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Please Note!

The editorial board of the journal functions for a period of 5 years. Following this tenure, a new editorial board is elected. Thus, the editorial board is reshuffled every five years. Few of the deserving and high profile editorial board members are invited to continue for the successive term. The Advisory Board members are recruited based on their international stature, from time to time. All editorial board and advisory board members take part in peer-review, discussions and dissemination of knowledge for the improvement of the journal.
It is a great pleasure for me to take over the presidency of the AFPMH from our Philippines counterpart. The Federation is now based in Indonesia from 2015 until 2016. Since its birth in 1981, AFPMH has achieved many successes in networking and exchanging knowledge and information. This is achieved through our meeting in the biennial congress and regular online publication of the ASEAN Journal of Psychiatry, which is the official journal of the Federation. From its five original member countries of ASEAN (Malaysia, Thailand, Singapore, Indonesia and Philippines), the Federation has, over the years, increased the participation from other ASEAN countries, which now includes the Indochina region. Recently, during the 14th ASEAN Congress of the AFPMH held in Radisson Blu, Cebu Philippines from 13th to 14th of November 2014, Cambodia which was officially included earlier as our new federation member has continuously become an active member of the federation.

ASEAN Journal of Psychiatry was established in 1991 and has since been receiving a steady increase in number of articles from the ASEAN region. Recently, we received publication not only from ASEAN region, but also from Asian region such as Japan, China, India and Iran; Europe including Spain and United Kingdom, New Zealand and other countries. Notably, the journal, a peer-reviewed six-monthly publication, has been reaching its readers regularly since 2007 through its open access online publication (www.aseanjournalofpsychiatry.org). Through this journal, we share and learn from the work of many researchers from the different countries on a variety of mental health and psychiatric issues. Through the journal also, we get to know new people in our large community of mental health professionals. I believe information on mental health issues in ASEAN countries should be provided by ASEAN people. ASEAN Journal of Psychiatry is a good tool to achieve this purpose. Together, we are stronger to pave a new way in disseminating information and updates in managing and improving our people's mental health, blended with the unique multi-ethnic variety and different tradition across this South East Asia region.

The journal has excelled in ensuring regular online publication since 2007. It is worthwhile to note that the AFPMH committee has rightly agreed during the last committee meeting in 13th ASEAN Congress to let Malaysia continue the editorship of the journal in an effort to maintain the journal stability and ensure its future growth. Therefore, the two-yearly rotation of editorship among the member countries has stopped since 2009. To date, up to 26th December 2014, the editorial team has done a good job by adding six databases in the Journal, namely: Mycite, Open-J-Gate, Google Scholar, EBSCO, PsychoInfo and Index Medicus (Western-Pacific Region Index Medicus). So far, we have a strong leadership under our dedicated editor-in-chief, Professor Hatta Sidi from Kuala Lumpur, Malaysia. Under his leadership, we have a strong international Advisory Board Members and recently, many international figures in Psychiatry has been appointed as our Advisory Board Member team.

Lastly, I wish to take this opportunity to sincerely thank Professor Hatta Sidi, Professor Srijit Das, Professor Marhani Midin and Associate Professor Nik Ruzyanei Nik Jaafar from Kuala Lumpur, Malaysia for their outstanding work and for agreeing to continue their duty as the editorial board member from 2014 to 2016. I would also like to extend my special thanks to the dedicated editorial team members, comprises of the associate editors from Philippines, Singapore, Indonesia, Thailand, Malaysia, Brunei Darussalam. We hope in the near future, the Journal will receive more indexation by the prestigious databases and will be an esteemed arena for information dissemination and knowledge sharing. flourish

Warm regards,

Danardi Sosrosumihardjo,
President, ASEAN Federation of Psychiatry and Mental Health 2015-2016
Department of Psychiatry, University of Indonesia (UI) Medical School, Jakarta, Indonesia
EDITOR-IN-CHIEF WELCOME MESSAGE
2014 - 2016

It has been six years since I was given the privilege to serve as the Chief Editor of the ASEAN Journal of Psychiatry. It is a great pleasure for me to humbly shoulder this duty despite it being a constantly demanding task. The 14th ASEAN Federation of Psychiatry and Mental Health (AFPMH) meeting which was held in Cebu, The Philippines in November 2014 had achieved fruitful outcomes. We would like to thank The Philippine Psychiatric Association (PPA) for hosting this meeting, especially to Dr Pureza Trinidad Onate and Dr. Edgardo Juan L. Tolentino. Recognizing the challenges posed by the yearly rotation of editorial board, it was decided during the last AFPMH committee meeting that Malaysia should host the editorialship for another two years. A constant editorial board is also important for stability of the journal. Again, I have been chosen to resume the honourable duty to head the board, a responsibility I accepted as a great honour.

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

The board has taken an initiative in the direction of indexing the journal. The journal has been selected by the WPA Publication Task Force to receive technical guide on the process of indexation. A few recommendations were made to increase its chance for a successful indexation. These include the need for a more constant editorial board and to include, in the board, members from as many participating countries as well as renowned researchers from the larger international world; and the need for a more regular publication per year, at least a quarterly publication. It is also important to note that a balance should be exercised between making changes to achieve indexation and ensuring enough resource capacity to maintain the new changes. Otherwise, the survival of the journal may be at stake.

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

I would like to thank Dr. Danardi Sosrosumihardjo, Senior Consultant Psychiatrist from Department of Psychiatry, University of Indonesia (UI) Medical School, Jakarta, Indonesia as our new AFPMH President, for his support as well. We hope the members shall meet again and that the next meeting of 15th AFPMH which will be held in Semarang Indonesia in August 2016 will also be fruitful and successful.

Thank you.

Hatta Sidi
MBBS, MMed (Psych), DipSHC (Australia)
Editor-in-Chief, ASEAN Journal of Psychiatry
SPECIAL REPORT

THE 14TH ASEAN FEDERATION OF PSYCHIATRY AND MENTAL HEALTH (AFPMH) CONGRESS MEETING IN CEBU, THE PHILIPPINES

Hatta Sidi & Marhani Midin

Editorial Office, ASEAN Journal of Psychiatry

It is a great pleasure for the editorial board of ASEAN Journal of Psychiatry to report this important and meaningful event which took place in Radisson Blu, Cebu, Philippines from 13th to 15th November 2014. This was the 14th ASEAN Federation of Psychiatry and Mental Health (AFPMH) Congress which was successfully hosted by the Philippines Psychiatric Association (PPA). Through this biennial congress, the Federation aims to build a good collaboration between the participating countries by exchanging information and knowledge and to disseminate new development in research and therapy in psychiatry and mental health. In keeping with the theme of “Setting gold-standard of care in ASEAN psychiatry”, the congress has provided a platform for a mixture of information exchange coming from the member and other countries.

The congress was preceded by a two-day AFPMH Leadership and Training Program for Early Career Psychiatrists on the 11th and 12th November 2014. This was successfully facilitated by Prof. Dr. Norman Sartorius, Prof. Dr. Mohan Isaac, Prof. Dr. Erminia Colucci and Assoc. Prof. Dr. Dinah Nadera and enjoyed 19 budding psychiatrists from member countries as well as from Papua New Guinea, Pakistan and Australia. Leadership program like this is an important mechanism in bringing further development in mental health and psychiatry in the ASEAN countries.

The congress was attended by renowned international plenary speakers from Australia and Canada to highlight advances in pharmacotherapy and current biological interventions. These informative sessions were interspersed with presentations by psychiatrists from member countries sharing different levels and areas of research and service development. Among the topics shared were common psychiatric disorders, late-life depression and dementia, suicide, insomnia, alcohol treatment, nomenclature of psychiatric medications, mindfulness, sexual dysfunction, ethics in psychiatry and mental health care in the community. It is timely for the ASEAN psychiatrists to integrate novel evidence-based approaches to facilitate recovery among those suffering from mental disorders in the region while blending it with unique approaches relevant in the vast cultural diversity.

The AFPMH Congress has traditionally been a collective platform to disseminate key-points updates on mental health issues and service development from member countries. This time, six countries participated in sharing country reports delivered by the president or representative of psychiatric association from each country: Dr. Edgardo Juan L.Tolentino, Professor Dr. Marhani Midin, Dr Yongyud Wongpiromsarn, Dr. Danardi Sosrosunihardjo, Dr Cheng Lee and Dr. Kim Savuon from the Philippines, Malaysia, Thailand, Indonesia, Singapore and Cambodia respectively. The main highlight from each country was the continuing growth in mental health and psychiatric services. Consistent with the recommendation by the World Health Association, each country reported an increase in number and level of services provided in the primary care setting which is more accessible to the population. Common challenges shared by each country include inadequate financial and human resources for mental health development, stigma and discrimination, problems in the service system and lack of mental health information system.

This biennial meeting is also the avenue for
The 14th ASEAN Federation Of Psychiatry And Mental Health (AFPMH) Congress Meeting In Cebu, The Philippines

The federation to hold its regular meeting and hand over its presidency to the next host country. A new President of AFPMH was elected from Indonesia in replacement of the past-President from the Philippines, Dr. Pureza Trinidad Oñate. Dr. Danardi Sosrosumihardjo from Department of Psychiatry, University of Indonesia (UI) Medical School, Jakarta, Indonesia will bear the duties as President of the ASEAN Federation of Psychiatry and Mental Health from 2015 to 2016. In his acceptance speech, Dr. Danardi Sosrosumihardjo thanked Dr. Pureza Trinidad Oñate and the Philippines Psychiatric Association for hosting the federation for the past 2 years. Dr. Danardi Sosrosumihardjo stressed the importance of working together and promoting a gold-standard of care in the management of patients from the ASEAN region and announced Semarang, Indonesia as the venue for next AFPMH congress planned in August 2016.

It is felt that participants have enjoyed the warm hospitality displayed by the organizing committee of the 14th AFPMH Congress, the kindness of the people of the Philippines and the beautiful places in the Cebu Island. It is hoped that this congress had fulfilled its aims in highlighting recent management updates and sharing unique experiences which are key steps in improving the mental health of the multi-ethnic and multicultural societies across the South East Asia region.
THE ROLE OF PSYCHIATRISTS IN TOBACCO DEPENDENCE TREATMENT

Amer Siddiq Amer Nordin*,**, John Douglas Sellman*, Simon Justin Adamson*

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Abstract

Objective: Global tobacco control efforts in both prevention and treatment have advanced to levels never imagined 20 years ago. This review examines the relationship between mental illness and tobacco use, with particular focus on the role of psychiatrists in the treatment of tobacco dependence. Methods: The literature search utilised MEDLINE, Embase and PsychINFO databases using the terms psychiatry, psychiatrist, smoking cessation, tobacco use disorder and tobacco dependence treatment. A manual search of all references from relevant scientific articles obtained was also conducted. Finally, further material sourced included all major guidelines for smoking cessation or tobacco dependence treatment from the United States, United Kingdom, Canada, Australia and New Zealand. Results: Psychiatry has ignored tobacco dependence and its treatment resulting in multiple missed opportunities in improving the health and well-being of smokers with mental illness. Improvement in the training and knowledge of psychiatrists and those in the mental health sector will be the most effective activity to rectify this situation. Conclusion: Psychiatry must recognise tobacco dependence as equally important as the primary mental illness and to treat accordingly. A significant change in the training of future psychiatrists, introducing or implementing smoke free mental health services, changes in the management of caring for the mentally ill, and the introduction of tobacco treatment specialists within the mental health system is needed if psychiatry is serious about confronting this problem. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 5-17.

Keywords: Tobacco Dependence Treatment, Smoking Cessation, Smoking, Addiction, Psychiatry

Introduction

Global tobacco control efforts in both prevention and treatment have advanced to levels never imagined 20 years ago [1]. Despite this, smoking is still the number one public health problem worldwide. Cigarette smoking is the preferred method of ingesting tobacco and causes the most harm. Cigarette smoke contains 7000 toxins and a substantial number of these are proven to be carcinogenic [2]. Smoking not only affects smokers individually but also those around them. Second-hand smoking (SHS), or environmental tobacco smoke (ETS), a class 1A carcinogen, has been scientifically shown to be detrimental to health [3, 4]. An estimated six million lives are lost prematurely each year as a result of smoking and will increase by another four million as early as 2030 if the status quo [2].

In response to this threat to human health, the World Health Organization (WHO) established a treaty known as the Framework Convention for Tobacco Control (FCTC), which came into force in February 2005 [5]. There are now 176 nations that have ratified
this treaty, and the number is growing. The main aim was to assist member countries in their public health efforts against tobacco use, particularly in smoking. The treaty also provided new dimensions in legal health cooperation worldwide on tobacco control in response to various efforts by the tobacco industry to protect its interest using legal means [5,6]. Within the Asia Pacific region, Australia and New Zealand are at the forefront of this initiative, with the recent launch of plain packaging for all cigarette sales in Australia [7], and New Zealand’s declaration to be a smoke free nation by 2025 [8]. Through its commitment to be smoke free by 2025, New Zealand will use all initiatives available to reach this goal. Both of these initiatives are being closely observed by other FCTC member countries including those in Southeast Asia.

Advances in public health measures have brought about reductions in the prevalence of tobacco use and dependence. The effect of this has been an increasingly ‘hard to treat’ group of addicted patients at a clinical level [9]. Psychiatrists could be argued to be the ideal practitioners to treat tobacco dependence when there is greater clinical complexity due to their training in the interaction between physical, psychological and pharmacological factors impacting on addiction and tobacco use together with social contextual issues [4,10]. They are also skilled in many forms of psychological interventions such as cognitive-behavioural therapy, motivational interviewing and relapse prevention along with prescribing pharmaceuticals [4]. Sellman [11] had previously called for psychiatry to “embrace nicotine dependence as the leading mental disorder of our age” noting that advancements in both the science of nicotine addiction and ways to manage it are rapidly advancing.

This review examines the relationship between mental illness and tobacco use and the role of psychiatrists in the tobacco dependence treatment. Finally, possible solutions are offered in order to advance the role of psychiatrists in the treatment of tobacco dependence.

**Methods**

A literature review was conducted in July 2012 using the MEDLINE (From 1946 till current), EMBASE and PsycINFO online database. Search terms included psychiatry, psychiatrist, smoking cessation, tobacco use disorder and tobacco dependence treatment. Searches were limited to humans and English publications. Articles that were related to surveys on psychiatrists and their involvement with smoking cessation or tobacco control were kept for in-depth review. A second search through the references of these publications was conducted to identify publications that were missed using the databases mentioned. Publications were excluded if they did not include information on these topics.

The initial literature search identified 515 journal articles. A single author (A.S) read the abstracts of these articles. A total of 486 articles were excluded as they were not pertaining to psychiatrists and smoking cessation resulting in 29 articles that were retrieved for in-depth review. A further 18 were excluded as they were not surveys, therefore 11 were kept. Further search through these articles recovered two articles that were not included in the first search for a total of 13 published articles surveying psychiatrists and their role in smoking cessation. A manual search of all references from relevant scientific articles obtained was also conducted. Finally, further material sourced included all major guidelines for smoking cessation or tobacco dependence treatment from the United States, United Kingdom, Canada, Australia and New Zealand.

**Mental Illness and Tobacco Use**

Individuals with mental illness are more likely to be current smokers compared to the general public as a whole. On average, two to three times as many people with mental illness smoke [12-14]. Conditions such as schizophrenia are associated with smoking prevalence of up to 85% [13, 15]. Those with schizophrenia also smoke more (defined as smoking more than 25 cigarettes per day) [16, 17], have higher dependence or severity scores compared to the general public [18], and have been found to be more “efficient smokers” [19], absorbing more nicotine with each puff. People with mental illness constitute 16% of the New Zealand population [20] but smoke
33% of cigarettes consumed [21]. Similarly, in
the United States where 25% of the population
has mental illness [11], Lasser [17] found that
nearly 44% of all cigarettes sold were
consumed by those with mental illness, with
Grant et al. [23], reporting 57.6%.

Although smoking is highly prevalent and the
consequences debilitating, those with mental
illness and nicotine dependence are generally
neglected in psychiatry [24, 25]. It is common
for them to be excluded from smoking
cessation trials or not included in quit smoking
initiatives altogether [26, 27]. Some
professionals have referred to this group as the
“underserved” population [28], and together
with other groups, such as the low-
socioeconomic population, often have high
prevalence and more difficulties in quitting
smoking.

The connection between mental illness and
tobacco use is still not fully understood [13,
16]. A complex interplay between biological,
psychological and social factors has been
suggested [13], which is likely to vary
according to specific mental illness under
question.

In schizophrenia for example, the involvement
of the alpha-7 nicotinic receptor may be faulty
[13]. Geneticists have found a link between
this receptor and chromosome 15 which is
believed to be linked with nicotine addiction
[29]. The α-7 nicotinic receptor is involved
with a physiological response to repeated
auditory stimuli and also cognition in
particular at the visuo-spatial working memory
[13]. Abnormalities in both areas are linked to
increased smoking as nicotine has been found
to assist in minimising the side-effects from
these abnormalities [31]. Psychosocial factors
such as poverty, unemployment, lower levels
of education and difficulties in accessing
health services, often found in those with
schizophrenia, are also important [13]. On the
other hand, in anxiety disorders for example,
especially post-traumatic stress disorder
(PTSD), the hypothalamic-pituitary-adrenal
(HPA) axis may be at fault. Impairment in the
HPA axis may lead to the development of
nicotine tolerance [13]. Alterations in this
system can cause cortisol
interference/involvement which increases the
risk of smoking in those with PTSD by
enhancing both tolerance and sensitization to
various effects of nicotine. Other factors that
may lead to increase smoking within this
group are psychological factors such as
“anxiety sensitivity” and negative affect which
can act as cues to initiation or continued
smoking [13]. A low threshold for distressing
situations and deficits in cognitive-emotional
processing may also play a role in the
relationship between smoking and anxiety
disorders.

Unlike schizophrenia and anxiety disorders
where the association appears to be
unidirectional, the association for depression is
thought to be bidirectional [13, 32]. Some
studies report a moderating role of
dopaminergic genes and depressive symptoms
in determining both adolescent and adult
smoking practices [13]. Others, however,
suggest psychosocial stresses associated with
depression make the individual highly
sensitive to the reinforcing effects of smoking,
and/or increase the vulnerability of the
individual to social smoking influences [13].
The relationship between biological and
psychosocial factors in determining smoking
and mental illness is clearly a complex one.

Psychiatry and Tobacco Use

Tobacco use and its treatment have been
underemphasised in psychiatry. One example
is the establishment of smoke-free inpatient
services. Despite many countries having
environmental or similar laws to prevent
smoking in closed buildings such as hospitals
[1], not all inpatient psychiatric facilities are
smoke-free [30]. In Christchurch, New
Zealand, it has taken half a decade longer for
all mental health services to be smoke free,
achieving this in 2010 [31] compared to all
public hospitals in New Zealand which have
been smoke free since December 2004 [32].

Benefits of Tobacco Dependence Treatment

The benefits in treating tobacco dependence
are significant for those with or without mental
illness. Treating tobacco dependence improves
the lives of both the smoker and those around
them. Smoking causes many health problems
such as lung and cardiovascular diseases but
these conditions on quitting are reversible to a
degree [33]. Studies have found that those who
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quit experience early benefits of improved respiratory and cardiovascular functions [34]. More chronic conditions, such as cancer, are lowered as early as five years post abstinence [35]. Quitting smoking not only reduces the risk for medical health co-morbidities but has also been found to reduce the risk of developing substance abuse [27]. It may also increase the likelihood of stopping other existing substance abuse problems [27].

Tobacco use has also been shown to affect psychiatric treatments. Antipsychotic medication for schizophrenia, such as olanzapine and clozapine as well as certain antidepressants such as fluvoxemine are broken down by the cytochrome P450 enzyme system in the liver [36, 37]. These enzymes are affected by the hydrocarbons in cigarette smoke. Smoking increases the breakdown of these medications leading to reduced serum drug concentration. Those requiring these treatments will therefore need higher dosing which is not only potentially dangerous and can lead to other health complications like metabolic syndrome but is also expensive to the health system [36]. Similarly, on quitting smoking, these same levels may be elevated and will need to be carefully reassessed.

Treating tobacco dependence unfortunately is not generally undertaken as part of normal clinical practice by psychiatrists despite being one of the most cost effective interventions available at a population level [37]. Tønnesen [38], after reviewing several meta-analyses, found that treating those with tobacco dependence was much more cost effective compared to other public health interventions such as mammograms or providing treatments for elevated serum cholesterol levels. He reported the cost of adjusted quality of life years (QALY) to be between $550-2200 (adjusted USD). Cromwell et al. [39] found the cost of adjusted QALY to be between US$1108-4542 and also the more intensive the intervention the more cost effective it was. It is now recognised that current efforts to reduce the national prevalence further are limited by those with severe nicotine addiction who are generally more difficult to treat and less likely to respond to available treatments [9]. Many individuals with mental illness who smoke fit this description, and their widespread treatment by psychiatrists and other mental health clinicians are likely to assist at a population level in reducing national smoking prevalence rates further.

Barriers and Solutions

There have been a number of barriers identified as to why psychiatrists are hesitant to conduct tobacco dependence treatment. Among these barriers is the failure to inculcate interest to conduct smoking cessation among psychiatrists at the outset of their training, the lack of interested supporting staff, and/or unavailability of appropriate infrastructure.

Prochaska [40] commented that one of the main reasons that tobacco control has been delayed this long in psychiatry can be attributed to the “self-medication hypothesis”. This hypothesis states that individuals with mental illness “self-medicate” with tobacco smoking to reduce or remove distressing symptoms that they may have experienced from their mental illness. For example, in schizophrenia, abnormalities in α7-nicotinic receptor have been linked to the presence of auditory hallucinations through the P50 gating response [13]. Tobacco smoking affects the P50 gating response and therefore may assist by reducing these symptoms. Similarly for depression, patients may smoke as a result of the effect of tobacco smoking on monoamine oxidase inhibitors responsible for the breakdown of the neurotransmitters dopamine and serotonin [36]. Smoking, therefore, may elevate mood by acting like antidepressants. Side-effects such as akathisia, caused by conventional antipsychotic use, in the treatment of schizophrenia, are also thought to be reduced by tobacco smoking [41]. These findings, however, were not missed by the tobacco industry. In another study Prochaska, Hall and Bero [15] found that the tobacco industry had acted upon this knowledge by slowing down efforts to treat smokers with schizophrenia through promoting self-medication as one of the strategies used to market cigarettes to patients with schizophrenia.

Another major barrier in tobacco dependence treatment in psychiatry is the delay in implementing smoke free services in mental health. Questions are still being asked if this move is necessary in certain parts of the world.
At times, it is the service provider themselves that are not keen for the implementation of smoke-free services [42-44]. Among the reasons cited are that patients will relapse if asked to quit or will react aggressively, they are not motivated to quit as it is not their priority and smoking is used both as a ‘reward’ for positive behaviour and a ‘tool’ for engagement between mental health staff and patients [40, 45].

The high rate of smoking amongst mental health staff is also a barrier for treatment provision. Many studies have shown that staff working in mental health services often report higher smoking prevalence compared to their peers [44, 46]. Those who smoke have been shown to be least likely to assist smokers to quit or acknowledge that smoking is a problem for the patient in their care [46]. A study by Morris, Waxmonsky, May, & Giese [47] using a qualitative approach found that patients reported difficulty in attempting to quit when those treating them also smoked.

A series analysis of publications which primarily surveyed psychiatrists on various aspects of tobacco dependence treatment, revealed a number of psychiatrist specific barriers. Lubman, Jorm, & Morgan [48] surveyed 2000 general practitioners and 1710 psychiatrists on their belief regarding appropriate interventions for mental disorder in youth using a clinical vignette and found that compared to general practitioners, psychiatrists in the study endorsed less belief in the helpfulness of reducing smoking for young people with either psychosis or depression. However, the study had a low response rate (24% for general practitioners and 35% for psychiatrists). Another survey [49] of 80 psychiatrists working in a community mental health centre found that 20% did not even consider enquiring about their patients’ smoking status. Ratschen, et al. [44], found that among workers in an inpatient unit in the United Kingdom, where the majority were psychiatrists (junior and consultants), there was a lack of knowledge in tobacco dependence, its treatment and relationship with mental illness. This lack of knowledge could be based on misconceptions that psychiatrists might not believe their efforts would lead to any success [49], or that smoking cessation was not as important as treating the primary mental illness [49, 50].

A survey of 105 trainee psychiatrists in all years of training in the United States found more than three quarters reported their ability to assist smokers to be fair to poor [51]. They also reported no, or inadequate, training in tobacco dependence treatment in both medical undergraduate and postgraduate training. On a scale of 1 to 5 for confidence, the average rating was 3. In this sample, a third reported either being current or ex-smokers. In another survey of 114 psychiatry residency training directors [52], only half reported their centres provided training and that the median time spent was an hour. A follow-up post implementation training survey indicated an increase in both knowledge and skill and a subsequent increase in confidence in treating nicotine dependent people [53]. Implementation was found to be of minimal cost and all respondents would recommend the training to their peers [53]. A recently conducted literature review on MEDLINE up to 31 July 2013 did not reveal any new studies on training of tobacco control and dependence treatment in postgraduate psychiatry training, despite previous concerns that trainees had a lack of knowledge and skills in assisting smokers to quit. A survey of 74 psychiatrists, chairs of US academic psychiatry, found that although just under two thirds agreed that stopping cigarette smoking was “very” important and more than two thirds supported tobacco dependence treatment programs, less than half of them had such programs in their respective institutions [54]. Continuous medical education (CME) on tobacco dependence and mental illness was also found to be lacking and often reported as one of the main reasons for the lack of knowledge and treatment [44,49,55,56].

Most treatment guidelines recommend the 5 A’s (ask, advise, assess, assist, arrange), as their main approach to managing tobacco dependence [57-59]. New Zealand, however, uses a modified ABC (ask, brief advice, cessation support) in its guidelines [60]. A consequence of the lack of training was the unfamiliarity with guidelines, treatment and services available to refer to. Using the National Ambulatory Care Survey which was conducted in the 1990s, Himelhoch & Daumit
found that only 12.4% of patients with mental illness were offered tobacco dependence treatment. None were given a diagnosis of nicotine addiction and none were prescribed nicotine replacement therapy (NRT) or any other pharmacological intervention. Three other studies also found similar findings in prescribing practices of NRT by psychiatrists (9.7% [62], 10% [49] and 37% [56]). Another study by Price et al. [55], involving child and adolescent psychiatrists, found that NRT was not the standard care in their practice. An audit survey on diagnosis of nicotine dependence for three years in a youth speciality service where psychiatrists practiced revealed only a 3.6% written diagnosis in the first year of audit. This number jumped to 26.3% two years later, understood most likely to be the result of discussion regarding the low number and interest in the field [63].

Nicotine dependence has already been recognised as a medical condition in both the International Classification of Disease (ICD) and the Diagnostic Statistical Manual of Mental Illness (DSM) [64,65]. However, due to the lack of awareness as highlighted, the condition is seldom documented [63, 66]. Without diagnosis documentation, the importance in treating the tobacco dependence may be lost [62]. Opportunity to provide treatment and the possibility for reimbursement was reduced. It is of interest to note that other studies [46,50,61,67], reported that surveys on other specialities such as primary care and even medical colleagues reveal they were detecting and treating patients with mental illness who want to quit more often than psychiatrists.

Apart from providing direct treatment, referral is also one of the strategies to assist smokers to quit [57,60]. Psychiatrists like other physicians, have time constraints and one method of assisting patients to quit smoking is to refer them to tobacco dependence treatment services within the community they are working in. However, Steinberg, et al.[50] who surveyed 5726 physicians in the New Jersey area found that psychiatrists were least likely to be familiar with existing services in that area compared to their peers, such as primary care physicians, respiratory physicians or even cardiologists. Williams, et al. [56], also found that psychiatrists in the study were not familiar with services available to them and therefore referred only a quarter of the time and 10% of these were referrals to quit-line services.

**The Way Forward**

More training has been shown to improve detection, action to assist and also referral or treatment provision in both trainees and psychiatrists. A study by Prochaska et al. [53], on 55 psychiatry residents attending a four hour training session noticed an increase in knowledge, improved attitude towards tobacco dependence training in psychiatry and confidence for treatment provision. Confidence was sustained for three months in follow-up data (p<0.005). Williams, et al. [56], also found in a two day training session for 41 mental health service providers, where 51% of them were psychiatrists, that participants scored better on post test scores from 47% to 91% after day two. Participants were also very positive on feedback evaluation for this study. Apart from the general acceptance of such training for psychiatrists, Prochaska et al. [53], also found that training was cheap at US$139 per participant. Follow-up training can be maintained through continuing medical education (CME) sessions. Easton et al. [67], found that physicians (including psychiatrists) who completed >16 CME monthly hours were more likely to frequently counsel compared to those who received less. Price, et al. [55], in a study looking at child and adolescent psychiatrists, found that the more confident and prepared the respondents were, the less barriers were reported. Steinberg et al. [50], also reported that although initially referrals were low amongst psychiatrists in the study, once familiar with available services their referral rate was similar to others. Training definitely increases awareness, diagnosis documentation and subsequently treatment provision and introducing tobacco treatment specialisation (TTS) amongst psychiatrists may further assist the agenda of tobacco control within psychiatry [68].

Morris et al. [47], found from interviews that those with mental illness are already facing many barriers to access treatment. It would therefore be helpful if they could get access to tobacco control services from those trained in
both mental illness and tobacco dependence to ensure that their needs are adequately met. Prochaska et al. [52], noted that one reason for the lack of implementation of tobacco dependence treatment in all residency training centres was the lack of expertise on smoking cessation among qualified psychiatrists. Having a TTS program within each mental health services, or shared between a number of services, might improve treatment in a number of ways. A dedicated TTS would be able to “jump start” training and push for more awareness, and also be a source of information and support to other practitioners interested in tobacco dependence treatment [68-70]. Further, a TTS within a mental health service would be an excellent referral person to assist with more difficult cases within the mental health system [68].

Tobacco treatment specialist specialisation in mental health settings is one method of increasing awareness of tobacco control among practitioners [68]. As highlighted in the study by Prochaska et al. [52], one reason why residency training did not implement such training is the lack of experts. Current available treatments are medications and interventions familiar to psychiatrists such as nortriptyline and cognitive behavioural therapy for example, and the side effects that have been reported such as mood disturbances are also under the purview of psychiatrists. Having an expert in the field has an advantage in providing a supportive environment where other colleagues can exchange information and learn [68-70]. At present, those that do receive slightly more attention in tobacco dependence among mental illness patients are those with co-morbid medical illnesses [46, 61]. Although reassuring to an extent, these findings also indicate that detection is only made for the most complex of cases in psychiatry. As many of the complex mental health patients have both psychiatric and addictive disorders, specialists of all disciplines are referring more to TTS [70, 71].

The increasing establishment of smoke free mental health units will also make a difference in tobacco dependence treatment in psychiatry. However, this will also need to be complemented with a change in the current culture of psychiatry with respect to tobacco dependence [44, 66]. Inpatient admissions into a smoke free unit may encourage quitting. Contrary to popular belief, there is no added burden to manpower in terms of patient aggression through this action [45]. Parker, McNeill, & Ratschen [72], carried out a pilot study in four adult psychiatric wards and found 31% of patients attending tobacco dependence treatment services attempted a quit attempt, of which half were successful. This may not be feasible for some centres considering this study employed a specifically designed pathway to attain services. Nevertheless, it indicated that patients can and want to quit smoking [73]. In another study, Lawn & Pols [45] reported that mental health staff increased their quit attempts when smoke free inpatient units were established. Staff who did not smoke was more likely to be receptive of tobacco dependence treatment, and were more likely to encourage assistance and referrals [74]. Furthermore, staff who did not smoke could also become role models to patients and other staff [47, 75]. Previous studies had reported that a change in status, namely from smoking to smoke free, was not always associated with a change of culture when no clear strategies and appropriate resources were in place [72]. The culture of engaging with patients through smoking and smoking breaks needs to be addressed by both patient and mental health practitioners [40-42]. Morris et al.[47], related a patient describing his difficulties as “give me something to occupy my time. There is nothing to do…except smoke, sleep and shower”. Experiences similar to this will need serious consideration if and when all units become smoke free. Another change needed will be the management of smokers within the unit [62, 66]. The recognition of smoking and the need to address the above suggestions would need management changes in terms of ward work. Regular documentation of diagnosis, a system to remind psychiatrists and staff to follow-up on patients and familiarity with treatment both psychological and pharmacological are among some of the suggestions made by researchers in this area [42, 62, 66]. The recognition of smoking and the need to address the above suggestions would need management changes in terms of ward work. Local initiatives, a system to remind psychiatrists and staff to follow-up on patients and familiarity with treatment both psychological and pharmacological are among some of the suggestions made by researchers in this area [42, 62, 66]. 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Reimbursement for treatment has also been reported in several studies [49, 56, 62] as barriers to implement services. Reimbursement however needed accountability of services [77] and that is where the TTS could play a role [68, 71, 78]. Reimbursement has been shown to increase usage [79]. Although no increase in the proportion of quit attempts were found, it was suggested that changes may be too small at the national level to have a beneficial public health impact. However, unlike West et al., [79]; Thornley, Jackson, McRobbie, Sinclair, & Smith [80] found that in New Zealand not all levels of society showed increased use in pharmacological treatments (in this case, NRT) despite being subsidized. In this study, Māori and Pacific people were not shown to acquire treatment compared to those of European ethnicity. A Cochrane Review involving eleven trials had, on the other hand, reported favourable impact for smokers to quit on full subsidization but not for health providers. Smokers who were fully assisted were nearly three times likely to be abstinent for six months or more (RR 2.45, CI 1.17-5.12) [81]. Smokers were also more likely to use behaviourial interventions with full aid (RR 1.77, CI 1.19-2.65) [81]. These findings are useful as smokers with mental illness were usually the more challenging patients and normally require this additional support. In addition, current evidence indicates greater success with a combination of both pharmacological and psychological interventions [57, 59, 60].

Among the major challenges faced by psychiatrists is the need to fully recognise tobacco dependence as equally important as the mental illness conditions they treat regularly. This will involve an overhaul in both medical school and residency training in psychiatry. Management changes may also be required in order for psychiatrists to be serious in their responsibility to their patients who are addicted to tobacco smoking.

Further implementation of smoke free mental health facilities is also needed. The longer these facilities are allowing psychiatric patients to smoke, the more harm is caused to the patients and mental health staff working in these facilities. The science of tobacco dependence and its treatment is rapidly advancing from the realms of genetics, imaging and also pharmacology. Psychiatrists need to be familiar with these changes in order to provide the best level of care [82]. Newer treatments, such as varenicline, can cause mood changes and has a warning for suicide [83]. Psychiatrists need to be aware of this and other potential interaction between treatment for tobacco dependence and existing treatments available. Newer devices such as electronic cigarettes, which are not yet well understood in terms of benefits and potential risk, should also be investigated by psychiatrists as treatment options for their patients [84, 85].

Conclusions

Psychiatrists have ignored tobacco dependence and its treatment for too long, resulting in multiple missed opportunities in improving the health and well-being of smokers with mental illness. Improvement in the training and knowledge of psychiatrists and those in the mental health sector will be the most effective activity to rectify this situation. More research is needed in both the pre-clinical sciences and clinical care in order to improve existing services in psychiatry and the provision of tobacco dependence treatment.

Acknowledgments

This research was funded through a doctoral student allowance from the University of Otago, New Zealand and a research grant from the University of Malaya, Malaysia. Special mention to Lindsay Atkins for help with proof reading. Declaration of conflict: All authors have no conflict of interest.

