
Readmission rates			
<28 days	11 (4.8%)	8 (2.1%)	0.071
>28 days	15 (6.5%)	24 (6.4%)	0.964
Requiring police assistance	4 (1.7%)	4 (1.1%)	0.488

ages with available services provided by nurse clinicians in the wards. However, there was a very slight increase in the number of family counseling sessions in 2005 (0.46 vs. 0.45 sessions per patient in 2004). The psychiatric case managers did telephonic case management for outpatients and made 1,436 calls, an average of 6.3 calls per patient in 2004, and 707 calls, an average of 1.9 calls per patient, in 2005. The purpose of the calls was to assess the patients' progress after discharge, discuss

medication, side effects and compliance and to serve as reminders for appointments. There was a significant reduction in crisis management provided by the psychiatric case managers for their patients over the 2 years ($p=0.01$, $OR=0.34$, 95% CI 0.14–0.82) (see Table 3). They also made Home Visits after discussions with the treating psychiatrists on the need but these were significantly fewer in the second year as the referrals to the Community Psychiatric Department increased

($p<0.001$, OR=0.10, 95% CI 0.04–0.27). Significantly more cases were disengaged in 2005 ($p<0.001$, OR=12.3, 95% CI 8.1–18.7).

The psychiatric case managers also referred patients to other services provided by the hospital. This included the Community Psychiatry Department which provides follow-up by Community Psychiatric Nurses (CPN) and the Assertive Community Treatment (ACT) team which provides psychosocial rehabilitation in the community (see Table 4). There was a significant increase in referrals to ACT in 2005 ($p=0.002$, OR=2.0, 95% CI 1.3–3.1).

There were also significant decreases in referrals to the various units of the Allied Health Department in 2005: Day Centre ($p=0.008$, OR=0.44, 95% CI 0.24–0.82), Medical Social Worker (MSW) ($p<0.001$, OR=0.88, 95% CI 0.84–0.93), Psychologist ($p<0.001$, OR=0.94, 95% CI 0.92–0.97) and an increase in referrals to the Community Addiction Medicine Program (CAMP) ($p=0.001$, OR=1.05, 95% CI 1.02–1.07).

Unplanned readmissions within 28 days of discharge are a Key Performance Indicator (KPI) measurement in the hospital. The target number of readmissions is aimed at below 9% (an IMH/WH clinical indicator given by the Medical Affairs Department). In 2004, only 11 (4.8%) patients under the care of the case managers were readmitted within 28 days of discharge; 15 patients (6.5%) were readmitted more than 28 days after discharge. In 2005, the figures were 8 (2.1%) patients for within 28 days and 24 (6.4%) for after 28 days.

Four (1.7%) patients in 2004 and 4 (1.1%) in 2005 required police assistance for readmissions (see Table 5). This compares with 16.4% of Emergency Room attendances in this psychiatric hospital who are brought for assessment by the police (an IMH/WH clinical indicator given by the

Medical Affairs Department).

In 2004, the case managers reviewed the admissions for their patients before and after case management was provided. There was a significant decrease in readmissions from 65 (28.1%) readmissions in the year before case management started for the 231 patients to just 26 (6.9%) readmissions (excluding the index admission) after case management was provided ($p<0.001$, OR=0.19, 95% CI 0.12–0.31). The number of hospitalisation days for this same group was decreased from 1,014 days in the year before case management was started to 104 when patients were on case management; this excludes the index admission when the referrals to the case manager was made. There were also very few patients (11.9%) who defaulted follow-up appointments, and this was a significant difference compared to the 24% default rate for outpatients in the hospital (an IMH/WH clinical indicator given by the Medical Affairs Department).

There were 16 (6.9%) suicide attempts among patients on case management and 1 (0.4%) completed suicide in 2004. This was reduced to 1 (0.3%) suicide attempt ($p<0.001$, OR=0.04, 95% CI 0.01–0.27) and no suicides in 2005. In 2004, 4 (1.7%) patients had forensic problems: 2 were involved in theft, 1 assaulted a staff in another hospital and 1 patient fought in public. The number fell to just 2 (0.5%) patients in 2005 and these were fights for which the patients were apprehended by the police (see Table 5).

Discussion

There has been much debate about the effectiveness of case management [9]. While the development of different models and different outcome measures used in assessments has made comparisons difficult, 'available research suggests that case management is generally effective' [10]. The type of case management service the hospital has chosen to provide emphasises

a comprehensive coordination of services over the continuum of care for the patient. The aim, is of course, to improve the quality of care, eliminate fragmented care and inappropriate utilisation and, although not addressed in this study, to reduce unnecessary costs. The model espouses patient advocacy with case managers acting in their patient's best interest and encouraging and facilitating their use of the psychiatric services in terms of regular follow-up to support them in their return to the community.

However, our setting and the interventions we have introduced are unique to us and the findings may not be generalisable to other populations or settings. Comparisons with other research in this area are difficult because of different populations studied, different case management models used and services provided. The service is also slowly evolving from improved individualised planning and care to process improvement initiatives. The differences are apparent over the 2 years of case management. The case managers did encounter barriers, most importantly the difficulties in brokering services from other members of the multidisciplinary treatment team who had to adjust to this new role and service. This was resolved by increased efforts in communicating with other members of the multidisciplinary team. Referrals to the case managers increased and were more appropriate in 2005, resulting in a significant increase in the numbers taken on for case management.

The case managers were acutely aware of the need to develop their strengths and capabilities in delivering care. They needed to enhance their knowledge and skills and initiated peer review sessions and journal clubs with the psychiatrists. This is an important step as there is little research and discussion about the skills a case manager requires [11]. There has been criticism that negative outcomes in case management research may be related

to a lack of training in case management [12]. Role behaviors have been described for case managers but there is little information about training and preparation for the roles [13].

There is some evidence in the literature that the gains from the case management service are often only seen after the first 1 and a half years [14]. From that perspective, this review is timely. However, there are shortcomings in our paper that we acknowledge. As the original plan was service provision, there are no control groups for comparison. Also, we did not use assessment tools to document the patients' symptomatology, which is important in measuring clinical outcomes and would have enhanced the data we have. Another significant variable is the economic analysis, which we have not done at all. Cost is an issue that needs to be reviewed to determine the cost-effectiveness of utilising case management in our hospital and to improve operational efficiency. The issue of high set-up costs balanced by appropriate and lower service utilisation in the long-term has been recognised in other case management programs [15].

However, the financial impact of case management is complicated by a myriad of direct and indirect effects that need very careful activity-based costing.

In this first review of psychiatric case management in an inpatient service in Singapore, we have introduced a reasonable range of outcome assessments. We have recently embarked on research to determine the level of client satisfaction with the case management services and we have introduced additional clinical outcome measures such as assessments of quality of life (WHO-QOL-BREF), clinical global impression (CGI) and global assessment of functioning (GAF) scale. As the hospital moves towards improving community care and 'right siting' patients, case management will provide the impetus

for continuity of care, coordination of services and alternatives to hospital admissions.

References

1. Rapp CA, Goscha RJ. The principles of effective case management of mental health services. *Psychiatr Rehabil J* 2004; 27:319-33.
2. Intagliata J. Improving the quality of community care for the chronically mentally disabled: the role of case management. *Schizophr Bull* 1982;8:655-74.
3. Long MJ, Marshall BS. What price an additional day of life? A cost-effectiveness study of case management. *Am J Manag Care* 2000;6:881-6.
4. Bjorkman T, Hansson L. What do case managers do? An investigation of case managers interventions. *Soc Psychiatry Psychiatr Epidemiol* 2000;35:43-50.
5. Thornicroft G. The concept of case management for long-term mental illness. *Int Rev Psychiatry* 1991;3:125-32.
6. Holloway F, Murry M, Squire C, Carson J. Intensive case management: putting it into practice. *Psychiatr Bull* 1996;20:395-7.
7. Stein LI, Diamond RJ. A program for difficult-to-treat patients. *New Dir Ment Health Serv* 1985;26:29-31.
8. Institute of Mental Health/Woodbridge Hospital Department of Medical Affairs Document DMA-P37. Issued 1st November 2004, revised 1st April 2006.
9. Rosen A, Teeson M. Does case management work? The evidence and the abuse of evidence-based medicine. *Aust N Z J Psychiatry* 2001; 35:731-46.
10. Ziguras SJ, Stuart GW, Jackson AC. Assessing the evidence on case management. *Br J Psychiatry* 2002;181:17-21.
11. Sherlock-Storey M, Milne D. What makes a good case manager? An analysis of case management skills in the mental health services. *Health Soc Care Comm* 1995;3:53-64.
12. Muijen M, Cooney M, Strathdee G, Bell R, Hudson A. Community psychiatric nurse teams: intensive support versus generic care. *Br J Psychiatry* 1994;165: 211-7.
13. Conti RM. Nurse case manager roles: implications for practice and education. *Nurs Adm Q* 1996;21:67-80.
14. Thomas B, Lovell K. Mental health nursing and case management in Great Britain. In: Cohen EL, De Back V, editors. *The outcomes mandate case management in health care today*. St Louis, Missouri: Mosby; 1999;13:112-122.
15. Storfjell JL, Jessup S. The economic and financial implications of case management. In: Cohen EL, De Back V, editors. *The outcomes mandate in case management*. St Louis, Missouri: Mosby, 1999;6:49-55.