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Received: 3 March 2014 Accepted: 19 June 2014
Psychosocial Morbidities In Children With Medically Unexplained Pain Symptoms: A Study From India


ORIGINAL ARTICLE

PSYCHOSOCIAL MORBIDITIES IN CHILDREN WITH MEDICALLY UNEXPLAINED PAIN SYMPTOMS: A STUDY FROM INDIA

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Abstract

Objective: Medically unexplained pain is a common manifestation of psychological distress in children, though establishing this diagnosis is seldom an easy task. This study aimed to enhance and share clinical insights in the complex interplay of medical and/or psychological factors in these children as revealed by multidimensional assessment, to help in their effective management. Methods: Researchers assessed 65 consecutive children with unexplained pain for more than a month, referred by pediatrician. Of these, 59 consented and completed the interview. Clinical interview by psychiatrist generated psychiatric diagnosis as per ICD – 10 research criteria. Global functioning of the child (CGAS) and relational functioning of the family (GARF) were assessed before and after treatment. Psychosocial stresses were assessed clinically and treatments given to child and/or parent were recorded. Psychologist assessed intelligence of the child using Raven’s Coloured Progressive Matrices and administered Children’s Apperception Test (CAT). Results: A total of 38 (64.4%) children fulfilled criteria for Persistent Somatoform Pain Disorder. Most of them (89.8 %) were undergoing personal, familial and social stresses, many of which were revealed only after detailed clinical assessment. Major depression (28.8%), intellectual subnormality (11.9%), non-organic enuresis (8.5%) and ADHD (8.5%) were common co-morbid psychiatric diagnoses. Children with varying intellectual levels were proportionately represented, and colored the clinical complexity. Repression and reaction formation were common defenses and fear of loss of love of parent, injury, being overpowered were common fears as revealed on CAT. Conclusion: Unexplained pain was often a somatic expression of emotional needs in these children. Psychosocial adversities were common and often causative. However being subtle, these were routinely unidentified. Precise assessment is the key to effective management of these cases. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 18-27.

Keywords: Pediatric Somatization, Medically Unexplained Pain in Children, Psychosocial Adversities and Unexplained Pain, Somatoform Pain Disorder in Children

Introduction

Medically unexplained pain symptoms are common in children and often persist long enough to affect their daily routine, health and development. Various psychosocial morbidities accompany this multifaceted condition. This necessitates a flexible, multi-level approach in the management. A descriptive study of psychosocial adversities in these children is likely to explore clinical complexities in these cases, which will help in better understanding and effective treatment. In absence of discrete physical as well as
psychiatric signs and symptoms, these cases are vulnerable to receive inaccurate management by clinician, pediatrician or psychiatrist. Ongoing vigilance about developing somatic or psychological or simultaneous problems is necessary. This comprehensive understanding would ensure optimal treatment of these children.

Though medically unexplained, these physical symptoms are valid illnesses, often indicative of psychological distress. However they are often perceived negatively, even by staff in medical setting. The children who get referred frequently for investigations and treatment also get more anxious about their physical disease [1, 2]. A study reported depression to be more common in children with medically unexplained pain than in those with medically explained pain [3, 4]. Association of such recurrent pain in childhood and anxiety disorders in adulthood has been reported in the literature [5]. These facts prompted us to undertake this research in this area, which has not been well studied, especially in the Indian setting.

This descriptive research aimed to document detailed bio-psycho-social perspective in each of these cases so as to develop better insights in clinical assessment and management of this complex clinical condition. Objectives included evaluation of impact of unexplained pain by objective assessment of functioning, documenting stresses and assessing role of intellectual level in perception of these stressful events, and assessing relational functioning of the family in these patients.

Methods

This hospital based study was carried out in the Psychiatry Department of Smt. Kashibai Navale Medical College General Hospital situated in Pune, a rapidly growing city in Western India. This institute caters free medical services for the community. Study proposal was submitted to the Institutional Ethical Committee and approval was obtained. This was an observational study of detailed clinical assessment and treatment response of children with medically unexplained pain symptoms (MUPS). Children in the age group of 7 to 12 years, with one or more medically unexplained pain symptoms, referred by pediatrician to child psychiatry clinic were included in this study. Pediatrician had assessed for and ruled out medical or surgical cause of pain, and suspected functional etiology.

Consecutively all such patients referred from pediatrics department were briefed about the study and enrolled if they consented. They were required to attend 3 sessions of 45 min. each for assessment. Six of them refused to participate or could not complete the assessment, but had similar socio-demographic profile as that of study population. Children with medically explained pain symptoms, diagnosed cases of Mental retardation and those with single, transient pain symptom of less than 1 month duration were excluded.

Psychiatrist and psychologist assessed the patient after obtaining written consent of the parent and assent of the child. Treatment given and treatment response at subsequent visits were also documented over a period of 6 weeks.

Sample

A total of 65 consecutive children were referred from pediatrics department, with pain of at least one month duration, occurring during the study period. Pain was not explained clinically on medical examination, as well as after doing thorough investigations. 59 patients consented and completed the interview over a period of 15 months.

Data collection

Investigators (VG and SD) interviewed the patients after taking informed consent of the parent and assent of the child. Clinical psychologist (NB) assessed each child on test for intelligence and on Children’s Apperception Test. Socio – demographic data, illness related psychosocial information of parents and child, pediatrician’s opinion along with investigations done and treatment recommended was recorded in a semi-structured proforma. Clinical information was recorded to establish clinical diagnosis as per ICD – 10 DCR [6]. Primary as well as co-morbid diagnoses were established. Children’s
Global Assessment Scale (CGAS) [7] and Global Assessment of Relational Functioning Scale (GARF) [8] were administered to assess functioning of child and family.

GARF has been reported as a valid scale for assessment of relational functioning as a part of axis V of DSM IV [8, 9]. It is a clinician rated scale, wherein functioning of an individual is rated on a continuum from excellent to grossly impaired functioning. Score is recorded as single number between 100 – 0. Semi-structured questionnaire rating GARF has been developed and used earlier by author (SD) [10]. Authors (SD, VG) administered GARF; as such assessment of familial functioning with objectivity is seldom undertaken in routine practice, though it is often the root cause in such cases. CGAS [7] is commonly used to document overall functioning of a child; it depicts the severity of disturbance on a Likert scale that assesses functioning of a child in school, family, and difficulties encountered therein. with established inter-rater reliability and validity [11]. As transient pain symptoms are common in childhood, impact on functioning was measured to reveal resulting disability.

Clinical psychologist assessed each child’s intelligence on CPM (Colored Progressive Matrices) (Raven J et al 1998) [12]. This test can assess intelligence of child in terms of cognitive abilities, logical and analytical thinking in about 30 minutes time. Children’s Apperception Test (CAT) is a projective test designed for children. Children are asked to narrate/ write stories about standardized pictures shown to them. This is an apperceptive method of investigating personality and defenses in a child (Bellak L 2008, Indian adaptation by Uma Chowdhary) [13]. Administering this test helped in understanding child’s drives, relationships with important persons, and defense mechanisms used. A total of 40 children (67.8%) were followed up at 6 weeks. Their improvement in terms of severity or persistence of pain and increase in CGAS score was recorded. Relational functioning of the family (GARF) after pharmacological treatment and psychological inputs was also noted.

**Results**

Persistent Somatoform Pain Disorder (F 45.4) is diagnosed on ICD - 10 DCR if medically unexplained pain, which is associated with emotional conflict or psychological problems, persists for more than 6 months [6]. Among 59 children who completed the study interview, 38 children (64.4%) fulfilled criteria for Persistent Somatoform Pain Disorder.

Sample included 28 boys and 31 girls, maximum (40 of 59) being 10 – 12 year olds (67.8 %). 39 (66%) children were from urban, 7 (12%) from semi-urban, and 13 (22%) from rural areas. 34 (58%) children were staying in nuclear family, 13 (22%) in joint family and 12 (20%) had a broken family, a relatively large number.

Thirty one children (54.2%) reported headache (most common site of pain in this study), followed by abdominal pain reported by 28 children (44.07%) and chest pain by 16 children (27.19%). Eight children (13.5%) reported pain at multiple sites. Site of pain may have symbolic meaning, may be determined by role modeling, or may be unexplained.

**Triggering stressors**

One or more triggering stresses in these children as assessed by clinician (SD, VG) are compiled in Table 1.
Psychosocial Morbidities In Children With Medically Unexplained Pain Symptoms: A Study From India

Table 1. Psychosocial adversities associated with unexplained pain symptoms

<table>
<thead>
<tr>
<th>Category of stress</th>
<th>Number of children (multiple responses)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separation from significant family member</td>
<td>22</td>
<td>37.29</td>
</tr>
<tr>
<td>Parental interpersonal problems</td>
<td>16</td>
<td>27.12</td>
</tr>
<tr>
<td>Academic problems</td>
<td>12</td>
<td>20.34</td>
</tr>
<tr>
<td>Interpersonal problems of child</td>
<td>10</td>
<td>16.95</td>
</tr>
<tr>
<td>Harsh punishment</td>
<td>10</td>
<td>16.95</td>
</tr>
<tr>
<td>Change of school</td>
<td>7</td>
<td>11.86</td>
</tr>
<tr>
<td>Physical illness in family</td>
<td>7</td>
<td>11.86</td>
</tr>
<tr>
<td>Familial responsibilities</td>
<td>6</td>
<td>10.16</td>
</tr>
<tr>
<td>Bullied by peers</td>
<td>4</td>
<td>6.78</td>
</tr>
</tbody>
</table>

We can see the preponderance of stresses in the familial relationships domain. Thoughts pertaining to the stresses were distressing to these children and expressed with dysphoric feelings when probed into. Often, apparently normative events like change of school or residence or change in care-taking arrangement, various hurts or insults were the unrecognized stresses. A study of socio-cultural contexts of these children helped in revealing many “hidden” upsetting events. Presence of academic problems was associated with subnormal intelligence, or failure to achieve expected ranks in intelligent children.

We can see the representation of a wide range of intelligence from superior to below average level. Parents were often unaware of the subnormal intelligence of the child, and the likely resulting stresses. Also in case of children with good intelligence, parents had failed to understand the distress of a sensitive child aroused by apparently minor hurts. This was because there were no overt stressors and everything seemed to be absolutely “well!”

Table 2. Intelligence assessed by Raven’s CPM test

<table>
<thead>
<tr>
<th>Percentile rank on CPM</th>
<th>Number (N = 58)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior (&gt;90)</td>
<td>8</td>
<td>13.56</td>
</tr>
<tr>
<td>Above average (76 – 90)</td>
<td>8</td>
<td>13.56</td>
</tr>
<tr>
<td>Average(51-75)</td>
<td>16</td>
<td>27.12</td>
</tr>
<tr>
<td>Low average(25 -50)</td>
<td>18</td>
<td>30.51</td>
</tr>
<tr>
<td>Below average (5 -24)</td>
<td>7</td>
<td>11.86</td>
</tr>
<tr>
<td>&lt;5</td>
<td>1</td>
<td>1.69</td>
</tr>
</tbody>
</table>

Dysfunction caused by pain symptoms

Decline in academic performance after onset of pain was seen in 33(55.93%) children. A total of 13 children (30.5%) were irregular in attending school and 4 (6.77%) were school drop-outs due to pain. Sleep disturbances were seen in 22 out of 59 (37.3%) of children, and change in appetite seen in 27 (47.8 %) children. We documented child’s global functioning and relational functioning of family before and after treatment to assess the effectiveness of routine psychiatric help offered in such cases [Table 3(a) and Table 3(b)].
Table 3 (a). Child’s global functioning and relational functioning of the family before and after treatment (CGAS 1 & 2, GARF 1 & 2)

<table>
<thead>
<tr>
<th>Scale used</th>
<th>Mean score</th>
<th>Median score</th>
<th>SD</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGAS-1</td>
<td>53.32</td>
<td>51</td>
<td>10.54</td>
<td>19.76</td>
</tr>
<tr>
<td>CGAS-2</td>
<td>60.42</td>
<td>61</td>
<td>11.39</td>
<td>18.85</td>
</tr>
<tr>
<td>GARF-1</td>
<td>50.92</td>
<td>50</td>
<td>15.45</td>
<td>30.32</td>
</tr>
<tr>
<td>GARF-2</td>
<td>52.88</td>
<td>51</td>
<td>17.23</td>
<td>32.58</td>
</tr>
</tbody>
</table>

(SD = Standard deviation, CV = Coefficient Variation)
CGAS – 1 score of the child at the time of first presentation
CGAS – 2 score of the child after a month of treatment from psychiatrist and psychologist
GARF – 1 score of the family at the time of first presentation
GARF - 2 score of the family after a month of treatment from psychiatrist and psychologist

Table 3 (b). CGAS before and after treatment

<table>
<thead>
<tr>
<th>CGAS score range</th>
<th>Number of children (before treatment) (N = 59)</th>
<th>Percentage</th>
<th>Number of children (after treatment) (N = 40)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-71</td>
<td>3</td>
<td>5.08</td>
<td>6</td>
<td>15.38</td>
</tr>
<tr>
<td>70-61</td>
<td>11</td>
<td>18.64</td>
<td>14</td>
<td>35.89</td>
</tr>
<tr>
<td>60-51</td>
<td>21</td>
<td>35.59</td>
<td>13</td>
<td>33.33</td>
</tr>
<tr>
<td>50-41</td>
<td>19</td>
<td>32.20</td>
<td>5</td>
<td>12.82</td>
</tr>
<tr>
<td>40-31</td>
<td>5</td>
<td>1.47</td>
<td>1</td>
<td>6.7</td>
</tr>
</tbody>
</table>

(CGAS = Children’s Global Assessment Scale)

GARF scores did not improve much after treatment of about a month. We could not follow up the patients thereafter, which is one of the limitations of this study. CGAS scores improved after treatment in most of the children. Though rise in mean CGAS score was only by 7 (53 to 60), after treatment 34 out of 40 (80.5%) children were having scores above 50 (Table – 3b). Various psychiatric co-morbidities in these children have been tabulated in Table 4.
Psychological distress and defense mechanisms in these children were studied with the help of C.A.T. Children were asked to tell stories based on the pictures, which encouraged verbalization of their prominent emotions. Most of the children participated actively in this test; it also had a therapeutic effect by way of ventilation of distressing emotions in a supportive environment. In their stories, 90% of the children depicted themselves as “hero” and reflected on their own needs, conflicts, fears and anxieties. This test did not yield significant results in case of intellectually subnormal children.

These children often had precipitating stressors like parental separation, punishment by parent, or distress due to not reaching up to parental expectation. Fear of harm or injury, fear of loneliness or being overpowered were the most common fears reported. Fear of loss of love of parents and insecurity feelings resulting from this were also reported. The most common psychological defenses used were rationalization (31.57%) and reaction formation (29.94%). This was followed by denial (21.05%), and regression (23.68%). This test helped in identifying underlying conflict, and deciding necessary psychological intervention in many cases.

Maximum number of children presented at about 10 - 12 years. Studies conducted earlier conform to this age range [14, 15]. Research studies vary in their reports about MUPS being more common in either gender [5, 15]. However, we had comparable number of boys and girls in this sample of consecutive patients.

### Table 4. Psychiatric co-morbidities with medically unexplained pain

<table>
<thead>
<tr>
<th>Diagnosis as per ICD – 10 DCR</th>
<th>Number (N = 59) of children</th>
<th>% Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild depressive episode</td>
<td>17</td>
<td>28.81</td>
</tr>
<tr>
<td>ADHD, mixed type</td>
<td>5</td>
<td>8.47</td>
</tr>
<tr>
<td>Nonorganic Enuresis</td>
<td>5</td>
<td>8.47</td>
</tr>
<tr>
<td>Childhood emotional disorder</td>
<td>4</td>
<td>6.78</td>
</tr>
<tr>
<td>Adjustment disorder</td>
<td>3</td>
<td>5.08</td>
</tr>
<tr>
<td>Dissociative motor disorder</td>
<td>2</td>
<td>3.39</td>
</tr>
<tr>
<td>No co-morbidity except pain disorder</td>
<td>26</td>
<td>44.07</td>
</tr>
</tbody>
</table>

### Discussion

Diagnosis of functional pain symptoms in children

It is seldom an easy exercise to label pain symptoms in a child as functional. Even in absence of any clinical signs, child needs to be investigated in view of severity of symptoms and disability caused by pain. Presence of anxiety or depressive features does not exclude possibility of medical illnesses. Ongoing vigilance about all organic probabilities of pain symptoms is definitely indicated. Similarly, unindicated treatment with NSAIDS may harm the child’s health. Careful assessment is needed to establish this diagnosis [5]. Psychosocial factors are known to play an important role in causation, maintenance, clinical severity and management of these pain symptoms. These complex problems are thus best dealt with by management by psychiatrist in liaison with pediatrician. At times both may co-exist. Some of the children in this study had suffered organic causes for pain like pain in abdomen due to acid peptic symptoms, or headache due to sinusitis and so on. However, pain symptoms during current presentation were not explained by these causes as per pediatrician’s assessment and were thus referred to psychiatry department. 17 of the 59 children in this study had such dual problems. Among these 5 (29.4 %) had depressive episode as against 12 out of 42 (28.5 %) without any medical co-morbidity (Chi square
= 0.0639, p = 0.08004). Other psychiatric co-morbidities were also comparable. Psychiatric illnesses have been reported to be more common in children with medically unexplained pain than those with medically explained pain in literature [15].

**Psychosocial stresses**

Difficulties in coping with conflicts and stresses, familial and school related problems, unsatisfying child-parent relationships are well known in children with “Psychogenic” pain [16, 17]. Separation from parent or grandparent for a significant period of time was the most common stress found to be triggering pain symptoms in children (Table - I). Parental interpersonal problems were also often assessed to be more stressful than reported. Children were distressed by alcohol dependent fathers, depressed mothers or parental quarrel, but were seldom able to verbalize or even recognize it.

A study of stresses in Indian children with and without psychiatric illnesses revealed more number of events in the affected children, and included mostly stresses like parental deprivation, punishment and school related problems [18]. The paper also mentions the need to develop ways to assess perceived stressfulness of events. In a recent Indian study in children with deliberate self harm, 62% children had some stress in the family and 41% in school [19]. Disturbances in emotional well-being seem to be central to these stresses, but in our study stresses were often subtle and at times unrecognized.

Academic problems were primary in some children, and were secondary to school absenteeism or depression in others. Children themselves often reported bitterness and dislike for some relatives or friends resulting in various interpersonal problems. Dominating father figure, scared child figure, perceived rejection from parent figure, aggression towards sibling or friend, escapism from overwhelming situation were some of their expressions in the stories narrated during C.A.T. In absence of such assessment, labeling pain as functional would have been “difficult.” These fears need to be interpreted in the context of high intimacy and dependency between child and parent in Indian culture.

Children view parents as an authority, as well as the source of emotional support and gratification. The most common psychological defense used was rationalization (31.57%), which is the neurotic defense used in situations where the child could not understand how to cope with real life stress or situation .That is normal for the age group in this sample . Reaction formation (29.94%) and denial (21.05%) were used against need of affection and dependence. This also suggested their awareness of painful reality. Defense like regression (23.68%) in difficult situation, suggested their problems were unresolved in real life.

**Psychiatric co-morbidities and functioning**

Medically unexplained pain is known to be associated with increased anxiety and depressive disorders [5, 15, 16]. 44% children in this study had no such co-morbidity (Table – IV). Functional nature of pain in such cases is difficult to establish and confirm. It would need enough expertise and experience even in qualified psychiatrists. Such pain has been called “idiopathic” in a study on 300 children with chest pain, in which 63.4% had such idiopathic pain [20]. Co-morbid diagnosis of conversion disorder was made in only one patient. Rare co-occurrence of somatoform and dissociative disorder is reported by Dr Malhotra in her study on 118 patients [21]. Depression in adults is often associated with functional pain symptoms. In 17 out of 59 children (28.8 %), mild depressive episode was detected (Table – IV). The diagnosis was made clinically with ICD -10 diagnostic criteria for research. Other disorders were mainly belonging to neurotic spectrum and five had Attention Deficit Hyperactivity Disorder.

Parents of these children suffer poor health and emotional disorders more commonly than the general population [3]. So also, these children with Somatization often have history of maltreatment from parents [22], which has been subtly reported by children in this study. In this study, psychopathology in parents could be detected in 27 (45.8%) of the patients.

**Management implications**

The diagnosis of somatoform pain disorder is
Psychosocial Morbidities In Children With Medically Unexplained Pain Symptoms: A Study From India

difficult to establish and confirm especially in the case of children. The risk of developing organic condition does remain, as in the case of any other child. These children often have high levels of anxiety. These may cause exacerbation of existing physical vulnerabilities leading to organic pain as in acid peptic disease (abdominal pain, headache), exacerbation of asthma (chest pain) and so on. Use of unwarranted medications like NSAIDs in these cases may also pose a risk to health of a child. Identifying the importance of underlying psychogenic etiology is thus imperative.

The pain had significantly affected functioning of the child. CGAS scores point to moderate interference in global functioning of the child, which improved after treatment (Table 3). Thus intervention by mental health specialists was helpful and effective. Relational functioning was severely affected in many families, but 30% variation (CV) was seen. Some families seem to have severe interpersonal problems, whereas some are unaffected. Though child’s functioning improved to some extent with treatment, improvement in GARF score was not observed. Perhaps, improving GARF score is a long term task, necessitating ongoing psychological inputs.

Parents of these children are often suffering various physical and mental health problems, which should be managed for better and lasting recovery of these children. Differences in clinical presentation and effective management were noted across varying intellectual levels, which has been described by authors in an earlier paper [23].

A model for management of Pediatric Somatization has been recommended by Campo J and Fritz G (2001) and by Kazia [5,24], which highlights the complexities and multiple dimensions of management of these cases. There is need of a similar model to be developed and adapted for Indian setting, by undertaking a bigger long term study.

**Conclusion**

Medically unexplained pain in children is a common and complex problem to manage, often chronic, and causing significant dysfunction for the child. Psychiatric co-morbidities were seen in 55.9% of these children in this study, depressive and neurotic disorders being most common in addition to somatoform pain disorder. This result is comparable to other studies conducted outside India. Parents often suffered psychopathology, necessitating their treatment along with the child. Familial adversities, separation and interpersonal problems were the most frequently reported stressors, followed by academic problems. Stress experienced was often subtle and unrecognized by patient, relatives and clinicians alike. Treatment was effective, especially in improving functioning of child emphasizing the importance of identification and management of these cases.

**Acknowledgement**

We gratefully acknowledge support and encouragement received from Dr M. R. Ghate, Professor and head, Department of Psychiatry. We extend our sincere thanks to department of Pediatrics of this institute for vital help in data collection for this study.

**Disclosure**

The authors report no proprietary or commercial interest in any product mentioned or concept discussed in this article.

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Received: 17 February 2014

Accepted: 25 April 2014
Objectives: The aims of the study were to investigate whether Sudarshan Kriya (SK), a form of Yoga and related practices can lead to increased Global Assessment of Functioning (GAF) and increased feeling of wellness in patients with substance dependence. Method: This was a 3-month single blind parallel randomized controlled study with sample size of 111 patients which were allocated by simple randomization to two groups. Study subjects were involved in an intensive program of Sudarshan Kriya and practices (SK&P) which they practised daily for 6 weeks. The control subjects were instructed to sit in an armchair with their eyes closed and pay gentle attention to their breath. A period sample of three months consisting of all patients admitted in De-addiction (DAC) ward fulfilling study criteria was taken. Only male patients diagnosed to be suffering from Substance Dependence by ICD-10 (DCR) criteria, aged between 18-65 years were included in this study. The assessment tools were the Basic Socio-demographic Perforama, Mini Mental State Examination (MMSE), Severity of Dependence Scale (SDS), Schedule for Clinical Assessment in Neuropsychiatry (SCAN) based clinical interview, Global Assessment of Functioning (GAF) and Psychological General Well Being (PGWB). These assessments were conducted before starting the intervention and six weeks thereafter. Results: In the final analysis, number of participants analyzed in the study group was 55 and in the control group was 56. Majority of subjects were unemployed, married individuals who did not have occupational skills of more than skilled labour level. After six weeks of SK&P, statistically significant improvement in study subject dimensional scores of GAF (48.43+/-.08 to 66.77+/-.014), Anxiety (ANX) (9.64+/-.0.52 to 15.66+/-.0.38), Depressed Mood (DEP)(7.19+/-.0.2 to 9.18+/-.0.37), Positive Well Being (PWB)(10.28+/-.0.61 to 12.92+/-.0.73), General Health (GH)(7.74+/-.0.18 to 9.75+/-.0.22) and Total PGWB(41.46+/-.0.35 to 59.28+/-.0.63) were noticed. However, when compared with control subjects, improvement was statistically significant in the case of GAF (p=0.000158), Anxiety (ANX)(p=0.011), Positive Well Being (PWB)(p=0.02), General Health (GH)(p=0.02) and Total PGWB(p=0.05); but not in the case of Depressed Mood (DEP), Self Control (SC) and Vitality. Conclusion: Practicing SK&P helps in improving Global Assessment of Functioning, Psychological General Well Being, General Health (GH) and positive well being of an individual. SK&P also causes significant reduction in anxiety levels of an individual. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 28-37.

Keywords: Sudarshan Kriya, Substance Dependence, Patients
Sudarshan Kriya For Male Patients With Psycho Active Substance Dependence: A Randomized Control Trial

Introduction

Sudarshan Kriya and Practices (SK&P) are derived from the Yogic Science of Breath derived from Vedic texts. Sudarshan Kriya Yoga (SKY) is a procedure that involves essentially rhythmic hyperventilation at different rates of breathing. [1] This breathing technique is practised by millions worldwide. It is claimed to be effective in improving well being and peace of mind. In practitioners of SK&P, significant increase in mental alertness (beta activity) was observed in the left frontal, parieto-occipital and midline regions of the brain, as compared to controls [2]. According to Sharma et al (2003) [3], significant greater antioxidant production and lower blood lactate level in practitioners of SK&P might contribute to greater resilience to stress in daily life.

SK&P has been most widely studied in depression: 68% patients suffering from dysthymia[2] and 73% patients suffering from melancholic depression[4] showed remission. SK&P takes 3 weeks in showing its antidepressant effects [4] and in patients suffering from dysthymia and melancholic depression, after 90 days of using SK&P, P300 Evoked Response Potential (ERP) amplitude readings returns to normal.[5] SK&P although inferior to Electro-Convulsive Therapy (ECT) can be a potential alternative to drugs in melancholia as a first line treatment [1]. SK&P also has ‘remarkable therapeutic effects’ in treating dysthymia and may be a more acceptable and efficacious alternative to medical management of dysthymia for both acute treatment and relapse prevention. It has the advantage of fostering the patient’s autonomy and self reliance besides cutting health care costs [6].

The practice of yoga relaxation has been found to reduce tension and anxiety. The autonomic symptoms of high anxiety such as headache, giddiness, chest pain, palpitations, sweating and abdominal pain respond well [7]. Benefits of SK&P as potentially valuable adjunct to standard pharmacotherapy is also shown in patients with Generalized Anxiety Disorder (GAD) or treatment resistant GAD, with response rate of 73% and the remission rate of 41% as measured on the Hamilton Anxiety Rating Scale (HAM-A). [8] Findings were replicated in dual diagnosis cases also, in a randomized, controlled study of 60 hospitalized alcohol dependent patients enrolled in a residential treatment programme. Those treated with SK plus standard treatment had significantly greater reductions in depression, anxiety, and cortisol than patients given standard treatment and rehabilitation alone.[9] SK&P also helped to reduce tobacco use in 21% of the individuals at 6 months of practice.[10]

Some of the problems in studying efficacy of SK&P in substance dependence have been (a) it is only in recent times that a consensus has emerged for the definition of dependence disorders. The studies carried out until recently have employed variable definition of dependence disorder; (b) Other sources of variation include variable expertise of therapist, sampling techniques, geographical variations, and time period of the study. Aims of the study were to investigate whether SK&P can lead to increased GAF and feeling of wellness in patients with substance dependence.

Method

This is a single blind parallel randomized controlled study. The study was conducted at Central Jail Hospital (CJH), New Delhi which is the largest prison hospital setting in India with both inpatient and outpatient departments. The study period was 3 months (between 11/2/13 to 10/5/13). The study was approved by the Ethics review committee at CJH. One investigator uninvolved in the treatments or assessments generated random numbers for 116 patients to be allocated to two groups in equal numbers with allocation ratio of 1:1. All patients admitted in De-addiction (DAC) ward fulfilling study criteria were taken. The sample size was decided on the basis of the number of male patients suffering from substance dependence admitted in DAC ward for more than six weeks since the previous year.

Study subjects were involved in an intensive program of SK&P which they practised daily for 6 weeks. A certified SK&P (trained at Art of Living) teacher taught the procedure to all
patients throughout the course of treatment. Only SK&P therapist in the study were informed to start the corresponding intervention; the rest of the research team was unaware of the current group allocation. All participants signed consent forms and they were treated according to the ethical guidelines of Helsinki in 1995 (as revised in Edinburgh 2000). Participants at time of inclusion in study signed informed consent form. Participants continued to receive pharmacological therapy that was unchange during the study. The assessment tools were applied in the order starting from the Basic Socio-demographic Proforma, Mini Mental State Examination (MMSE), Severity of Dependence Scale (SDS), Schedule for Clinical Assessment in Neuropsychiatry (SCAN) based clinical interview, Global Assessment of Functioning (GAF) and Psychological General Well Being (PGWB). These assessments were conducted before starting the intervention and six weeks thereafter. Confidentiality and privacy were maintained throughout the assessment process. Assessment of all subjects took place in DAC ward of CJH. As pre-decided trial was stopped after three months due to non availability of trained SK therapist, SK sessions were continued by some group volunteers who were trained to take SK sessions.

Male patients suffering from Substance Dependence as diagnosed by ICD-10 (DCR) criteria of age group between 18-65 years were included in the study.

Those inmates with ongoing psychiatric disorder except Substance Dependence, co-morbid severe physical illness (like hepatic encephalopathy, severe debilitating illness) or severe cognitive illness (with MMSE score <23) that might have hampered either the assessment process or practising of SK&P were excluded from the study. Patients who were found to be uncooperative for the interview for study purposes, as per the clinical judgment of the researchers, were also excluded from the study.

Procedure followed during Sudarshan Kriya: In study subjects, SK&P were applied in order of (a) Three stage Pranayama with Vijjayi or Victory Breath; (b) Three sets of Bhashrika or Bellow’s Breath; and (c) SK or the Healing Breath Technique.[11]

The breathing practices were done in a sitting posture on the floor. Eyes and mouth were kept closed while breathing through the nose throughout the sessions. Vijjayi is a slow, deep breathing technique at 4 to 6 breaths per minute. Person employs arm postures, a specific ratio for the duration of inhalation and exhalation phases and breath-holds. During SK&P, this is practised for approximately 8 min. Vijjayi tends to be calming and to produce a sense of well-being. Bhashrika involves forceful rapid deep breathing through the nose at a rate of 20 to 30 breaths per minute. Three one minute rounds of Bhashrika are each followed by 30 seconds of normal breathing. Arm movements are used to increase the force and depth of respiration. This breathing exercise lasts for approximately 5 minutes. Rhythmic breath technique (SK) involves rhythms, cyclical forms of breathing in which there are no pauses between inhalation and exhalation. SK involves multiple rounds of slow (8-14 respiratory cycles per minutes), medium (40-50 respiratory cycles per minute) and fast (60-100 cycles per minute) cycles with varying rhythms and intensities SK lasts about 10 minutes. For similar duration the control subjects were instructed to sit in an armchair with their eyes closed and pay gentle attention on the breath.

Instruments used in study

Basic Socio-demographic Proforma: Socio-demographic characteristics such as age, sex, marital status, education, occupation, employment status, religion, residence, and family history of psychiatric illness and substance/alcohol use were recorded.

The Mini- Mental State Examination (MMSE): The MMSE is a 30-point questionnaire, used to rule out cognitive deficits in the study subjects. [12] Severe cognitive illness (with MMSE score <23) that might have hampered either the assessment process or practising of SK&P were excluded from the study. Hindi translation of MMSE [13] was used in participants who were unable to understand English.
Global Assessment of Functioning Scale (GAF): The GAF is a 100 point scale which is sub-divided into 10 equal 10 point intervals. Patients with 81 to 90 and 91 to 100 intervals exhibit superior functioning; 71 to 80 intervals are for persons with minimal psychopathology. Most patients in outpatient settings will receive ratings between 31 and 70 and most inpatients between 1 and 40. [14]

Psychological General Well Being Schedule (PGWB): The PGWB scale has 22 items that are aggregated to provide scores in six subscales. The scale, a self administered questionnaire, includes both positive and negative questions with a time frame and a six point response representing intensity or frequency for the first 14 questions. The last four questions use a 0 to 10 rating. [15]

Schedule for Clinical Assessment in Neuropsychiatry (SCAN): The exclusion of the psychiatric morbidity in subjects was performed by a SCAN based clinical interview in which clinical interview was conducted on the line of various sections of SCAN to enhance the thoroughness of clinical interview. [16]

The Severity of Dependence Scale (SDS): The SDS scale was used to rate severity of substance dependence in individuals. It is a 5-item scale that measures the degree of psychological dependence specifically related to the individual’s feeling of impaired control over and preoccupation and anxiety towards drug taking. Score of each item ranges from 0-3 [17]. Wherever required for better clarification, additional information from clinical records and staff observations were incorporated in the assessment process.

The data was analyzed using the statistical package for social sciences (SPSS 15.0.1) [18]. Descriptive (frequency and percentage) and inferential statistics (Chi-square test, t-test and Cohen’s effect size) were used to interpret the data.

Results

According to Table 1, mean age of study subjects was 39.3 with Standard Deviation (SD) of +/- 10.5, which was similar to mean age of control subjects of 38.8 with SD of +/- 8.3. The difference in age of study and control subjects was statistically insignificant. ($t=0.27$, $p$-value$=0.79$, Cohen’s $d=0.053$)

Majority of subjects were unemployed married individuals who did not have occupational skills of more than skilled labor level. Compliance of patients throughout course of study was high, in total there were three dropouts among study subjects and two dropouts among control subjects. Reason for dropping out of study subjects was that two subjects lost interest in SK&P and one study subject got released from prison. Among two dropouts in control subjects, one subject got released from jail and another became interested in doing SK&P prior to completion of study. No statistical difference was found between two groups in terms of socio-demographic variables.

Mean SDS score of study subject group was 10.2 +/-1.7 which was almost similar to score of 10.4+/-0.8 in control subjects. No statistically significant difference between study and control subjects scores was found ($p$-value$=0.43$, $t$-value$=0.80$, SE of difference$=0.25$, Cohen’s $d=-0.15$).
Table 1. Socio-demographic profile of study and control subjects

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean +/- SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age of study subjects in yrs.</strong></td>
<td>55</td>
<td>21</td>
<td>64</td>
<td>39.3 +/- 10.5</td>
</tr>
<tr>
<td>Age of control subjects in yrs.</td>
<td>56</td>
<td>23</td>
<td>65</td>
<td>38.8 +/- 8.3</td>
</tr>
<tr>
<td><strong>Number of Study subjects (n=55)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number of Control subjects (n=56)</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Illiterate</td>
<td>10</td>
<td>18.2</td>
<td>9</td>
<td>16.1</td>
</tr>
<tr>
<td>Under-metric</td>
<td>16</td>
<td>29.1</td>
<td>17</td>
<td>30.4</td>
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<tr>
<td>Higher Secondary</td>
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<td>32.7</td>
<td>20</td>
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<td>Graduate and above</td>
<td>11</td>
<td>20</td>
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<tr>
<td>Occupation</td>
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<td>No occupation</td>
<td>14</td>
<td>25.5</td>
<td>15</td>
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<tr>
<td>Unskilled</td>
<td>15</td>
<td>27.3</td>
<td>14</td>
<td>25</td>
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<tr>
<td>Semi-skilled worker</td>
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<td>25.5</td>
<td>13</td>
<td>23.2</td>
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<td>1.8</td>
<td>1</td>
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<tr>
<td>Professional</td>
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<td>9.1</td>
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<td>10.9</td>
<td>4</td>
<td>7.1</td>
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<tr>
<td>Employment</td>
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<td></td>
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<td>56.5</td>
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<td>Employed</td>
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<td>43.5</td>
<td>28</td>
<td>45.2</td>
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<tr>
<td>Marital status</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>35</td>
<td>56.5</td>
<td>35</td>
<td>56.5</td>
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<tr>
<td>Unmarried</td>
<td>24</td>
<td>38.7</td>
<td>20</td>
<td>32.3</td>
</tr>
<tr>
<td>Separated/Widowed</td>
<td>3</td>
<td>4.8</td>
<td>7</td>
<td>11.3</td>
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<tr>
<td>Score of Subjects on Severity of Dependence Scale (SDS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>N</td>
<td>Minimum</td>
<td>Maximum</td>
<td>Mean +/- SD</td>
</tr>
<tr>
<td>Study subjects</td>
<td>55</td>
<td>8.2</td>
<td>12.2</td>
<td>10.2 +/- 1.7</td>
</tr>
<tr>
<td>Control subjects</td>
<td>56</td>
<td>8.4</td>
<td>12.4</td>
<td>10.4 +/- 0.8</td>
</tr>
</tbody>
</table>

p-value < 0.05 considered statistically significant.

According to Table 2, after completion of 6 weeks of SK, average GAF score of study subjects increased from 48.43 to 66.77. While during 6 weeks period average GAF score in control group decreased from 49.12 to 47.55. In Anxiety, Depressed mood, PWB, Self control, General health, Vitality and Total PGWB scores, improvement in score of study subjects occurred after SK&P both when compared with Pre-SK&P scores and scores of controls.

Table 2. Global assessment of functioning score & Psychological General Well Being Schedule (PGWB) score

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Frequency of study subjects at initiation of Sudarshan Kriya (n=58)</th>
<th>Frequency of study subjects after completion of 6 weeks of Sudarshan Kriya (n=55)</th>
<th>Frequency of control subjects at initiation of Sudarshan Kriya (n=58)</th>
<th>Frequency of control subjects after 6 weeks (n=56)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>21-30</td>
<td>11</td>
<td>4</td>
<td>8</td>
<td>9</td>
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<tr>
<td>31-40</td>
<td>10</td>
<td>2</td>
<td>14</td>
<td>12</td>
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<td>41-50</td>
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<td>5</td>
<td>12</td>
<td>12</td>
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<tr>
<td>51-60</td>
<td>12</td>
<td>8</td>
<td>9</td>
<td>9</td>
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<tr>
<td>61-70</td>
<td>7</td>
<td>12</td>
<td>8</td>
<td>6</td>
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<tr>
<td>71-80</td>
<td>5</td>
<td>8</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>81-90</td>
<td>2</td>
<td>9</td>
<td>3</td>
<td>4</td>
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<tr>
<td>91-100</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mean +/- SD</td>
<td>48.43 +/-0.08</td>
<td>66.77 +/-0.14</td>
<td>49.12 +/-0.37</td>
<td>47.55 +/-0.17</td>
</tr>
</tbody>
</table>

Mean +/- SD
According to Table 3, difference between pre and post intervention scores of GAF, Anxiety (ANX), Depressed Mood (DEP), Positive Well Being (PWB), General Health (GH) and Total PGWB in study subjects as compared with control subjects was statistically significant. However, difference between pre and post intervention scores of Self Control (SC) and Vitality in study subjects was not statistically significant.

Difference between post SK&P scores of GAF, Anxiety (ANX), Positive Well Being (PWB), General Health (GH) and Total PGWB in study subjects as compared with control subjects was statistically significant. However, difference between post SK&P scores of Depressed Mood (DEP), Self Control (SC) and Vitality in study subjects as compared with control subjects was not statistically significant.
Table 3. Chi-square test results for GAF and PGWB scores in study and control subjects

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Results of Statistics application on pre and post intervention values in study subjects</th>
<th>Results of Statistics application on pre and post intervention values in control subjects</th>
<th>Results of Statistics application on post intervention values in study and control subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\chi^2$ value; degree of freedom; p-value</td>
<td>$\chi^2$ value; degree of freedom; p-value</td>
<td>$\chi^2$ value; degree of freedom; p-value</td>
</tr>
<tr>
<td>GAF</td>
<td>23.937; 4; 0.0002575*</td>
<td>-160.85</td>
<td>1.152; 4; 0.886</td>
</tr>
<tr>
<td>Anxiety (ANX)</td>
<td>19.601; 4; 0.0008*</td>
<td>-13.22</td>
<td>0.304; 4; 0.99</td>
</tr>
<tr>
<td>Depressed Mood (DEP)</td>
<td>7.306; 2; 0.03*</td>
<td>-6.69</td>
<td>0.014; 2; 0.993</td>
</tr>
<tr>
<td>Positive Well Being (PWB)</td>
<td>8.53; 3; 0.04*</td>
<td>-3.92</td>
<td>0.396; 3; 0.94</td>
</tr>
<tr>
<td>Self Control (SC)</td>
<td>4.233; 2; 0.12</td>
<td>-4.36</td>
<td>0.233; 2; 0.89</td>
</tr>
<tr>
<td>General Health (GH)</td>
<td>6.791; 2; 0.03*</td>
<td>-10</td>
<td>0.127; 2; 0.94</td>
</tr>
<tr>
<td>Vitality</td>
<td>4.288; 3; 0.23</td>
<td>-2.77</td>
<td>1.414; 3; 0.70</td>
</tr>
<tr>
<td>Total PGWB</td>
<td>10.896; 4; 0.03*</td>
<td>-35</td>
<td>0.906; 4; 0.92</td>
</tr>
</tbody>
</table>

* p-value less than 0.05 considered statistically significant.

Discussion

Period for doing SK&P was set at 6 weeks because according to an earlier study, percentage of patient experiencing remission in depression was similar at one month and three months after initiation of SK&P. [6] Also neither severity of depression nor severity of biological dysfunction influenced the quick response time or degree of effectiveness of SK&P. Antidepressant effect of SK&P are exerted in about 3 weeks. [4]

The rationale of excluding psychiatric disorder except substance dependence cases from current study was that patients with psychiatric disorder, severe borderline pathology or difficulty maintaining a sense of reality should not undertake SK&P programme and training. [19-20] as incorrect technique or the overuse of SKY breath practices beyond the prescribed time limits can cause dizziness, lightheadedness, irritability, euphoric states, or psychosis in vulnerable patients, particularly those with bipolar disorder, dissociative disorders, or schizophrenic spectrum illnesses. [21] While cases with severe medical comorbidity were excluded because patients with high blood pressure, cerebral vascular disease, or migraine may not tolerate breath holding, Bhasrika, or head-down postures. Also, practising unmodified pranayama can lead to occurrence of risk of seizure in patients with epilepsy [22]. Improvement in anxiety scores of study subjects both when compared with pre-study scores and when compared with post study control scores was consistent with findings of earlier studies that yoga programs that include yoga postures and meditation have shown benefits in medical patients with anxiety disorders [23], and medical students with examination anxiety [24].

In the current study, in terms of Depressed mood (DEP) though there was increase in study subject score but when compared with control subjects, increase was found to be statistically insignificant. The findings are different from earlier study finding of among normal population SK&P leading to reduction in dysthymia in 68% and melancholic depression in 73% individuals.[2] Authors did not come across any study on substance using prison population to compare current study findings with. Earlier study finding of SK&P leading to reduction in both anxiety and depression levels differed from current finding of improvement in score only being significant in anxiety level [9]. But above mentioned study was only done in alcohol dependent patients and SK&P was only done for 15 days. Also subjects were included in study only after
seven days of detoxification while studies have demonstrated that transient mental disorder symptoms like anxiety and depression can be present during the withdrawal period, which resolves within four weeks. Thus antidepressant medication should not be considered prior to 4 weeks of abstinence [25-27]. In tobacco use cases 21% individuals benefited from 6 months of SK&P [10].

In current study no statistically significant improvement in self control was observed while in an earlier 4 month pilot study on juvenile offenders found that those given SK&P training for 1 week (20–25 hours) in the Prison Smart Program followed by 30 minutes of guided meditation and pranayama 3 nights per week showed significant overall reduction in anxiety, anger, reactive behaviour, and fighting [28].

Finding reason of improvement in GAF and total PGWB scores of study subjects was beyond the scope of this study. Brown et al (2005) had earlier stated that SK&P may work by activating vagal afferents to the nucleus tractus solitaries, the parabrachial nucleus, thalamic nuclei, the cerebral cortex and mesolimbic areas. Activation of the limbic system, hippocampus, hypothalamus, amygdale and stria terminalis may improve autonomic functions, neuroendocrine release, emotional processing and social bonding [11]. Some or all of these factors might be responsible for improvement in GAF and PGWB scores. In the study, any reason for decrease in control subjects of average PGWB score in Total, Self Control and General Health sub-domains could not be ascertained. One advantage which SK&P has over other biological treatments is being free of expense and dependency that other treatments can create. High SDS scores in current study is similar to earlier study finding of prison population having high prevalence of two or more substances in various combinations [29].

While low PGWB scores found in current study is consistent with earlier study finding of high level of syndromal and subsyndromal psychiatric morbidity being associated with psychoactive substance dependence [30]. Limitations of the study include generalizability. This was a hospital based study conducted on male prisoners and the results cannot be applied to the general population, women, and children.

Conclusion

In this prison hospital sample of 111 patients, the following conclusions were drawn. Practicing SK&P helps in improving Global Assessment of Functioning (GAF), Psychological General Well Being (PGWB), General Health (GH), and Positive Well Being (PWB) of an individual. SK&P also causes significant reduction in anxiety levels of an individual.

Acknowledgement

We gratefully acknowledge the help provided by Central Jail staff, especially Ms. Vimla Mehra (Director General, CJ). The Office of Director General granted permission to publish this paper but it should be emphasized that the opinion expressed belong to us and do not necessarily imply official agreement. We also want to thank Sri Sri Sri Ravi Shankar Ji, founder of Art of Living Foundation whose divine blessings were essential for conducting this study.

References


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Received: 18 December 2013 Accepted: 27 May 2014
NEUROPSYCHIATRIC COMPLICATIONS IN LIVER TRANSPLANT PATIENTS IN A TERTIARY HOSPITAL IN SINGAPORE

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Abstract

Objective: The aims of the study were to investigate the percentage, types and presentations of neuropsychiatric complications in liver transplant patients in the Singapore General Hospital and discuss relevant diagnostic and therapeutic issues. Methods: Case notes and electronic medical records were accessed in order to identify patient characteristics and outcomes, and documentation of the various teams involved. Results: The percentage of liver transplant patients who developed neuropsychiatric complications was 15.6% (10 out of 64 patients). This ties in with figures in the literature but was likely to have been higher. Conclusion: Neuropsychiatric complications post-liver transplantation can manifest in a multitude of ways and at various time-points which makes detection and management challenging. Given the impact these have on patient and transplant outcome, it is important to have vigilance, timely intervention, and close collaboration between disciplines. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 38-49.

Keywords: Liver Transplantation, Neuropsychiatry, Consultation-Liaison Psychiatry, Delirium

Introduction

The prevalence of neuropsychiatric complications in liver transplant patients ranges from 8.3% to 64.5% [1-5]. Such complications include delirium, brief psychotic disorder, major depression, mania, adjustment disorder, anxiety, post-traumatic stress disorder, seizures, cerebrovascular disorders, insomnia, migraine, vertigo, movement disorders and peripheral neuropathy [1-3]. This study investigates the percentage, types and presentations of neuropsychiatric complications noted in liver transplant patients for whom psychiatric referrals were made since the inaugural liver transplant at the Singapore General Hospital. Diagnostic and therapeutic issues are then raised. It is hoped that this highlights the importance of monitoring for a range of symptomatology in order to optimise post-transplant outcomes.

Methods

A total of 64 patients underwent liver transplantation at the Singapore General Hospital between 15th February 2006 and 7th March 2013 inclusive. As part of the pre-transplantation assessment, all patients were interviewed by consultant psychiatrists with an interest in transplantation psychiatry, and any new psychiatric diagnosis which was made according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) or past psychiatric history obtained
Neuropsychiatric Complications In Liver Transplant Patients In A Tertiary Hospital In Singapore

from records was detailed in the assessment form. Post-transplantation, 10 patients required psychiatric referral. Details of the liaison consultations and DSM-IV diagnoses made by the attending trained psychiatrists were documented in case notes.

For this case series, case notes and electronic medical records of the 64 patients were studied in order to identify patient characteristics and outcomes. Ethical approval was obtained from the Centralised Institutional Review Board. No consent was obtained as it was a retrospective study accessing patient records with no patient contact. There are no identifying patient details in this paper, such as names or specific individual socio-demographic profiles, and hence it is not possible for anyone to identify the patients and lead to any breach of confidentiality.

Results

Ten of the 64 patients (15.6%) had psychiatric referrals either in the immediate post-operative period or during subsequent follow-up with the transplant team. Tables 1–4 detail characteristics and outcomes of the 64 patients.

Table 1. Social demographics of transplant recipients

<table>
<thead>
<tr>
<th></th>
<th>All Recipients (n=64)</th>
<th>With neuropsychiatric complications (n=10)</th>
<th>Without neuropsychiatric complications (n=54)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at liver transplant (years)</td>
<td>Mean 55.0 Range 26 – 71</td>
<td>Mean 57.6 Range 42 – 71</td>
<td>Mean 54.5 Range 26 – 68</td>
</tr>
<tr>
<td>Sex</td>
<td>Male 43 Female 21</td>
<td>Male 5 Female 5</td>
<td>Male 38 Female 16</td>
</tr>
<tr>
<td>Race</td>
<td>Chinese 54 Malay 3 Indian 3 Others * 4</td>
<td>Chinese 7 Malay 1 Indian 2 Others * 0</td>
<td>Chinese 47 Malay 2 Indian 1 Other * 4</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married 53 Single 4 Divorced 3 Widowed 1 Unknown 3</td>
<td>Married 8 Single 1 Divorced 0 Widowed 0 Unknown 1</td>
<td>Married 45 Single 3 Divorced 3 Widowed 1 Unknown 2</td>
</tr>
<tr>
<td>Occupational status pre-transplant</td>
<td>Employed 31 Non-employed 4 Retired 16 Homemaker 7 Unknown 6</td>
<td>Employed 1 Non-employed 2 Retired 3 Homemaker 3 Unknown 1</td>
<td>Employed 30 Non-employed 2 Retired 13 Homemaker 4 Unknown 5</td>
</tr>
<tr>
<td>Donor</td>
<td>Living 15 Deceased 49</td>
<td>Living 3 Deceased 7</td>
<td>Living 12 Deceased 42</td>
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</tbody>
</table>

*2 Burmese; 1 Eurasian; 1 Sikh
Table 2. Diagnoses of transplant recipients

<table>
<thead>
<tr>
<th>Liver disease aetiology with</th>
<th>All Recipients (n=64)</th>
<th>With neuropsychiatric complications (n=10)</th>
<th>Without neuropsychiatric complications (n=54)</th>
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</thead>
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<tr>
<td>Autoimmune cholangiopathy</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Primary biliary cirrhosis</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>6</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>29</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Alcohol</td>
<td>5</td>
<td>0</td>
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</tr>
<tr>
<td>Cryptogenic</td>
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<td>Drug</td>
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<td>Primary sclerosing cholangitis</td>
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<td>1</td>
</tr>
<tr>
<td>Familial amyloidotic polyneuropathy</td>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Citrullinaemia</td>
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<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Non-alcoholic steatohepatitis</td>
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<td>1</td>
</tr>
<tr>
<td>Hepatocellular carcinoma</td>
<td>31</td>
<td>2</td>
<td>29</td>
</tr>
</tbody>
</table>

*MELD * score †

<table>
<thead>
<tr>
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<th>Mean</th>
<th>With neuropsychiatric complications</th>
<th>Without neuropsychiatric complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>16.8</td>
<td>19.7</td>
<td>16.1</td>
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<tr>
<td>Range</td>
<td>6 – 43</td>
<td>8 – 35</td>
<td>6 – 43</td>
</tr>
</tbody>
</table>

*Model for End-stage Liver Disease
†At point of evaluation for liver transplantation. For patients with hepatocellular carcinoma (HCC), the unadjusted score was used (all cases with HCC had an adjusted MELD score of 15).
### Table 3. Past history of transplant recipients

<table>
<thead>
<tr>
<th></th>
<th>All recipients (n=64)</th>
<th>With neuropsychiatric complications (n=10)</th>
<th>Without neuropsychiatric complications (n=54)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past psychiatric history</td>
<td>7</td>
<td>2 *</td>
<td>5 †</td>
</tr>
<tr>
<td>Past suicide attempt</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Cigarette use</td>
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<td></td>
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</tr>
<tr>
<td>Current smoker</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Ex-smoker</td>
<td>16</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>36</td>
<td>4</td>
<td>32</td>
</tr>
<tr>
<td>Unknown</td>
<td>9</td>
<td>2</td>
<td>7</td>
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<tr>
<td>Alcohol use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of whom were formally diagnosed with alcohol use disorder</td>
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<td>4 0</td>
<td>19 1</td>
</tr>
<tr>
<td>None</td>
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<td>3</td>
<td>27</td>
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<tr>
<td>Unknown</td>
<td>11</td>
<td>3</td>
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</tr>
<tr>
<td>Illicit drug use</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Prednisolone use pre-transplant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>51</td>
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</tr>
<tr>
<td>Unknown</td>
<td>9</td>
<td>0</td>
<td>9</td>
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<tr>
<td>Other immunosuppressant use pre-transplant</td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>53</td>
<td>9</td>
<td>44</td>
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<td>Unknown</td>
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<td>9</td>
</tr>
</tbody>
</table>

*Diagnoses were: psychotic depression; adjustment disorder of depressive subtype.
†Diagnoses were: depression; adjustment disorder of depressive subtype; adjustment disorder of anxious subtype; depression; alcohol dependence.
### Table 4. Outcomes of transplant recipients

<table>
<thead>
<tr>
<th></th>
<th>All Recipients (n=64)</th>
<th>With neuropsychiatric complications (n=10)</th>
<th>Without neuropsychiatric complications (n=54)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of hospitalisation (days)</strong> *</td>
<td>Mean: 19, Range: 5 – 81</td>
<td>24, 10 – 47</td>
<td>18, 5 – 81</td>
</tr>
<tr>
<td><strong>Attend follow-up</strong></td>
<td>64</td>
<td>10</td>
<td>54</td>
</tr>
<tr>
<td><strong>Alcohol use relapse</strong></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Suicide attempt</strong></td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Occupational status post-transplant</strong></td>
<td>Employed: 26, Non-employed: 6, Retired: 16, Homemaker: 7, Unknown: 9</td>
<td>2, 1, 3, 3, 1</td>
<td>24, 5, 13, 4, 8</td>
</tr>
<tr>
<td><strong>Evidence of graft rejection †</strong></td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Deceased during post-operative hospitalisation</strong></td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td><strong>Deceased between after post-operative hospitalisation and present</strong></td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total deceased at present</strong></td>
<td>13</td>
<td>1</td>
<td>12</td>
</tr>
</tbody>
</table>

*Data from those (5) who passed away during that hospitalisation was omitted.
†All were successfully treated and resolved.

The 10 patients who developed neuropsychiatric complications are as follows:

1. Mdm H, a 58-year-old Chinese lady with autoimmune cholangiopathy, underwent cadaveric liver transplantation. Post-operatively she developed mild acute tubular necrosis and tacrolimus was started on Day 5 when her renal function improved. By Day 8 she was noted to be hypomanic and agitated, and experienced bad nightmares. A degree of peripheral neuropathy was also present. This lady had no past history of psychiatric illness and as tacrolimus-induced neurotoxicity was suspected, she was held off the immunosuppressant. Haloperidol was administered for three days to control her acute confusion. Cyclosporin A was started after the neurotoxic effects of tacrolimus wore off, its dose being adjusted according to its plasma levels, and Mdm H’s liver function test results. The behavioural issues resolved within the hospitalisation and no psychiatric follow-up was required. Interestingly, Mdm H also manifested opiate sensitivity between days 1 and 3, when she appeared ‘dazed’ and ‘staring’ while on low doses of opiates. These were corrected when opiates were stopped.
2. Mdm S, a 59-year-old Chinese lady with primary biliary cirrhosis, underwent cadaveric liver transplantation. On Day 4 post-operation she was found staring blankly at the ceiling. Mutism was noted. She was disoriented and a resting tremor was present. EEG did not reveal an epileptic focus and MRI of the brain was unremarkable. Blood cultures were negative. There was no past psychiatric history. Tacrolimus was stopped and cyclosporin A commenced. On Day 5 Mdm S was able to recognise people and verbalise. She described “vivid images of myself in the train and trying to stop the train or it will explode” and kept asking the nurses which train station she was in. On Day 6 she was more alert and oriented and no longer experienced the visual hallucinations. She returned to her normal mental state before discharge. Tacrolimus-induced neurotoxicity was likely.

3. Mdm T, a 54-year-old Chinese lady with autoimmune cholangiopathy, underwent living donor liver transplantation. On her third post-operative day she was observed to be staring at newspapers and chanting. She was oriented to time, place and person and answered questions calmly and rationally. Organic work-up was unremarkable. MRI of the brain was consistent with chronic hepatic encephalopathy and no infarct was seen. MRA did not reveal abnormality. EEG showed diffuse encephalopathy but no epileptiform discharge. Past psychiatric history was negative. Tacrolimus toxicity was suspected and on tailing Mdm T off tacrolimus her symptoms resolved.

4. Mr A, a 71-year-old Chinese man with hepatitis B with hepatocellular carcinoma, underwent cadaveric liver transplantation. He had no past psychiatric history. On Day 2, he was noted to be anxious and hyperventilating. On Day 4 he was acutely confused, with prominent echolalia and disorientation. No organic cause was detected and tacrolimus toxicity was surmised. Cefepime was stopped as well, in view of possible drug-induced psychosis. However the confusion persisted and Mr A was aggressive, including spitting at others, thus requiring physical restraints. Further work-up returned negative and Neurology’s impression was metabolic encephalopathy. A Psychiatry referral was also made. The impression was delirium with multiple causes – drug-induced, acute renal impairment, hepatic encephalopathy, constipation. Haloperidol was started for management of aggression. On Day 7 and Day 11 respectively, Mr A repeatedly verbalised “sex” and “thank you”. On Day 12 he remained confused and agitated and was noted to have extrapyramidal signs. Haloperidol was discontinued and olanzapine instituted. A sudden and dramatic improvement in mental status occurred the next day, whereby Mr A was alert and oriented to time, place and person. The impression was that of prolonged tacrolimus toxicity secondary to delayed clearance from poor renal function. Psychiatry prescribed olanzapine 2.5mg ON for two weeks following discharge and at outpatient follow-up, Mr A remained well.

5. Mdm R, a 59-year-old Indian lady with primary biliary cirrhosis, underwent living donor liver transplantation. She had no past psychiatric history. On Day 4, she was unable to obey commands and her eyes deviated to the right. Organic work-up was unremarkable. MRI of the brain was consistent with chronic hepatic encephalopathy and no infarct was seen. MRA did not reveal abnormality. EEG showed diffuse encephalopathy but no epileptiform discharge. Past psychiatric history was negative. Tacrolimus toxicity was suspected and on tailing Mdm R off tacrolimus her symptoms resolved.
PO voriconazole, IV linezolid, IV levofloxacin, and IV metronidazole. On Day 14, her mental status and alertness improved. On Day 21, she was referred to Psychiatry for what seemed to be hallucinations and delusions. Psychiatry’s impression was an organic psychosis. MRI brain revealed new areas of T2W hyperintensity in the right parietal cortex, right frontobasal region, right insula and left medial temporal region which, though did not show restricted diffusion or enhancement, were in the typical location for herpes encephalitis. Mdm R was kept on IV acyclovir and completed 21 days before being converted to PO prophylactic dosing. On Day 31, she became confused and disoriented, likely secondary to sepsis or congestive cardiac failure, but improved over the week and was oriented and conversant on discharge. The overall impression for Mdm R’s altered mental status was viral encephalopathy. She was prescribed levetiracetam till her follow-up with Neurology three months later.

6. Mdm L, a 63-year-old Indian lady with cryptogenic liver cirrhosis, underwent cadaveric liver transplantation. She had no past psychiatric history. On Day 6, she was found restless and attempting to climb out of bed. She was talking to herself and disoriented to time, place and person but still able to obey commands. Hypomagnesaemia was corrected. Tacrolimus was not started and imipenem was withdrawn. Neurology’s impression was encephalitis of septic or metabolic aetiology. IV acyclovir was started to cover HSV encephalitis. MRI brain and EEG were unremarkable. Septic work-up was negative. From Day 11, a gradual improvement in mental state was noted and on Day 14, Mdm L was alert, oriented, and sitting out of bed. Occasional confusion at night was noted however, and Psychiatry referral was made on Day 23. The previous night’s confusion was an isolated episode and involved Mdm L talking about her husband visiting her and Mdm L requesting nurses for bananas. There was no aggression. Since the episodes resolved spontaneously and Mdm L was well in the day, the impression was residual encephalopathy or delirium. Monitoring of behaviour was advised and tranquillisers were not recommended. She was discharged well.

7. Mr N, a 42-year-old Malay man with Hepatitis C liver cirrhosis, underwent cadaveric liver transplantation. He had no past psychiatric history. Two and a half years post-transplant, he was referred to a psychiatrist for a one-year history of low mood, anhedonia, insomnia, loss of appetite, decreased libido and worthlessness. These were predated by his failed business and the death of his mother. An earlier referral to Psychiatry had been made by the liver transplant team but he had hoped to resolve matters himself. A diagnosis of major depressive disorder was made and escitalopram 5mg ON and hydroxyzine 10mg ON prescribed. A referral to Psychology was also made. Three weeks later, Mr N reported improvements in mood and sleep. He defaulted appointments for nine months before re-presenting with recurrence of the same depressive symptoms. The same medications were restarted. Mr N defaulted follow-ups with Psychiatry since.

8. Mr W, a 50-year-old Chinese man with subfulminant liver failure from an acute flare of hepatitis B, underwent cadaveric liver transplantation. He had a psychiatric history of psychotic depression with previous drug overdose but was assessed to be stable pre-transplant. Post-operatively no psychiatric issues were encountered. Subsequently the main issue faced was non-compliance to medications, primarily due to command auditory hallucinations. Poor finances, in the form of gambling debts, and non-employment status were further stressors. His relapses resulted in several psychiatric admissions, one of which involved a suicide attempt. Compliance with Psychiatry outpatient follow-ups was also an issue. Each time on admission, the presenting complaint would be low mood associated with anhedonia, insomnia, poor appetite, poor concentration, worsening auditory hallucinations, and
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passive suicidal thoughts. Psychosocial strategies were taught to Mr W to help reinforce goals, improve compliance and manage certain symptoms, and his psychotropics were titrated.

9. Mr T, a 53-year-old Chinese man with hepatitis B and alcoholic liver cirrhosis, underwent cadaveric liver transplantation. Two months prior to transplantation he was diagnosed with adjustment disorder, depressive subtype, which was resolving. The post-operative hospitalisation was unremarkable. Nine days following discharge, he was referred for a Psychiatry outpatient consult for altered behaviour since the second day at home. His wife reported memory decline and poor sleep. He was delusional that a female bus passenger had sexually assaulted him. On three occasions, he emerged from the bathroom naked claiming he had dressed up and only mimicked so when instructed. Aggression or mood symptoms were absent and hallucinations denied. Haloperidol 0.5mg BD was prescribed for two weeks and a Neurology outpatient consult was attended on the same day. Neurological examination, labs and brain MRI were unremarkable. Mr L was no longer confused at Psychiatry follow-up two weeks later and he was discharged. This was a case of undetermined diagnosis.

10. Mr Y, a 67-year-old Chinese man with hepatitis B with hepatocellular carcinoma, underwent living donor liver transplantation. He had no past psychiatric history. Post-operatively, he was admitted to the surgical intensive care unit (SICU) for ventilatory support and on discharge to the ward a Psychiatry referral was made as he had verbalised suicidal ideations. Unfortunately, extreme drowsiness made assessment difficult and no diagnosis was made. Mr Y was re-admitted to the SICU and passed away a week later from septic shock.

Of these 10 patients who manifested neuropsychiatric complications, 4 had a diagnosis of tacrolimus toxicity and 2 of encephalopathy (making a total of 6 of delirium), 2 of psychiatric sequelae and 2 of undetermined aetiology.

Discussion

Delirium

As in other studies [1-3, 5-8], the most common neuropsychiatric complication was delirium (6 out of 10 cases). Delirium can stem from a multitude of factors [1, 2], and identifying and treating it early is a common challenge [9]. It is important because disturbed behaviour can compromise patient and staff safety and delirium is a poor prognostic factor [4, 6, 7], being associated with an almost doubled risk of remaining in hospital, quadrupled risk of dying in hospital, and almost thrice the rate of death by one year [10]. In this study, mean hospitalisation duration was longer amongst those with neuropsychiatric complications than without (24 versus 18 days).

Encephalopathy

As much as a working postulate is made, the presentation of encephalopathy is very diverse and its precise cause is often multifactorial [11], involving a combination of aetiologies such as immunosuppressant toxicity, electrolyte or metabolic disturbance, infection, and organ failure. A willingness to review the patient and reconsider other hypotheses is needed.

Immunosuppressant

Immunosuppressant toxicity is recognised as a significant contributor to post-transplant neuropsychiatric complications [3, 4, 9, 12, 13] and recipients of liver transplants, as opposed to other organ transplants, are more susceptible [12]. Large centres found 25-40% of them manifesting some extent of cyclosporine or tacrolimus neurotoxicity [13]. In particular, tacrolimus toxicity might be more common than cyclosporine [1, 2], though some studies did not find this trend [2]. In our setting, tacrolimus was the immunosuppressant of choice and patients who were thought to have symptoms arising from tacrolimus toxicity were switched to cyclosporine, with symptom resolution. Symptoms of cyclosporine or tacrolimus neurotoxicity are wide-ranging and non-specific in nature [1, 2, 4, 13]. Possible factors in the pathogenesis of neurotoxicity include:
binding to neuroprotective intracellular proteins called immunophilins which are present throughout the central nervous system [2, 4]; endothelial dysfunction of the blood-brain barrier [1, 2, 4]; hypomagnesaemia [1, 4]; hypocholesterolaemia [1, 4]; hypoalbuminaemia [1]; hypertension [4]; pre-existing central nervous system damage [1]. Plasma drug levels poorly predict neurotoxicity which sometimes can only be surmised upon symptom resolution after drug discontinuation [2, 4].

Symptom onset
Of the 10 cases, 7 presented during hospitalisation post-operatively. These included all 6 cases of delirium and almost all presented in the first week. It is known that most neuropsychiatric complications occur early after surgery, usually within a month, and increases mortality risk [3, 4, 6, 7]. Mr Y’s case highlights the possibility of depression developing in the immediate post-operative period.

One case of depression presented a year post-transplant (Mr N) and while it is difficult to ascertain the relative contributions of transplant-related biologic factors and psychosocial stressors, vigilance for late neuropsychiatric presentations remains important. The case of psychotic depression (Mr W) relapsed post-discharge. Lastly, a case of behavioural change post-discharge (Mr T) reveals yet another window in which psychiatric symptoms can manifest. Despite the lack of diagnosis, relevant investigations were made and haloperidol was sufficient to resolve symptoms. The importance of corroborative history from the family in identifying post-operative issues and of expedient management of oftentimes quick-evolving problems in this vulnerable patient group is exemplified here.

Relation between liver disease aetiology and neuropsychiatric complications
It is interesting that the patient with depression had hepatitis C liver cirrhosis. Higher incidences of depression are reported in patients transplanted for hepatitis C [1]. Hypotheses include side-effects of interferons [14], HCV recurrence [15], history of substance abuse, neuroendocrine changes, and direct HCV neuroinvasion [2].

Relation between liver disease severity and neuropsychiatric complications
In this case series, the mean Model for End-stage Liver Disease (MELD) score of patients who developed neuropsychiatric complications was higher than of non-cases (19.7 versus 16.1). A study investigating predictors of post-operative neurological complications found that the latter are best predicted by pre-transplant hepatic encephalopathy [8].

Psychosis
Mr W, with a history of psychotic depression, was deemed suitable for transplant because his psychiatric symptoms were stable pre-operatively. His relapses post-transplant point towards a need for tight psychiatric monitoring and input. If carefully selected and well-managed, such patients need not fare worse in terms of transplant outcome [16, 17]. Important considerations are compliance with medical and psychiatric follow-up, sufficient social (especially in-residence) support, and ability to form a working relationship with the transplant team, while risk factors for non-compliance post-transplantation include antisocial or borderline personality, history of assault, positive psychotic symptoms, dwelling alone, and family history of schizophrenia, with post-transplant non-compliance being found to be similar to that in general transplant populations [18].

Alcohol
Twenty-three of our 64 recipients had an alcohol history, one of whom was formally diagnosed with alcohol dependence. All of them complied with transplant protocol and quit alcohol. Post-transplant, one resumed drinking (not the person with previous alcohol dependence) but was noticed by his wife and managed to stay off alcohol with further advice from the team. This post-transplant recidivism rate of 4% compares favourably with that in the literature, which ranges from 8% to 60% depending on time-scale and extent of drinking [19-21]. Nevertheless, in both U.S. and European programmes, post-transplant alcohol use leading to premature death or graft failure is rare, with surgical outcomes and long-term survival of recipients with alcoholic liver disease, even the heaviest drinkers, equaling that of other aetiologies [20]. Also, family dedication to transplantation and medical factors were better outcome
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predictors, including of alcohol resumption, than pre-transplant sobriety duration [21]. Furthermore, alcoholic cirrhosis per se was found not to be a risk factor for post-operative neurological complications. Instead, pre-existing or active hepatic encephalopathy or abnormal neurological examination pre-transplantation was found to be key [2, 7, 8]. Table 5 details outcomes of our patients with and without alcohol history.

Table 5. Outcomes of transplant recipients with and without alcohol history

<table>
<thead>
<tr>
<th></th>
<th>With alcohol history (n=23)</th>
<th>Without alcohol history (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of hospitalisation (days) *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>Range</td>
<td>9 – 31</td>
<td>5 – 81</td>
</tr>
<tr>
<td>With psychiatric referral</td>
<td>4 (17.4%)</td>
<td>3 (10.0%)</td>
</tr>
<tr>
<td>Deceased during post-operative hospitalisation</td>
<td>2 (8.70%)</td>
<td>2 (6.67%)</td>
</tr>
<tr>
<td>Deceased between after post-operative hospitalisation and present</td>
<td>0 (0%)</td>
<td>4 (13.3%)</td>
</tr>
<tr>
<td>Total deceased at present</td>
<td>2 (8.70%)</td>
<td>6 (20.0%)</td>
</tr>
<tr>
<td>Evidence of graft rejection †</td>
<td>1 (4.35%)</td>
<td>5 (16.7%)</td>
</tr>
<tr>
<td>Alcohol relapse</td>
<td>1 (4.35%)</td>
<td>NA</td>
</tr>
</tbody>
</table>

*Data from those (5) who passed away during that hospitalisation was omitted.
†All were successfully treated and resolved.

Stigma
Mr N’s preferential follow-up with the transplant team but not the psychiatrist for his depression might be due to stigma associated with psychiatric consultation. Accordingly, better communication between the two disciplines would be ideal. It also shows how crucial psychological or psychiatric monitoring is at follow-ups – firstly, it aids the psychiatrist in monitoring the patient’s symptoms, stressors and treatment response; secondly, it better identifies patients at risk of developing psychiatric conditions as in Mr N’s case where depression developed a year post-transplant.

Psychiatric input is also valuable immediately post-transplant given commonly-occurring neuropsychiatric complications of diverse and fluctuating symptomatology and which respond well to psychotropics.

Limitations
Although the percentage of 15.6% in this population falls within literature figures, there is a potential selection bias and the actual percentage of patients who developed neuropsychiatric complications is likely higher as these were only cases with psychiatric presentation. Also, there was a reliance on access to records as well as their thoroughness of documentation and accuracy. Another
limitation is the inability to comment whether associations are statistically significant owing to small case number. Nevertheless the study is a local first and it is hoped that this will have bearing on the shaping of the transplantation landscape.