REVIEW ARTICLE

Bio-psychological perspectives of eating disorders and obesity: a revisited

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Abstract

Food is closely related with emotion. It often provides comfort and satisfaction. Some individuals choose to turn to food to curb their negative emotion, resulting in disturbances in eating patterns, such as overeating which lead to obesity and severely controlling food intake, which culminate in eating disorders like anorexia nervosa, bulimia nervosa and binge eating. These disorders are not related to the eating problems per se but often due to underlying or complicated by psychological factors, namely depression, anxiety, impulse control problems and personality. The roles of psychological factors in eating disorders and obesity should therefore not be downplayed. These disorders should be managed comprehensively involving multiple approaches, including not only biological but also psychological interventions provided by a professional team comprising endocrinologists, psychiatrists, dietitians, exercise physicians and surgeons.

Key words: *eating disorders, obesity, psychological factors*

Introduction

Over the years, the concern on eating disorders and obesity has been primarily focused on physical aspects. Many literature reports their impacts on physical health, but the truth is that they often coexist with psychological problems, which act either as a cause or an effect.

In the past, eating disorders were rarely reported and only involved in upper class people. It was considered as a “western illness” [1]. But eating disorders are now seen in all socio-economy classes, and are not only a problem of the west but also seen in Asian societies [2-5]. Epidemiological studies consistently estimate that 0.5%-1% of women suffer from anorexia nervosa, 2% have bulimia nervosa and 2% have binge eating [6]. Sub-clinical eating

disorders are however five times more prevalent than the real clinical manifestation [7]. Similarly, obesity is currently a critical global issue. World Health Organization (WHO) estimated that 300 million adults in the world are obese [8]. The “Malaysia National Health Morbidity Survey” in 1995 showed that out of 29,000 adults aged 20 years and older, 20.7% of them were overweight, and 5.8% were obese [9]. At present, the data have shown that one out of five Malaysians suffers from a weight problem and/or obesity [9]. About 43% of obese patients who seek treatment have a binge eating disorder [10].

Food and emotion

The manifestations of emotion, such as love, happiness, successfulness and feeling of powerfulness or anger, are often ex-

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pressed through food. The more significant the occasion is, the more elaborative and excessive food intakes. Since early life, children have always been conditioned love with food. They communicate their needs by crying and feel comforted with food, i.e. milk, cereal. Soon they equate food as love and the withdrawal of food is perceived as withdrawal of love. Parents with a fat chubby baby are often considered as successful parents, who have fed their babies well. Children use food to control and manipulate their parents and to exert their power. They express their anger, dissatisfaction or protest towards the parents by declining to eat.

Foods intake has a significant effect on mood and vice versa. Too much food gives feeling of satisfaction and comfort. We salivate on seeing or at smelling tasty food, especially the sweet and fatty food. They contain high serotonin, which provides pleasure, comfort and elevate mood, that would reinforce craving [11-13]. Craving, especially in women, is associated with unpleasant feeling, such as boredom or stress. These negative feelings could also occur following an episode of craving [14]. The release of opioids during eating and stress enhances the pleasure effect of taking food [15,16]. This explains as to why patients who are under stress crave for food in dealing with negative feelings.

Food intake and body weight

Basic psychological issues of eating disorders include food obsession, body weight and shape. They have distorted ways in looking at these issues. In patients with eating disorders, their lives are mainly focused on these, resulting in extreme indulgence of behavior related to the control of food intake, body weight and shape. Some of the extreme behavior responses include fasting, rigorous exercise, induced vomiting, taking pills (e.g., laxatives, diuretics and/or appetite suppressors). They feel that they are obese despite their body weights are extremely low. They

strictly avoid sweet and fat food, and minimal weight gain would create intense anxiety. Many terms have been used to describe this condition, such as “morbid fear of fatness” or unexplainable fears of getting fat [17], “hunting for thinness” [18] and “weight phobia” [19]. The special characteristics of individual with anorexia nervosa include striving hard to obtain the goal of weight reduction (which could be a reduction of more than 15% of actual body weight, in accordance to his/her height and age) by extreme control of his/her food intake and vigorously involving in weight reduction behavior. Some patients may control their food intake in a specific way, including having a period of fasting followed by an episode of extreme overeating. This behavioral pattern can be seen in patients with anorexia nervosa (to burn out the extra energy consumed) and bulimia nervosa (to involve in activities that can release the extra energy). These extremely harmful activities include rigorous exercise, self-induced vomiting or taking laxatives. The episode of extreme overeating involving the intake of a large amount of calories is one of the characteristics of binge eating. Binge eating is classified in the DSM IV as a non-specific eating disorder [20]. Patients suffering from binge eating do not go through the same harmful habits that are seen in patients suffering from bulimia nervosa. A binge eater fails to control his/her food intake, which leads to obesity. There is a strong association between binge eating and the development of obesity [21]. Binge eating and obesity should not be seen as different disease entities but rather as illnesses which lie in the same spectrum of eating-related disorders [22]. In addition different eating-related disorders and obesity could be co-morbid [23].

Eating-related disorders and obesity (secondary to binge eating) have some similarities in the concepts and conflicts regarding issues involving body weight, food and eating pattern [24]. Whilst anorexia nervosa is a voluntary starving, bulimia nervosa

involves a “binge” and “purging” (consuming and drastic emptying of the bowels). Binge eating is an excessive eating pattern without any attempt to lose weight drastically, but obesity is the uncontrolled intake of food that does not match with the output. [21].

Like most psychological problems, eating-related disorders are multi-factorial medical conditions involving both biological and psychological factors. Biological factors include biochemical disturbance in the hypothalamus and stomach secretions, which have a negative impact on food intake. Influencing psychological factors are low self esteem, poor family and social relations, such as being bullied, examination stresses, problems with the teachers and peers, death of a loved one or sexual abuse. Other significant factors include culture, habit and the influence of mass media.

Integrated biological, psychological and habitual factors regulate the food intake. In patients with eating-related disorder, this regulation is however disturbed. Anorexic patients feel full even before the eating, while bulimic individuals feel hungry right after the eating. Individuals with binge eating feel constantly hungry even after consuming more than enough amount of food.

Anorexia nervosa and bulimia nervosa have lot in common and are correlated. Anorexia nervosa was seen as illness with acute and chronic phases, and bulimia nervosa is regarded as the chronic phase of anorexia nervosa [25]. Currently, based on the DSM IV [20] and ICD 9 classifications [26] bulimia nervosa is recognized as a disease of its own.

Eating disorders and psychological problems

Food serves as a tool to release and control negative feelings of sadness, boredom, anxiety, anger, guilty, frustration and

loneliness [11,27]. In eating disorders, there are hidden messages underlying the emotional or psychological problems caused by stress, stressful life events and conflicts [28-31]. Eating disorders have long been regarded as a psychosomatic illness, an illness in which emotional conflicts are expressed through physical symptoms [32].

Individuals with eating disorders often have poor self esteem and feel that they are not ‘good enough’ to control over their lives [33]. They feel better by controlling the food intake. When they focus on food (by either refraining or taking food in excess), they would forget about their problems. In the early stages, it is helpful, but, as the disease slowly becomes a part of their lives, it takes over and becomes chronic. The patients would soon lose control and eventually will have to face the risks of physical, psychological and social complications.

Patients who have poor coping skills are likely to have overindulgence in food [27] and at risk for developing eating disorders. Women with anorexia nervosa often try to overcome their problems by using avoidant techniques, and patients with bulimia nervosa use rumination to deal with their problems [27,29]. Although the prevalence of eating disorders is relatively low, they are highly associated with physical and mental morbidity and mortality [34-37].