Conclusion

This study presents the percentage, types and presentations of neuropsychiatric complications in liver transplant patients in a tertiary hospital in Singapore. Such neuropsychiatric complications can manifest in a multitude of ways and at various time-points which makes detection and management challenging. Given the impact these have on patient and transplant outcome, it stresses the importance of vigilance, timely intervention and close collaboration between disciplines.

Conflict of interest: None

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Received: 13 September 2013  Accepted: 10 June 2014
**Original Article**

**Suicide in Shooting Galleries**

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**Abstract**

**Aim:** To better understand the mental state of people who complete suicide in shooting ranges/galleries. **Method:** The public record was searched via the web using various search engines and the words “suicide shooting gallery” and “suicide shooting range”. When names of individuals appeared, they were used to further search for information about the event, paying particular attention to any evidence suggesting the presence of mental disorder. **Results:** Twenty-two cases were located. Nineteen (83%) were male and the average age was 36 years, with a range from 21 to 75 years. We present 6 case vignettes: in 3 there was evidence of mental disorder, while in the other 3 there was no evidence of mental disorder. **Conclusion:** Like the people who complete suicide in other locations, some of the people who complete suicide in shooting ranges/galleries are suffering from mental disorder, while some are not, and other triggers are present. *ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 50-56.*

**Keywords:** Suicide, Suicide Prevention, Mental Disorder

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**Introduction**

Suicide is a major problem, accounting for 1.5% of global deaths [1]. Suicide has been conceptualized differently in different places over time. In English and Welsh history the Latin term ‘felo de se’ (felon of himself) was applied to those who completed suicide. For many centuries completers could not be buried in consecrated land. A stake was driven through the body and it was buried at the crossroads (this last occurred in London in 1823). The estates of completers were confiscated by the state [2]. Suicide only officially ceased to be a crime with the Suicide Act, 1961 (although prosecutions had ceased decades previously). In Japanese history, Seppuku (ritual self-disembowelment) was a means of honourable death [3], and during the Second World War Kamikaze pilots died for the benefit of their country.

The French physician Jean-Etienne Esquirol [4] declared that suicide was not a legal but a medical problem, and this has been the predominant view for the last century. Recently, Western authorities have stated that “a psychiatric disorder is a necessary condition for suicide to occur”[5], and that there is an “unequivocal presence of severe psychopathology by those who die by their own hand” [6]. Psychological autopsy studies have reported that suicide is always [7] or almost always [8] the result of mental disorder. More recently, however, Braithwaite [9] opined, only “a small minority of people who commit suicide are mentally ill”, and psychological autopsies in India [10] and China [11] have reported psychiatric disorder in less than half of those who complete suicide. Very recently, from New Zealand [12] came the call for the medical model of suicide prevention to be replaced by a holistic approach, and for the whole community to share ownership.

Our group has described the concept of ‘predicament suicide’ [13]. A predicament is
an undesirable set of circumstances from which escape is not easy or not possible. We describe two main predicaments; the first is untreated or unresponsive painful mental disorder, and the second is painful social or environmental circumstances. Of course it is possible, and common, for an individual to suffer both predicaments concurrently. Using information from the public record we have shown suicide associated with loss of health [14], fortune [15] and reputation [16], and other stressors including tinnitus [17].

With the intention of better understanding the mental state of people who complete suicide, we studied the public record for accounts of people who had chosen shooting ranges (galleries). We have previously defended the use of public record material in the study of suicide [15,16], conceding that such observations are not made by clinicians, but contending that journalists and other writers whose work is publicly scrutinized are able to make valuable contributions.

Shooting ranges are established in many countries. We could find no estimate of the total number of people who completed suicide in them. One gallery in Canada reported 2 completed suicides in 8 years, during which time there had been 250,000 customers [18]. There are approximately 1800 indoor ranges in the USA, and an unknown number of outdoor ranges. One shooting range in Ohio reported 2 suicides in 16 months [19]; there are 162 similar facilities in that state. In one Californian range 2 people had completed suicide in 20 years [20]. In another, 2 people had completed suicide in 5 years, and in one other, 6 people had completed suicide in 12 years [21]. Clearly some galleries, but by no means all, have been troubled by suicidal behaviour.

Method

The Internet was examined using the words “suicide shooting gallery” and “suicide shooting range” in various search engines. When names of individuals appeared, we used them to search for more information about the event, paying particular attention to any evidence suggesting the presence of mental disorder. The information used in this article is freely available on the public record, thus the issue of privacy does not prevent current use.

We arranged the names in Table 1 in chronological order. Six case vignettes were presented to illustrate the mental state of some individuals who have taken their lives in shooting galleries.

Results

We identified reports about 23 individuals (Table 1): one from Turkey, two from Thailand, six from Australia and 13 from the USA. Nineteen (83%) were male and the average age was 36 years, with a range from 21 to 75 years. Three individuals were clearly severely mentally ill, and another three had nothing to indicate mental illness, but clear, relatively recent social or environmental stressors. Of the remaining 17, there was too little information to form a safe opinion.

Table 1. Details of 23 individuals who completed suicide in shooting galleries/ranges

<table>
<thead>
<tr>
<th>Year</th>
<th>Family name</th>
<th>Initial</th>
<th>Trigger</th>
<th>Age</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>Cross</td>
<td>A</td>
<td>Unclear</td>
<td>25</td>
<td>Sydney/Aus</td>
</tr>
<tr>
<td>1930</td>
<td>Donovan</td>
<td>G</td>
<td>Unclear</td>
<td>unknown</td>
<td>Sydney/Aus</td>
</tr>
<tr>
<td>1932</td>
<td>Mitchell</td>
<td>L</td>
<td>mental disorder</td>
<td>23</td>
<td>Adelaide/Aus</td>
</tr>
<tr>
<td>1932</td>
<td>Pomoroy</td>
<td>R</td>
<td>Unclear</td>
<td>25</td>
<td>Adelaide/Aus</td>
</tr>
<tr>
<td>1999</td>
<td>Tomesak-Anderson</td>
<td>L</td>
<td>Unclear</td>
<td>45</td>
<td>Florida/USA</td>
</tr>
<tr>
<td>2006</td>
<td>Kramer</td>
<td>R</td>
<td>Unclear</td>
<td>57</td>
<td>California/USA</td>
</tr>
<tr>
<td>2008</td>
<td>Morris</td>
<td>J</td>
<td>mental disorder</td>
<td>23</td>
<td>Adelaide/Aus</td>
</tr>
<tr>
<td>2009</td>
<td>Jast</td>
<td>R</td>
<td>social stress</td>
<td>54</td>
<td>Adelaide/Aus</td>
</tr>
<tr>
<td>2009</td>
<td>Pepelea</td>
<td>V</td>
<td>Unclear</td>
<td>43</td>
<td>California/USA</td>
</tr>
<tr>
<td>2009</td>
<td>McCarthy</td>
<td>J</td>
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<td>26</td>
<td>Florida/USA</td>
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</table>
Suicide In Shooting Galleries

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Gender</th>
<th>Diagnosis</th>
<th>Age</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>2009</td>
<td>Moore</td>
<td>M</td>
<td>mental disorder</td>
<td>44</td>
<td>Florida/USA</td>
</tr>
<tr>
<td>2010</td>
<td>Scott</td>
<td>J</td>
<td>social stress</td>
<td>24</td>
<td>Ohio/USA</td>
</tr>
<tr>
<td>2010</td>
<td>Tetick</td>
<td>E</td>
<td>Unclear</td>
<td>21</td>
<td>Istanbul/Turkey</td>
</tr>
<tr>
<td>2010</td>
<td>Scurlock</td>
<td>R</td>
<td>Unclear</td>
<td>24</td>
<td>California/USA</td>
</tr>
<tr>
<td>2011</td>
<td>King</td>
<td>J</td>
<td>Unclear</td>
<td>29</td>
<td>Texas/USA</td>
</tr>
<tr>
<td>2012</td>
<td>Davis</td>
<td>A</td>
<td>social stress</td>
<td>42</td>
<td>Thailand</td>
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<tr>
<td>2012</td>
<td>Koch</td>
<td>J</td>
<td>Unclear</td>
<td>43</td>
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</tr>
<tr>
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<td>Sobie</td>
<td>M</td>
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<td>43</td>
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<tr>
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<td>Wells</td>
<td>K</td>
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<tr>
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<td>54</td>
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</tbody>
</table>

Cases with evidence of mental disorder

**Lionel Mitchell, 22 years, 1932.**
Lionel Mitchell shot himself in Sydney. All we have about him is in 150 words in the Canberra Times [22]. The article contains a 65-word suicide note to his family: “You may think I am a coward for not fulfilling my moral obligations, but this is about the end. Don’t you think it is far better than going into an asylum or being a burden on you for life. I am afraid I am a complete failure. To everything everybody does for me I cannot respond. I have fought my hardest for nine months now I think I am far better than bed-ridden. I can’t sleep, read or anything”.

At the inquest it was revealed Mr Mitchell had been a telephone mechanic and “had been over-studying for eight or nine months”. The verdict was suicide while temporarily insane. In this case, the label “temporarily insane” is relatively meaningless: at that point in history it was believed that anyone who completed suicide had to be insane. However, the suicide note is poignant, and succinctly describes 9 months of severe major depression, with insomnia, poor concentration, guilt, low self-esteem, and the inability to respond emotionally to others.

**Julia Morris, 23 years, 2008**
Julia Morris lived in Adelaide. The State Coroner [23] found that for the previous 7 years Ms Morris had been receiving extensive treatment for anorexia nervosa, bulimia, self-injury, attempted suicide, depression, anxiety, attachment disorder, and borderline personality disorder.

Three days before she died, Ms Morris took an overdose of medication and was admitted to a psychiatric hospital. On the day she was discharged, she shot herself. We do not have a full history, but the available information indicates that mental illness played a large part in the suicide of this woman.

**Marie Moore, 44 years, 2009**
Marie Moore lived in Florida (USA). She attended a shooting gallery with her son Mitchell (20 years). Mother and son took turns shooting and talking to other customers in adjacent lanes. There was nothing to indicate concern. Unexpectedly, Ms Moore stepped behind her son and shot him in the head at point blank range, after which she immediately placed the gun in her mouth and killed herself [24].

There is strong evidence that this murder-suicide was caused by mental disorder. Charles Moore (former husband) said that Ms Moore had a history of mental illness, including involuntary admission to a psychiatric hospital. Ms Moore’s boyfriend found 3 suicide notes and four audiotapes at his home. The tapes indicate that Ms Moore was severely delusional. She repeatedly stated that God had made her the anti-Christ, and that she had to send her son to Heaven and herself to Hell. She referred to her boyfriend as King, her son as Prince and herself as Queen, and
declared, “Hopefully when I die there will be 1000 years of peace” [25].

**Cases with evidence of social stress**

**Raymond Jast, 54 years, 2009.**
Raymond Jast lived in Adelaide and died in the same shooting gallery as Julia Morris (above). The State Coroner dealt with the cases together [23]. Mr Jast and his wife had been attending marriage guidance counselling. Four days prior to his death, his wife asked for a separation and a property settlement to be completed within 2 months.

On the day he died, Mr Jast told his employer he was suffering abdominal distress and went home. In the middle of the day, he attended a shooting gallery. Gallery staff felt ‘uneasy’ about Mr Jast, but sold him bullets. He shot himself in the head. The Coroner made clear statements that Mr Jast had no history of mental illness. While the shooting gallery staff felt ‘uneasy’ about him, they gave no evidence to suggest that he was suffering a mental disorder.

**Jacqueline Scott, 24, 2010.**
Jacqueline Scott lived in Ohio. She was a graduate and was employed as a teaching assistant while working on her Master’s Degree [26]. Gallery staff reported that during the safety class mandatory for all first time shooters, Ms Scott did not seem despondent [27]. However, video surveillance shows that after firing a few shots she put the pistol down and stood for a time, then picked it up and shot herself in the chest.

A work colleague said, “She was definitely a happy lady…I definitely can’t believe it”, and the family could give no explanation. She had recently ended a long-standing relationship with her boyfriend and classmates stated she had been disinterested in class since then. Some evidence suggests low mood following the ending of a long-term relationship, but this is considered a normal reaction. In this case, there was no convincing evidence of mental disorder.

**Andrew Davis, 42, 2012.**
Andrew Davis was from Manchester, but he had lived in Thailand for 4 years since his divorce in the United Kingdom [28]. He is believed to have had two children. Mr Davis had been the best friend of Gareth Cashmore who is currently on death row in Indonesia for smuggling drugs into that country [29]. A few hours before his death, Mr Davis was drinking with some friends who had flown to Thailand from Manchester to see him. There is nothing to suggest mental disorder in the available information, and the motivation remains a mystery.

**Discussion**

Until very recently, western medical wisdom held that all those who completed suicide did so in response to mental disorder. It is now becoming accepted that social stressors, in particular the breakdown of long-term relationships, may trigger suicidal thinking and behaviour [30,31]. Accordingly, calls are beginning to be made for prevention to break away from the medical model and to become holistic and involve the broader community [12]. Nevertheless, the broader view of suicide is in its infancy, and the point of this paper is to give academic support to this new approach.

The limitations of this paper include that it has modest aims and depends on publicly available information. As stated, in the West, at least, suicide has been construed as a mental disease or a symptom of a mental disease, and other triggers have been ignored. Thus, we set out to give examples where the triggers were other than mental disorders. We did not expect to quantify this occurrence, but simply to show that it does occur, and to a degree which deserved to be noticed.

It happened that we were able to show three cases in which mental disorder was the trigger of suicide, and three cases in which the triggers were social factors. These findings do not quantify how often social factors are important, but they do prove that social factors can be the trigger of suicide. The paper depends on publicly available information, which has not been gathered in a standardized manner. However, we are comfortable with our results because we found 23 public reports, but selected only those (six) for which there was comprehensive information. We believe there is good quality evidence indicating that mental disorder was presented...
in three cases. The first of these (Lionel Mitchell) depends on a brief suicide note, and could be doubted. But, even if all three were discredited, this would not damage our main thrust – it is well established that suicide can be triggered by mental disorder. The important question is whether those we have labelled as having completed suicide due to social factors were actually suffering a mental disorder. The information we have on one (Raymond Jast) is a comprehensive Coroner’s report which took extensive evidence and found no evidence of mental disorder. One other (Jacqueline Scott) was distressed by a recently ended a long-standing relationship, and the other (Andrew Davis) friends had recently visited and there was no evidence of mental disorder. Thus, we believe it is safe to believe that suicide may be triggered by social factors, in the absence of mental disorder.

We are interested in shooting galleries because they place lethal means in the hands of those who may not usually have access to such. Reducing the availability of means is considered an important suicide prevention strategy and success has been claimed for ceasing the supply of coal gas for cooking in the UK, the control of gun ownership in Australia and the building of fences on high cliffs in Japan. There has been universal reduction in the availability of barbiturates and the fitting of catalytic converters to automobiles. Consideration has been given to reducing the availability of herbicides in Fiji. Critics of this approach claim that it will not be possible to outlaw rope or high buildings. The counter argument is that reducing availability must reduce impulsive suicide. Whether attempts are made to reduce the risk of suicide at shooting galleries remains to be seen, but will be difficult in places where the gun culture is strong.

There is reason to hope the Asia region may avoid the (incorrect) belief, so common in the West, that all completed suicide is the result of mental disorder. In addition to the reports already mentioned from India [10] and China [11], other thoughtful reports from Taiwan [32] and Malaysia [33] have clearly demonstrated the importance of social and other triggers.

Conflicts of interest: Nil

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Suicide In Shooting Galleries


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Received: 11 February 2014

Accepted: 11 June 2014
Management Of Negative Self-Image Using Rational Emotive And Behavioural Therapy And Assertiveness Training


ORIGINAL ARTICLE

MANAGEMENT OF NEGATIVE SELF-IMAGE USING RATIONAL EMOTIVE AND BEHAVIOURAL THERAPY AND ASSERTIVENESS TRAINING

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Abstract

Objective: Dissatisfaction with real or imagine defect in physical appearance could lead to manifestation of negative self-image. This study thus presented an eight session account of management strategies for negative self-image. Method: The following psychological test instruments were administered to 200 participants - Negative Self-image Inventory (NSII); Fear of Negative Evaluation (FNE); Index of Self Esteem (ISE); Illness Behaviour Questionnaire (IBQ); Physical Self-Efficacy Scale (PSE); Social Maladjustment Scale (SMS) and Adjective Checklist (ACL). Those that manifested high negative self-image (30 participants), were assigned randomly into three groups of: 1st treatment, 2nd treatment (placebo) and control groups of 10 participants each, comprising 5 males and 5 females. Participants were managed with cognitive emotive and behavioural therapy and assertivess training method. Collectively, the treatment sessions lasted 8 weeks. Therapy was in group therapy format, which gave room for guidance, insight, acceptance, ventilation of feelings, instillation of hope, self-disclosure, and interaction. Result: The 1st treatment group recorded significant reduction in negative self-image and its correlates - fear of negative evaluation and social maladjustment than 2nd treatment and control groups. Conclusion: Rational Emotive and Behavioural Therapy (REBT) and Assertiveness Training were found to be efficacious in the management of negative self-image. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 57-68.

Keywords: Management, Negative Self-image, Rational Emotive Behavioural Therapy, Assertiveness Training

Introduction

Although beauty ideals have been modeled throughout history, the impact of today’s visual media is felt by most. Images from the internet, television and magazines appear to have an especially negative influence on the viewers. Oftentimes models in these media are seen as realistic representation of actual people, rather than carefully manipulated artificially developed images. These could influence how people perceive themselves physically and how they think others see them, and thus act as triggers of negative perception of physical appearance.

Motivation for this study arose from an informal conversation with a young man of around 35 years, who was observed to be excessively concerned with his physical appearance. The man, referred to as Mr X, is muscular-looking and could be observed every morning lifting weights and over-exercising, obviously to maintain his muscular stature. A curious question was posed by the researcher – “Why do you exercise and lift weight for at least two hours every morning? Mr X responded:

“I exercise everyday because I want to maintain my muscular build……I have been
building up my muscles for about eight years... Years past, my friends and peers used to refer to me as: ‘short engine’, ‘match box’, ‘full stop’ or whatever cruel term was the current, to describe the ‘short in physical build. I know I am just 5-feet tall, he laments, but I felt I needed to be muscular in order to command respect from my peers....’ He paused to bring out old and recent pictures of himself, clad in men’s brief, displaying different angles of muscular postures. He was however despondent that even after the marked increase in muscular build, he feels unsatisfied with himself and his relationships, as he complained that girls do not seem to find him attractive.

Developmental experiences show that it is usually easier for individuals to identify with disappointment and failure, and may externalize such difficulties. This is a phenomenon referred to as “destructive instinct” and could trigger self-defeating statements [1, 2]. As a result of such negative self-reinforcement, people could become anxious resulting in self-condemnation and self-hate with all the requisite reactions, feelings, and behaviours. Thus, negative self-image could be defined as ‘thoughts, feelings and behaviours, formed from developmental experiences that intensify preoccupations with real or imagined defects in physical appearance. This could result in emotional and behavioural difficulties, as well as in poor social skills [1].

Anxieties associated with negative self-image could be somewhat embarrassing. This is because such appearance-related concerns could be misunderstood as vanity-driven obsession. However negative self-image when developed to a dysfunctional extreme could lead to a psychopathology known as Body Dysmorphic Disorder (BDD). This is defined as “preoccupation with an imagined or minor defect in appearance which causes clinically significant distress or impairment in social, occupational, or other important areas of functioning [3]. The disorder generally is diagnosed in those who are extremely critical of their physique or self-image even though there may be no noticeable disfigurement or defect, or a minor defect which is not recognized by most people. Individuals with such appearance-related anxieties could be ill-equipped with relevant skills to handle such self-defeating difficulties and this necessitates its management. The management in this study entailed the use of Rational Emotive Behavioural Therapy (REBT) and Assertiveness Training (AT).

The premise of REBT, which it shares with other cognitive-behavioural theories, is that almost all human emotions and behaviours are the result of what people think, assume or believe [4,5]. A useful way to illustrate the role of cognition is by using Elli’s “ABCDE” model. In the model: A means: activating event (example., being rejected by a partner); B means: evaluative beliefs which sum up the individual’s view of this event (example, I am ugly); C means: emotional and behavioural consequences largely determined by the individual’s belief about this event (example, depression and negative self-image); D means: disputing disturbance-producing beliefs (example, why should I feel depressed, am I really ugly?); E means: new and effective rational outlook accompanied by emotional and behavioural changes (example, an improved self-esteem and social skills based on self-acceptance) [4].

Andrew Salter initially described assertiveness as a personality trait in 1949. It was thought that some people ‘had it’, while some people did not, just like extroversion or stinginess. Assertiveness was redefined as “expressing personal rights and feeling” [6, 7]. Assertiveness training involves learning the basic social skills that deal with clearly expressing oneself to others, persisting with goals in the face of opposition, and appropriately standing up for oneself in the midst of conflict or criticisms. Assertive behaviour also reduces anger and anxiety, and improves interpersonal relationships [7].

Studies show there is growing recognition that possessing a negative self-image may severely impair the quality of a person’s life which accentuates the need for its management. Research [8] observed that the treatment of one’s negative self-image is at the hub of psychotherapy and is the starting point of everything else that follows – improved self-
Management Of Negative Self-Image Using Rational Emotive And Behavioural Therapy And Assertiveness Training

esteem, self-perception and presentation, and healthy interpersonal relationship.

Block and Glue [9] tested psychodynamic therapy with a woman who was preoccupied with her eyebrows, which she viewed as repulsive. The preoccupation was interpreted as providing her with an excuse to avoid heterosexual relationships and a defensive projection of her own negative self-image. They reported that the preoccupation stopped after experiencing psychodynamic therapy. Philippoulous [10] conducted psychoanalytic therapy two to three times per week for about a year with an adolescent girl who was disturbed with irrational thoughts of being ugly and fat. The preoccupation was interpreted as disguising unconscious sexual wishes. Therapy helped rid the patient of her preoccupation. Systematic desensitization was also reported to be effective in one of two cases of physical image concerns [11], while exposure plus response prevention was successful in four of five cases [12], of the self-image anxiety although only two of the cases were treated properly with behaviour therapy and medication. In comparison, Neziroglu and Yaryura-Tobias [13] and Watts [14], reported that the use of exposure therapy plus response prevention alone resulted in improved self-image.

Dworkin and Kerr [15] compared the efficacy of cognitive-behavioural and reflective therapies, relative to a wait-list control group, in increasing college women’s body satisfaction and self-concept. Gains in body satisfaction and self-concept for those participating in treatment were significantly greater than those that occurred for the wait-list group. Cognitive-behavioural therapy was also found to be effective in producing positive self-perceptions and enhanced self-concept, and both were superior to reflective therapy. These highlighted the efficacy of cognitive-behavioural based therapy for disputing and acting out self-defeating thoughts and impulses. Butters and Cash [16], also examined the effectiveness of a more extensive cognitive-behavioural self-image therapy programme. They compared a 6-week cognitive-behavioural individual treatment with a wait-list control subject. The result confirmed significant self-image improvements for the 6-week cognitive-behavioural therapy individual, relative to the control subject. Changes were also maintained at a 7-week follow-up. Outcomes entailed more favourable and satisfying self-image cognitions, less appearance investment, reduction in dysfunctional self-image cognition, and less mirror exposure distress. Self-evaluation of fitness, sexuality, social self-esteem and global functioning were also differently enhanced by treatment. The study also confirmed the efficacy of cognitive-behaviour therapy in tackling self-image disturbances. However, the result is based on an individual treatment regime, rather than group therapy.

Maltz and Kennedy [2] in a bid to address this developed a Psycho-Cybernetics therapy. It was observed that after successful surgery for severe facial disfigurement, some patients continued to feel and behave as if they were still deformed. Certain methodological steps were thus proposed to aid in the management of faulty self-image and they are: ‘CRAFT’ which means Cancel, Replace, Affirm, Focus and Train. According to Dr Maltz, negative self-perception could best be managed when self-defeating thoughts are adequately canceled and replaced with more positive ones. Vanderecycleen, [17] insight on family therapy shows that symptoms of negative self-image could arise from developmental tensions that normally emerge within the family especially in transition to puberty and adulthood. The present study however managed negative self-image with Rational Emotive Behavioural Therapy (REBT) and Assertiveness Training. Rationale for this is that REBT could help participants dispute irrational thoughts sustaining negative self-image while Assertiveness Training could help them to positively express their bottled-up emotions in a more healthy way.

This study presents the following objectives: (1) to identify participants that manifested high level of negative self image and group them into treatment groups (2) to manage participants with high level of negative self-image with REBT and Assertiveness Training and; (3) to determine the pre-and-post treatment scores of participants and thus, gains of therapy.
Management Of Negative Self-Image Using Rational Emotive And Behavioural Therapy And Assertiveness Training

Methods

Population and Characteristics

Participants were university students in the age range of 16 to 26, drawn from University of Lagos, Nigeria. They comprised 100 males and 100 females. They were further categorised into low, medium and high negative self-image, based on their scores on Negative Self-Image Inventory (NSII). The 30 participants that scored high on Negative Self-Image Inventory (NSII) were further subjected to psychological treatment groups of first treatment, second treatment (placebo), and control groups.

Research design

The study employed a pre-test, post-test experimental design. This involved 3 treatment (experimental) conditions namely: 1st treatment, 2nd treatment (placebo) and control group. The independent variable was psychotherapy and the dependent variables were scores obtained with the psychological instruments.

Instruments

Instruments employed for this study were:

Negative Self-image Inventory (NSII): A 40-item instrument developed by Agbu [18] to measure symptoms and manifestations of negative self-image. Such symptoms include dissatisfaction with real or imagined defects in physical appearance as well as the associated behavioural, emotional, social, and interpersonal factors that sustain a negative perception of self. It has a norm score of 90.58, split-half reliability of .78 and test-retest reliability coefficient of .82 [18].

Fear of Negative Evaluation (FNE): The 30-item scale with a true-false response format was developed by Watson and Friend [19] to measure fear of negative evaluation due to general anxiety, fear of losing social approval and ineffective social behaviour. It has a Kuder-Richardson 20 (KR-20) reliability coefficient .94, and one month interval test-retest coefficient = .78.

Index of Self Esteem (ISE): This is a 25-item inventory developed by Hudson [20]. It was designed to measure self-perceived and self-evaluative component of self-concept which is the sum total of the self-perceived and other-perceived views of the self, held by a person. It has an alpha reliability coefficient of .93 and a two-hour test-retest coefficient of .92.

Social Maladjustment Scale (SMS): This is a 27-item inventory developed by Wiggins [21]. It was designed to measure inadequate social interaction, shyness, unassertiveness and a tendency to be reserved and reticent. It has a Cronbach alpha internal consistency reliability coefficient of .86 and .84 for males and females respectively.

Physical Self-Efficacy Scale (PSE): PSE is a 22-item inventory developed by Ryckman, Robins, Thornton & Cantrell [22]. The purpose is to measure self-perceived physical competence, physical fitness, and feeling of well-being and wellness and physical self-concept. Cronbach Alpha reliability coefficients reported on PPA, PSC and PSE (sub scales of PSE) are .84, .74 and .81 respectively while the respective 6-week test-retest reliability coefficients are: .89, .69 and .80.

Illness Behaviour Questionnaire (IBQ): IBQ is a 62-item inventory developed by Pilowsky and Spence [23]. It has 8 sub-scales designed to measure those dimensions of attitude, belief and behaviour such as feelings, reactions and responses that an individual displays to the self and others when ill. The sub-scale employed for this study is scale B: Irritability. IBQ has 12-week test-retest reliability coefficients ranging from .67 to -.85.

Adjective Checklist (ACL): This is a 300-item instrument developed by Gough and Heilbrum [24], to assess 37 personality characteristics. Sub scale 23: Personal Adjustment was used for this study. It has a correlation coefficient of .56.

Sampling

Systematic random sampling was used to administer the test instruments to 200 participants. Their scores were rank-ordered
from highest to lowest in order to identify those with high scores on Negative Self-image Inventory (NSII). NSII has a maximum score of 240, while the 200 participants were constituted into low, medium and high negative self-image groups based on scores on NSII. The 30 participants with highest scores on NSII were further subjected to psychological treatment groups of first experimental, second experimental (placebo) and control groups. Study employed a 3 group pre-test, post-test experimental design.

**Treatment Package**

Negative self-image was managed with Rational Emotive Behaviour Therapy (REBT), and Assertiveness Training. Techniques include relaxation training, cognitive restructuring, cost-benefit analysis, psycho-education, role-playing, homework, and diary-keeping. There were three management conditions: experimental, placebo, and control (no treatment). This was done to establish the effectiveness of the therapeutic technique used for this study. The management phase has 30 participants selected on the basis of their high scores on Negative Self-Image Inventory (NSII). The 30 participants were assigned randomly into three groups of: 1st treatment, 2nd treatment (Placebo) and control groups of 10 participants each, comprising 5 males and 5 females. Collectively, the treatment sessions lasted 8 weeks. Therapy was in group therapy format, which gave room for guidance, insight, acceptance, ventilation of feelings, instillation of hope, self-disclosure, and interaction.

**The Management Procedure**

**1st Experimental Group**

The group had 10 participants. The sitting arrangement was in a semi-circular form and this gave all participants an equal opportunity to observe each other’s body language and facial expressions. The venue was conducive, spacious, airy and well lit with comfortable cushion seats. The window blinds also provided adequate privacy. The duration of therapy was 45 minutes. The agreed time for therapy was in the evenings. There were 10 sessions altogether with two sessions per week, but sessions 7, 8 and 9 were conducted once a week while the final and 10th session was after a period of two weeks, to give room for therapy consolidation. Group maintenance functions performed by the facilitator were problem setting, goal setting, process moderation, sentiment testing, monitoring, idea development. All participants were drawn from the high negative self-image group.

**Session 1**: started with general introduction and explanation on how group members were chosen. Next was explanation on some basic rules on how group therapy works - attendance, active participation, punctuality, group exercises. Homework was diary keeping on developmental history of negative self-image. **Session 2**: entailed relaxation training exercises and review of homework on developmental history of negative self-image as well as psycho-education on the non-behavioural, genetic and physiological causes of self-image concerns. It also involved introduction of certain molecular components of social skill training such as appropriate use of facial expression and body language, gesture, posture, voice volume, to tackle self-defeating behaviours. For homework, group members were encouraged to draw up a more comprehensive list of appearance complaints, taking note of both the visible and imagined ones. **Session 3**: started with review of homework and list of appearance-related concerns. Next was analysis of self-image dissatisfaction in ABC sequence: activating events – belief - consequences. Thought disputation and practice of neutral self talk were introduced to tackle repetitive intrusive thoughts of self-image dissatisfaction and
social anxiety. Session 6: started with the identification of avoidance habits. To tackle self-defeating thoughts, participants were encouraged to comment and discuss the situation in which body dissatisfaction occurred. Diary keeping exercise was also used to aid participants trace history of negative self-talk about physical appearance. For homework, participants were encouraged to use bi-dimensional model of assertiveness to draw up four response styles to different threatening interpersonal situations – assertion versus non-assertion; aggressive versus passive aggressive responses. Session 7: homework on assertiveness was reviewed and this was followed by thought disputation (D) and emotional changes (E) in completion of the ABCDE of the REBT principles. For homework, group members were asked to rate believability of negative self-image related thought disputation and self acceptance on a 0 – 100 scale next to the disputing of thought in their diary. Session 8: reviewed homework. Variables reviewed were thought disputation in relation to body weight, stomach size, breast size, and shape. Psychoeducation on the causes and manifestations of discrepancies about actual appearance and clients’ mental picture of self were further discussed. Session 9: tackled unfinished businesses and other situations that might trigger relapse while Session 10 entailed post assessment exercises. It involved administration of all psychological instruments administered during the pre-assessment phase. Therapy sessions ended with light refreshment and good wishes.

Results

Table 1. Mean and SD of the Pre-Treatment scores of the 1st and 2nd Experimental (Placebo) and Control Group

<table>
<thead>
<tr>
<th>Measures</th>
<th>1st Experimental (n = 10)</th>
<th>2nd Experimental (n = 10)</th>
<th>Control (n = 10)</th>
</tr>
</thead>
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<tr>
<td>Negative Self-Image Inventory (NSII)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X</td>
<td>156.00</td>
<td>138.10</td>
<td>130.90</td>
</tr>
<tr>
<td>SD*</td>
<td>18.51</td>
<td>11.09</td>
<td>10.41</td>
</tr>
<tr>
<td>Index of Self Esteem (ISE)</td>
<td>42.10</td>
<td>46.20</td>
<td>44.60</td>
</tr>
<tr>
<td>X</td>
<td>9.18</td>
<td>6.17</td>
<td>12.67</td>
</tr>
</tbody>
</table>

2nd Experimental Group

The group comprised 10 male and female participants randomly drawn from the group that scored high on Negative Self-Image Inventory. 10 sessions in a period of eight weeks were conducted just like the 1st experimental group. The sessions were devoted to discussing current affairs and challenges of life in Nigeria, and these have no direct bearing on issues of negative self-image. Participants were told that such group discussions formed part of a focus group study on the challenges of life in an era of social and economic reforms. This approach, otherwise called placebo management was designed to verify the claim that psychological disorders would be relieved by mere group interactions that did not involve specific psychological therapeutic techniques. Participants filled out post-test questionnaires and were debriefed at the last session.

Control Group

The control group comprised 10 male and female participants randomly drawn from the group that obtained high scores on Negative Self-Image Inventory. They did not participate in the type of treatment procedures conducted for the first and second groups. They were informed that the researcher had gone for further field studies and would return to re-administer the test instruments. The researcher contacted them again after eight weeks for another assessment. They all responded to the instrument again. They were thanked for being part of the study and debriefed.
Result showed that the 1st experimental group recorded highest mean scores on the following measures: Negative Self Image Inventory (NSII), Fear of Negative Evaluation (FNE), Social Maladjustment Scale (SMS), and Personal Adjustment (ACL scale 23).

To find out if the observed differences in Table 1 are statistically significant, One-Way ANOVA was employed. The result is presented in Table 2.

Table 2. One Way ANOVA of the Pre-Treatment Scores of the 1st, 2nd Experimental (Placebo) and Control Groups

<table>
<thead>
<tr>
<th>Measures</th>
<th>Between Group</th>
<th>Within Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SSQ</td>
<td>MSQ</td>
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<tr>
<td>Negative Self-Image Inventory (NSII)</td>
<td>3340.87</td>
<td>1670.40</td>
</tr>
<tr>
<td>Perceived Physical Ability (PPA)</td>
<td>127.40</td>
<td>63.70</td>
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<tr>
<td>Perceived Self Presentation and Confidence (PSC)</td>
<td>57.87</td>
<td>28.93</td>
</tr>
<tr>
<td>Fear of Negative Evaluation (FNE)</td>
<td>1.87</td>
<td>0.93</td>
</tr>
<tr>
<td>Social Maladjustment Scale (SMS)</td>
<td>0.87</td>
<td>0.43</td>
</tr>
<tr>
<td>Index of Self Esteem (ISE)</td>
<td>85.40</td>
<td>42.70</td>
</tr>
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<td>Irritability (IBQ B)</td>
<td>4.07</td>
<td>2.03</td>
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<tr>
<td>Personal Adjustment (ACL scale 23)</td>
<td>9.80</td>
<td>4.90</td>
</tr>
</tbody>
</table>

Significance, P < .05, df = 2/27, Critical F = 3.35

Result showed one significant measure: Negative Self-Image Inventory (NSII).

In order to find out the pair of groups in Table 2 between which the significant difference occurred, the Scheffe test was employed. The result is presented in Table 3.
Management Of Negative Self-Image Using Rational Emotive And Behavioural Therapy And Assertiveness Training

Table 3. Scheffe test for the 3 Pre-Treatment Experimental groups where significant F ratio was obtained

<table>
<thead>
<tr>
<th>Measure</th>
<th>Groups 1 &amp; 2</th>
<th>Groups 1 &amp; 3</th>
<th>Groups 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSII</td>
<td>17.90*</td>
<td>25.10*</td>
<td>7.20*</td>
</tr>
</tbody>
</table>

Note: * Significant, P < .05, Scheffe (fs) 6.70:
Group 1 = 1st experimental group, Group 2 = 2nd experimental (placebo) group, Group 3 = control group

The result in Table 3 indicates that NSII was significant in all the paired groups. This means that the random allocation of the participants into 3 groups is justified and the 3 groups have equivalent degree of manifestations of psychopathology before therapy.

Table 4. Mean and SD of the post-treatment scores of the 1st, 2nd Experimental (placebo) and Control Groups

<table>
<thead>
<tr>
<th>Measures</th>
<th>1st Experimental n = 10</th>
<th>2nd Experimental n = 10</th>
<th>Control n = 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD*</td>
<td>Mean</td>
</tr>
<tr>
<td>Negative Self-Image Inventory (NSII)</td>
<td>69.30</td>
<td>10.90</td>
<td>104.90</td>
</tr>
<tr>
<td>Perceived Physical Ability (PPA)</td>
<td>37.60</td>
<td>6.10</td>
<td>35.70</td>
</tr>
<tr>
<td>Perceived Self Presentation and Confidence (PSC)</td>
<td>48.10</td>
<td>6.67</td>
<td>41.30</td>
</tr>
<tr>
<td>Social Maladjustment Scale (SMS)</td>
<td>13.30</td>
<td>3.02</td>
<td>14.00</td>
</tr>
<tr>
<td>Index of Self Esteem (ISE)</td>
<td>32.20</td>
<td>8.20</td>
<td>32.40</td>
</tr>
<tr>
<td>Fear of Negative Evaluation (FNE)</td>
<td>13.20</td>
<td>7.25</td>
<td>15.20</td>
</tr>
<tr>
<td>Irritability (IBQ scale B)</td>
<td>1.60</td>
<td>1.27</td>
<td>0.80</td>
</tr>
<tr>
<td>Personal Adjustment (ACL scale 23)</td>
<td>48.40</td>
<td>7.00</td>
<td>51.30</td>
</tr>
</tbody>
</table>

*SD = Standard deviation

Result showed that the 1st experimental group obtained the lowest mean score on Negative Self-Image Inventory while the 2nd experimental group obtained the highest mean score on Negative Self-Image, Fear of Negative Evaluation (FNE), Social Maladjustment and Index of Self Esteem (ISE). However, the control group obtained the highest mean scores on the following 3 measures: Personal Adjustment (ACL scale 23), Irritability (IBQ, Scale B), and Perceived Physical Ability (PPA).

To find out if the observed differences in Table 4 are statistically significant, One Way ANOVA was used to compare the post–treatment scores of the experimental group, in each of the 8 measures.
Table 5. One Way ANOVA for the Post-treatment Scores of the 1st, 2nd Experimental (Placebo) and Control Group

<table>
<thead>
<tr>
<th>Measures</th>
<th>Between Groups</th>
<th>Within Groups</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SSQ</td>
<td>MSQ</td>
<td>SSQ</td>
</tr>
<tr>
<td>Negative Self-Image Inventory (NSII)</td>
<td>7100.07</td>
<td>3550.03</td>
<td>9216.60</td>
</tr>
<tr>
<td>Perceived Physical Ability (PPA)</td>
<td>64.87</td>
<td>32.43</td>
<td>998.60</td>
</tr>
<tr>
<td>Perceived Self Presentation and Confidence (PSC)</td>
<td>257.87</td>
<td>128.93</td>
<td>901.10</td>
</tr>
<tr>
<td>Fear of Negative Evaluation (FNE)</td>
<td>80.00</td>
<td>40.00</td>
<td>1250.80</td>
</tr>
<tr>
<td>Social Maladjustment Scale (SMS)</td>
<td>39.27</td>
<td>19.63</td>
<td>224.20</td>
</tr>
<tr>
<td>Index of Self Esteem (ISE)</td>
<td>129.27</td>
<td>64.63</td>
<td>2090.90</td>
</tr>
<tr>
<td>Irritability (IBQ scale B)</td>
<td>20.27</td>
<td>10.13</td>
<td>35.60</td>
</tr>
<tr>
<td>Personal Adjustment (ACL scale 23)</td>
<td>225.80</td>
<td>112.90</td>
<td>1389.40</td>
</tr>
</tbody>
</table>

Significance, P < .05, Df = 2/27, Critical F = 3.35

The result in Table 5 indicated 3 significant measures, which are: NSII, Perceive Self Presentation and Confidence (PSC), and Irritability (IBQ scale B).

To find out the pair of the groups in Table 5 above, between which significant differences occurred, the Scheffe test was employed for the post hoc comparison. The result is presented in Table 6.

Table 6. Scheffe Test for the 3 post-Treatment Groups where Significant F Ratio was obtained

<table>
<thead>
<tr>
<th>Measures</th>
<th>Groups</th>
<th>Groups</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Groups</td>
<td>Groups</td>
<td>Groups</td>
</tr>
<tr>
<td></td>
<td>1 &amp; 2</td>
<td>1 &amp; 3</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Negative Self-Image Inventory (NSII)</td>
<td>35.60*</td>
<td>28.50*</td>
<td>7.10*</td>
</tr>
<tr>
<td>Irritability (IBQ scale B)</td>
<td>0.80</td>
<td>1.20</td>
<td>2.00</td>
</tr>
<tr>
<td>Perceive Self Presentation and Confidence (PSC)</td>
<td>6.80*</td>
<td>1.40</td>
<td>5.40</td>
</tr>
</tbody>
</table>

Significance, P < .05, Scheffe = 6.70, Group 1 = 1st Experimental Group, Group 2 = 2nd Experimental Group (Placebo), Group 3 = 3rd Treated Group

The result in Table 6 showed that Negative Self-Image (NSII) was significant in all three paired groups.

Discussion and Conclusion

This study offers support for psychological management of negative self-image. The
treatment guidelines could aid practitioners in management of related disorder. Result showed that Rational Emotive Behavioural Therapy (REBT) and Assertiveness Training appeared efficacious in the management of negative self-image. The pre-treatment scores presented in Tables 1, 2 and 3 showed that the three experimental groups differed significantly only in NSII, an indication that they were equally matched in all the other variables before treatment. The post-treatment results presented in Tables 4 to 6 showed that the 1st experimental group had significantly lower scores in NSII and Irritability, and higher score in Perceived Self Presentation and Confidence (PSC) than the 2nd experimental and the control groups. This shows positive effects of the therapeutic technique and experience. With Rational Emotive and Behavioural Therapy (REBT) participants engaged in thought disputation and restructuring using the ABCDE principle. There were thought how to identify the: Activating events that trigger negative self-image (A); Belief that sum up the individual’s view of this event (B); emotional and behavioural Consequences of such belief (C). They were also encouraged to Dispute such negative belief about real or imagined defect in physical appearance (D) and identify Effective and rational outlook to self accompanied by emotional and behavioural changes (E) [4]. Also, with Assertiveness Training, participants learnt basic social skills required for expression of personal rights and feelings in a non-aggressive manner. It is important to note preoccupation with real or imagined defect in physical appearance, often viewed as vain by significant others could predispose individuals with such challenges to teasing and ridicule. Vanderecycleen, [17] insight on family therapy for example shows that symptoms of negative self-image could arise from developmental tensions that normally emerge within the family especially in transition to puberty and adulthood. Thus, assertiveness training equips individuals with the necessary skills needed to tackle such challenges in a non-aggressive manner. This adds to knowledge on psychological management of appearance-related anxieties. In previous studies psychoanalysis was found to be efficacious in the management of an adolescent girl who was disturbed with irrational thoughts of being ugly and fat [10]. Systematic desensitization and exposure therapy were also reported to be effective in one of two cases of physical image concerns [11, 13]. In addition, cognitive behaviour and reflective therapies triggered gains in body satisfaction and self-concept. Suffice it to note that the ultimate goal of an intervention research should lead to defining causal models and identifying antecedent condition associated with the increased likelihood of a disorder. Thus, intervention was designed to reduce and eliminate risk factors of negative self-image as well as strengthen its protective factors.

This study is not without limitations. The 8 week management period could be extended to 12 to allow for deeper training and insight on risk and protective factors of negative self-image. Study was also restricted to university students. Further research on the elderly, pregnant women and sports men and women could provide interesting insights in this area.

Acknowledgement

We gratefully acknowledge all participants, especially those that took time to participate in the management sessions. Also, deeply grateful to Prof Omoluabi (of blessed memory) for his guidance.

References


4. Ellis, A. Early theories and practices of rational emotive behavior theory and how they have been augmented and revised during the last three


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Received: 6 March 2014
Accepted: 18 June 2014
**ORIGINAL ARTICLE**

**SUICIDE AND RELATED BEHAVIOUR IN DOSTOYEVSKY NOVELS**

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Department of Psychiatry, University of Tasmania, Hobart, Tasmania 7001 Australia.

**Abstract**

**Objective:** To examine the presentations of suicide and related behaviour in the novels of Dostoyevsky, with a view to understanding suicide in mid-19th Century Russia, and to use this as a point of reference when reading 21st Century western academic suicide literature. **Methods:** The data collected from Dostoyevsky’s three most prominent novels, *Crime and Punishment*, *The Idiot* and *The Brothers Karamazov* were examined for the text events, 1) completed suicide, 2) suicide attempts, 3) suicidal thoughts, and 4) other mentions of suicide. Findings were compared with current orthodox Western medical literature. **Results:** In Dostoyevsky’s Russia suicide occurred not infrequently and the methods were hanging, shooting and drowning. The triggers were predominantly social factors (in contrast to the current time when the triggers are reported to be predominantly mental disorders). Attempted suicide appears to have been less common than suicide, and limited to occasions when others thwarted deadly actions (in contrast to the current time in which overdose and cutting are frequently encountered). Suicidal thoughts were common among the healthy population (which is in agreement with some current findings). **Conclusions:** Dostoyevsky’s novels suggest that in mid-19th Century Russia, suicide was not uncommon and the main methods were similar to those of the current time. The triggers were depicted as mainly social/economic factors (rather than mental disorder). Attempted suicide has changed much. Suicidal thoughts appear common in both time periods, and frequently appears in the absence of mental disorder. **Keywords:** Suicide, Suicide Prevention, Mental Disorder

**Introduction**

Suicide is a major, incompletely understood problem of the present time. The current medical literature is reductionist, contending that greater than 90% of completed suicide is the consequence of mental disorder, and that the main focus of suicide prevention activities should be the treatment of mental disorder [1]. Sociological [2] and historical [3] studies have identified many other important triggers, and there is need for a broader view of this behaviour [4]. Suicide is not unique to the present day [3]. We suggest lessons can be learned by examining the topic across space and time.

Fiction is instructive; it has a role in teaching the society of the time of publication, and a role in representing the problems and practices of earlier times to subsequent generations. Chekhov wrote, “(t)he best writers are realistic and describe life as it is”, [5] and Campbell, that one function of myth is “the pedagogical function of how to live a human lifetime under any circumstances” [6]. Fiction has been used to teach morals since the first appearance of the Greek epic poems; Currie [7] writes that in additional to factual information, fiction
Suicide And Related Behaviour In Dostoyevsky Novels

enables us to assess our options and “change our moral outlook” (p. 255).

The objective of this study was to examine the presentations of suicide and related behaviour in the novels of Fyodor Dostoyevsky (1821-1881), with a view to understanding suicide in mid-19th Century Russia, and by comparisons with 21st Century western academic literature, to grasp the topic more firmly.

Dostoyevsky was a prominent philosopher who explored the human experience using the novel form, at a time of political, social and spiritual unrest in Russia [8]. He trained as a Military Engineer and his first novel was published in 1846. Three years later he was arrested along with other liberal thinkers and sentenced to 4 years hard labour in Siberia. After his release he published his three most celebrated works, Crime and Punishment (1866) [9], The Idiot (1869)[10] and The Brothers Karamazov (1880) [11]. Dostoyevsky “accurately depicts the Russian reality of his times” [12]. We do not presume to comment on his philosophy or psychology, but to collate his presentations of suicide and related behaviour.

Methods

Part 1. Data collected
Dostoyevsky’s 3 most prominent novels, Crime and Punishment, The Idiot and The Brothers Karamazov were examined for the text events, 1) completed suicide, 2) suicide attempts, 3) suicidal thoughts, and 4) other mentions of suicide. Suicidal thoughts were counted when a particular individual had a thought about his/her life, which could have been the first step toward suicide. Other mentions of suicide were not the thoughts of individuals concerning their options, but any mention which would serve to bring the topic of suicide to the awareness of readers. Text events rather than individuals were counted and therefore certain individuals contributed more than once to the totals. Details were also collected concerning suicide triggers (including mental disorder and social/psychological stressors) and methods.

Part 2. Data comparison
The data from Dostoyevsky’s 3 most prominent novels were compared to the western academic literature of the current time.

Results

Part 1. Data collected
Suicide: Over the three novels there are 14 accounts of suicide, involving 10 different characters, 5 of whom are named. The methods used by the named characters were hanging and shooting, among the unnamed individuals drowning was an additional means. The motives included escape from public disgrace (embezzlement) and from harsh treatment by others. For 2 characters a precise trigger was uncertain, one was a bored, aging murderer and rapist, and the other a murderer (perhaps about to be exposed) who had lost his “faith”. There was no mention of mental disorder as a trigger, except perhaps in the case of an epileptic man who was described as a “sickly idiot” [11] (p. 831) but was in fact generally healthy and highly intelligent. Table 1 provides details.

<table>
<thead>
<tr>
<th>Table 1. Details of the suicides described in 3 Dostoyevsky novels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suicides</strong></td>
</tr>
<tr>
<td><strong>Crime and Punishment</strong></td>
</tr>
<tr>
<td>No. of mentions: 7</td>
</tr>
<tr>
<td>Pages: 188, 191, 314(2), 491, 515, 523</td>
</tr>
<tr>
<td>Separate individuals: 5</td>
</tr>
<tr>
<td><strong>The Idiot</strong></td>
</tr>
<tr>
<td>No. of mentions: 1</td>
</tr>
<tr>
<td>Page: 387</td>
</tr>
<tr>
<td><strong>The Brothers Karamazov</strong></td>
</tr>
<tr>
<td>No. of mentions: 6</td>
</tr>
<tr>
<td>Pages: 16, 23, 826, 831, 888, 901</td>
</tr>
<tr>
<td>Separate individuals: 4</td>
</tr>
</tbody>
</table>
Suicide attempts: Over the 3 novels there are 8 accounts of suicide attempt involving 8 separate individuals. The most common method was shooting with one example of hanging and drowning. There is one account of a man attempting to suicide following his fraud being exposed, but the triggers were often uncertain. For example, a disagreeable nihilist with terminal tuberculosis and a villain with a history of paedophilia attempted to shoot themselves, but the precise motivation at the time of these attempts is uncertain. In most cases there are multiple social/psychological factors. In two cases a mental disorder might have been present, the first concerned a man who had earlier confessed to a murder he had not committed [9] (p.156) and the second concerned an unnamed woman who had been abusing alcohol and had a past history of a suicide attempt [9] (p. 189). Table 2 provides further details.

Table 2. Details the attempted suicides described in 3 Dostoyevsky novels

<table>
<thead>
<tr>
<th>Attempted Suicide</th>
<th>Individuals/Methods</th>
<th>Triggers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crime and Punishment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of mentions: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pages: 156, 189</td>
<td>Nikolay (156) Hanging</td>
<td>Uncertain – confessed to a murder although innocent</td>
</tr>
<tr>
<td>Separate individuals: 2</td>
<td>Unnamed woman (189) drowning</td>
<td>Uncertain – alcohol use and previous attempt</td>
</tr>
<tr>
<td><strong>The Idiot</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of mentions: 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pages: 86, 459, 613</td>
<td>Ippolit (459) Shooting</td>
<td>Nihilist with terminal TB</td>
</tr>
<tr>
<td>Separate individuals: 3</td>
<td>Totsky (613) Shooting</td>
<td>Uncertain – past exposed corruptor of a female child.</td>
</tr>
<tr>
<td><strong>The Brothers Karamazov</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of mentions: 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pages: 151, 154, 387</td>
<td>Lt-Colonel (151) Shooting</td>
<td>Disgrace – fraud</td>
</tr>
<tr>
<td>Separate individuals: 3</td>
<td>Dmitri (154) Stabbing</td>
<td>Uncertain – mixed emotions</td>
</tr>
<tr>
<td></td>
<td>Zossima (387) Shooting</td>
<td>Passive in duel</td>
</tr>
</tbody>
</table>

Suicidal thoughts: Across the 3 novels there are 23 mentions of suicidal thoughts from 10 separate individuals. The settings are frequently complicated with multiple social/psychological forces acting on individuals. Mental disorders are not depicted as playing a large part; one individual [10] (p. 242, 244) who is intimidating and ultimately murders for no clear reason may have psychopathic traits, and another [11] (p. 318, 344) who ultimately develops “brain fever”, a term which at the time of writing was used to described a strong response to stressful situations. Table 3 provides further details.

Table 3. Details the suicidal thoughts described in 3 Dostoyevsky novels

<table>
<thead>
<tr>
<th>Suicidal Thoughts</th>
<th>Individuals</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crime and Punishment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of mentions: 6</td>
<td>Sonya (337, 533)</td>
<td>Driven to prostitution to feed family</td>
</tr>
<tr>
<td>Pages: 337, 528, 529, 533, 522(2)</td>
<td>Raskolnikov (528, 529, 552(2))</td>
<td>Commits murder to test his philosophy/theory</td>
</tr>
<tr>
<td>Separate individuals: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The Idiot</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of mentions: 3</td>
<td>Rogozhin (242,244)</td>
<td>Cold, threatening villain – ultimately murders</td>
</tr>
<tr>
<td>Pages: 242, 244, 450</td>
<td>Ippolit (450)</td>
<td>Nihilist with terminal TB</td>
</tr>
<tr>
<td>Separate individuals: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The Brothers Karamazov</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of mentions: 14</td>
<td>Grushenka (199, 459, 588)</td>
<td>Abandoned by lover, etc.</td>
</tr>
<tr>
<td>Pages: 199, 204, 318, 342, 344, 459, 497, 519, 529, 561, 588, 748, 761, 790, 963</td>
<td>Dmitri (204, 497, 519, 529, 561, 761, 790)</td>
<td>Many family, social and legal problems</td>
</tr>
<tr>
<td>Separate individuals: 6</td>
<td>Ivan (318, 344)</td>
<td>Sullen rationalist, develops “brain fever”</td>
</tr>
<tr>
<td></td>
<td>Lise (790)</td>
<td>“everything is so loathsome”</td>
</tr>
<tr>
<td></td>
<td>Katerina (963)</td>
<td>Helps convict a loved man</td>
</tr>
</tbody>
</table>
Other mentions of suicide: Across the 3 novels there are 56 other mentions of suicide. Drowning, shooting and hanging are the methods mentioned. The situations giving rise to these mentions include loss of reputation, of one man it is said (p. 457) [10] “He has to shoot himself because his honour is at stake”, and loss of a loved one, of a boy’s father it is said (p. 686) [11] “if Ilusha dies, he will go mad with grief or kill himself”. There is no suggestion that mental disorder will lead to suicide. Table 4 provides further details.

Table 4. Details other mentions of suicide in 3 Dostoyevsky novels

<table>
<thead>
<tr>
<th>Novel</th>
<th>No. of mentions</th>
<th>Pages</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crime and Punishment</td>
<td>14</td>
<td>188, 216, 217(2), 338, 360, 401, 466, 473, 482, 487, 497, 511, 541</td>
<td>(188) Said of Raskolnikov, “He may drown himself”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(497) Said to Raskolnikov, “Why not blow your brains out?”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(541) Police officer says, “Then we get those suicide cases – you can’t imagine how much they have increased lately”.</td>
</tr>
<tr>
<td>The Idiot</td>
<td>14</td>
<td>72, 206, 247, 248, 397, 431, 444, 456, 457, 516, 620, 625, 630, 638</td>
<td>(206) Nastasya says, “You’ll hang yourself afterwards”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(457) Said of Ippolit, “He has to shoot himself because his honour is at stake”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(638) Crowd member says, “One night of love and my life I’ll gladly give”.</td>
</tr>
<tr>
<td>The Brothers Karamazov</td>
<td>28</td>
<td>42, 79, 160, 294, 342, 398, 406, 418, 466, 502, 558, 586, 613, 623, 633, 635, 639, 673, 686, 741, 824, 833, 842, 886, 913, 939, 976, 977</td>
<td>(406) Zosima (a monk) says of desire, “men even commit suicide if they are unable satisfy it”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(686) Said of Ilusha’s father, “if Ilusha dies, he will go mad with grief or kill himself”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(833) Ivan says, “Tomorrow the cross, but not the gallows. No, I shan’t hang myself”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(913) Penguin refers to “the sole and fatal way out of his terrible position”.</td>
</tr>
</tbody>
</table>

Data comparison

Suicide: Across 3 novels 10 people complete suicide; quantitative comparisons cannot be made, but it is clear that to Dostoyevsky and his readers, suicide was a not a rare phenomenon, suggesting similarity with the present time. Hanging, shooting and drowning were commonly represented methods, and remain so, and this is in agreement with current western academic literature. The triggers were largely social factors such as public disgrace and harsh treatment by others, with no example directly attributed to mental disorder, which is in contrast to the current academic literature.

Suicide attempts: There are 8 accounts of people attempting suicide. The methods were again hanging, shooting, drowning and stabbing. The triggers were also frequently social factors with some possible suggestion of mental disorder. There appeared to be less attempting than completing, which is in contrast to the current time. The methods were different to the current time, in which overdose is more common. The triggers for suicide attempts were frequently social factors which in consistent with some current findings [13].

Suicide thoughts: There were 23 mentions of suicidal thought, frequently associated with social triggers and infrequently associated with mental disorder. This is consistent with current findings that suicidal thoughts, with a lifetime prevalence 9.2% [14], are more common than completed suicide, and that 67% of those who experience suicidal thoughts do not suffer depression [15].

Other mentions of suicide: There were many (56) other references to suicide. This is consistent with frequent current media stories and other literature [16] and opera [17].

Discussion

The limitations of quantitative comparative studies include the absence of statistical conclusions, and the need to depend on alternative measures and evidence of value. Support for findings of such work relies in large part on logic in the design. The aim of this study was to explore the fiction of Dostoyevsky (1821-1881) with the expectation...
that it would contain credible information about the regional society at the time of publication, and that through comparisons with current western findings (comparison across both time and place), agreements would indicate credible suicide generalizations.

Anthony Trollope believed “a novel should give a picture of daily life” [18], a belief echoed by Anton Chekov [5]. There are obvious exceptions, as in the case of science fiction, but all agree that Dostoyevsky, one of the greatest writers of all time, sought to realistically portray life in mid-19th Century Russia [8,12,19]. As fiction can teach factual information and even moral values [7], it is reasonable to consult his novels for information on suicide at that time and place. At the same time, it is appreciated that the novelist may need to exaggerate and distort to some degree in the interests of exciting and absorbing reading.

Other limitations involving the subjective nature of the study include the selection and categorization of examples. For example, a character (Zossima) [11] who later became a leading religious figure, found religion after having given offence and accepted a duel. He attended that meeting and passively allowed himself to be shot at [11] (p. 387). Influenced by the argument that duelling was not infrequently a “substitute for suicide” [3] (p. 153), we categorized this event as attempted suicide, but others may well have interpreted it differently.

Dostoyevsky was writing at a time of political, social and spiritual unrest in Russia [8], the fundamental requirements of anomie, raising the question of the appropriateness of comparisons with the present time. While only some of the west is involved in other nation’s wars, with terrorist bombings, public suicides view on the web, and global and European financial crises, society in the west is also in a state of change.

From these 3 novels we learn that suicide was by no means uncommon in mid-19th Century Russia. Ten different individuals took their lives, and importantly, these events are described in matter-of-fact manner. Of course, understatement may be used to increase the impact of an event, but in these 10 descriptions there is a sense of unremarkable, almost inevitable consequence. The main methods (hanging, shooting and drowning) are much as they are in current times. Jumping from a high building is not reported, but high buildings were less available at that time. The main triggers were social factors such as disgrace and harsh treatment by others; there was little mention of mental disorder as a trigger for suicide, but no chronically severely mentally disordered individuals were among the characters. A comparison between the two ages suggests that little has changed in the field; a reading of Dostoyevsky confirms that suicide is not an uncommon event, and may occur in non-mentally disordered individuals. There are only 8 accounts of attempted suicide, and these involved attempted hanging, shooting and drowning. In these accounts others persons intervened to prevent completion of the deadly acts. The current situation is quite different, we see vastly more attempted suicides than completed suicides. This may be explained by the current culture, greater availability of prescription medications and Emergency Departments and Mental Health Services which assist people with cuts. Reading Dostoyevsky suggests there may have been an increase in ‘attempted suicide’, but there are definitional issues here, and current debate over the terms attempted suicide and non-suicidal self-injury [20].

Across these 3 novels there were 23 mentions of suicidal thought, frequently associated with social triggers and infrequently associated with mental disorder. As mentioned above, this is consistent with current clinical experience. This strongly suggests that at least since the mid-19th Century, adversity has been associated with consideration of the option of escaping predicaments through suicide.

These novels contained another 56 mentions of suicide. Thus, the topic was not restricted to the occasional thoughts or actions of key characters, but a theme which permeated the fabric of the novels. These additional mentions made/make it additionally difficult for readers either at the time of publication or subsequently to remain unacquainted of the topic.

In summary, comparisons of mid-19th Century novels of Dostoyevsky and current academic
findings in the west suggest that suicide is not uncommon, and hanging, shooting and drowning are prominent methods. Dostoyevsky indicates that suicide may be as consequence of adversity. Attempted suicide raises definitional problems, but in the mid-19th Century Russia this appears to have been uncommon and mainly involved suicidal acts which were interrupted by others, while currently in the west this is common and involves the use of prescription medication and non-fatal cutting. This indicates change. Suicidal thoughts appear to be common in both times/places, suggesting adversity is associated with consideration of suicide as an escape option.

Conflict of interest: Nil

References


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Received: 18 April 2014

Accepted: 10 June 2014
Coping Styles And Stroop Test In Non-Clinical Sample: Exploring The Associations And Predictors Of Cognitive Styles


ORIGINAL ARTICLE

COPING STYLES AND STROOP TEST IN NON-CLINICAL SAMPLE: EXPLORING THE ASSOCIATIONS AND PREDICTORS OF COGNITIVE STYLES

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Abstract

Objective: Literatures on factors influencing performance of the Stroop interference have been elusive on coping styles. Past investigations of coping influence on Stroop test have been indirect and inconclusive due to variability of multidimensional coping models and application of different Stroop test. The concept of constricted versus flexible or broad cognitive style have linked personality and coping styles to Stroop performance. The objective of this study was to determine the associations of coping styles with Stroop resistance towards interference (Stroop RI) and subsequently determine the predictors of Stroop performance.

Methods: This was a cross-sectional community research design study with purposive sampling. In this study, the self-administered Brief COPE inventory questionnaires and Stroop Test were performed among 205 undergraduate medical students. Results: Findings revealed that behavioural disengagement (r = -0.361), dysfunctional coping (r = -0.355), self-blame (r = 0.222), and substance abuse (r = -0.173) showed negative correlation and proven strong association with Stroop RI. Further multiple regression analyses identified behavioural disengagement (R² = 0.13), and dysfunctional coping (R² = 0.024) as significant predictors for interference.

Conclusion: Coping styles have implication on Stroop test exhibited in varied cognitive styles. Integrating coping styles factor on Stroop test has glimpsed the future direction of other neuropsychological assessment batteries on the importance of profiling individualistic baseline norms. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 75-83.

Keywords: Stroop Test, Coping Styles, Cognitive Styles, Interference

Introduction

Stroop Colour–Word task or Interference Test has been available as a screening instrument and is also part of a large battery of neurological and psychological tests for selective attention and cognitive flexibility [1-2]. Past literatures have been associating Stroop interference with other preceding precursor processes or secondary external stimuli on coping formation such as anxiety, stress and temperament [3-5]. Previous findings found people with repressive coping style can inhibit automaticity in Stroop Test indicating that repressors selectively avoid attending to threat-related stimuli [6]. Also, avoidance coping was associated with disproportionately longer colour naming time for threat related words as compared with neutral words in Emotional Stroop test [7]. However these past investigations of coping influence on Stroop test have been indirect and inconclusive because of variability of multidimensional coping models and application of different Stroop test.

Recent findings that Stroop interference effect can be utilized as psychological or cognitive
stressors capable of inducing emotional responses and heightened physiological changes also inspired current research. Investigations on stressfulness of Stroop test were affirmative that this test alone without added external pressures is sufficient to elicit necessary stressor markers such as increase in heart rate level [3, 8]. Fundamentally, current study investigation is based on the assumptions that conflicts arose when naming incongruent colour of the words that builds up internalized stress which is resolved by the coping behaviours. Nevertheless, previous studies on dimensionality of coping styles on COPE Inventory found that emotion or problem-focused scales have repeatedly emerged on the similar factor [9]. Previous study also commented that when stressed, people are flexible to use both kinds of coping styles to cope with unresolved problem as suggested by the high degree of overlap between styles depending on their unique experiences [10].

Coping response during stressful situation can be either dispositional or situation-specific due to individual differences in people. The dispositional coping reflects individual characteristics or trait-like responses to stress whereas situational coping reflects responses to a specific [11 - 12]. Past literature also addressed the possibility of individuals portraying stable coping styles pertaining to personality when they encountered stressful situations [13]. Several literatures supported that coping strategies may remain relatively consistent across time in a given stress domain and do not approach coping context anew to address broad array of stressors [14, 15]. For the present study, it is more appropriate to investigate inter-individual coping measure between dispositional coping styles and situational strategy use because all subjects would have to respond to the same stressful test and report cognitive performance in the same time frame. Consequently, the aim of current study is to investigate whether coping styles is associated with the outcome of cognitive performance, resistance to Stroop Interference (Stroop RI) as measured in Stroop test.

The concept of constricted versus flexible cognitive style seems to have instilled new paradigm of how coping styles could relate to Stroop performance [16, 4]. Briefly, cognitive style is referred to individual’s preference for information processing, regardless of individual differences in abilities, such as peak performance, or styles, which tend to describe an individual’s characteristic mode of thinking, remembering or problem solving [18]. Application of flexible-constricted cognitive styles on Stroop Colour-word Test was first introduced by Smith & Klien [19] to measure subjects’ behaviour in reaction to name colour of colour cards with mismatching colours. Subsequent past literatures replicates Smith & Klien’s findings and pointed out that a person with a flexible cognitive style was relatively resistant to interference effects measured on the Stroop Test [16, 4]. We hypothesized that people who exhibit flexible cognitive style have high resistance to interference due to the ability to respond in a flexible manner without being overwhelmed by a dominant stimulus field. Vice versa, individuals with constricted cognitive style were prone to interference effects due to their limited capacity to attend to other information sources such as feelings or emotional reactions, whilst remaining focused on existing task. The resistance to change in cognitive sets indicates a constriction in ability to use all available cues. This hypothesis is supported by previous research findings that Stroop stimulus primarily concerned the difference in the individual’s ability to sort information from the environment, and their selective response to it [20]. Based on the above assumptions, the second objective of this study is to investigate which coping styles predict cognitive styles as measured by resistance towards interference (RI) in Stroop Test, Stroop’s RI.

Methods

Participants

Undergraduate medical students (N= 203, 57 male, 146 female) ranging in age from 18 to 25 years (M= 21.48, SD= 1.97) from Universiti Sains Malaysia volunteered to participate in the present study. The study sample was relatively diverse, (53.7% Malay, 40.4% Chinese, 4.9% Indian and 1% others. Ethical approval was obtained from the Human Ethical Committee of Universiti Sains
Malaysia Health Campus (Ref: USM KK/PPP/JePeM 267.2[7]).

Assessments

Coping Styles
Coping styles were measured by using the Malay version of Brief COPE inventory [21]. The internal consistency of this scale ranged from 0.58 to 0.83. This scale was translated from Carver et al. [22] to assess a broad range of coping responses among adults for all diseases in Malaysian population. It contains 28 items and is rated by the four-point likert scale, ranging from “I haven’t been doing this at all” (score one) to “I have been doing this a lot” (score four). In this study, the higher the score of positive coping strategies (i.e. active coping, use of emotional support, use of instrumental support, venting, positive reframing, planning, humour, acceptance and religion) and the lower the score of negative or dysfunctional coping strategies (i.e. denial, substance use, behavioural disengagement and self-blame) indicate the greater use or better coping strategies. In total, 14 dimensions are covered by this scale. These are self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion and self-blame. Every dimension of the coping styles has two items and can be divided into three major categories: Problem-based Coping (i.e. active coping, planning, self-distraction and using instrumental support), Emotion-based Coping (i.e. positive reframing, acceptance, religion, using emotional support and denial) and Dysfunctional coping (i.e. focus on and venting of emotions, denial, behavioral disengagement, mental disengagement, and alcohol/drug use) [13].

Cognitive styles
The Stroop Colour-word test was utilized as a measure of flexible or constricted cognitive styles based on performance in resistance to interference (RI), known as Stroop’s RI in regards to personality traits and coping styles. The reliability of Stroop scores is highly consistent across different versions of the test. Golden [16] reported reliabilities of .89, .84 and .73 for group version of the test. The version of the Stroop Test employed here was the second Stroop version [17]. The tests comprised three pages. Each page had 100 items, presented in 5 columns of 20 items each. Page 1 (Word) consisted of the words “RED”, “GREEN” and “BLUE”, arranged randomly, and printed in black ink on white 8.5”x11” paper. Page 2 (Colour) consisted of 100 items, all written as “XXXX”, printed in either red, green or blue ink. Page 3 (Colour-Word) consisted of the words on Page 1 printed in the colours on Page 2. The two pages were blended item for item: item 1 on page 1 was printed in the colour used in item 1 on page 2 to produce item 1 on page 3. Lower scores reflected greater constricted cognitive style and greater interference, while higher scores reflected flexible cognitive style and less interference.

After completion of Brief COPE (Malay Version) questionnaire, the Stroop Test was administered verbally to a group of 10 participants at a time, in a small, quiet room. The Stroop test is performed chronologically beginning with Word task, followed by Colour task, and finally Colour-Word task. In the Colour-Word task, the task required the participants to name the colours in which words were printed instead of reading words. All tasks were set to be done within 45 seconds. The number of correct items was recorded. The participants will be cued to amend their error during the task and the numbers of correct items were recorded. Prior to administering the Stroop Test, the examiner was unaware of the subjects’ results on coping styles.

Statistical Package for the Social Sciences (SPSS, version 20) was employed for statistical analyses. Data screening was conducted to ensure that appropriate assumptions were met.

Results

3.1 Demographic data
Data from an initial 205 participants who completed the study were screened and
corrected for missing values, resulting in a retained sample of 203 participants after data were excluded due to extreme outliers. None of the participants were reported of being colour-blind, dyslexic or diagnosed with depression or other mental disorders. All variables were examined for fit between the distributions and assumptions for parametric tests. Table 1 shows the distribution of respondents according to demographics.

### Table 1. Demographics data

<table>
<thead>
<tr>
<th>Variables</th>
<th>Respondents, N = 230 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, n (%)</td>
<td>Male 57 (28.1) Female 146 (71.9)</td>
</tr>
<tr>
<td>Race, n (%)</td>
<td>Malay 109 (53.7) Chinese 82 (40.4) Indian 10 (4.9) Others 2 (1)</td>
</tr>
<tr>
<td>Age, mean ± SD</td>
<td>21.48 ± 1.46</td>
</tr>
</tbody>
</table>

#### 3.2 Associations between coping styles and Stroop’s resistance towards interference (Stroop RI) scores

A Pearson correlation coefficient test was conducted to investigate associations between the coping styles and Stroop RI. The correlation matrix for the subscales of the measures is presented in Table 2. The results showed that behavioural disengagement and self-blame are strongly negatively correlated to Stroop’s interference whereas substance abuse only weakly negatively correlated to Stroop’s interference (Table 2). All the other coping styles have failed to prove any correlation with resistance for interference. Unlike past studies, current study also seek to determine the combined effect of coping styles of problem-based, emotional-based, and dysfunctional coping styles. As expected, the dysfunctional coping which represent combination of coping styles of self-blame, substance abuse, and behavioural disengagement, was strongly negatively correlated to the Stroop’s RI score. However, the combined styles in dysfunctional coping has lesser correlation compared to single behavioural disengagement coping.