Mortality rates of anorexic patients are between 12% and 20% [38,39]. Common psychiatric illnesses include stress or stress-related emotional problems, i.e., depression [39,40], anxiety disorders [31,40-43]. Common anxiety disorders co-morbid with anorexia nervosa are obsessive compulsive and social phobia [44,45], while social phobia, generalized anxiety disorder and panic disorders are more common in patients with bulimia nervosa [40]. Personality traits commonly found include low self esteem [33,46], perfectionism [47,48] and

impulsivity [49-51]. Substance abuse is more common in bulimia nervosa than anorexia nervosa [52]. Obsessive and avoidant personalities are more common in anorexia nervosa [48,49]. Borderline personality disorder is often associated with bulimia nervosa [54] and recurrent binge eating [55].

Suicidality may also increase the mortality rate in individuals with eating disorders [56]. The prevalence of depression in eating disorder is in the range of 20% and 98% [57,58], 7% and 65% for anxiety disorders [31,43,59-61] and 6% and 55% for substance abuse [59-61]. The studies on eating disorders associated with psychiatric illnesses are still controversial. Some findings showed that psychiatric disorders preceded the onset of eating disorders [40,62], while others demonstrated the opposite [54,63]. Some eating disorders are preceded by stress, negative emotion or psychological difficulties, such as life cycle [i.e., puberty], educational and family stressors, as well as major life events [5,25,64-68]. Patients with eating disorders frequently reported childhood traumatic experiences, such as frequently being left alone, sexually abused, poor supports from parents or parental divorce [30,69-73]. Stress levels during childhood development were higher in patients suffering from bulimia nervosa compared to those who suffer from depression [74]. Environmental situations in the family household were also a very important predisposition factor for bulimia nervosa. The parents of the sufferers were more likely to be involved in alcoholism and substance abuse [75].

In the acute stage of anorexia nervosa, the patients feel anxious towards their body shapes, weight and high calorie food intake. Even a small increase of weight can cause extreme anxiety. Obesity is frequently associated with depression [76,77], anxiety [78] personality disorders, [10,77], low self-esteem [78], eating disorders (i.e., binge eating disorder) [79] and negative

self image [80]. Depression is often comorbid with obesity [77]. In a prospective study, individuals with obesity have a two-fold or higher risk for depression in comparison to non-obese people [81]. Approximately 30%-40% of obese patients suffer from binge eating disorder [82,83], and 30%-50% of obese patients seeking treatment for their obesity suffer from depression [84,85]. Prospective studies found a number of depressed children and adolescents who were overweight during their adulthood [45,86-91]. Obese patients with binge eating disorder have higher prevalence of depression, particularly atypical depression (associated with hyperphagia, hypersomnia, reduce activity and weight gain) and anxiety symptoms in comparison to those not having binge eating disorder [92-94].

Psychosocial factors, such as discrimination, stigma attached to obesity and rejection resulting in poor self-esteem, increase the prevalence of depression among obese patients [95-98]. Studies have documented that there is a strong relationship between low self-esteem and obesity [99-103]. Obese patients often reported binge eating triggered by stress [104]. Stress increases cortisol, food intake and abdominal obesity [104]. It had been documented that obese women with binge eating have a greater cortisol response to stress compared to those without binge eating [104]. They were also more likely to suffer from personality disorders, particularly, borderline personality disorder, than obese individuals without binge eating [10,77]. Borderline personality disorder is characterized by impulsivity that explains the binge behavior, emotional instability, poor frustration tolerance and interpersonal relationship difficulties [105]. The reduction of serotonin level is not only found in patient suffered from binge eating disorder but also found in those with depression [106], impulse control disorders [107] and borderline personality [108,109].

Determining whether the patient has binge eating problems and/or personality disorders are important in treating obesity since these two factors determine the prognosis, as well as patient's response treatment [110]. Eating disorders, i.e., binge eating disorder (which is often associated with obesity), substance abuse and obsessive-compulsive disorder have been considered as a spectrum of impulse control disorders. Serotonin is known to increase satiety and reduce food intake [111].

Management issues

In developing countries, not many people are aware of the existence of eating disorders, and many are unaware that they are treatable. In most cases, patients are more likely to hide these problems and, therefore, have delayed treatment [36].

Treating patients with eating disorders, especially, those suffered from anorexia nervosa and bulimia nervosa, can be frustrated. The patients do not even realize that they are suffered from "an illness". They not only feel that they do not have the problem but also often refuse to get help. This problem would continue until their physical and mental states deteriorate to a worrying level. By holding on these symptoms, they can shelter their emotions, as well as other negative emotions, in order to gain emotion stability and comfort. Because the patients tend to have high self-esteem to a slim and thin body, they tend to feel in control and good about themselves despite their weight is below the average. Being continually reminded of this, they are constantly at the stage of pre-contemplation stage. This is the main barrier for seeking treatment, especially those having anorexia Nervosa and bulimia nervosa. Treatment could therefore begin only when a patient is ready to change. Otherwise an attempt should be made to break the denial. Its is a paramount importance to educate the communities regarding these issues.

Currently, the management of obesity is often unsuccessful or with an unsustainable success [96]. It is frequently seen as intractable dainty problem and difficult to treat. There are many reasons contributed to these, but the main reason is most likely due to the unilateral approach of dealing with a heterogeneous illness with complicated etiology. Eating disorders and obesity increase physical and mental morbidity and mortality. They should therefore be treated seriously. Obesity, which has been categorized as a disease [according to the international classifications DSM IV[20] and ICD 10 [26], should not longer be merely seen as a risk factor but to be regarded as a disease itself.

In conclusion there is a strong association between eating disorders, obesity and psychological problems. Both physical and psychological factors should be adequately addressed to determine the outcomes. Eating disorders and obesity should therefore be managed comprehensively by a team of professionals comprising endocrinologists, psychiatrists, psychologists, dieticians, exercise physicians and surgeons.

References

1. Drewnowski A, Kurth CL, Krahn D. Body weight and dieting in adolescence: impact of socioeconomic status. *Int J Eat Disord*. 1994;1: 61-5.
2. Mumford DB, Whitehouse AM. Increased prevalence of bulimia nervosa among Asian schoolgirls. *BMJ*. 1988;297: 718.
3. Lee S, Ho TP, Hsu LKG. Fat phobic and nonfat phobic anorexia nervosa: a comparative study of 70 Chinese patients in Hongkong. *Psychol Med*. 1993;23:999-1017.
4. Weiss MG. Eating disorders and disordered eating in different cultures. *Psychiatr Clin North Am*. 1995;18:537-53.
5. Lee HY, Lee EL, Pathy P, Chan YH. Anorexia nervosa in Singapore: an eight-year retrospective study. *Sing Med J*. 2005;46:275-81.
6. Fairburn CG, Beglin SJ. Studies of the epidemiological of bulimia nervosa. *Am J Psychiatry*. 1990;147:401-8.
7. Melve KK, Baerheim A. Signs of sublini-