### Table 2. Correlation coefficient of coping styles with Stroop’s RI^ scores

<table>
<thead>
<tr>
<th>Coping style</th>
<th>Pearson Correlation (r)</th>
<th>Sig. (2-tailed) p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-distraction</td>
<td>-.0056</td>
<td>0.427</td>
</tr>
<tr>
<td>Active Coping</td>
<td>0.095</td>
<td>0.179</td>
</tr>
<tr>
<td>Instrumental Support</td>
<td>0.005</td>
<td>0.946</td>
</tr>
<tr>
<td>Planning</td>
<td>0.087</td>
<td>0.217</td>
</tr>
<tr>
<td>Acceptance</td>
<td>0.086</td>
<td>0.220</td>
</tr>
<tr>
<td>Denial</td>
<td>-0.120</td>
<td>0.089</td>
</tr>
<tr>
<td>Emotional Support</td>
<td>0.029</td>
<td>0.686</td>
</tr>
<tr>
<td>Positive Reframing</td>
<td>0.078</td>
<td>0.267</td>
</tr>
<tr>
<td>Humour</td>
<td>-0.019</td>
<td>0.792</td>
</tr>
<tr>
<td>Religion</td>
<td>-0.069</td>
<td>0.326</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>-0.173*</td>
<td>0.013</td>
</tr>
<tr>
<td>Behavioural Disengagement</td>
<td>-0.361**</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Venting</td>
<td>-0.084</td>
<td>0.233</td>
</tr>
<tr>
<td>Self-blame</td>
<td>-0.222**</td>
<td>0.001</td>
</tr>
<tr>
<td>Problem-based</td>
<td>.067</td>
<td>0.340</td>
</tr>
<tr>
<td>Emotional-based</td>
<td>-.103</td>
<td>0.143</td>
</tr>
<tr>
<td>Dysfunctional</td>
<td>-.355*</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

^RI = resistance towards interference; *p<0.05, **p<0.01
Linear relationships of coping styles and Stroop RI

Regression analysis was performed for each of the COPE inventory outcome variables and two coping styles emerged as predictors for interference effect. Dysfunctional coping and behavioural disengagement coping were found to be significant predictors of Stroop RI’s performance \( [R^2=0.154, F (2,200) = 18.15, p=0.001] \). The combined variance contributed 15.4\% in the Stroop RI’s score. Behavioural disengagement contributed the most variance \( (R^2=0.13) \) and dysfunctional coping only contributed 2.4\% of the variance in interference effect (Table 3).

Table 3. Multiple regression summary statistics for Brief COPE (\( N = 203 \))

<table>
<thead>
<tr>
<th>Coping Styles</th>
<th>Stroop RI (Resistance towards interference)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Self-distraction</td>
<td>-.863</td>
</tr>
<tr>
<td>Active coping</td>
<td>-.463</td>
</tr>
<tr>
<td>Instrumental support</td>
<td>-.695</td>
</tr>
<tr>
<td>Planning</td>
<td>-.413</td>
</tr>
<tr>
<td>Acceptance</td>
<td>-.276</td>
</tr>
<tr>
<td>Denial</td>
<td>.477</td>
</tr>
<tr>
<td>Emotional support</td>
<td>.677</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>.580</td>
</tr>
<tr>
<td>Humour</td>
<td>1.094</td>
</tr>
<tr>
<td>Religion</td>
<td>.058</td>
</tr>
<tr>
<td>Substance use</td>
<td>.062</td>
</tr>
<tr>
<td>Behavioural disengagement</td>
<td>-.509</td>
</tr>
<tr>
<td>Venting</td>
<td>1.098</td>
</tr>
<tr>
<td>Self-blame</td>
<td>.541</td>
</tr>
<tr>
<td>Problem-based</td>
<td>.840</td>
</tr>
<tr>
<td>Emotional-based</td>
<td>-.719</td>
</tr>
<tr>
<td>Dysfunctional</td>
<td>-1.275</td>
</tr>
</tbody>
</table>

Multiple Linear Regression (stepwise method). B= unstandardized coefficient, CI= confidence interval, Beta= standardized coefficient

Discussion

Coping Styles and Stroop interference resistance

Brief Cope is an abbreviated inventory that could be used to examine both coping dispositions and situation-specific coping tendencies with the assumption of individual difference in coping pertaining to personality that prompt people to cope in certain ways when they confront stressful events [13]. To note, previous study has not investigated coping styles in regard to cardinal cognitive functions such as problem-solving, mental flexibility, decision making, or executive functions under normal circumstances. Nevertheless, the concept of coping flexibility gave insight of incorporation of cognitive flexibility as individual's cognitive appraisal varies across situation, influencing choice of coping to attain effectiveness in goal achievement [23]. However, this concept focuses more on situation-strategic fit of coping matching the nature of a stressful situation which is different from current
study’s objective to investigate dispositional coping influence on Stroop’s performance.

Analysis of dimensions of fourteen coping style dimensions in Brief COPE showed strong negative correlation of behavioural disengagement, dysfunctional coping and self-blame with Stroop RI whereas substance use showed weak negative correlation. As expected, we found that only behavioural disengagement and dysfunctional coping negatively predicted Stroop RI of normal medical undergraduate students in this study. According to Carver [13], behavioural disengagement was described as reducing ones effort to deal with stressors or even giving up on attempts to attain goals when interference from perceived stressors exist. Medical students in this study were observed to skip or reduce attempts to continue on naming colours of all the items after making error as time urgency was imposed on Colour-Word task. Reductions in attempts or skipping items are obvious proof of students’ tendency for behavioural disengagement coping. Inherently, reductions in attempts or skipping items caused substantial reduction in Stroop’s RI performance. Thus, this implied that these students who prefer behavioural disengagement coping were noted to have constricted cognitive styles, whereby they were more prone to interference effects because of their limited capacity to take in and deal with stressors from the test.

Behavioural disengagement is also regarded as a type of avoidance coping [13]. Comparison of current study with previous study reported similarity that avoidance coping was associated with disproportionately longer colour naming time for threat related words as compared with neutral words in emotional Stroop test [7]. Though there are slight difference of assessment and scoring protocol, poor Stroop interference resistance outcome was reported but in the form of longer colour naming time. This finding suggested that individuals with avoidance coping style may display increased attention towards threat word content or have difficulty in diverting attention away from such content when it is initially encountered, leading to longer naming of colours. Likewise, current study using the Stroop test showed that the conflict from the interfering, fast and automatic colours naming pitting against slow, voluntary and controlled conscious, colour naming task [24 - 25] promote internalised stress through response processing competition [26]. In other words, both emotional Stroop and conventional Stroop test could detect poor interference resistance performance, to one extent highlighting due to the choice of avoidance coping.

In addition, self-blame has been found to be a predictor of poor adjustment under stress in other research using different coping measures [27]. Self-blame has also been identified in recent study as a significant predictor for associated factor of depression among medical and dental students of USM [28]. Findings from past literature concluded that depressed populations exhibit inconsistent depression-related Stroop effects, and strong memory biases depression is associated with biases in controlled or effortful processing in mental processes such as interpretation and memory instead of with automatic processes such as attention [29]. Qualitative reviews of Stroop performance validate the inconsistency of depression-related Stroop effects [30 - 32]. Therefore, self-blame is likely to explain the poor performance in Stroop’s RI. Our study also found weak negative correlation of substance use with Stroop’s RI. This may be due to prior screening whereas none of the students in our study are drinkers or drug abusers and secondly, because of lack of availability and access to drugs and alcohol in the community. Thus, it is natural to believe substance use is never a choice of coping for the respondents. Past analyses from simple linear regression on neurotic personality traits and depression among first year medical and dental students of USM further confirmed that substance use coping is not significant [28]. Nevertheless, substance use effect may be substantial in other populations as it is among the ineffective coping styles which are characterized as neurotic coping [33].

However, surprisingly by categorizing self-blame, substance use, denial and behavioural disengagement coping under a generalised category of dysfunctional coping based on
Carver [13], our results showed dysfunctional coping negatively correlated with and predicted Stroop’s RI. It is arguable about the predictive power of dysfunctional coping on interference resistance because it may be the dilution of predictive power of the single main predictor, behavioural disengagement coping. Statistical regression analysis showed that single behavioural disengagement coping contributed 13% of the variance in interference effect compared to 2.4% contributed by dysfunctional coping. Normally, combined factors should enhance the prediction for Stroop’s RI, but since results showed otherwise, suggesting dysfunctional coping influence on Stroop interference resistance is minor.

One significant limitation of this study is that it is a cross-sectional study. In addition, since the respondents were given flexibility of using their native language in tasks, there might be confounding bias in the Stroop Colour-Word test because the items are printed in single language which is English. However, this would not affect the overall performance of Stroop Colour-Word test because most Malaysian undergraduates are bilinguals under the context that Malaysian is a multi-racial nation with bilingual educational system. Considering these limitations, caution must be taken in generalizing the results of the study.

Conclusion

This study found that individual difference parameters could affect Stroop’s interference resistance prediction. Negative predictions are portrayed by behavioural disengagement and dysfunctional coping styles with Stroop Colour-Word Test. Low performance in Colour-Word Test indicated that negative predictors are more prone towards restricted cognitive styles. Behavioural disengagement coping is the strongest predictor for Stroop RI while dysfunctional coping significantly predicts Stroop RI among the medical students of USM. These findings have suggested that individual differences parameters such as coping styles, imperatively affect Stroop RI performance of normal individuals under normal circumstances. As such, coping styles should be considered to enable comparing resistance towards Stroop interference performance with other respondent under normal circumstances. Coping styles have implication on Stroop test exhibited in varied cognitive styles. Integrating coping styles factor on Stroop test has glimpsed the future direction of other neuropsychological assessment batteries on the importance of profiling individualistic baseline norms.

Acknowledgements

This study was supported by Universiti Sains Malaysia (USM) Short Term Grant No. 304/pspp/61312101.

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Received: 1 May 2014           Accepted: 23 July 2014
OLDER ADULTS WITH COGNITIVE IMPAIRMENT LIVING IN MALAYSIAN NURSING HOMES – HAVE WE MET THEIR NEEDS?

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Abstract

Objective: Transition of people with cognitive impairment to nursing home is often an option when their disease progresses and their needs become too complex. The aim of this study was to identify the needs of people with cognitive impairment living in nursing homes and factors associated with higher level of needs. Methods: A cross sectional survey involving 110 respondents with cognitive impairment aged ≥60 was carried out. Respondents were assessed using the Short Mini Mental State Examination (SMMSE), Camberwell Assessment of Needs for Elderly (CANE), Barthel Index (BI), Friendship Scale (FS) and Geriatric Depression Scale (GDS). Results: Respondents with cognitive impairment had a mean of 2.81 (SD=3.72) for unmet needs and 11.95 (SD=3.14) for met needs, with higher mean suggesting a better outcome measure. The most frequent unmet needs were intimate relationships (66.40%), company (40.00%), and daytime activity (34.50%). Unmet needs were significantly associated with depression, social isolation, and cognitive impairment. Conclusion: Most of the needs of people with cognitive impairment in nursing homes were fulfilled, except in social area. Therefore, attention should be given in improving the care system, which emphasizes collaboration between people with cognitive impairment, family members, community, and government in helping to reduce the risk of loneliness in those with cognitive impairment. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2014: 84-94.

Keywords: Care, Cognitive Impairment, Malaysian Nursing Home, Needs Assessment, Older Adult

Introduction

Malaysia, like any other country in the world, is facing an increased number of people reaching old-age. Given a population growth rate of 1.5% per annum in 2012, which is three folds higher compared to Thailand (0.5% per annum) [1], it is predicted that Malaysia will experience the full impact of an ageing population in 2035 [2]. As such, it was expected that the prevalence of people with cognitive impairment and the number of dependent older adults will be increasing as well. According to the survey, the prevalence of Alzheimer’s Disease (the most common type of dementia) in Malaysia is approximately 50,000 people [3] with a total dependency ratio of the elderly expected to increase from 12.1% (2010) to 16.5% (2020) [4]. Thus, leading to increased responsibilities, including forcing family members into the stressful roles of providing care for ailing family members [5, 6]. This escalating care demands will eventually prompt the caregivers to place their relatives in institutional care [7, 8].
In Malaysia, there are thirteen nursing homes provided by the Ministry of Women, Family and Community Development of Malaysia (i.e. the Social Welfare Department) to accommodate older adults especially those without the next of kin [9]. These nursing homes were built based on a mixture of a home-like environment and hospital model. It is a secured facility and fully funded by the government. Services offered in these facilities include medical treatment, counseling, rehabilitation, physiotherapy services, financial assistance, prayer facilities, and recreation services to ensure well-being and quality of life (QoL) [10].

However, these nursing homes have not specifically been designed to provide care for people with complex needs such as those with cognitive impairment. Therefore, it remains unclear to whether those living in the institutions have their needs met. Compared to those who live in the community, studies have shown that people with cognitive impairment who live in institutions reported to have more complex and unmet needs, such as inadequate daytime activities, psychological distress, mobility, and incontinence[11-13]. Factors such as complexity of behaviour, inadequate communication, having limited income, delays in follow-up for diagnostic tests and treatments, and medication errors are among the reasons for their needs being overlooked [14-16]. These unmet needs can cause misunderstandings, frustration, neglect or abuse of the older person and consequently lead to poor quality of life and increased mental health problems.

Alarmed by potential consequences of these unmet needs, this study aimed to examine self-reported needs of people with cognitive impairment who were living in government institutional care. The findings will provide evidence-based information, which may assist policy makers (government) in decisions concerning management for people with cognitive impairment in the institutions and providing a better life for those suffering cognitive impairment.

Methods

Participants

This was a cross sectional study involving people with cognitive impairment residing in government nursing homes. Of the nine government nursing homes in West Malaysia, four were selected based on geographical factors and accessibility. The four nursing homes who agreed to participate in this study were Rumah Sri Kenangan Seremban, Rumah Sri Kenangan Melaka, Rumah Sri Kenangan Ulu Kinta, and Rumah Sri Kenangan Kelantan.

All residents aged 60 years old and above were invited to participate in the study. The selection of cases in this study was made based on the information documented in the residents’ medical records. However, not all participants’ medical records provided the diagnosis for cognitive impairment. This was probably due to the fact that cognitive impairment is normally underdiagnosed and undertreated, particularly for those in the nursing homes. In the cases where a specific diagnosis was not recorded in the medical records (in 33.6% participants), cognitive impairment was defined following the Short Mini Mental State Examination (SMMSE) score performed by the researcher. A cut-off 10 point out of 12 points was used as an inclusion criterion [17] and those who scored 11 and above were excluded from the study. This cut-off was selected since a score of 10 or lower corresponds with the likely presence of cognitive impairment [17]. Those who were unable to communicate in or understand Malay or English were excluded. For this process, only one researcher was involved in assessing and interviewing the participants.

Procedure

The managers of the nursing homes provided the researcher a list of residents which contain residents’ information such as personal details (e.g.: name, age, identification number, address, contact number), diagnosis, and dormitory number. Potential participants (age between 60 years old and above) were identified following the sequence from the list until the requisite sample size was reached.
Potential participants were then introduced by the allied health staff to the researcher and they were directly invited for their participation in the study. The nature and purpose of the study were explained to the participants before getting their verbal consent.

Following verbal consent, participants were invited to a meeting room and provided with a consent form and participant information sheet (PICF). Relatives and medical doctors were not involved in this process as is commonly the case in Malaysia for research occurring in nursing homes. Participants were excluded if the clinical impression showed that they were not competent for this study i.e. unable to follow the consenting process or it was evident that they could not understand verbal language to a degree where they understood the nature of this research study.

Consenting participants were then assessed using the Short Mini Mental State Examination (SMMSE). Responses from the SMMSE were scored at that particular time. Only participants with a SMMSE score of less than 11 [17] were included and proceeded with the interview. The interview covered a set of questionnaires consisting the socio-demographic information, the Geriatric Depression Scale [18] to assess depression, the Camberwell Assessment of Need for Elderly (CANE) to assess needs [19], the Friendship Scale (FS) to assess social isolation/connectedness [20], and the Barthel Index (BI) to assess activities of daily living (ADLs) [21].

Questionnaires were translated into Malay using forward and backwards translation with reconciliation by the Malaysian National Institution for Translation. It took an average of 30 minutes to conduct each interview. Participants were offered a break during the procedure.

**Measures**

**Demographic data:** age, gender, ethnicity, education attained, marital status, length of stay in nursing home, number of children, relationship satisfaction with children, financial situation. In addition, six questions were asked regarding health condition, medication, and length of suffering from cognitive impairment.

**Assessment of Cognitive Severity:** The Short Mini Mental State Examination (SMMSE) [17] is a brief cognitive screening tool derived from the original Mental State Examination [22]. It consists of 12 items namely, year, month, date, day, country, postal code, spell backwards, recall, repeat sentence, three stage command, write a sentence, and copy design. Each of these items was scored binomially which gave a total score of 12. Giving a sensitivity of 98% and specificity of 91%, a cut off score of 10 was used to differentiate those with cognitive impairment [17]. Classification of cognitive impairment was defined based on the SMMSE score as; 1) mild to moderate cognitive impairment (a score between 5 to10) and 2) moderate to severe cognitive impairment (a score between 0 to 4).

**Assessment of Needs:** Camberwell Assessment of Need for the Elderly (CANE) is a comprehensive yet easy tool which assesses the needs of older people with mental health problems [19]. It was derived from the earlier Camberwell Assessment of Need (CAN) designed for mental health patients [23, page 83]. The CANE is a structured interview that assesses met and unmet care needs and care use in 24 areas (social, medical, and psychological needs, and needs regarding the living environment) [24]. Participants are asked about any difficulties or problems with performing activities in each of the areas. Needs are rated as 0 = no need (no problem), 1 = met need, 2 = unmet need or 9 = unknown. Needs are met when a difficulty in a particular area is being provided for, in such a way that the person no longer feels its negative impact on his or her overall QoL. Unmet needs are experienced when a person is not supported for a problem that occurs in a particular area, or receives insufficient or inadequate support [23, page 86]. Total scores for met needs and unmet needs are calculated separately by counting the number of 1s (met needs) and 2s (unmet needs) in all the 24 items. These two scores can be added to derive total score for overall needs.

**Assessment of Depression:** The Geriatric Depression Scale (GDS) [25] is a self-rated
scale developed to screen depression in elderly population [26]. The original version of GDS consists of 30 items (GDS-30), while a short version of the GDS contains 15 items (GDS-15). These items seek information representing lowered affect, decreased activity levels, irritability, withdrawal, distressing thoughts, and negative judgments about the past, present and future [25]. It is presented in a yes/no response format with one point assigned to each answer. Items were summed and higher scores indicate higher depression level. In Malaysian population, validation study done by Teh & Hasanah [27] revealed good psychometric purposes with Cronbach's alpha coefficient of 0.84 and test-retest reliability of 0.84.

Assessment of social isolation/connectedness: The Friendship Scale (FS) [20] is an instrument which assesses aspects of both perceived social isolation and loneliness. It consists of 6 items with three of the items covering the feelings of loneliness and the other three items probing the importance of actual social contacts. Responses are categorized into 5 levels of perceived social isolation (Almost always/Most of the time/About half the time/Occasionally/Not at all). A total score is derived from the summation of item responses (items 1, 3 and 6 are reversed prior to scoring). A score of ‘0’ indicates complete social isolation and a score of ‘24’ indicates high social connectedness [20].

Assessment of Activity of Daily Living: The Barthel Index (BI)[21] consists of 10 items; feeding, moving from wheelchair to bed and return, getting on and off toilet, bathing self, walking on level surface, ascending and descending stairs, dressing, and controlling bowels and bladder [21]. Each item is scored on a 3-point scale, with 0 = totally dependent. 1 = some help needed and 2 = totally independent [28]. Items are weighted and summed to give a score range from 0 to 100, with higher scores indicating total independence[29].

Ethical consideration

Ethical approval was sought and granted from the Human Research Ethics Committee of The University of Melbourne, Victoria, Australia, the Malaysia Research Ethics Committee, and the National Institute of Health, Malaysia.

Statistical methods

Data were analyzed using the Statistical Package for the Social Sciences Version 16[30]. Descriptive statistics and categorical variables are presented as counts, proportions or percentages. Categorical data was analyzed using $\chi^2$ (Chi-square); where distributional assumptions were violated, the Fisher Exact test was used. Analysis of variance (ANOVA) was used to examine differences between groups and a multiple linear regression analysis was conducted to determine the predictors of unmet needs.

Results

Demographic

A total of 149 older adults aged between 60 to 89 years old from 4 nursing homes were approached. In all, 129 gave their verbal consent but only 127 were screened for evidence of cognitive impairment. The remaining 2 were not screened due to the presence of psychotic symptoms and being bed ridden. Of 127, 110 met the inclusion criteria for the study and completed the questionnaires. Following the recommendation for calculating response rate by Lynn and colleagues, the response rate for the study was 74% [31]. There was no significant difference between consenting and non-consenting participants with regards to gender and age.

The mean age for study participants was 71.6 years (SD=7.8). Seventy six of the participants (69.1%) were Malays and 64 were single/separated (58.2%). Participants who were widowed were significantly older in age (mean=74.4, SD=7.7) compared to those who were partnered (mean=66.6, SD=7.4) or single (mean=70.4, SD=7.4) (ANOVA, F (2,110) = 5.2, p<0.01). Seventy four (67.3%) of participants had formal education with 56.4% having at least a primary school education. Participants who were widowed were significantly older in age (mean=74.4, SD=7.7) compared to those who were partnered (mean=66.6, SD=7.4) or single (mean=70.4, SD=7.4) (ANOVA, F (2,110) = 5.2, p<0.01). Seventy four (67.3%) of participants had formal education with 56.4% having at least a primary school education. Participants with a formal education were significantly younger with a mean of 69.8 years (SD=6.9) (primary school), and a mean of 69 years (SD=8.7) (secondary school) compared to those who received informal education (mean=75.5 years, SD=7.7) (F
Older Adults With Cognitive Impairment Living In Malaysian Nursing Homes – Have We Met Their Needs?

(2,110) = 7.6, p<0.01). The majority (89.1%) of participants reported to have below average income. The average length of stay in the nursing homes was 56.5 months(SD=54.8). On a self-rated health condition question, 48 (47.5%) of participants reported feeling unhealthy, and they were significantly older in age (F (1,110) = 6.7, p=0.01) compared to those who reported feeling healthy.

Table 1. Demographics data of people with cognitive impairment in nursing homes

<table>
<thead>
<tr>
<th>Variables</th>
<th>N (%) (if not otherwise specified)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Mean (SD*)</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Malay</td>
</tr>
<tr>
<td></td>
<td>Chinese</td>
</tr>
<tr>
<td></td>
<td>Indian</td>
</tr>
<tr>
<td>Education</td>
<td>Non-formal</td>
</tr>
<tr>
<td></td>
<td>Primary school</td>
</tr>
<tr>
<td></td>
<td>Higher</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single/separated</td>
</tr>
<tr>
<td></td>
<td>Partnered</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
</tr>
<tr>
<td>Family support</td>
<td>No partner/child</td>
</tr>
<tr>
<td></td>
<td>Either partner or child</td>
</tr>
<tr>
<td>Relationship</td>
<td>Satisfied</td>
</tr>
<tr>
<td>Satisfaction (dichotomized)</td>
<td>Dissatisfied</td>
</tr>
<tr>
<td>Financial status</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>Below average</td>
</tr>
<tr>
<td>Months of stay in nursing home</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Health condition</td>
<td>Not healthy</td>
</tr>
<tr>
<td></td>
<td>Healthy</td>
</tr>
</tbody>
</table>

*SD = Standard deviation

Health functions and other measures

The median for functional measure (as assessed by Barthel Index) for the study sample was 80 (IQR 25-100), reflecting moderate dependency. About 15% of people with cognitive impairment in this study were independent and more than half of the patients (53.6%) were moderately dependent. The median score for depression as assessed by the GDS was 14 (IQR=2-15), which represents major depression. The majority (85.5%) of people with cognitive impairment in this study suffered from major depression with only 4.5% not depressed. As for cognitive impairment, the mean score on the SMMSE was 5.1 (SD=2.4), indicating mild to moderate cognitive impairment. Social isolation/connectedness was measured using the Friendship Scale. A mean score of 8.5 (SD=3.4) indicated that people with cognitive impairment in this study were very isolated.
Table 2. Health function and other measures of people with cognitive impairment in nursing homes

<table>
<thead>
<tr>
<th>Variables</th>
<th>N (%) (if not otherwise specified)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BI</strong></td>
<td>80 (25-100)</td>
</tr>
<tr>
<td>Physical function category</td>
<td></td>
</tr>
<tr>
<td>Independent</td>
<td>16 (14.5)</td>
</tr>
<tr>
<td>Slightly dependent</td>
<td>12 (10.9)</td>
</tr>
<tr>
<td>Moderate dependent</td>
<td>59 (53.6)</td>
</tr>
<tr>
<td>Severely dependent</td>
<td>23 (20.9)</td>
</tr>
<tr>
<td><strong>GDS</strong></td>
<td>14 (2-15)</td>
</tr>
<tr>
<td>Depression category</td>
<td></td>
</tr>
<tr>
<td>Major depression</td>
<td>94 (85.5)</td>
</tr>
<tr>
<td>Mild depression</td>
<td>11 (10)</td>
</tr>
<tr>
<td>Non-case</td>
<td>5 (4.5)</td>
</tr>
<tr>
<td><strong>SMMSE</strong></td>
<td>5.11 (2.4)</td>
</tr>
<tr>
<td>Cognitive impairment category</td>
<td></td>
</tr>
<tr>
<td>Moderate to severe cognitive impairment</td>
<td>48 (43.6)</td>
</tr>
<tr>
<td>Mild to moderate cognitive impairment</td>
<td>62 (56.4)</td>
</tr>
<tr>
<td><strong>FS</strong></td>
<td>8.47 (3.4)</td>
</tr>
<tr>
<td>Social isolation category</td>
<td></td>
</tr>
<tr>
<td>Very isolated</td>
<td>89 (80.9)</td>
</tr>
<tr>
<td>Isolated</td>
<td>16 (14.5)</td>
</tr>
<tr>
<td>Some isolation/connectedness</td>
<td>5 (4.5)</td>
</tr>
<tr>
<td><strong>CANE</strong></td>
<td>14.75 (3.7)</td>
</tr>
<tr>
<td>Needs category</td>
<td></td>
</tr>
<tr>
<td>Met needs (Mean, SD)</td>
<td>11.95 (3.1)</td>
</tr>
<tr>
<td>Unmet needs (Mean, SD)</td>
<td>2.81 (3.7)</td>
</tr>
</tbody>
</table>

*BI = Barthel Index, **GDS = Geriatric Depression Scale, ***SMMSE = Short Mini Mental State Examination, ^FS = Friendship Scale, ^^CANE = Camberwell Assessment of Needs for Elderly
#SD = standard deviation, ##IQR = inter-quartile range

Assessment of Needs

The mean total number of needs for nursing home group was 14.8 (SD=3.7), with 11.9 (SD=3.1) being met needs and 2.8 (SD=2.0) being unmet (Table 2). Table 3 gave a proportion of met and unmet needs as reported by the study participants. In total, participants in this study sample had 1618 needs. Of these, 1311 (81%) were met and 307 (19%) were unmet. The most frequent met needs were accommodation (109, 99.1%), looking after home (108, 98.2%), food (106, 96.4%), and money (97, 88.2%). The most frequent unmet needs for people with cognitive impairment in nursing homes were intimate relationships (73, 66.4%), company (44, 40%), daytime activity (38, 34.5%), and caring for another (35, 31.8%).
Table 3. Frequency (%) of met and unmet needs of people with cognitive impairment in nursing homes

<table>
<thead>
<tr>
<th>Variables</th>
<th>No need N (%)</th>
<th>Met needs N (%)</th>
<th>Unmet needs N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation</td>
<td>1 (0.9)</td>
<td>109 (99.1)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Looking after home</td>
<td>1 (0.9)</td>
<td>108 (98.2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Food</td>
<td>3 (2.7)</td>
<td>106 (96.4)</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>Self-care</td>
<td>36 (32.7)</td>
<td>74 (67.3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Caring for another</td>
<td>30 (27.3)</td>
<td>45 (40.9)</td>
<td>35 (31.8)</td>
</tr>
<tr>
<td>Daytime activity</td>
<td>18 (16.4)</td>
<td>54 (49.1)</td>
<td>38 (34.5)</td>
</tr>
<tr>
<td>Memory</td>
<td>14 (12.7)</td>
<td>73 (66.4)</td>
<td>23 (20.9)</td>
</tr>
<tr>
<td>Eyesight/hearing</td>
<td>27 (24.5)</td>
<td>70 (63.6)</td>
<td>13 (11.8)</td>
</tr>
<tr>
<td>Mobility</td>
<td>50 (45.5)</td>
<td>59 (53.6)</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>Continence</td>
<td>71 (64.5)</td>
<td>38 (34.5)</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>Physical health</td>
<td>38 (34.5)</td>
<td>70 (63.6)</td>
<td>2 (1.8)</td>
</tr>
<tr>
<td>Drugs</td>
<td>22 (20)</td>
<td>66 (60)</td>
<td>22 (20)</td>
</tr>
<tr>
<td>Psychotic symptoms</td>
<td>103 (93.6)</td>
<td>7 (6.4)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Psychological distress</td>
<td>42 (38.2)</td>
<td>51 (46.4)</td>
<td>17 (15.5)</td>
</tr>
<tr>
<td>Information</td>
<td>78 (70.9)</td>
<td>28 (25.5)</td>
<td>4 (3.6)</td>
</tr>
<tr>
<td>Deliberate self-harm</td>
<td>2 (1.8)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Inadvertent self-harm</td>
<td>1 (0.9)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Abuse/neglect</td>
<td>41 (37.3)</td>
<td>54 (49.1)</td>
<td>15 (13.6)</td>
</tr>
<tr>
<td>Behavior</td>
<td>74 (67.3)</td>
<td>33 (30)</td>
<td>3 (2.7)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>108 (98.2)</td>
<td>2 (1.8)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Company</td>
<td>8 (7.3)</td>
<td>58 (52.70)</td>
<td>44 (40)</td>
</tr>
<tr>
<td>Intimate relationships</td>
<td>5 (4.5)</td>
<td>32 (29.1)</td>
<td>73 (66.4)</td>
</tr>
<tr>
<td>Money</td>
<td>4 (3.6)</td>
<td>97 (88.2)</td>
<td>9 (8.2)</td>
</tr>
<tr>
<td>Benefits</td>
<td>26 (23.6)</td>
<td>77 (70)</td>
<td>7 (6.4)</td>
</tr>
</tbody>
</table>

Table 4. Multiple linear regressions predicting unmet needs in people with cognitive impairment

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>SE^</th>
<th>Beta</th>
<th>95% CI(^{#})</th>
<th>R(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social isolation</td>
<td>-0.203</td>
<td>0.060</td>
<td>-0.335**</td>
<td>-0.323 – -.083</td>
<td>0.45</td>
</tr>
<tr>
<td>Cognitive severity</td>
<td>-0.205</td>
<td>0.100</td>
<td>-0.244*</td>
<td>-0.403 - -.007</td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td>-0.007</td>
<td>0.012</td>
<td>-0.060</td>
<td>-.031 - .018</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>-0.040</td>
<td>0.086</td>
<td>-0.058</td>
<td>-.210 - .130</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>6.60</td>
<td>1.929</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: *p≤0.05; **p≤0.01

Key predictors of unmet needs

People with cognitive impairment who had depression, had significantly more unmet needs compared to those without depression, F (2,107) = 5.4, p=0.01. Participants with moderate to severe cognitive impairment had more unmet needs when compared to those with mild to moderate cognitive impairment, F (1, 108) = 7.5, p=0.01 and those who were very socially isolated had more unmet needs compared to those with some isolation/connectedness, F (2,107) = 10.3, p<0.01. No significant differences were found between physical function and unmet needs in people with cognitive impairment.

A multiple linear regression analysis was conducted to determine the predictors of unmet needs. Total unmet need was used as the dependent variable, while the SMMSE, BI, FS and GDS were the multiple independent variables. These variables explained 45% of the variance, F (4,105)=6.8, p<0.01 with social
isolation as the strongest predictor of unmet needs among people with cognitive impairment (Beta= -0.3, p<0.01). Unmet needs was also significantly predicted by the SMMSE score (Beta= -0.2, p=0.04). No significant association was observed between physical function and depression with unmet needs.

Discussion

This study was undertaken to gain knowledge about people with cognitive impairment in Malaysian nursing homes, particularly with regards to their QoL and needs. In this study, older adults with cognitive impairment living in the institutions had majority of their needs being met, particularly in the area of medical, psychological, and environmental.

The most frequent unmet needs reported by the people with cognitive impairment in this study were social needs (i.e.: intimate relationships, company, caring for another), sensory or physical disability (i.e.: daytime activity, eyesight/hearing, mobility) and environmental needs (including food, medication used, information, abuse/neglect and money). These findings were similar to those reported by two other studies among dementia patients in residential care [11, 13]. The mean of unmet needs among dementia patients in this current study (mean=2.81) was lower compared to the mean of unmet needs reported by these studies (mean=4.4 and mean=4.8). This may be due to the differences in type of living arrangement, physical functions and mental health status of the participants between the studies. Indeed, participants in this current study were younger, physically more independent, and had better cognitive functions compared to other studies [11, 13, 32]. Another possible reason could be cultural factors: maybe in some western societies there are greater personal expectations (i.e. expressed as greater unmet needs) as compared to Malaysia, where there may be more acceptance of existing conditions.

Various factors such as living situation, financial status, and relationship satisfaction with children, age, QoL, depression, cognitive impairment, and social isolation/connectedness have been identified as factors associated with unmet needs in people with cognitive impairment. Having limited income could also restrict their choices of choosing a better or quality nursing home facility; a choice which may be directly related to having most of their needs fulfilled or unfulfilled [14].

Based on bivariate analyses, unmet needs in this study were associated with depression, severe cognitive impairment, and social isolation, which agrees with the findings by others [11, 33]. Naturally, people who are depressed, cognitively impaired, and lonely were more reserved and have difficulty communicating their needs to others. As reported by other studies, depression is a predictor for unmet needs among dementia patients in residential care [11, 33]. However, it is also important to note that both depression and physical function are not predictors for unmet needs among people with cognitive impairment in this study, which may suggest that the unmet needs expressed by people with cognitive impairment were not accounted by their emotional or physical states.

There are several limitations to this study which must be acknowledged. The study was carried out in a naturalistic setting and the findings are subject to the associated limitations. This study was cross-sectional in nature and the results point to relations between variables but cannot imply causation. Though this is the first study of identifying needs of dementia patients in Malaysia, the findings of this study are likely not able to be generalized to the dementia patients in Malaysia as the sample was not a nationally representative sample.

In conclusion, the findings indicated that older adults with mild dementia living in nursing homes had most of their needs fulfilled, except for certain areas such as intimate relationships, company, daytime activity, memory, and caring for another. Indeed, social isolation has been reported to be the strongest predictor for unmet needs in this population. Therefore, it is highly recommended that the care system to be built based on the concept of aging in the community, emphasize collaboration between
people with cognitive impairment, family members, community, and government. Various activities and services such as health care, medical services, and social activities (e.g: family day, school visits, events invitation) could be offered and integrated in the care system. Thus, older adults could benefit from the interaction with others, the exchange of ideas, and the discussion of problems, enhancing social interaction and sense of belonging. This could potentially help to reduce the risk of loneliness.

Acknowledgement

This study is funded by a grant from the Research Management Institute of Universiti Teknologi MARA, Malaysia, and is supported by The University of Melbourne. The sponsor of the study is the Ministry of Higher Education of Malaysia.

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Older Adults With Cognitive Impairment Living In Malaysian Nursing Homes – Have We Met Their Needs?


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Received: 12 January 2014
Accepted: 23 July 2014
THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE (EI) AND ORGANIZATIONAL CITIZENSHIP BEHAVIOUR (OCB): THE MODERATING ROLE OF ISLAMIC WORK ETHICS (IWE)

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Abstract

Objective: This study intended to investigate the relationship between Emotional Intelligence (EI) and Organizational Citizenship Behaviour (OCB) with moderating role of Islamic Work Ethics (IWE). Methods: A sample of 123 students of Islamabad were surveyed on EI, OCB and IWE and data from this survey were entered into a linear regression model to study the links between these variables. Thirty-four (27.6%), 45 (36.6%), 9 (7.3%), 27 (21.9%) and 8 (6.5%) of the respondents were in the age range of 20 - 25, 25 - 30, 30 - 35, 35 and above, respectively. Furthermore, 7 (5.7%), 23 (18.7%), 43 (34.9%), 31 (25.2%) and 19 (15.4%) had qualifications of Graduate, Masters, MS, PhD and Post Doc, respectively. Eighty-two (66.67%) were male and 41 (33.33%) female. Results: There was a statistically significant linear relation between EI and OCB (Beta = 0.292) whereas IWE also had a notable link with OCB (Beta = 0.559). IWE had no significant impact on the relationship between EI and OCB. Conclusion: The interaction effect of EI and IWE did not cause the target sample of the study to exhibit OCB to a significant level. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 95-105.

Keywords: Organizational Citizenship Behaviour, Emotional Intelligence, Islamic Work Ethics

Introduction

Emotional Intelligence (EI) is recognized as an effective and efficient tool to prolong one’s existence and tenure in an organization because it helps oneself in building social relations and respect amongst the employees in a particular organization [1]. The prolongation of tenure increases employees’ commitment towards the organization and therefore, they want to do something extra for their workplace in order to express their attachment. The attachment is often expressed by exhibiting Organizational Citizenship Behaviour (OCB) that is defined as a set of voluntary actions that employees perform for their organization [2]. Nevertheless, in collective culture, employees are famous for serving the organizations for longer periods [3] and because of this reason, it is inferred that there is viable link between the constructs of EI and OCB in a featured cultural setting [4]. However, the Muslims ideally take their work as an integral part of the lives and therefore, they tend to perform their duties in the light of religious values [5]. The main contribution of this study is stemming from considering the role of IWE as a moderating...
variable for the well-established relationship between EI and OCB [6].

The EI is believed to be the ability of a person that allows him or her to identify his or her own emotional state and along with this, it allows him or her to effectively judge others’ cardinal state as well. However, the people with higher level of EI are known to use the emotional state of others to their advantage or to meet certain goals, and their ability to develop long-term communal relationships is considered important. Additionally, the people who are emotionally intelligent have been known to have the ability to work towards organizational and personal goals with vigour. The most difficult phase of practicing EI is to delay the original emotional responses to the situation and manifest an entirely different and socially acceptable reaction [7]. OCB is defined as a set of voluntary activities that an employee or a group of employees is performing in order to better the organizational work climate. These activities are not part of the formal duties of the participants and neither are they considered during the process of employee’s evaluation [8]. OCB is often fostered in staff when they receive good level of institutional responsiveness from administration and have sufficient opportunities to achieve their career goals while working with a certain organization [9]. The dimensions of OCB are believed to be supportive attitude, ethical responsibility, and self-initiation. The OCB literature suggests that the construct is the result of an individual’s dedication towards an organization [10] and therefore, he or she works towards betterment of organizational work climate. Moreover, the employees involved in OCB are rather responding to supervisor’s good behaviour or attached to the image of organization to an extent where they consider working for the betterment of the company as their ethical duty. Attachment theory describes that workers have a profound tendency of sharing their problems and issues with people who possess significant and notable level of ability to care for others [11].

The middle and operational managers are primarily and informally responsible for resolving issues in the workplace [12]. The Social Exchange Theory helps in identification of peers as the best solvers of workforce related issues as their exposure and knowledge about work conditions is better than both middle and top managerial levels. Based on the above argument, it can be established that OCB is more abundantly customary amongst horizontal levels of the organization due to strong social relations amongst peers. Socially active people are anticipated a great deal to render help for their colleagues in difficult times. The associative behaviours are neither recognized nor rewarded by the institutions in a major number of cases in the corporate sector of Pakistan and therefore, the strength of social relations can render great help in terms of applying the notion of OCB as it involves helping colleagues against no apparent benefit [13].

IWE is a construct that is developed in order to incorporate religious ethical values in one’s professional life. Islam promotes professional engagement so that an individual can become an active and supportive participant of the society. Islamic cultures work significantly towards building a society and community, and the societal relationships are established with the help of corporation and collaboration. In modern perspective, an organization is a social construct and therefore, it can thrive based on building synergetic relationships. However, Islamic philosophy is of the view that helping others in positive professional endeavors is nobility and it will be rewarded in the afterlife [14]. Islamic Ethics in general, promote selfless service to the society and as organizations can be taken as communities of a smaller scale, OCB can be used as a means of applying Islamic values in the workplace, and there is a sustainable statistical link between the featured constructs [15] as well.

The construct of OCB cannot be applied without strong social and communal relations with the organization’s employees because the construct gives substantial amount of value to OCB practitioner’s ability to solve problems and help troubled colleagues and none of these activities can be performed in absence of social relations [16]. Thus, there is a logical and scientific need to study the moderation effect of IWE on previously established link between EI and OCB. The moderation influence should be empirically tested because
Muslim workers have profound psychological need to practically apply religious practices in their professional lives [14] and therefore, it is yet to be seen that the abovementioned need is compelling them to serve their organizations without receiving compensation in exchange or not.

This research would help organizational managers to understand the role of IWE in strengthening OCB among the Muslim workers who constitute major and notable percentage of the entire global workforce. This study intended to investigate the relationship between Emotional Intelligence (EI) and Organizational Citizenship Behaviour (OCB) with moderating role of Islamic Work Ethics (IWE).

Methods

Sampling technique and population

This study has used the technique of convenient sampling in order to draw a sample from the target population that consist the students of private universities in Islamabad. The researcher was a student of a privately owned university and because of this reason; it was cost effective for him to conduct a survey in above-mentioned type of educational institution. The sample was finally drawn from a private university located in the city where 150 questionnaires were distributed among the students of the institution whereas, 123 completely filled instruments were collected (123/150 = 82%). The participation of the respondents was voluntary and ethical approval was duly obtained from administration of the educational institution from where sample was drawn.

Instruments, score interpretation and Cronbach’s Alphas

Three instruments were employed and all of them were measured on a five point Likert scale. The questionnaires developed by Rahim, Psenicka, Polychroniou, and Jing-Hua [17], Bukhari and Ali [18] and Ali, [19] were used to measure EI, OCB and IWE whereas, the number of items were 22 (α = 0.841), 9 (α = 0.78), and 17 (α = 0.810) respectively. Following are the sample items from all three instruments in the sequence of mentioning (i) “I am well aware of my emotional state” , (ii) “I showed genuine concern and courtesy toward coworkers, even under the most trying business or personal situations” , (iii) “Dedication to work is virtue”. All of the instruments were self-report in nature. The scores were interpreted by calculating the means of respondents’ score on each measure and higher mean scores on them signified significant presence of concerned variable in the personality of the respondent. However, the average score of more than the Likert scale’s midpoint of “3” on each measure is considered evidence in favour of concerned variable’s profound existence. The mean scores of each respondent on every scale material to the research are used to run regression analysis as well.

Table 1. Mean scores of EI, OCB and IWE among the respondents

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum Value</th>
<th>Maximum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence</td>
<td>3.62</td>
<td>0.49</td>
<td>1.86</td>
<td>4.82</td>
</tr>
<tr>
<td>Organizational Citizenship</td>
<td>3.65</td>
<td>0.62</td>
<td>1.75</td>
<td>5.00</td>
</tr>
<tr>
<td>Behaviour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Islamic Work Ethics</td>
<td>3.64</td>
<td>0.62</td>
<td>1.65</td>
<td>5.00</td>
</tr>
</tbody>
</table>

SD= Standard Deviation

The mean score of respondents on the scales of Emotional Intelligence (EI), Organizational Citizenship Behaviour (OCB) and Islamic Work Ethics (IWE) were 3.62, 3.65 and 3.64 respectively while; their Standard Deviations on the same scales were 0.49, 0.62 and 0.62 correspondingly. However, the minimum values for EI, OCB and IWE were 1.86, 1.75 and 1.65 whereas; the maximum values were 4.82 and 5.00 for each latterly identified construct in the order of mentioning. In the light of above-mentioned figures, this paper can determine that respondents generally scored reasonably higher values with regard to
The Relationship Between Emotional Intelligence (EI) And Organizational Citizenship Behaviour (OCB): The Moderating Role Of Islamic Work Ethics (IWE)


each variable. The lower levels of SD signify the fact that there was a mild and acceptable level of variation in the data and therefore, participants were in consensus about the presence of EI, OCB and IWE within their personality space. Finally, the minimum value of all variables did not reach the least possible number, which was “1” that stands in favour of conjuncture that not all of the respondents had extremely negative opinions about the presence of each variable in their professional lives. However, maximum values of OCB and IWE reached the highest numerical point, which was “5”, that means that the respondents considered themselves able of using both the constructs in their daily work lives. Maximum figure of EI did not approach its full potential, therefore people do not apply the construct to a fuller extent, and therefore, they need training in this regard.

Table 2. Demographics of the sample

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Male (n=82) n (%)</th>
<th>Females (n=41) n (%)</th>
<th>Total (n =123) n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-25</td>
<td>24 (29.3)</td>
<td>10 (24.4)</td>
<td>34 (27.6)</td>
</tr>
<tr>
<td>25-30</td>
<td>27 (32.9)</td>
<td>18 (43.9)</td>
<td>45 (36.6)</td>
</tr>
<tr>
<td>30-35</td>
<td>8 (9.8)</td>
<td>1 (2.4)</td>
<td>9 (7.3)</td>
</tr>
<tr>
<td>35-40</td>
<td>20 (24.4)</td>
<td>7 (17.1)</td>
<td>27 (21.9)</td>
</tr>
<tr>
<td>Above</td>
<td>3 (3.7)</td>
<td>5 (12.2)</td>
<td>8 (6.5)</td>
</tr>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>4 (4.9)</td>
<td>3 (7.3)</td>
<td>7 (5.7)</td>
</tr>
<tr>
<td>Masters</td>
<td>15 (18.3)</td>
<td>8 (19.5)</td>
<td>23 (18.7)</td>
</tr>
<tr>
<td>MS</td>
<td>31 (37.8)</td>
<td>12 (29.3)</td>
<td>43 (34.9)</td>
</tr>
<tr>
<td>PhD</td>
<td>21 (25.6)</td>
<td>10 (24.4)</td>
<td>31 (25.2)</td>
</tr>
<tr>
<td>Post-Doc</td>
<td>11 (13.4)</td>
<td>8 (19.5)</td>
<td>19 (15.4)</td>
</tr>
</tbody>
</table>

Graduate = Bachelors Degree, Masters = Masters Degree MS= MPhil or Equivalent, PhD = Doctrate Degree, Post-Doc = Post Doctrate

Male respondents whose ages were between 20 to 25, 25 to 30, 30 to 35 and 35 to 40 years represented 29.3%, 32.9%, 9.8 %, 24.4% of the total genderised sample respectively and those who were above 40 made only 3%. Respondents having ages between 20 to 25, 25 to 30, 30 to 35, 35 to 40 years candidated 24.4%, 43.9%, 2.4%, 17.1% and 12.2% of females’ sample wheras, those who had ages above 40 constituted only 5%. Male respondents with the qualification of Graduate, Masters, MS, PhD and Post-Doc represented 4.9%, 18.3%, 37.8%, 25.6% and 13.4% of the genderised sample correspondingly. The females with the same educational levels made 7.3%, 19.5%, 29.3%, 24.4% and 19.5% of their side of the sample respectively.

Control Variables and Inclusion and Exclusion Cateria

This study treated age and qualification as control variables and selected the subjects from both the genders who had minimum age of 20 years and had the least educational qualification of graduation.

Data Analysis and Results

Following are the summary of results of tests that were run on the data collected during the investigation:-
Table 3. Regression Analysis with OCB as an outcome

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>R²</th>
<th>Change in R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Control Variables</td>
<td></td>
<td>0.056</td>
<td></td>
</tr>
<tr>
<td>S2 EI</td>
<td>0.292***</td>
<td>0.314</td>
<td>0.258</td>
</tr>
<tr>
<td>S3 IWE</td>
<td>0.559***</td>
<td>0.540</td>
<td>0.226</td>
</tr>
<tr>
<td>S3 IWE*EI</td>
<td>-0.104 (n.s)</td>
<td>0.545</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Note: R² = Explained Variance B= unstandardized Coefficient *p<.05. **p<.01. ***p<.001. S1= Step 1 of linear regression, S2= Step 2 of linear regression, S3= Step 3 of linear regression, EI= Emotional Intelligence, IWE= Islamic Work Ethics

Based on the above table, it can be established that there are significant positive linear relationship among EI and OCB (β = 0.292, p< 0.05) which means one unit change in EI caused 0.292 unit change in OCB. The EI explained 29.2 % variance in the dependent variable as well (2). Furthermore, the construct of IWE also successfully predicted the OCB as an outcome (β = 0.559, p< 0.05) because it explained 54% of the variance in the dependent variable and is responsible for causing 0.559 unit change in the outcome construct of the study (15). The interaction effect of both the independent variables however, failed to influence the outcome in a significant manner (β = - 0.104, p= n.s) and caused a decrease of 0.104 unit in the target variable. However, respondents with MS degree had more reason to exhibit OCB than those with Post-Doc qualification (p< 0.05). The juniors in terms of age and education develop thankfulness for their educational organizations for giving them the opportunity to further their studies and therefore, their gratefulness gets translated into application of citizenship behaviours over time [3]. However, as they advance to senior levels, their OCB levels tend to drop because their efforts are not properly recognized and awarded [9]. There is also no significant mean differences in two gender-based groups’ OCB scores F= 4.62, p<0.05.

Discussion

The empirical evidence presented in the preceding parts of the study revealed the fact that OCB and EI are going to determine a significant level of OCB in the individual capacities whereas, the moderation role of IWE has been proven insignificant. Therefore, the promotion of IWE along with EI is not going to help the managers in promoting OCB in the target population. Secondly, supporting EI in educational organizations will help them in cultivating OCB in students of the featured locality. IWE on the other hand, enhance OCB as the environment of collaboration is created that is the essence of Islamic teachings. The idea of considering organization as a smaller version of the society is playing a significant and notable role in promoting OCB as well. The failure of IWE in terms of influencing the relationship of EI and OCB means that managers cannot expect the Muslim individuals to engage in OCB on their own. The managers are needed to modify their behaviours and offer monetary and non-monetary benefits to the employees and students in order to enhance their attachment to the organization that will help them in demonstrating OCB in the corporate sector of Islamic world. Organizational managers have to work hard in order to develop close social relations with their subordinates and this measure will help them to use EI as a method of promoting OCB in the employees. Finally, managers have to use flatter organizational structures, which will cause employees to feel socially connected within an organization and therefore, they may engage in demonstrating OCB [2].

As a limitation, the study is conducted in only
The Relationship Between Emotional Intelligence (EI) And Organizational Citizenship Behaviour (OCB):
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one educational institution of the country and therefore, its findings cannot be generalized. Furthermore, all the respondents who participated in the study were Muslims and that is why, the results of the investigation should only be used to predict relevant behaviours in the target population only. The questionnaires used in the study were self-report in nature and therefore, they may become subject to biasness and misreporting from the respondents. The length of the combined instrument containing scales of EI, OCB and IWE was considerable in length which, might have fatigued some of the respondents and they might have filled the instrument in haste. The strength of all the instruments used is an acceptable Cronbach’s alpha score.

Directions for future research

The area of IWE is neglected in the modern managerial literature and because of this reason, it is strongly recommended to study the construct as an independent variable in relation to Organizational and Job Commitment (JC) and OCB with moderating role of Management Leadership Style [20]. The suggestion is made because managerial and supervisory behaviours are known to influence the OCB a great deal [21].

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The Relationship Between Emotional Intelligence (EI) And Organizational Citizenship Behaviour (OCB): The Moderating Role Of Islamic Work Ethics (IWE)


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Received: 28 February 2014 Accepted: 23 July 2014
Appendix A

EI

1. I am well aware of my emotional state  

2. I am well aware of my emotions’ effects on others  

3. I am well aware of my moods  

4. I am well aware of my desires  

5. I keep my strong emotions in control  

6. I remain calm in difficult situations  

7. I keep my strong desires in control  

8. I maintain my focus and composure irrespective of my emotions  

9. I manage stress well  

10. I accept change rapidly in my organization  

11. I have higher level of motivation for attaining difficult goals  

12. I work with the hope of success rather than with fear of failure  

13. I stay focused on goals despite difficulties and setbacks  

14. I do not hesitate to make sacrifices in order to achieve important organizational goals  

15. I understand nonverbal communication from others  

16. I understand the link between emotions of colleagues and their behaviors  

17. I provide useful and timely feedback to my colleagues  

18. I understand verbal communication effectively  
19. I face problems without hurting others who work with me

20. I manage emotional problems with care

21. I set aside emotions in order to complete the task at hand

22. I do not allow my personal negative feelings to stand in the way of collaboration
Appendix B

**OCB**

1. Adjusted your work schedule to accommodate other employees' requests for time off.

2. Showed genuine concern and courtesy toward coworkers, even under the most trying business or personal situations.

3. Expressed loyalty toward the organization

4. Demonstrated concern about the image of the organization.

5. Helped others who have been absent

6. Offered ideas to improve the functioning of the organization

7. Taken action to protect the organization from potential problems

8. Took the initiative to troubleshoot and solve technical problems before requesting help from a supervisor.

9. Voluntarily did more than the job requires so that I can help others or contribute to the overall functioning of the facility.
The Relationship Between Emotional Intelligence (EI) And Organizational Citizenship Behaviour (OCB): The Moderating Role Of Islamic Work Ethics (IWE)


Appendix C

IWE

1. Laziness is bad

2. Dedication to work is virtue

3. Good work benefits oneself and the others as well

4. Justice and generosity in the workplace are necessary for society’s welfare

5. Producing more than one’s needs is good for the society as a whole

6. One should carry out work to the best of one’s ability

7. Work is not an end in itself but a means of attaining personal growth and developing social relations

8. Life has no meaning without work

9. More leisure time is more good for society

10. Human relations in the organizations must be promoted

11. Work enables humans to control nature

12. Creative work is a source of happiness and accomplishment

13. Anyone who works is more likely to get ahead in life

14. Work gives oneself a chance to be independent

15. A successful person is the one who meets deadlines at work

16. One should work hard to meet responsibilities

17. The value of work is derived from accompanying intentions rather than results
Depression And Its Predictors Among Breast Cancer Patients In Nepal


ORIGINAL ARTICLE

DEPRESSION AND ITS PREDICTORS AMONG BREAST CANCER PATIENTS IN NEPAL

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Abstract

Objectives: The main objectives of the study were to determine: (i) the prevalence of depression among breast cancer patients in Nepal; (ii) the association between depression and socio-demographic and disease related variables; and (iii) to explore correlates and predictors of depression among these patients. Methods: A cross-sectional descriptive design was used. Structured form for socio-demographic and disease related information, and Hospital Anxiety and Depression Scale (HADS) were used to collect information from 120 participants. The study was conducted at Bhaktapur Cancer Hospital, Nepal. Data were analyzed using Statistical Package for Social Sciences (SPSS) 16. Results: The mean age of respondents was 51.92 (S.D=10.1783). The mean depression score was 11.266 (S.D=2.782) and mean anxiety score was 11.81 (S.D=3.47). 4.2% had severe depression, 60% had moderate depression, and 29.2% respondents had mild levels of depression. There were no significant difference between age group, marital status, family status, time since diagnosis, and treatment done with depression level of respondents where-as educational level (p=0.014), occupation (p=0.001), and anxiety level of respondents (p=0.000) had significant impact on depression. Depression was found to be negatively correlated with educational status of respondents (r=-0.226, P=0.013) and positively correlated with anxiety level of respondents (r=0.450, P=0.000). Educational status (P=0.008, B=-0.466 and Beta=-0.212) along with anxiety level of respondents (P=0.000, B=0.369 and Beta=0.461) accounts for 30.4% of variance in depression level of respondents (F=25.494 and R2=0.304). Conclusion: The prevalence of depression among breast cancer patients was high. Psychological morbidities compromise the treatment and quality of life of the patient. Thus management of cancer should include screening for psychological morbidities, Psychological rehabilitation should be provided along with anti-cancer treatment. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 106-115.

Keywords: Breast Cancer, Depression, Prevalence, Predictors, Nepal

Introduction

Breast cancer is one of the curable cancers and diagnosis has mostly been made in women of age fifty or younger, which makes up almost a quarter of women [1]. It is a specific challenge for women as it is a life threatening disease, and needs intensive surgical and medical treatments. It also affects the patient’s sexuality, femininity, body image, and maternal issues following mastectomy. This
new life situation may lead the women to face psychiatric co-morbidity [2].

Breast cancer accounts for approximately 460,000 deaths each year. [3] In Nepal, the most common types of cancer among females are cervix uteri, breast, and lung cancer. Among all the cancer incidences in Nepal, breast cancer accounts for 15.7% [4].

The fear of cancer among patients has been called six Ds: death, dependency on family, spouse and physician; disfigurement and changes in early appearances and self image, sometimes resulting in loss or changes in sexual functioning; disability interfering with achievement of age appropriate task at work, school or leisure roles; disruption of interpersonal relationships; and finally, discomfort or pain in stages of illness [5-9].

Cancer patients are vulnerable to psychological morbidities for a variety of reasons like metabolic or endocrine alterations, treatment with debilitating chemotherapy regimens, immune response modifiers, and chronic pain associated with cancer [10]. Moreover, feeling of loss of control over life events, changes in how they are able to fill family or work roles, as well as changes in body image may trigger psychological morbidities [11].

Apart from normal emotional impact of the diagnosis of a life threatening illness, 20%-25% of cancer patients are estimated to meet diagnostic criteria for major depression or anxiety, treatable psychiatric conditions which have detrimental effects on their quality of life [12]. Also, the physiological effects of some treatments (eg, high dose interferon therapy) on central nervous system may directly produce anxiety or depression [13].

A cross sectional study carried out in Nepal on depression and anxiety in cancer patients found 30(60%) of cancer patients as having psychiatric morbidity as compared to healthy individuals (16%), based on cutoff score of above 2 on item 12 in General Health Questionnaire (GHQ). Depression was present in 28.0% of cancer patients whereas 40% of cancer patients had anxiety as per Hospital Anxiety and Depression Scale (HADS) [14].

The rate of prevalence of psychological distress among breast cancer patients is found to be as high as 45% in early breast cancer patients and 42% in metastatic breast cancer patient which endorse a psychiatric DSM-IV diagnosis [15]. Studies have shown that heightened anxiety and depression are not only limited to the active treatment period but may persist for months or even years following successful treatment [16].

Depression and anxiety not only affect the quality of life but also compromise compliance with anticancer treatment, are associated with prolonged hospitalization, and may have negative effect on prognosis and even survival [17, 18]. Among patients with breast cancer, depression has been reported to be related to a significantly reduced chance of survival over 5 years [19].

Thus it is very important to know the prevalence of depression along with its associated factors, correlates, and predictors so that psychological rehabilitation can be applied on the cancer continuum: in changing lifestyle; symptoms control (anxiety, depression, delirium, pain, and fatigue) during active treatment; management of psychological sequelae in cancer survivors; and management of psychological aspects of palliative and end of life care for the patients with breast cancer.

Methods

A descriptive, cross sectional, non randomized study of patients with breast cancer was conducted in May 2013 - August 2013 at Bhaktapur Cancer Hospital, Nepal. The study population included all patients diagnosed with breast cancer and who were involved in treatment and follow ups in surgical ward, chemotherapy ward, radiation ward, palliative ward, and outpatient department of the hospital. The inclusion criteria also included patients who can communicate well in Nepali language and voluntarily participated in the study.

A total of 120 patients volunteered to participate in the study. The following exclusion criteria were considered: diagnosed with cancer other than breast cancer; diagnosed with DSM-IV major mental
disorder; diagnosed with depression before diagnosis of breast cancer; and not willing to participate in the study.

Researcher took permission from the hospital director and from departments of Bhaktapur Cancer Hospital involved in the study before the collection of data. Informed consent was obtained from all the participants. The purpose of the study, objectives, procedures, and confidentiality agreement were clearly explained to the respondents before collecting the data. Participants who agreed to take part were given the questionnaires to fill up. The subjects were assured of confidentiality that only the researcher will have access to the collected data.

Literate participants filled the form by themselves while researcher assisted illiterate participants to complete the form. Similarly, the patients who were in follow up list of radiation ward, chemotherapy ward, surgical, and medical outpatient ward were telephoned and interviewed by researcher herself to fill up the questionnaires, if they agreed to participate in the study. A structured form related to socio-demographic information and disease related information of the participants which included age, sex, marital status, education level, occupation, time since diagnosis of cancer, treatment adopted by the participants, and Hospital Anxiety and Depression Scale (HADS) were used for the collection of information. The HADS is a screening tool for anxiety and depression in non-psychiatric clinical population. HADS was originally developed by Zigmond and Snaith in 1983. HADS consists of 14 items (7 each for anxiety and depression). Items 2, 4, 6, 8, 11, 12, and 14 measure anxiety and items 1, 3, 5, 7, 9, 10, and 13 measure depression. Each item is rated on a four point scale ranging from 0 (not at all) to 3 (very often). Responses are based on the relative frequency of symptoms over the preceding week. Possible score ranges from 0-21 for each subscale [20]. An analysis of scores on the two subscales supports the differentiation of each mood state into four ranges: ‘no case’ (score below 8), ‘mild cases’ (score 8-10), ‘moderate case’ (score 11-15), ‘severe case’ (score 16 or higher) [21].

Data were analyzed using Statistical Package for Social Sciences (SPSS) 16. Standard deviation, mean, percentage, frequency, range were used to describe the demographic data, anxiety and depression of the participants. Chi-square test spearman’s rho correlation and multiple regressions were used.

Results

Socio-demographic and disease related characteristics of respondents

According to table 1, the mean age of respondents was 51.92 (S.D=10.178) years. Maximum age was 72 years and minimum age was 25 years. Only one respondent was male all others were female. Among the 14 administrative zones of Nepal, respondents from 11 zones participated in the study with an exception of Karnali, Seti and Mahakali zones. Majority (58.3%) of respondents were from Bagmati zone followed by 7.5% from Koshi and Lumbini zones respectively. Majority (85%) of the respondents were married followed by 13.3% unmarried and 1.7% widowed. Also majority (94.2%) of respondents live in joint family and only 5.8% are from single family units. Half (50.8%) of the respondents were illiterate, and among the literate only 4.2% had university education, 13.3% had attained college, 18.3% completed secondary level of education and 13.3% completed primary education. Almost half of (45.8%) respondents were housewives. 32.5% respondents were engaged in agriculture, 11.7% in services, 9.2% in business, and 0.8% in other occupation.

The time since diagnosis of breast cancer for more than half of the participants (60%) was between 1 month to one year, followed by 28.3% of respondents diagnosed between 1-2 years, 5% between 2-3 years, 3.3% between 3-4 years, 2.5% between 4-5 years, and 0.8% between 5-6 years respectively. Distribution of respondents according to their anti-cancer treatment shows that majority (64.2%) of respondents had surgery along with chemotherapy and radiation therapy. 29.2% of respondents had surgery along with chemotherapy. Only 6.7% of respondents had only surgery performed.
Table 1. Distribution of respondents according to age group, marital status, family status, educational status, occupation, year since diagnosis and treatment done

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
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<td>20-30</td>
<td>2.0</td>
<td>1.7</td>
</tr>
<tr>
<td>30-40</td>
<td>16.0</td>
<td>13.3</td>
</tr>
<tr>
<td>40-50</td>
<td>43.0</td>
<td>35.8</td>
</tr>
<tr>
<td>50-60</td>
<td>35.0</td>
<td>29.2</td>
</tr>
<tr>
<td>60-70</td>
<td>22.0</td>
<td>18.3</td>
</tr>
<tr>
<td>70-80</td>
<td>2.0</td>
<td>1.7</td>
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</tr>
<tr>
<td>Unmarried</td>
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<td>13.3</td>
</tr>
<tr>
<td>Widow</td>
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<td>1.7</td>
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<table>
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<th>Frequency</th>
<th>Percentage</th>
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<td>113</td>
<td>94.2</td>
</tr>
<tr>
<td>Single family</td>
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<td>5.8</td>
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<th>Frequency</th>
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<td>13.3</td>
</tr>
<tr>
<td>Secondary</td>
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<td>18.3</td>
</tr>
<tr>
<td>College</td>
<td>16</td>
<td>13.3</td>
</tr>
<tr>
<td>University</td>
<td>5</td>
<td>4.2</td>
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<table>
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<th>Occupation</th>
<th>Frequency</th>
<th>Percentage</th>
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<td>Service</td>
<td>14</td>
<td>11.7</td>
</tr>
<tr>
<td>Agriculture</td>
<td>39</td>
<td>32.5</td>
</tr>
<tr>
<td>Housewife</td>
<td>55</td>
<td>45.8</td>
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<tr>
<td>Business</td>
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<td>9.2</td>
</tr>
<tr>
<td>Others</td>
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<td>.8</td>
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<table>
<thead>
<tr>
<th>Years since diagnosis</th>
<th>Frequency</th>
<th>Percentage</th>
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<tr>
<td>Up-to 1 year</td>
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<td>60.0</td>
</tr>
<tr>
<td>1-2 years</td>
<td>34</td>
<td>28.3</td>
</tr>
<tr>
<td>2-3 years</td>
<td>6</td>
<td>5.0</td>
</tr>
<tr>
<td>3-4 years</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td>4-5 years</td>
<td>3</td>
<td>2.5</td>
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<tr>
<td>5-6 years</td>
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<td>.8</td>
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<table>
<thead>
<tr>
<th>Treatment done</th>
<th>Frequency</th>
<th>Percentage</th>
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<tr>
<td>Surgery</td>
<td>8</td>
<td>6.7</td>
</tr>
<tr>
<td>Surgery and Chemo-therapy</td>
<td>35</td>
<td>29.2</td>
</tr>
<tr>
<td>Surgery, Chemo-therapy and radiation therapy</td>
<td>77</td>
<td>64.2</td>
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</table>
Table 2. Distribution of Respondents according to Anxiety level and Depression level as per HADS-A, HADS-D

<table>
<thead>
<tr>
<th>Anxiety level</th>
<th>Frequency</th>
<th>Percent</th>
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</thead>
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<tr>
<td>0-7 (no cases)</td>
<td>13</td>
<td>10.8</td>
</tr>
<tr>
<td>8-10 (mild cases)</td>
<td>30</td>
<td>25.0</td>
</tr>
<tr>
<td>11-15 (moderate cases)</td>
<td>58</td>
<td>48.3</td>
</tr>
<tr>
<td>16 and above (severe cases)</td>
<td>19</td>
<td>15.8</td>
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</tbody>
</table>

Mean score = 11.81 (S.D = 3.47), minimum score = 2, maximum score = 21

<table>
<thead>
<tr>
<th>Depression level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7 (no cases)</td>
<td>8</td>
<td>6.7</td>
</tr>
<tr>
<td>8-10 (mild cases)</td>
<td>35</td>
<td>29.2</td>
</tr>
<tr>
<td>11-15 (moderate cases)</td>
<td>72</td>
<td>60.0</td>
</tr>
<tr>
<td>16 and above (severe cases)</td>
<td>5</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Mean score = 11.266 (S.D = 2.782), minimum score = 3, maximum score = 19

**Anxiety and depression**

According to table 2, the mean depression score was 11.266 (S.D = 2.782) and mean anxiety score was 11.81 (S.D = 3.47). Analysis found 15.8% of respondents had severe anxiety, 48.3% had moderate anxiety, and 25% had mild form of anxiety. Similarly, 4.2% were found to have severe depression, 60% had moderate depression, and 29.2% respondents had mild level of depression.

Table 3 suggests that depression level is significantly associated with educational level of respondents (p = 0.014), occupation of the respondents (p = 0.001), and anxiety level of respondents (p = 0.000). Illiterate respondents had higher level of depression. Similarly, housewives were found to have higher level of depression than working respondents. The higher the anxiety level of respondents, the higher their depression level. The table also shows that depression level is not associated with age group, marital status, family status, time since diagnosis, and treatment done on respondents. Variable significantly associated with depression were further analyzed using Spearman’s rho correlation analysis and regression analysis.