- cal eating disorders in teenage girls. *Scand J Prim Health Care*. 1994;12:197-203.
8. World Health Organization: Obesity: Preventing and Managing the Global Epidemic: Report of a WHO Consultation on Obesity. Geneva: World Health Organization; 1998.
8. Malaysian National Health Morbidity Survey, 1995.
9. Yanovski SZ, Nelson JE, Dubbert BK, Spitzer RL. Association of binge eating disorder and psychiatric co morbidity in obese subjects: *Am J Psychiatry*. 1993;150: 1472-9.
10. Wallin MS, Rissanen AM. Food and mood: relationship between food, serotonin and affective disorders. *Acta Psychiatr Scand*. 1994; 377:36-40.
11. Kuikka JT, Tamemela L, Karhunen L, et al. Reduced serotonin transporter binding in binge eating women. *Psychopharmacol (Berl)*. 2001; 155:310-4.
12. Wurtman RJ, Wurtman JJ. Brain serotonin, carbohydrate craving, obesity and depression. *Obes Res*. 1995;3:477-80.
13. Macdiarmid JL, Hetherington MM. Mood modulation by food: an exploration of affect and cravings in chocolate addicts'. *Br J Clin Psychol*. 1995;34:129-38.
14. Drewnowski A et al. Food preferences in human obesity; carbohydrates versus fats. *Appetite*. 1994;18:207-21.
15. Benton D, Donohoe RT. The effects of nutrients on mood. *Pub Health Nutri*. 1999;2: 403-9.
16. Russell GFM. Anorexia Nervosa: its identity as an illness and its treatment. In *Modern Trends Psychol Med*. 1970;2:131-64.
17. Bruch H. Eating disorders: obesity, anorexia nervosa, and the person within. New York: Basic Books; 1973.
18. Crisp A. Anorexia nervosa. *Hospital Med*. 1967;5:713-8.
19. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Washington DC: American Psychiatric Press; 1994.
20. Telch CF, Agras WS, Rossiter EM. Binge eating increase with increasing adiposity. *Int J Eat Disord*. 1998;7:115-9.
21. Bruch H. The treatment of eating disorders. *Mayo Clin Proc*. 1976;51:266-72.
22. Guiora AZ. Dysorexia: a psychopathological study of anorexia nervosa and bulimia. *Am J Psychiatry*. 1967;124:391-3.
23. Russell GF. The changing nature of anorexia nervosa: an introduction to the conference. *J Psychiatry Res*. 1985;19: 101-9.
24. Crisp AH. Diagnosis and outcome of anorexia nervosa the St George's view. *Proc R Soc Med*. 1977;70:464-70.
25. World Health Organization. The ICD-10 Classification of Mental and Behavioral Disorders: Diagnostic Criteria for Research. Geneva: World Health Organization; 1993.
26. Troop NA. Eating disorders as coping strategies: a critique. *Eur Eat Disord Rev*. 1998; 6:229-37.
27. Thienemann M, Steiner H. Family environment of eating disordered and depressed adolescences. *Int J Eat Disord*. 1993;14:43-8.
28. Troop NA, Treasure JL. Psychosocial factors at the onset of eating disorders: responses to life events and difficulties. *Br J Psychiatry*. 1997;70:373-85.
29. Kent A, Waller G. Kent A, Waller G. Childhood emotional abuse and eating psychopathology. *Clin. Psychol. Rev*. 2000;20:887-903.
30. Bulik CM. Anxiety, depression, and eating disorders. In: Fairburn CG, Brownell KD, editors. *Eating Disorders and Obesity: A Comprehensive Handbook*. New York, NY: Guilford Press; 2002. p.193-7
31. Iwasaki Y, Matsunaga H, Kiriike N, Tanaka H, Matsui T. Co morbidity of Axis I disorders among eating-disordered subjects in Japan. *Compr Psychiatry* 2000;41: 454-80.
32. Leary MR, Schreindorfer LS, Haupt A. The role of low self-esteem in emotional and behavioral problems: why is low self-esteem dysfunctional? *J Soc Clin Psychol*. 1995;14:297-314.
33. Warren MP, Vade WRL. Clinical and metabolic features of anorexia nervosa. *Am J Obstet Gynecol*. 1973;117:435.
34. Fohlin L. Body composition, cardiovascular and renal function in adolescence patients with anorexia nervosa. *Acta Paediatr*. 1977;268: 1-2.
35. Isner JM, Roberts WC, Heymsfield SB, Yager J. Anorexia nervosa and sudden death. *Ann Intern Med*. 1985;102:49-52.
36. Serpell L, Treasure J. Osteoporosis: a serious health risk in chronic anorexia nervosa. *Eur Eat Disord Rev* 1997;54:149-57.
37. Ratsanuriya RH, Eisler I, Szmulker GI et al. Anorexia nervosa: Outcome and prognostic factors after 20 years. *Br J Psychiatry*. 1991; 158:495-502.
38. Crisp AH, Callendar JS, Halek C, Hsu LK. Long-term mortality in anorexia nervosa. A 20 year follow-up of the St George's and Aberdeen

- cohorts. *Br J Psychiatry*. 1992;161:104-7.
39. Brewerton T, Lydiard R, Herzog D, Brotman AW, O'Neil P, Ballenger J. Co-morbidity of axis I diagnoses in bulimia nervosa. *J Clin Psychiatry* 1995;56:77-80.
40. Bulik CM, Sullivan PF, Carter FA, Joyce PR. Lifetime anxiety disorders in women with bulimia nervosa. *Comp Psychiatry* 1996;37:368-74.
41. Wonderlich SA, Mitchell JE. Eating disorders and comorbidity: empirical, conceptual, and clinical implications. *Psychopharmacol Bull* 1997;33:381-90.
42. Godart NT, Flament MF, Lecrubier Y, Jeammet P. Anxiety disorders in anorexia nervosa and bulimia nervosa: co-morbidity and chronology of appearance. *Eur. Psychiatry* 2000;15:38-45.
43. Halmi KA, Sunday SR, Klump KL, et al. Obsessions and compulsions in anorexia nervosa subtypes. *Int J Eat Disord* 2003;33: 308-19.
44. Hasler G, LaSalle-Ricci VH, Ronguillo JG, et al. Obsessive-compulsive disorder symptom dimensions show specific relationships to psychiatric comorbidity. *Psychiatry Res* 2005; 135:121-32.
45. Wiederman MW, Prior T. Substance use and impulsive behaviors among adolescents with eating disorders. *Addict Behav* 1996;21: 269-72.
46. Sassaroli S, Ruggiero GM. The role of stress in the association between low self-esteem, perfectionism and worry and eating disorders. *Int J Eat Disord* 2005;37:135-41.
47. Strober M. Personality and symptomatological features in young, non-chronic anorexia nervosa patients. *J Psychosom Res*. 1980; 24:353-9.
48. Hewitt PL, Flett GL, Ediger E. Perfectionist traits and perfectionistic self-presentation in eating disorder attitudes, characteristics and symptoms. *Int J Eat Disord*. 1995;18:317-26.
49. Lacey JH, Evans CD. The impulsivist: a multi-impulsive personality disorder. *Br J Addict*. 1986;81:641-9.
50. Fahy T, Eisler I. Impulsivity and eating disorders. *Br J Psychiatry*. 1993;162: 193-7.
51. Matsumanga H, Kiriiki N, Iwasaki Y, Miyata A, Matsui T. Multi-impulsivity among bulimic patients in Japan. *Int J Eat Disord*. 2000;27:348-52.
52. Holderness C, Brookes Gunn J, Warren M. Comorbidity of eating disorders and substance abuse: review of literature. *Int J Eat Disord*. 1994;16:1-34.
53. Braun DL, Sunday SR, Halmi KA. Psychiatric comorbidity with eating disorders. *Psychol Med*. 1994;24:859-67.
54. Johnson J, Cohen GP, Kasen S, Brook JS. Personality disorder traits evident by early adulthood and risk for eating and weight problems during middle adulthood. *Int J Eat Disord*. 2006;39:184-92.
55. Harris EC, Barraclough B. Excess mortality of mental disorder. *Br J Psychiatry* 1998; 173:11-53.
56. Zaidar TI, Johnson JG, Cockell SJ. Psychiatry comorbidity associated with ED symptomatology among adolescences in the community. *Int J Eat Disord*. 2000;28: 58-67.
57. Milos G, Spindler A, Schnyder U. Psychiatric co morbidity and Eating Disorder Inventory (EDI) profiles in eating disorder patients. *Can J Psychiatry*. 2004; 49:179-84.
58. Weideman MW, Prior T. Substance use and impulsive behaviours among adolescence s with eating disorders. *Addict Behav*. 1996;21: 269-72.
59. Blinder BJ, Blinder MC, Sanathara VA. Eating disorders and addiction. *Psychiatr Times*. 1998;15:30-4.
60. Blinder BJ, Blinder MC, Sanathara VA. Eating disorders and substance use disorders. *Med Behav*. 1999;24:859-67.
61. Toner BB, Garfinkel PE, Garner DM. Affective and anxiety disorders in the long-term follow-up of anorexia nervosa. *Int J Psychiatry Med*. 1988;18:357-64.
62. Lee NF, Rush AJ, Mitchell JE. Bulimia and depression. *J Affect Disord*. 1985;9: 231-8.
63. Crisp AH. Anorexia Nervosa. *Br J Psychiatry*. 1975;9:150-8.
64. Gowers SG, North CD, Byram V, Weaver AB. Life events precipitants of adolescence anorexia nervosa. *J Child Psychol Psychiatry*. 1996;37:469-77.
65. Schmidt U, Tiller J, Blanchard M, Andrews B, Treasure J. Is there a specific trauma precipitating anorexia nervosa? *Psychol. Med*. 1997; 27:523-30.
66. Ball K, Lee C. relationships between psychological stress, coping and disordered eating: a review. *Psychol Health*. 2000;14:1007 -35.
67. Stice E, Hayward C, Cameron RP, Killen JD, Tylor CB. Body-image and eating disturbances predict onset of depression among female adolescents: a longitudinal study. *J. Abnorm. Psychol*. 2000;109: 438-44.

68. Goldfarb LA. Sexual abuse antecedent to anorexia nervosa, bulimia and compulsive overeating: three case reports. *Int J Eat Disord*. 1987;6:675-80.
69. Palmer RL, Oppenheimer R, Dignon A, et al. Childhood sexual experiences with adults reported by women with eating disorders: an extended series. *Br J Psychiatry*. 1990;156:699-703.
70. Everill JT, Waller G. Reported sexual abuse and eating psychopathology: a review of the evidence for a causal link. *Int J Eat Disord*. 1995;17:127-34.
71. Degroot J, Rodin G. The relationship between eating disorders and childhood trauma. *Psychiatr Ann*. 1999;29:225-29.
72. Romans SE, Gendal KA, Martin JL, Muller PE. Child sexual abuse and later disordered eating: a New Zealand epidemiological study. *Int J Eat Disord* 2001;29: 380-90.
73. Fairburn CG, Welch SL, Doll HA, Davies BA, O'Conner ME. Risk factors for bulimia nervosa a community-based case-control study. *Arch Gen Psychiatry*. 1997; 54:509-17.
74. Kendler KS, Walters EE, Neale MC, Kessler RC, Heath AC, Eaves LJ. The structure of the genetic and environmental risk factors for six major psychiatric disorders in women. *Arch Gen Psychiatry*. 1995;52:374-83.
75. Rothchild M, Peterson HR, Pfeifer MA. Depression in obese men. *Int J Obes*. 1989;13: 479-85.
76. Friedman KE, Reichmann SK, Costanzo PR, Musante GJ. Body image partially mediates the relationship between obesity and psychological distress. *Obes Res*. 2002;10: 33-41.
77. French SA, Story M, Perry CL. Self-esteem and obesity in children and adolescences: a literature review. *Obes Res*. 1995;3:479-90.
78. Dingemans AE, Bruna MJ, Van Fruth EF. Binge eating disorder: a review. *Int J Obes*. 2002;26:299-307.
79. Pesa JA, Syre TR, Jones E. Psychosocial differences associated with body weight among female adolescences: the importance of body image. *J Adolesc Health*. 2000;26:330-7.
80. Goodman E, Whitetaker RC. A prospective study of the role of depression in the development and persistence of adolescence obesity. *Pediatrics*. 2002;110: 497-504.
81. Spitzer RL, Yanovski S, Wadden T, et al. Binge eating disorder – its further validation in a multisite study: *Int J Eat Disord*. 1993;13:137-53.
82. Decaluwe V, Braet C, Fairburn CG. Binge eating in obese children and adoles-cents. *Int J Eat Disord* 2003;33:78-84.
83. Marcus MD, Wing RR, Lamparski D. Binge eating and dietary restraint in obese patients. *Addict behav*. 1985;10:163-8.
84. Marcus MD, Wing RR. Binge eating among the obese. *Ann Behav Med*. 1987;9:23-7.
85. Wallace WJ, Sheslow D, Hassink S. Obesity in children: risk for a depression. *Ann N Y Acad Sci*. 1993;699:301-3.
86. Sheslow D, Hassink S, Wallace W, Delancey E. The relationship between self-esteem and depression in obese children. *Ann N Y Acad Sci*. 1993;699:289-91.
88. Lissau I, Sorenson TI. Parental neglect during childhood and increased risk of obesity in young adulthood. *Lancet*. 1994; 343:324-7.
89. Barefoot JC, Heitmann BL, Helms MJ, Williams RB, Surwit RS, Seigler IC. Symptoms of depression and changes in body weight from adolescence to midlife. *Int J Obes*. 1998;22:688-94.
90. Csabi G, Tenyi T, Molnar D. Depressive symptoms among obese children. *Eat Weight Disord*. 2000;5:43-5.
91. Casaneuva E, Labastida J, Sanz C, Morales-Carmona F. Depression and body fat deposition in Mexican pregnant adolescents. *Arch Med Res*. 2000;31:48-52.
92. Faith MS, Allison DB. Assessment of psychological status in obese persons. In: Thompson JK, editor. *Body image, eating disorders and obesity: a practical guide for assessment and treatment*. Washington, DC: American Psychological Association, 1996. p.365-87.
93. Pinaguy S, Chabrol H, Simon C, Louvet JP, Barke P. Emotional eating, alexithymia and binge eating disorder in obese woman. *Obes Res* 2003;11:195-207.
94. Hasler G, Pine DS, Gamma A, et al. The associations between psychopathology and being overweight: a 20-year prospective study. *Psychol Med*. 2004;34:1047-57.
95. Rand CS, Magregor AM. Morbidly obese patients' perceptions of social discrimination before and after surgery of obesity. *South Med J*. 1990;83:1390-5.
96. Wooley SC, Garner DM. Obesity treatment: the high cost of false hope. *J Am Diet Assoc*. 1991;91:1248-51.
97. Stunkard AJ, Wadden TA. Psychological aspects of severe obesity. *Am J Clin Nutr*. 1992;55:524S-32S.

98. Kamisky J, Gadaleta D. A study of discrimination within the medical community as viewed by obese patients. *Obes Surg.* 2002;12:14-8.
99. Rumpel C, Harris TB. The influence of weight on adolescence self-esteem. *J Psychom Res.* 1994;38:547-56.
100. Stradmeijer M, Bosch J, Koops W, Seidell J. Family functioning and psychosocial adjustment in overweight youngsters. *Int J Eat Disord.* 2000;27:110-4.
101. Strauss RS. Childhood obesity and self-esteem. *Pediatrics.* 2000;105:1-5.
102. Ebbeling CB, Pawlak DB, Ludwig DS. Childhood obesity: public health crisis, common sense cure. *Lancet.* 2002;360:473-82.
103. Morgan CM, Yanovski SZ, Nguyen TT et al. Loss of control over eating, adiposity, and psychopathology in overweight children. *Int J Eat Disord.* 2002;31:430-43.
104. Gluck ME. Stress response and binge eating disorder. *Appetite* 2006;46:26-30.
105. Sanson RA, Sanson LA, Morris DW. Prevalence of borderline personality symptoms in two groups of obese subjects. *Am J Psychiatry.* 1996;153:117-8.
106. Links PS, Heslegrave R, van Reekum R: Impulsivity: core aspect of borderline personality disorder. *J Personal Disord.* 1999;13:1-9.
107. Neumeister A, Konstantinidis A, Stanstny J, et al. Association between serotonin transporter gene promoter polymorphism (5HTTLPR) and behavioural responses to tryptophan depletion in healthy women with and without family history of depression. *Arch Gen Psychiatry.* 2002;59:613-20.
108. Linnoila M. Low cerebral spinal fluid 5-hydroxyindolacetic acid concentration differentiates impulsive from nonimpulsive violent behaviour. *Life Sci.* 1983; 33:2609-14.
109. Coccaro EF, Siever LJ, Klar HM, Cochrane K, Cooper TB, Mohs RC. Serotonergic studies in patients with affective and personality disorders: correlates with suicidal and impulsive aggressive behavior. *Arch Gen Psychiatry.* 1989;46:587-99.
110. Coccaro EF, Murphy DL. Serotonin in major psychiatric disorders: progress in psychiatry monograph series. Washington DC: American Psychiatric Press; 1990.
111. Liebowitz SF, Shor-Posner G. Brain serotonin and eating behaviour. *Appetite.* 1986;7:1-14.

REVIEW ARTICLE

Prevalence of insomnia in the Thai population

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Abstract

Objective: To review the data concerning insomnia in Thailand that have been published in international journals. **Methods:** A search was made through PubMed using the word “insomnia in Thailand” or “insomnia in Thai”. Other data were obtained from the staff of the Faculty of Medicine, Prince of Songkla University. **Results:** The prevalence of frequent night waking in three-month-old infants was 51.5%. Frequent night waking was independently associated with various factors of parental practices related to infant sleep such as the use of a swinging or rocking cradle or falling asleep while feeding. The overall prevalence of insomnia in healthy adults and the elderly Thai population was 40.8% and 46.3% respectively. Data from the older Thai population found that insomnia problems increased significantly with advancing age with depression and poor perceived health as the most significant associated factors. **Conclusion:** Insomnia and night waking are common in the Thai population. Further research is needed and a comprehensive programme to detect and prevent sleep problems in all age groups should be considered.

Key words: *prevalence, insomnia, night waking, Thailand*

Introduction

Insomnia is among the most common complaints of our patients [1]. It is estimated that occasional insomnia occurs in about 27% of the population in the United States, and chronic insomnia in about 9% [2]. Individuals reporting insomnia complain of diminished quality of life, including impaired concentration and memory, a decreased ability to accomplish daily tasks and a decreased ability to enjoy interpersonal relationships [3]. Untreated insomnia is associated with an increase in new onset anxiety, depression, daytime sleepiness, and other health-related concerns [4]. However, epidemiological studies of insomnia in Thailand are still scarce. This

preliminary review aims to find the data concerning insomnia or night waking in the Thai population which has been published in international journals.

Methods

Searching through PubMed on the 24th of September, 2007 using the word “insomnia in Thailand”, we found 12 papers. When using the word “insomnia in Thai”, we found another set of 12 papers but 10 papers were same as the previous search. So, a total of 14 papers were found but only one of them was specific to our objective. The title of that paper is “An Epidemiological Study on Insomnia in an Elderly Thai Population” reported by Chakrit

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Sukying and his colleagues and published in the Journal of the Medical Association of Thailand in the year 2003 [5]. Although we know that some Thai researchers such as Dr. Naiphinich Kotchabhakdi also surveyed sleep problems including insomnia in the Thai population, we could not find his paper listed in PubMed. So we went back to search our own data which was published in English in the biennial report of the Faculty of Medicine, Prince of Songkla University in the year 2002 [6]. This study was conducted in the healthy adult population in Hat Yai city, southern Thailand. Another data set was “The night waking in Thai infants at 3 months of age” reported by Dr. Wanaporn Anuntaseree, one of our staff at the Sleep Disorders Service and Research Center (SDSRC), Prince of Songkla University (PSU). Her manuscript was accepted for publication in Sleep Medicine Journal in 2007 [7]. To conclude, the sources of our data sets are shown in Table 1.

Results

Night Waking in Thai Infants

The data for this study were collected as part of the larger “Prospective Cohort Study of Thai Children (PCTC)”. The PCTC is a multi-year, observational community-based study begun in the year 2000 and designed to follow a large group of individuals from the third trimester fetal stage to the age of 24 years. Thailand consists of four geographical areas normally designated as the central, northern, northeastern, and southern regions; the Bangkok metropolitan area and the capital

city, which is often thought of as the fifth region of Thailand. The times of initial recruitment varied among these five selected regions as follows: i) the Panomtuan district in Kanchanaburi province (central Thailand), October, 2000; ii) the The-pa district in Songkhla province (southern Thailand), November, 2000; iii) the Kranuan district in Khon Kaen province (northeast Thailand), January 2001; iv) the Meuang district in Nan province (northern Thailand), March 2001; and v) the Bangkok metropolitan area, September 2001. The total sample size recruited from these five regions was 4,245 infants, with a 99% response rate by their mothers.

From the 4,245 infants eligible to participate in the PCTC study, 60 twins and 359 infants with birth weights of less than 2,500 gm were excluded from the analysis, leaving a sample size of 3,826. Of these, 1,930 (50.4%) were boys. The mean birth weight (SD) of the infants was 3,135 (375) gm (range 2,500–5,220). Of 3,722 infants, 2,542 (68.3%) shared a bed with their parents, 1,178 (31.6%) shared a room with their parents but slept in a different bed and 2 (0.1%) slept alone in a different room. Use of a swinging or rocking cradle was reported for 87.7% of infants. Infant feedings were reported as breastfed only in 52.5%, bottle-fed only in 22.9% and breast-plus-bottle in 24.6% while falling asleep during feeding most nights was reported in 34.9% of the infants.

To investigate sleep characteristics, night waking and various factors, 654 (17.1%)

Table 1: Studies on insomnia and night waking in Thailand

Group	Age	Total Sample	Study Site
Infants	3 months	4,245	5 provinces from difference regions only in Hat Yai nationwide
Healthy adult	15 years or older	250	
Elderly	60 years or older	40,111	

infants were excluded from the analysis due to incomplete night waking information, leaving a final sample size of 3,172. The missing group had no significantly different characteristics (e.g., sex, parental age, education, occupation, and household incomes) from the subjects who provided completed data. The mean number of interrupted nights per week (SD) was 6.7 (0.9), range 1-7. The mean number of awakenings per night (SD) was 2.7 (1.1), median 3, range 1-10. The mean number of awakenings per week (SD) was 18.5 (8.2), median 21, range 0-70. The mean number of naps per day (SD) was 3.5 (1.1), median 3, range 0-10.

In order to investigate predisposing factors for frequent night waking, Anuntaseree and colleagues compared a group of frequent night wakers (more than 14 night wakings per week, $n=1,634$) with a group of infrequent night wakers ($n=1,538$) [7]. Baseline data of both groups did not significantly differ in the respects of birth weight, parental age, education, maternal occupation or household income. A significant association was seen between frequent night waking and more than three naps per day, use of a swinging or rocking cradle, falling asleep while feeding on most nights, breastfeeding only and type of diaper.

This study has shown that night waking is common in three-month-old infants, with a prevalence of 51.5%. Nearly 50% of the infants woke 1-2 times per night and nearly 50% woke 3-4 times per night. We cannot state that night waking in infants is either acceptable or considered to be a problem, as the feelings of the parents towards night waking were not explored in this study. To determine the clinical significance of night waking, if any, further studies need to be performed.

However, frequent night waking among infants was independently associated with various factors of parental practices related to infant sleep such as the use of a swinging

or rocking cradle and falling asleep while breastfeeding. A finding that breastfeeding was significantly associated with frequent night waking was similar to a previous study by Eaton–Evans and colleagues [8]. This is easily explained because breast milk leaves the stomach more rapidly than does formula milk, which could account for the shorter period of satiety and sleep in breast-fed infants.

Regarding gender, being male was significantly associated with frequent night waking, which is different from the same study by Eaton–Evans and colleagues [8], who found that the infant's sex showed no significant effect. The findings of a relationship between the use of a swinging or rocking cradle or falling asleep while feeding with frequent night waking are consistent with the model of learned sleep – onset association. Use of a swinging or rocking cradle for infant sleep is traditionally used in many Asian countries including Thailand [7,9-10]. The typical “getting the infant to sleep” situation in Thailand is for parents to use a cradle as a sleeping aid, and then when the infant falls asleep, transfer the infant to the bed. There has been no previous study regarding the effect of this custom on night waking; this study is the first one demonstrating the association.

In summary, this study has shown the association between frequent night waking with various parental practices related to infant sleep. Further documentation of these associations may be clinically important, as implemented preventive interventions may be able to reduce frequent night waking in early infancy. To help an infant become a good sleeper, Auntaseree and colleagues suggested that parents should avoid making bedtime feedings a permanent habit in order to avoid creating an association between eating and sleeping, and should consider changing daytime sleep patterns if they are inappropriate [7]. However, sleep practices among infants are

associated with cultural variation, and in Thailand a swinging or rocking cradle has been traditionally used as a sleeping aid for infants. Although this was found to be associated with frequent night waking, its long-term effect is still unknown and needs further study.

Sleep patterns of healthy adults in Hat Yai

The purpose of this study is to obtain baseline information of the characteristics of sleep habits and frequency of sleep problems in the healthy adult population in Hat Yai.

This survey using questionnaire was conducted on a sample of 250 individuals who were 15 years of age and older. They were questioned about their sleep patterns and complaints by two fourth year medical students and a sleep technician who were trained to use the sleep questionnaire including questions about sleep habits and complaints.

Most of the subjects (80%) were under 45 years old (mean=31.7, SD=12.9) and 96% reported being healthy. Approximately 75.0% said that they were not satisfied with their sleep quality and 88.4% were dissatisfied with sleep quantity. Of 250 participants, 33-50% had occasionally experienced some type of sleep disturbance within the last six months, while 40% of them reported that their sleep problems occurred on a regular nightly basis. Subjects with sleep disturbances had higher sleep latency, awakening at night, and reports of not feeling fresh throughout the day. About 23% of the subjects suffered from daytime sleepiness.

The mean reported total sleep time was 7.2 hours (SD=1.4). Short sleep (<6 hours sleep) was reported in 11.6% and long sleep (>9 hours sleep) in 5.6% of this population. Regarding parasomnias, 4.8% had frequent nightmares, with the prevalence of regular enuresis of 0.4%, and 1.6% reported waking up with choking during

the night. Daily snoring was reported by 4%. Regarding health care use, most (92.8%) of the participants had not sought medical help during the past six months, only 7.2% of them had been trying to control their sleep problems by way of self-regulation, reading books or watching television. Use of a hypnotic drug during the past six months was reported by 12.8% of respondents.

To sum up, the overall prevalence of insomnia in healthy adults living in Hat Yai was 40.8%, including difficulty initiating sleep 16.0%, awakening during the night 15.2% and early morning awakening 9.6%. Prevalence of daytime sleepiness was 23.2%. These figures were rather similar to a report from Sao Paulo, Brazil in 1987 [11].

Insomnia in an elderly Thai population

This is the first nationwide face-to-face survey of the sleep problems in Thailand. The study was done as a part of the national epidemiologic study of cognitive impairment in the elderly, conducted by the Institute of Geriatric Medicine, between October 1999 and May 2000. A total of 40,111 community-based individuals aged 60 years or older were selected by using a multiple stage sampling method. Firstly, 23 provinces were selected according to four geographical regions: north, northeastern, central and south. Next, the districts from each province were chosen and the subjects were drawn randomly from the house register. The participants were interviewed by local health officers using a questionnaire.

The questionnaire was developed to investigate insomnia problems during the previous month. Questions concerning insomnia problems in terms of difficulty initiating sleep (DIS), difficulty maintaining sleep (DMS) and early morning awakening (EMA) were asked. The presence of insomnia was identified when the answers to any of the above three questions were

“often” or “always”.

The overall prevalence of insomnia from this study was 46.3%. The prevalence was 49.7% in women and 41.6% in men. The insomnia problem increased significantly with advancing age.

The overall prevalence of DIS was 30.3%. Multivariate logistic regression analysis showed that depression was significantly associated with DIS. For DMS, the prevalence was 32.4% with depression being the most significantly associated factor followed by poor perceived health. The prevalence of EMA was 33.0%. The strongest positively associated factors were again depression and poor perceived health.

The outcome revealed that insomnia commonly occurred among the elderly Thai population, and the overall prevalence was 46.3%. These findings are also compatible with prior studies both from Eastern [12] and Western countries [13,14]. Consistent with data from other surveys, the overall prevalence of insomnia is significantly correlated with age and is more common among women [15,16].

Discussion

Insomnia and night waking are high prevalent among the Thai population, within the range of 40.8% and 51.5% (see Table 2). Insomnia problems increase significantly with the advancing age. Data from the elderly Thai population found that depression and poor perceived health were significantly associated with insomnia. To extend

the findings of this review and to investigate the causes and the negative health consequences of insomnia, more prospective longitudinal studies are needed. A comprehensive programme to detect and prevent sleep problems in all age groups should be considered.

References

1. NIH State-of-the Science Conference statement on manifestations and management of chronic insomnia in adults. NIH Consens State Sci Statements. 2005;22:1-30.
2. Roth T, Ancoli-Israel S: Daytime consequences and correlates of insomnia in the United States: results of the 1991 National Sleep Foundation Survey II. *Sleep*. 1999;22 (Suppl):S354-8.
3. Reite M, Ruddy J, Nagel K. Concise guide to evaluation and management of sleep disorders. 3rd ed. Washington DC: American Psychiatric Publishing, 2002.
4. Richardson GS: Managing insomnia in the primary care setting: raising the issues. *Sleep*. 2000;23 (Suppl):S9-12.
5. Sukying C, Bhokakul V, Udomsubpayakul U. An epidemiological study on insomnia in an elderly Thai population. *J Med Assoc Thai*. 2003;86:316-24.
6. Kuasirikul S. Characteristics of sleep habit and problems of healthy adults in Hat Yai. In: Faculty of Medicine, Prince of Songkla University. Biennial Report 1999–2000. Bangkok: OS Printing House, 2002: 22-3.
7. Anuntaseree W, Mo-suwan L, Vasinanonte P, Kuasirikul S, Ma-a-lee A, Choprapawan C. Night waking in Thai infants at 3 months of age: association between parental - practices and infant sleep. *Sleep Med*. 2007 (Epub ahead of print).
8. Eaton–Evans J, Dugdale AE. Sleep patterns

Table 2: Prevalence of insomnia or night waking (in percentage) in different groups of Thai population

Population	Overall	Difficulty initiating sleep	Difficulty maintaining sleep	Early morning awakening
Infant	51.5	-	-	-
Adult	40.8	16.0	15.2	9.6
Elderly	46.3	30.3	32.4	33.0

of infants in the first year of life. *Arch Dis Child*. 1988;63:647-9.

9. Fukumizu M, Kaga M, Kohyama J, Hayes MJ. Sleep-related nighttime crying (yonaki) in Japan: a community-based study. *Pediatrics*. 2005;115 (Suppl):217-24.

10. Lee K. Pattern of night waking and crying of Korean infants from 3 months to 2 years old and its relation with various factors. *J Dev Behav Pediatr*. 1992;13:326-30.

11. Pires ML, Benedito-Silva AA, Mello MT, Pompeiasdel G, Tufik S. Sleep habits and complaints of adults in the city of Sao Paulo, Brazil in 1987 and 1995. *Braz J Med Biol Res*. 2007;40:1505-15.

12. Yamaguchi N, Matsubara S, Momonoi F, Morikawa K, Takeyama M, Maeda Y. Comparative studies on sleep disturbance in the elderly based on questionnaire assessments in 1983 and 1996. *Psychiatry Clin Neurosci*. 1999;

53:261-2.

13. Maggi S, Langlois JA, Minicuci N, Grigoletto F, Pavan M, Foley DJ, Enzi G. Sleep complaints in community-dwelling older persons: prevalence, associated factors, and reported causes. *J Am Geriatr Soc*. 1998;46:161-8.

14. Leger D, Guilleminault C, Dreyfus JP, Delahaye C, Paillard M. Prevalence of insomnia in a survey of 12,778 adults in France. *J Sleep Res*. 2000;9:35-42.

15. Husby R, Lingjarde O. Prevalence of reported sleeplessness in northern Norway in relation to sex, age and season. *Acta Psychiatr Scand*. 1990;81:542-7.

16. Wolkove N, Elkholy O, Baltzan M, Palayew M. Sleep and aging: 1. Sleep disorders commonly found in older people. *CMAJ*. 2007; 176:1299-304.

SHORT REPORT

Psychiatric out-patient's perspectives on medication information given by doctors

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Abstract

Objective: To investigate patient's perceived satisfaction and adequacy of information given by doctors on prescribed drugs in an outpatient psychiatric setting. **Methods:** The sampling was done consecutively with a target sample size of 200 patients. A simple questionnaire that was developed with 10 close-ended questions and yes or no answers was administered by the interviewing team. This questionnaire assessed patients' knowledge on prescribed medications and their perception on the adequacy of information given. **Results:** More than 80% of the patients were informed regarding the reasons, timing to take medication(s), duration of drug treatment and type of prescribed drugs. Half of them were informed regarding the side effect profiles of their prescribed medications. Majority of them (80%) were satisfied with the information given despite only 49% of the patients being given adequate information on their medications. **Conclusion:** Patients who are adequately informed about their medications are more significantly satisfied than those inadequately informed. ($\chi^2=4.085$, $p<0.05$).

Key words: *perceived satisfaction, adequacy of information, prescribed psychotropic drug*

Introduction

After the discovery of first psychotropic medication in 1950's, psychopharmacology has dramatically changed the management of psychiatric patients. Billions of dollars has been spent in this area of research since then, and this trend is rapidly growing in the current era of biological science in psychiatry [1]. At the patient level, a fundamental question needs to be answered is whether our patients gain the maximum benefits from drug therapy. Doctors may think that they have done a good job by prescribing good medications, but whether these drugs are being optimally used by patients is something different. Education about the prescribed drugs is an integral process to maximize the benefits of the drugs. Our own experiences of becoming patients ourselves prove that we would not

be satisfied or easily compliant to drug treatment that we are not sure of. Our psychiatric patients would be the same. They need to know some basic facts about the usefulness, common side effects and other relevant information about their medications.

The study of Macpherson and colleagues shows that 72% of psychiatric patients in one study have no knowledge about their medications [2]. They also suggest that structured education programmes may increase patients' knowledge on medications, improve patients' attitude towards medications and overall satisfaction. In addition, users of mental health services want more information than that offered in an accessible medium and in the spirit of partnership [3]. Other findings also suggest

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the association of quality, amount and frequency of information provided and the ability for patients to comply with the medications [3-6]. Failure to explain drug side effects is associated with increased reporting of drug complications and decreased patient satisfaction [7].

The objectives of this study were to: i) assess out-patient's perception on the adequacy of information relevant to prescribed drugs given by doctors, ii) assess patients' satisfaction towards the information given, iii) examine the relationship between adequacy of information and patient satisfaction. Participants were the attendees of the Outpatient Psychiatric Clinic, Hospital Universiti Kebangsaan Malaysia (HUKM). This study was done as a part of the hospital quality assurance project.

Methods

This was a descriptive and cross-sectional study and was carried out by a group of medical students of the Faculty of Medicine, Universiti Kebangsaan Malaysia (UKM), supervised by the first author. Data was collected in a 2-week period of February 2006. It included all psychiatric patients attending the clinic who were prescribed medications (antipsychotics, antidepressants, anxiolytics and/or other psychotropics). Patients giving no consent or too sick were excluded.

The sampling was done consecutively with a target sample size of 200 patients. A simple questionnaire that was developed with 10 close-ended questions and yes or no answers was administered by the interviewing team. This questionnaire assessed the patients' knowledge on their prescribed medications and their perceived adequacy of prescription information given and satisfaction about the information given. The items asked were: i) reason for prescription, ii) length (duration) of treatment, iii) type of medications, iv) amount of time for medications to have effects, v) how the

medications work (mechanism of actions), vi) medication side effects, vii) time to take the medications, viii) dosage/number of tablets/pills to be taken, ix) adequacy of information given on the prescribed medications and x) overall satisfaction on the prescription information given by the doctor. Item 9 was to assess the overall impression on the adequacy of information given about the earlier items, and item 10 was to assess the overall patient's satisfaction on the information given.

Results

Of 200 patients approached, 180 (90%) participated in this study. Ninety-one per cent of the participants perceived of being informed regarding the reason for taking medications. Fifty per cent perceived of being informed on the duration of drug treatment. Eighty-three per cent perceived of being informed regarding the type of prescribed drugs. Only 36% perceived of being informed regarding the onset of therapeutic effects. Even lesser, 21% perceived of being informed regarding how their drugs work. Fifty-one per cent perceived that they were informed regarding the medication side effects. Ninety-seven per cent perceived of being informed on the timing for taking the medications. Ninety-eight per cent perceived of being informed regarding the number of pills/tablets to be taken. Only a half of the patients (49%) perceived that they were adequately informed on the prescribed medications. Majority of the patients (80%), however, were satisfied with the information given despite only 49% of them being given adequate information. Patients who were adequately informed about their medications were significantly more satisfied than those received inadequate information. ($\chi^2 = 4.085$, $p < 0.05$) (see Table 1)

Discussion

The burden of mental illnesses was enormous, and psychopharmacology has a crucial role in reducing psychiatric disability [8]. Psychoeducation is an important ele-

Table 1: Perceived adequacy of information given and perceived patients' satisfaction

Adequacy of information	Satisfaction	
	Yes (n, %)	No (n, %)
Adequate	72(87%)	11 (13%)
Inadequate	64 (74%)	22 (26%)

($\chi^2=4.085$, $df=1$, $p<0.05$)

ment of drug prescription that will enhance compliance and doctor-patient partnership and relationship [1]. According to the HUKM Pharmacy Census, the financial budget utilized by psychiatric patients was only the second to patients with kidney diseases, approximately RM 1.4 million in the year 2005. The average cost of outpatient prescription was RM116 per patient per month [9]. It is imperative that every psychiatric patient complies with the prescription in view of the cost spent. Improving patients' knowledge on psychotropic medications and fostering positive attitude towards the medications through drug counselling would direct patients to optimise the use of their medications [10,11].

Based on our survey, the patients were informed less on mechanism of actions of the medications and medication side effects. Less discussion on the modes or mechanism of actions might be due to the belief that they are too complicated for the patients to understand, especially those with lower education levels. Doctors might be reluctant to tell their patients about the side effects possibly due to the expectation of negative impact on patients' compliance to medications. This belief may not be true. The findings of Munetz and Roth show that schizophrenic outpatients who are disclosed the risk of neuroleptic-induced tardive dyskinesia are not less compliant to treatment than those patients not disclosed such information.

Majority of respondents (80%) were satisfied with the information given by the

attending doctors, despite only 49% perceived being given adequate drug information. This may be contributed by the patients' perceptions that the drug information is not important, patients' low levels of education and patients' intolerance to time-consuming consultations [12,13]. Other factors that may affect patients' satisfaction include doctor-patient relationship, consultation time, changing doctors and delayed information (after enquiry/after having experienced side-effects) [12,13].

Our study would be affected by some limitations. Firstly, respondents might hesitate to answer questions truthfully due to the presence of others during the interview. Secondly, the respondents had poor recall on information given. Lastly, respondents' knowledge on the drugs taken might be acquired from other sources. It is a time to appeal to the attending doctors and psychiatrists prescribing psychotropic medications to pay more attention on prescribing information. Doing so would reduce patient's negative attitude toward medications, improve doctor-patient relationship, improve medication compliance, reduce reporting of drug complications and reduce management failure [14,15].

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References

1. Johnson S, Johnson FN. Rev Contemp Pharmac. Marius Press, Carnforth LA6 1HW, United Kingdom 1999; Vol. 10: no. 2.
2. Macpherson R, Jerrom B, Hughes A. A controlled study of education about drug treatment in schizophrenia. Br J Psychiatry 1996; 168:709-17.
3. Kleinman I, Schachter D, Jeffries J, Goldhammer P. Effectiveness of two methods for

- informing schizophrenic patients about neuroleptic medications. *Hosp Comm Psychiatry*. 1993;44:1189-91.
4. Kleinman I, Shcachter D, Koritar E. Informed consent and tardive dyskinesia. *Am J Psychiatry* 1989;146:871-902.
 5. Chaplin R, Kent A. Informing patients about tardive dyskinesia: controlled trial of education. *Br J Psychiatry* 1996;168:709-17.
 6. Munetz MR, Roth LH. Informing patients about tardive dyskinesia. *Arch Gen Psychiatry*. 1985;42:866-71.
 7. Ghandi TK, Burstin HR, Cook EF, et al. Drug complications in outpatients. *J Gen Intern Med*. 2000;15:149-54.
 8. Murray CJL, Lopez AD. Global burden of disease: a comprehensive assessment of mortality and disability: from diseases, injuries and risk factors in 1990 and projected to 2020. Vol 1. Boston: Harvard University Press, 1996.
 9. Department of Pharmacy Census 2005, Department of Pharmacy, Hospital Universiti Kebangsaan Malaysia; 2005
 10. Kleinman I, Schachter D, Jeffries J, Goldhammer P. Informed consent and tardive dyskinesia: long term follow-up. *J Nerv Mental Dis*. 1996;184:517-22.
 11. Bowler N, Moss S, Winston M, Coleman M. An audit of psychiatric case notes in relation to anti-psychotic medications and information giving. *Clin Perform Qual Health Care*. 2000;8: 212-6.
 12. Perreault M, Katerelos TE, Tardif H, Pawliuk N. Patients' perspective on information received in outpatient psychiatry. *J Psych Ment Health Nursing*. 2005;13:110-1.
 13. Tempier R. Long-term psychiatric patients' knowledge about their medication. *Psychiatr Serv*. 1996;47:1385-7.
 14. Crossley J, Davies H. Doctors' consultations with children and their parents: a model of competencies, outcomes and confounding influences. *Med Education*. 2005;39:807-19.
 15. Kitamura T. Stress-reductive effects of information disclosure to medical and psychiatric patients. *Psych Clin Neurosci*. 2005;59:627-33.

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CORRIGENDUM

Udomratn P, Deva MP. ASEAN psychiatry: past, present, and future. *ASEAN Journal of Psychiatry* 2007;8 (1):35-9.

There are three incorrect numbers for which the authors apologize. The correct numbers are given below.

Page 35, Abstract, line 1: change 'was formed in 1971' to 'was formed in 1967'.

Page 35, Abstract, line 1: change 'and 10 years later' to 'and 14 years later'.

Page 35, Introduction line 4: change '1971' to '1967'.