Table 3. Showing the Result of Chi square done in level of depression with and categories of socio-demographic and disease related variables and anxiety

<table>
<thead>
<tr>
<th>Variable</th>
<th>No depression</th>
<th>Mild depression</th>
<th>Moderate depression</th>
<th>Severe depression</th>
<th>Total</th>
<th>Chi square (p value)</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-30</td>
<td>0(0%)</td>
<td>2(1.7%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(1.7%)</td>
<td>22.141 (0.004)</td>
</tr>
<tr>
<td>30-40</td>
<td>2(1.7%)</td>
<td>4(3.3%)</td>
<td>2(1.7%)</td>
<td>0(0%)</td>
<td>8(6.7%)</td>
<td>2.222 (0.22)</td>
</tr>
<tr>
<td>40-50</td>
<td>3(2.5%)</td>
<td>12(10%)</td>
<td>28(23.3%)</td>
<td>0(0%)</td>
<td>43(35.8%)</td>
<td>3.720 (0.714)</td>
</tr>
<tr>
<td>50-60</td>
<td>1(0.8%)</td>
<td>9(7.5%)</td>
<td>23(19.2%)</td>
<td>2(1.7%)</td>
<td>35(29.2%)</td>
<td>1.293 (0.731)</td>
</tr>
<tr>
<td>60-70</td>
<td>1(0.8%)</td>
<td>8(6.7%)</td>
<td>10(8.3%)</td>
<td>0(0%)</td>
<td>18(15%)</td>
<td>1.928 (0.664)</td>
</tr>
<tr>
<td>70-80</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>1(0.8%)</td>
<td>0(0%)</td>
<td>1(0.8%)</td>
<td>0.000 (0.999)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>0(0%)</td>
<td>29(24.2%)</td>
<td>62(51.7%)</td>
<td>5(4.2%)</td>
<td>102(85%)</td>
<td>3.720 (0.714)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>2(1.7%)</td>
<td>6(5%)</td>
<td>8(6.7%)</td>
<td>0(0%)</td>
<td>16(13.3%)</td>
<td>0.000 (0.999)</td>
</tr>
<tr>
<td>Widow</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(1.7%)</td>
<td>0(0%)</td>
<td>2(1.7%)</td>
<td>0.000 (0.999)</td>
</tr>
<tr>
<td>Family structure</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Joint family</td>
<td>8(6.7%)</td>
<td>32(26.7%)</td>
<td>68(56.7%)</td>
<td>5(4.2%)</td>
<td>113(94.2%)</td>
<td>1.293 (0.731)</td>
</tr>
<tr>
<td>Single family</td>
<td>0(0%)</td>
<td>3(2.5%)</td>
<td>4(3.3%)</td>
<td>0(0%)</td>
<td>7(5.8%)</td>
<td>0.000 (0.999)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>1(0.8%)</td>
<td>18(15%)</td>
<td>38(31.7%)</td>
<td>4(3.3%)</td>
<td>61(50.8%)</td>
<td>25.072 (0.014)</td>
</tr>
<tr>
<td>Primary</td>
<td>0(0%)</td>
<td>5(4.2%)</td>
<td>10(8.3%)</td>
<td>1(0.8%)</td>
<td>16(13.3%)</td>
<td>0.000 (0.999)</td>
</tr>
<tr>
<td>Secondary</td>
<td>1(0.8%)</td>
<td>5(4.2%)</td>
<td>16(13.3%)</td>
<td>0(0%)</td>
<td>22(18.3%)</td>
<td>0.000 (0.999)</td>
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</table>
Depression And Its Predictors Among Breast Cancer Patients In Nepal

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Campus</th>
<th>University</th>
<th>5(4.2%)</th>
<th>5(4.2%)</th>
<th>6(5%)</th>
<th>0(0%)</th>
<th>16(13.3%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>3(2.5%)</td>
<td>4(3.3%)</td>
<td>7(5.8%)</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>3(2.5%)</td>
<td>11(9.2%)</td>
<td>36(30%)</td>
<td>5(4.2%)</td>
<td>55(45.8%)</td>
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</tr>
<tr>
<td>Business</td>
<td>1(0.8%)</td>
<td>6(5%)</td>
<td>4(3.3%)</td>
<td>0(0%)</td>
<td>11(9.2%)</td>
<td></td>
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</tr>
<tr>
<td>Others</td>
<td>1(0.8%)</td>
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<th>2(1.7%)</th>
<th>0(0%)</th>
<th>5(4.2%)</th>
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</thead>
<tbody>
<tr>
<td>Service</td>
<td>3(2.5%)</td>
<td>4(3.3%)</td>
<td>7(5.8%)</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td></td>
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<tr>
<td>Agriculture</td>
<td>0(0%)</td>
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<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
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<tr>
<td>Housewife</td>
<td>3(2.5%)</td>
<td>11(9.2%)</td>
<td>36(30%)</td>
<td>5(4.2%)</td>
<td>55(45.8%)</td>
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<tr>
<td>Business</td>
<td>1(0.8%)</td>
<td>6(5%)</td>
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<td>0(0%)</td>
<td>11(9.2%)</td>
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<tr>
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<th>1(0.8%)</th>
<th>2(1.7%)</th>
<th>2(1.7%)</th>
<th>0(0%)</th>
<th>5(4.2%)</th>
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<tbody>
<tr>
<td>Service</td>
<td>3(2.5%)</td>
<td>4(3.3%)</td>
<td>7(5.8%)</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
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<tr>
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<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
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<tr>
<td>Housewife</td>
<td>3(2.5%)</td>
<td>11(9.2%)</td>
<td>36(30%)</td>
<td>5(4.2%)</td>
<td>55(45.8%)</td>
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<tr>
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<td>6(5%)</td>
<td>4(3.3%)</td>
<td>0(0%)</td>
<td>11(9.2%)</td>
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<td></td>
</tr>
<tr>
<td>Others</td>
<td>1(0.8%)</td>
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<td>0(0%)</td>
<td>1(0.8%)</td>
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<table>
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<tr>
<th>Duration since diagnosis (years)</th>
<th>Campus</th>
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<th>5(4.2%)</th>
<th>6(5%)</th>
<th>0(0%)</th>
<th>16(13.3%)</th>
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<td>0-1</td>
<td>3(2.5%)</td>
<td>4(3.3%)</td>
<td>7(5.8%)</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
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<td></td>
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<tr>
<td>1-2</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
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<tr>
<td>2-3</td>
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<td>14(11.7%)</td>
<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
<td></td>
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<tr>
<td>3-4</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td>25(20.8%)</td>
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<td>4-5</td>
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<td>14(11.7%)</td>
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<td>39(32.5%)</td>
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<tr>
<td>5-6</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
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</table>

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Campus</th>
<th>University</th>
<th>1(0.8%)</th>
<th>2(1.7%)</th>
<th>2(1.7%)</th>
<th>0(0%)</th>
<th>5(4.2%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td>3(2.5%)</td>
<td>4(3.3%)</td>
<td>7(5.8%)</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery+ chemo</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery+chemo+radiation</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td>25(20.8%)</td>
<td>0(0%)</td>
<td>39(32.5%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anxiety level</th>
<th>Campus</th>
<th>University</th>
<th>1(0.8%)</th>
<th>2(1.7%)</th>
<th>2(1.7%)</th>
<th>0(0%)</th>
<th>5(4.2%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No anxiety</td>
<td>3(2.5%)</td>
<td>4(3.3%)</td>
<td>7(5.8%)</td>
<td>0(0%)</td>
<td>14(11.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild anxiety</td>
<td>2(1.7%)</td>
<td>17(14.2%)</td>
<td>10(8.3%)</td>
<td>1(0.8%)</td>
<td>30(25%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate anxiety</td>
<td>2(1.7%)</td>
<td>17(14.2%)</td>
<td>10(8.3%)</td>
<td>1(0.8%)</td>
<td>30(25%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe anxiety</td>
<td>0(0%)</td>
<td>2(1.7%)</td>
<td>14(11.7%)</td>
<td>3(2.5%)</td>
<td>19(15.8%)</td>
<td></td>
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</tr>
</tbody>
</table>

Table 4 shows the result of Spearman’s rho correlation analysis. Depression was found to be negatively correlated with educational status of respondents (Correlation coefficient=-0.226, P=0.013) and positively correlated with anxiety level of respondents (Correlation coefficient=0.450, P=0.000).

Finally table 5 shows the result of regression analysis it was found that educational status (P=0.008, B=-0.466 and Beta=-0.212) along with anxiety level of respondents (P=0.000, B=0.369 and Beta=0.461) accounts for 30.4% of variance in depression level of respondents (F=25.494 and R2=0.304).

<table>
<thead>
<tr>
<th>Table 4. Correlates of depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>Educational status of respondents</td>
</tr>
<tr>
<td>Anxiety level of respondents</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Table 5. Multiple regressions for depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Education status</td>
</tr>
</tbody>
</table>
Discussion

Women are the main victim of breast cancer in Nepal with only one male patient in this study. The mean age of respondents was 51.92 years indicating that majority of women with breast cancer in Nepal are at mid-life so they still have almost half of their life which can be improved by improving their quality of life. Patients from 11 administrative zones out of 14 participated in this study.

Only 10.8% of respondents did not have anxiety and 6.7% of respondents did not have depression. The analysis of this study suggests that anxiety and depression is highly prevalent among breast cancer patients in Nepal in comparison with other countries. The prevalence of depression in breast cancer survivors varied greatly from as low as 1% to as high as 56%. [19, 22]. Other studies also suggest higher prevalence of anxiety and depression among breast cancer patients. Nearly 50% of women with early breast cancer had depression, anxiety or both in the year after diagnosis, 25% in the second, third and fourth years and 15% in the fifth year. [23]

Poverty, male dominated social structure, gender discrimination, illiteracy, low screening for cancer, and limited cancer treatment facilities throughout the country may have resulted in the above mentioned findings in Nepal.

Despite recent advancement in cancer treatment, Nepal is still struggling to improve and manage even conventional modalities for cancer treatment because of many socio-economic and political conditions. This scenario makes people believe cancer treatment as a dead-end which leads to higher level of anxiety and depression among cancer patients. A major number of cancer patients die due to lack of treatment facilities in Nepal. The main focus of cancer management is still focused on treatment whereas psychological rehabilitation has not yet been included in the treatment plan.

Among significantly associated variables (education, occupation, and anxiety), series of analysis in this study found education being negatively correlated and anxiety positively correlated with depression. Also education and anxiety level of respondents were found to predict depression level among breast cancer patients in Nepal.

In contrary to previous studies, this study found family structure not being significantly correlated to depression level of respondents. Family structure was found to be negatively correlated with depression level but it was not significant. This might have been due to small sample size, whereby there were only 7 respondents from single families and 113 respondents from joint families.

Similar results were found in other studies as well. Depression was found not being associated with any of the disease related variables [23, 24, 25]. Employment was found to have significant impact on depression on those suffering from breast cancer [26]. Anxiety (P<0.001) significantly correlated with depression level of respondents and accounted for 40% variance in depression level among women with breast or gynecological cancer [27]. Another study found education being correlated with depression level of respondents [28].

Among the different breast cancer subpopulations and the different cancer treatments experienced, the most prevalent psychological disorder in women with breast cancer are sleep problems, fatigue, pain, and depressive and anxiety spectrum disorders [15].

For illiterate and respondents with lower level of education, challenges increase as it becomes difficult for them to get enough information or understand the disease process, and its management which results in cognitive and emotional difficulty in understanding complex information and decision making. This also leads to situation where patient does not feel able to establish a relationship of trust with the professionals who treat them. Also they might not have enough coping resources during the cancer journey.

Limitation of daily activities, disfigurement, poor prognosis, distressing side effects, and social isolation cause anxiety. This disrupts the ability to maintain daily living or self care, coping process leading to negative perception of self, life and future, hopelessness, and finally, patients demonstrate depressive
Depression And Its Predictors Among Breast Cancer Patients In Nepal

symptoms. Greater psychological morbidity in cancer patients is likely to speed up the disease progression and shorten survival [29]. Anxiety and depression have strong and independent association with mental health domains and somatic symptom burden in cancer patients. [30] HADS-A (anxiety) was found to strongly correlate with total McGill Quality of Life Questionnaire (MMQoL) (r=-0.578) and psychological well-being (r=-0.526). Also HADS-A and HADS-D (depression) were significant in predicting overall health-related quality of life (beta=-0.486, beta=-0.173 respectively) [31].

Conclusion

Thus screening for psychological morbidities in oncology patients is very important as they are at high risk for clinical depression and anxiety. The frequency of breast cancer has been increasing especially in developing countries like Nepal leading to a serious impact on quality of life and survival of the patient. So if there are effective holistic treatment plan including aspects of women’s psychology after diagnosis of breast cancer, better survival rate and better quality of life can be obtained.

Acknowledgement

This study was a self funded study. Author would like to appreciate the cooperation and coordination of the hospital director and all the staff of Bhaktapur Cancer Hospital, including all the participants of the study.

References


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Received: 28 March 2014 Accepted: 24 September 2014
The Needs And Problems In Epilepsy Caregiving: A Qualitative Exploration


ORIGINAL ARTICLE

THE NEEDS AND PROBLEMS IN EPILEPSY CAREGIVING: A QUALITATIVE EXPLORATION

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Abstract

Objective: Living with epilepsy imposes great challenges on both patients and their family caregivers but most researchers only explored the impact on patients, with less attention given to family caregivers. Our study intended to explore the needs and problems of epilepsy family caregivers of epilepsy patients encountered during the caregiving process. Methods: Respondents were recruited from the Neurology Clinic of Hospital Sultanah Nur Zahirah (HSNZ), Kuala Terengganu. A semi-structured interview was conducted using open-ended and broad questions asking about their general experience in caregiving, daily routine activities, caregiving effects, caregiving difficulties and caregivers’ needs. The interviewed data were later transcribed into verbatim before further analysis using the QSR International’s NVivo10 software. Results: Fifteen Malay Muslim family caregivers between the age of 19 and 66 years participated. Most were females (53%), married (67%), with education level at secondary school or equivalent (73%) and were homemakers (40%). In particular, respondents expressed the need for extra support from their family members and experts in terms of physical (care relief), mental, and financial aspects. In addition, the major caregiving problems identified included: (i) emotional disturbances (sad, angry, depressed, and anxious); (ii) caregiving challenges (family adjustments, physical burden, psychological burden, and time management); and (iii) financial issues (not working and limited family income). Some advantages in caregiving were also reported. Conclusion: In conclusion, their experiences while taking care of their loved ones in terms of feelings, beliefs and needs exposed the difficulties in caregiving, causing substantial emotional pressure which could later lead to poor quality of caregiving. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 116-126.

Keywords: Epilepsy, Family Caregivers, Needs and Problems

Introduction

In Malaysia, epilepsy occurs in up to about 1% of the population (three to nine per 1000 population), whereby it has been estimated that more than 200,000 Malaysians are diagnosed with this chronic disease [1,2,3]. With this number, even greater numbers of
family caregivers could be affected with this illness since living with epilepsy is demanding for both patients and their caregivers [4].

Although epilepsy is directly diagnosed to an individual, the whole family’s daily routines could be changed at the time of epilepsy onset [5]. At times, family caregivers have difficulties to fully admit and accept the fact that their loved ones are afflicted with the disease especially when the seizures tend to occur suddenly, given its nature which is highly unpredictable. Moreover, the most difficult thing to further accept is the “epilepsy label” whereby the disease has always been associated with differentness, discreditability, and spoiled identity [6,7]. Essentially, family caregivers too require support from specialists, nurses, rehabilitation experts, and social workers to help them cope with the many adjustments and uncertainties which accompany the diagnosis of epilepsy. To continue with a normal life, appropriate resources should be provided, such as knowledge to enhance understanding and assist coping. In particular, they need to improve self-management skills in order to increase self-efficacy level for better compliance and coping technique in managing epilepsy patients [8]. Additionally, many family caregivers of patients with chronic conditions including epilepsy are constantly concerned about the long term costs of treatment and care maintenance. They also worry about the insufficient health insurance or low income flow in the family [9]. Epilepsy is rather similar to other chronic diseases in terms of economic burden. The overall medical cost for patients could be divided into direct and indirect costs which ultimately contributes to the financial burden of family caregivers. Direct cost includes the resources consumed by family caregivers for patient diagnosis, treatment or rehabilitation whereas indirect cost refers to the loss of cost of unemployment, decreased productivity and household work due to inability of the affected patients to perform their jobs or work at home [10]. Expectedly, this disease is known to further exert a significant impact on health-related quality of life (HRQoL) of people close to and caring for someone with epilepsy. Such impact could result in extra burden and decrease in family caregiver’s HRQoL [7]. They could be overwhelmed by enormous worries and concern about the patients’ prognosis, unpredictable nature of epilepsy, the side effects of anti-convulsants, and the impairment to brain functions [6]. Accordingly, family caregivers are similarly at high risk for anxiety which could significantly correlate with patients’ HRQoL [11].

Some studies have shown that family caregivers faced high level of strains, whereby they feared that the illness may cause injury or death as well as being concerned about what would happen to patients in future when they are not available to cater for patients anymore. Besides, they are constantly anxious about the patients’ future career and marriage possibility [6]. Researchers also have revealed that most family caregivers tended to experience emotional problems i.e. depression, anxiety, helplessness, embarrassment, guilt and resentment, causing loss of vitality which later interfered with their work or other daily activities [12].

Epilepsy in children for example, often causes multiple stressors, adjustment related problems and disturbances in family relations [13, 14]. These difficulties placed tremendous pressure on family caregivers into handling caregiving as well as keeping their roles in domestic affairs intact, leading to increased burden and feelings of stigma. As a result, epilepsy indirectly inflicts enormous physical, psychological, social, and economic burdens on families [15]. On the other hand, parents also tend to overprotect the patients, which in turn would prevent the independent lifestyle in patients and their overall social development [16, 17].

Caregivers’ undivided focus on patients could further result in poor relationships between the patients and siblings and psychological difficulties among siblings. Such preoccupation could also affect family cohesion and relations between family and their community [18]. When the patients are admitted to the hospital or go for treatment, each family member has to adjust their routine in some way: they may be apart, days of work may be missed, siblings may feel left out and everyone may be worried and tense [9].
Aim of study

This study aimed to explore the needs and problems of family caregivers of epilepsy patients encountered during the caregiving process. In particular, the family caregivers’ experiences including their feelings, values and meanings involved while looking after the patients were to be studied so that structured health education programmes could be tailored to meet these needs and minimise their misfortunes while maintaining well-being.

Methods

Ethical and Institutional Approval

A contact with the hospital authority was made in order to ensure they permitted the study to be conducted and understood its purposes. The explanation included the targeted respondents, study procedure, study duration and requirements needed from the respondents as well as hospital staff. Official ethical approval was obtained from the Ministry of Health Research and Ethics Committee Malaysia (MREC) with the reference number, KKM/NIHSEC/800-2/2/2 Jld.3.P13-686. Subsequently, contacts were established with the respective clinic coordinators including the staff nurses and medical assistants to discuss the meeting day, date and time for data collection. The discussion included the list for suggested family caregivers along with the date and time to meet.

Study Site

Data collection for this study was conducted in Neurology Clinic at Hospital Sultanah Nur Zahirah (HSNZ), Kuala Terengganu, Malaysia. All participants were recruited during the weekly routine clinic day.

Data Collection Technique

A qualitative technique was adopted to gather the information desirable as this was considered the most appropriate method to generate in-depth knowledge about caregiving experiences. Explorative interviews with guiding questions were utilised to ensure that the needed data was investigated in a similar structured manner with each family caregiver.

Participants

Fifteen consenting participants among family caregivers of epilepsy patients were recruited into this study. The participants were selected based on the inclusion criteria as follows: 1) age 18 years old and above, 2) primary caregiver to the epilepsy patient; and 3) can read, write, understand, and communicate in Bahasa Melayu or English.

Study Procedure

Data collection was carried out between February to April 2014. The respondents were chosen through the Neurology Clinic patient database list. The list consisted of regular epilepsy patients who attend the treatment in these clinics along with their family caregivers. The caregivers needed for this study were those identified and recommended by the staff nurses to be interviewed by the research assistant two weeks before study commencement.

On the meeting day, the caregivers were firstly invited into a designated interview room for privacy. They were provided with a thorough explanation on the study purposes and its procedure as written in the Family Caregiver Information Sheet. Written consent form was later signed upon participation agreement by the participants. A semi-structured interview was conducted to deliver the intended questions and pose additional probes to the caregivers. The interview questions were open-ended and broad in order to elicit detailed description of the participants’ experiences. The questions focused on family caregivers’ experiences in caregiving i.e. managing the patients at home, school and outdoor, daily routines, emotional well-being, social life, caregiving burden, difficulties in caregiving, caregiving needs, and concerns. Their perspectives on the patients they are taking care of in terms of health performance and condition improvement were also focused.

Analysis

Qualitative Data

The data obtained was analysed using the QSR International’s NVivo10 software. The audiotaped interviews were initially transcribed into verbatim using Microsoft Word processing programme. The interviews were later reanalysed at least three times to confirm the completeness of the verbatim transcription.
The transcripts then were verified and read through again at least three times to confirm the key themes and patterns which emerged from the data in relation to the research questions. Later, the data were scrutinized to detect saturation of ideas and recurrent patterns of similar meaning and expressions. All data was originally recorded in Bahasa Melayu, but the final scripts were translated into English.

Quantitative Data

The Family Caregivers Personal Information was used to collect participants’ sociodemographic data. The personal information obtained included age, gender, marital status, religious, employment status, educational level, monthly income, and relationship to patient. The data were expressed as frequencies and percentages as appropriate.

Results

A total of 15 family caregivers of epilepsy patients participated in this study. According to Table 1, eight were females (53%) while the rest were males. Most of them were married (67%) and their age ranged from 19 to 66 years old. The participants’ highest education level was reported to be at secondary level (73%). In the majority, their relationship with patients was as either mother or father (40%). In terms of employment, many were homemakers (40%).

Table 1. Sociodemographic characteristics of family caregivers of epilepsy patients (n=15)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. of respondents</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>53.3%</td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>46.7%</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 27</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>28 – 37</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>38 – 47</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>48 – 57</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>58 – 67</td>
<td>5</td>
<td>33.3%</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>Married</td>
<td>10</td>
<td>66.7%</td>
</tr>
<tr>
<td>Divorced/widow</td>
<td>2</td>
<td>13.3%</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>Diploma</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>Secondary school</td>
<td>8</td>
<td>73.3%</td>
</tr>
<tr>
<td>Primary school</td>
<td>5</td>
<td>20.0%</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public servant</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>4</td>
<td>26.7%</td>
</tr>
<tr>
<td>Homemakers</td>
<td>6</td>
<td>40.0%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>Relationship to patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>4</td>
<td>40.0%</td>
</tr>
<tr>
<td>Father</td>
<td>4</td>
<td>40.0%</td>
</tr>
<tr>
<td>Husband</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>Wife</td>
<td>2</td>
<td>13.3%</td>
</tr>
<tr>
<td>Daughter</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>Son</td>
<td>1</td>
<td>6.7%</td>
</tr>
</tbody>
</table>
Data from the completed analysis were largely grouped into needs, problems and advantages, whereby the theme for needs included: support for caregivers, whereas problems were divided into these themes: 1) emotional disturbances, 2) caregiving challenges and 3) financial issues. They were further broken down into smaller, more focused subthemes. The last group of findings unexpectedly emerged to be the “advantages” of caregiving.

Theme 1: Support for caregivers

With regard to the need for additional support in caregiving, a few participants (n=4) expressed their requirement for care relief from other family members and experts. Family caregivers usually neglected their own welfare during caregiving because most of the time they were too concerned about the patients’ health well-being.

i) Care relief

The most important support they need was to take a short break from the caregiving duty. They mainly mentioned the quality time they longed for themselves and that they could not attain their personal needs as they feel guilty towards the ill patient.

I really need time for myself. I never had a chance to entertain myself ever since my son has been diagnosed with epilepsy.

(Informant no. 4)

I do hope that my other sons understand more about their sick elder sister. I feel very tired of handling the situation. I really need a break from all of this.

(Informant no. 7)

I wish someone could help me in taking care of my husband. It is tough to handle it alone. Sometimes I need space for myself.

(Informant no. 8)

Sometimes I really want to hear the doctors say that they could take care of my wife so that I can focus more on my job.

(Informant no. 13)

ii) Motivation

Most of the family caregivers conceded that they need extra motivational drive to encourage their moral spirit in caregiving. The data gathered demonstrated their lack of self-esteem in socialising.

There are times when I have to be really strong but then I just do not have the courage to look after her even though I know that she is incapable of looking after herself. These are the times when I need someone to cheer me up.

(Informant no. 5)

iii) Financial support

Another common need reported by the family caregivers was financial aid. A number of the participants (n=3) fell into the poorest group of the society. The monetary needs were cited as they were unable to work due to imminent responsibilities in caregiving.

Do you know where can I apply a fund for my son? I really need money to survive. I really need the help to raise our family income. My husband is suffering from stroke therefore he could not make a job. There is no chance for my son to do a job. I am just a rubber tapper and you know how little the money I earn with that job.

(Informant no. 11)

Theme 2: Emotional disturbances

A major finding in this study was the range of emotions experienced by the family caregivers. They were overwhelmed with emotions which enhanced mainly negative elements of feelings in their lives. This would likely pose difficulties for them in caregiving routine, thus adding potential stress to both caregivers and patients.

i) Sadness and depression

In some cases, family caregivers expressed their sadness of having a sick child or spouse. Obviously they were unable to live a normal life due to the nature of the disease itself, thus it saddened them for having to accept the fate. These sorrows would literally lead to depression (if left unchecked) among the family members whereby their daily routines have changed dramatically.
I couldn’t stop crying the moment I knew my kids have this disease. Three of them, and I knew I couldn’t do anything else. I was so depressed at the beginning. I still feel sad even till now. I just couldn’t…

(Informant no. 6)

ii) Anxiety and fear

In addition, this study also uncovered feelings of anxiety and fear among the family caregivers. The anxiety rose as they learnt the prognosis of the disease while the unpredictable nature of epilepsy led to substantial fear in handling the illness.

It was when he was about 15 years old when my son started suffering from epilepsy. It was difficult for us to handle. This illness really scares you because you don’t know when he will have the seizures.

(Informant no. 3)

I feel very anxious everyday as my daughter go to school. We are thinking of stopping her from going to school because we are so worried that something might happen to her while she was away from us.

(Informant no. 5)

I’ll never allow my mom to live alone in the house. We also do not allow her to drive or ride the motorcycle because we fear something might happen if we let her do it.

(Informant no. 15)

Theme 3: Caregiving challenges

Caregivers could expect to experience a disruption or crisis while taking care of their loved ones. Many challenges could emerge during the caregiving especially when the illness could not be predicted or controlled. Most of the family caregivers have to bear with the difficulties in managing daily problems which arose during caregiving.

i) Family routine adjustments

There were times when the commitment to look after the patients affected the family bond such that most routines needed adjustment in order to avoid the difficulties in caregiving. Family caregivers have to particularly sacrifice their time and energy as an effort to prevent stressful problems among other family members. They too have to support each other, which was important for other members to fully understand the situation.

There was one time where my boy feels angry towards me because I care more on his sick brother rather than him. He accused me of not paying attention to him anymore.

(Informant no. 4)

My relatives are still avoiding our family ever since they knew that my daughter have epilepsy. They couldn’t accept my daughter’s condition and they told me that our family have a curse.

(Informant no. 8)

I couldn’t continue my study yet because I have to wait for my brother to finish his study first because there is no one else to look after my mother.

(Informant no. 15)

ii) Physical and psychological burden

Some participants mentioned that they felt burdened mentally and physically from the caregiving process, especially among the women caregivers. Exhaustion in caring with regard to energy and spirits were evident.

At night, I couldn’t sleep because I am too tired of taking care of my husband. Sometimes I feel very weak until I tell myself that I couldn’t do this anymore. My husband always being admitted to the hospital and he’ll stay warded up to a month long. I feel very tired and exhausted. My mind is very complicated now. I don’t know what I should do...

(Informant no. 9)

iii) Time management

Despite being a caregiver for a certain period of time, some were still experiencing difficulties in dividing their time for personal, household, and patients’ needs. The inability to manage the right proportion of time for different things in their lives was apparent.

Every day I need to rush everywhere like sending my kids to school, looking after my mother, keeping on track with my...
Theme 4: Financial burden

The results of the study detected two major reasons for financial issues among the family caregivers which were either due to unemployment of the caregivers or the small amount of income they were earning.

i) No job

Majority of the family caregivers were homemakers, hence explaining the absence of employment. As most were either mothers, wives or fathers, they were unable to work due to the need to watch for their loved ones. The rest of the family members might be working far away from home or they might have some other difficulties.

I spent most of my money to get treatments for my son and husband. There is not enough money to spend for other things. Our house is very far from the town and hospital. It is difficult for me to get a job because no one else to look after my family. (Informant no. 7)

ii) Limited family income

The family income was strained simply because the caregivers were among the poorest group of the society. The pressure of merely being fishermen, rubber tappers or gardeners further compounded the already huge with a lot of household responsibilities. Financial burden also came from transportation cost, home care, and school fees.

My family is very poor and we just have a motorcycle to go everywhere. I feel restless and depressed because our family income is very small. I am an old lady, somehow my energy does not feel like before and I only live with my only daughter, who has epilepsy. She couldn’t do any work or else her health condition become worse. (Informant no. 10)

Theme 5: Advantages in caregiving

Within this study, several positives indicators could be seen through the carers’ experiences. The caregiving process had apparently increased their strength and energy in looking after the family as well as the patient. This especially was reported by the women caregivers. These caregivers were also eager to keep maintaining their health in order to continue the task each day. Furthermore, some family caregivers also expressed their satisfaction in caregiving with the help of other family members. A few of the informants mentioned too that their spiritual level had increased since the loved ones were diagnosed with epilepsy, making them feel more enthusiastic to manage the new daily routine at home.

This was a test from the God. We have accepted our daughter’s fate. I will always be by her side. Our job was to make sure she forget her illness and make her happy always. (Informant no. 2)

I hope my wife can rely on me at all times. I will do whatever it takes to improve her condition. (Informant no. 1)

I did not regret my decision to postpone my study because my mother is more important to me. I will wait for my brother to take turns with me in taking care of her. I am happy that the responsibility is on me now. (Informant no. 15)

Discussion

Family caregivers generally play critical roles in transitions from hospital to home. They not only provide the majority of personal assistance to the patients, but also the health-related care. In fact, family caregivers are usually the persons who will actually implement care plans at home [20], who were also knowledgeable on the strengths and weaknesses of patients, which were very important predominantly in managing the behavioural problems and warning signs of the patients.

It is known that epilepsy imposes a significant impact on patients and family caregivers but this could be worse on caregivers due to the
lack of attention given to them. Some studies reported that the caregivers seemed to have burden of care which probably reflects their natural reaction to the situation they are confronted with, in this context, the caregiving course. Epilepsy patients and their families could have fears when the diagnosis is made whereby the onset of epilepsy may have frightened the families and the frequent occurrence of seizures reinforces the belief that the illness is life-threatening [21].

In terms of needs, family caregivers have voiced their own desires to be fulfilled, in terms of needing to feel acknowledged, valued and understood by others. Without proper care for the caregivers, their own health and well-being could also be at risk which could in turn, jeopardise their ability to continue providing care to the patients. Family members, partners and close friends could all potentially provide the vast majority of the support for caregivers and patients in terms of care needs and functional limitations [22].

One critical problem found in this study was the emotional distress experienced by the family caregivers. The range of emotions reported varied from sadness, depression, anxiety to fear. These emotional experiences corresponded with the unpredictable nature of seizures which could have contributed to the sense of helplessness and lack of control during the attack [23]. It was known that the family’s main concerns were fear of the seizure and injuries subsequent to that. In addition, some frustration may have also led to depression and anxiety [24]. Evidence of greater impact on emotional aspects was found among caregivers who were constantly worried about the patients almost for 24 hours a day, resulting in negative feelings such as sadness, fear, nervousness and tension, all of which could interfere with their physical and emotional well-being [25].

Our further investigation on the carers’ experiences also uncovered specific daily challenges within the routine. For example, a number of participants encountered family adjustment difficulties. It was clearly hard to adjust such to situation within the family members at the beginning due to reactions towards the diagnosis. Managing epilepsy patients placed additional pressure on the family system [25], leading to possible conflicts among siblings, spouses or parents involving expressions of anger or aggression towards the caregivers for the less attention they received and the time they need to juggle for families and patients. Moreover, lack of consideration and care from other family members were also factors in family adjustment problems.

Other reported problems encountered included physical and psychological burdens. A small number of participants reported difficulties to cope with this burden as they had reached the limits to deal with the patients alone. In particular, the carers had described physical strains such as sleep deprivation, fatigue from dealing with difficult behaviour of the patients or unable to physically cope with lifting and worries about falling down in bathroom [26]. The psychological distress among caregivers was indicated by stress, over-arousal or even mental exhaustion from the length of time the care they had provided [25, 26]. Moreover, epilepsy can be different for each person, so the need for care can vary greatly. More or less people with epilepsy do not need any additional care from others to live independent lives while other epilepsy patients may need a lot of care, some or all of the time, whereas some patients need care only when they have had a seizure. Hence, while many family caregivers in charge of the patients’ well-being would consider the duty to be completely normal, others might feel burdened for they had to juggle between patients’ safety and needs [27].

Additional challenges were directed to managing the time in daily routine either involving household, work or caregiving responsibilities. The caregivers also claimed that in addition to multiple responsibilities at home, sometimes they might have to manage various health conditions from other family members too. In spite of the lack of a support system, most carers continue to patiently shoulder the entire household burden including cleaning, preparing meals, driving, coordinating medications and other related routines. Thus, the incapability to manage the overall task could lead to failure in balancing each routine, whereby unsurprisingly several studies reported that the carers experienced significant fatigue, sleep impairment and
difficulty in maintaining self-focus and energy throughout the caregiving process [28].

Expectedly, the findings also suggested the existence of some financial pressures among participants. The acquired additional financial issues could lead to negative impacts in the family’s overall budget. Epilepsy imposes an economic burden, mainly involving frequent hospital visits or using high doses of anticonvulsant drugs and hence increases cost [29]. This burden emerged as a result of less productivity in the family, e.g. (1) the disorder commonly affects young people, often leading to avoidable unemployment; (2) the family caregivers could not work due to the full-time care duty or (3) none of the other family members were able to work (other illness, not at the age of working, or no transportation). Despite knowing the cost of epilepsy could increase the caregivers’ pressure on family expenses, they would always bear with the burden in seeking potential prevention and treatment for the patients [10].

Many people in a caring role find it rewarding, and many would not want their situation to change. However, for some people, being a carer could be exhausting. Emotions such as guilt, resentment, anger, anxiety or helplessness can be common. Some carers give up their income and career prospects to care for someone. Sometimes, even if the family caregivers care very deeply for the person, it could feel as though the focus was always on them and that their needs and wishes go unnoticed. Carers often deal with their situation alone and could feel very isolated, whereby they always tend to abandon their own needs and well-being along the process [30]. Therefore, it could be very vital for family caregivers to care and occupy some of the time for themselves once in a while. Hence, it was important to explore their experiences since the family caregivers spend a substantial amount of time interacting with their care recipients, while providing care in a wide range of activities [31].

**Conclusion**

This study managed to identify five main caregiving concerns among the epilepsy family caregivers. These issues were identified as support for the caregivers, emotional disturbances, caregiving challenges, financial issues, and even positive aspects gained from caregiving. The most frequently-encountered problem was emotional disturbances as most were overwhelmed by mixed feelings towards their loved ones. Thus, continuous support from other family members and experts should be provided in order to keep them fit to cope with the caregiving problems. A variety of information on caregiving techniques and disease facts could also be allocated to facilitate the existing misfortunes.

**Conflict of Interest**

No competing financial interest exists.

**Acknowledgements**

The authors would like to express their sincere gratitude to Ms Noor Salihah Zakaria, Ms Neni Widiasmoro Selamat and Ms Norhayati Mustapha for their support and guidance.

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Received: 17 May 2014

Accepted: 8 October 2014
A Child With Advanced Mucopolysaccharidosis Presenting With Severe Behavioural Problems

CASE REPORT

A CHILD WITH ADVANCED MUCOPOLYSACCHARIDOSIS PRESENTING WITH SEVERE BEHAVIOURAL PROBLEMS

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Abstract

Objective: Clinicians are less familiar with clinical presentation of rare disorder like mucopolysaccharidosis (MPS), especially as presentation is complex and varied with different subtypes of this disorder. This case report highlights severe behavioural problems and non-recognition of MPS by clinicians. Though behavioural problems, hyperactivity and aggression are common in children suffering from mental disability, they are also seen in rare metabolic disorders like MPS. Methods: We have reported a seven year old girl who presented with severe episodes of hyperactivity, poor social interaction, impaired understanding of speech and delay as well as regression in developmental milestones is presented along with the investigations and treatment given. Results: Initially, the child was thought to be suffering from intellectual subnormality and/or pervasive developmental disorder. However, radiological studies showed x-ray findings suggestive of MPS. Her developmental history, physical findings, hearing loss as noted on BERA further supported this diagnosis. Due to financial constraints of the family detailed investigations (enzyme assays) to know the exact type of MPS could not be done. Behavioural problems had to be managed with low dose clonazepam and carbamazepine. Conclusion: It is worth considering metabolic disorders as one of the important differential diagnosis in any child presenting with developmental problems, dysmorphic facies along with behavioural problems. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 127-130.

Keywords: Mucopolysaccharidosis (MPS), PDD, Mental Retardation

Introduction

A child presenting with severe behavioural problems is often a challenging situation for a psychiatrist. In absence of significant intellectual subnormality, differential diagnoses like autism spectrum disorders, emotional disorders, and conduct disorder are considered.

Mucopolysaccharidosis (MPS) is a rare but serious metabolic disorder. Type – III disorder is seen in 1 in 2500 live births, while other types are further rare (1 in 100,000). Prevalence may be underestimated due to under diagnosis of this condition. Very few cases have been reported from Indian population.[1,2,3] It is caused by the absence or malfunctioning of lysosomal enzymes needed to break down Glycosaminoglycans [3,4].These accumulate in cells, blood and connective tissue which results in permanent progressive cellular damage affecting appearance, physical abilities, mental development and functioning of various organ systems. The child usually presents between 3 – 6 years, with dysmorphic features and deterioration of mental and intellectual
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functioning [5]. Diagnosis is clinically suspected based on presenting complaints and facial appearance. Laboratory investigations are needed to confirm the diagnosis. Currently management of this disease is directed more towards symptomatic relief rather than the actual cure. Enzyme replacement therapy has proved useful to some extent. Administration of genistein, a soy-bean derived isoflavone, ameliorates disease severity in MPS III to some extent, by inhibition of Glycosaminoglycan synthesis. Bone marrow transplant and umbilical cord blood transfusion have been tried with limited success [6 - 8].

This paper focuses on identification and psychiatric management in this condition.

Method and results

Case history

A 6 years and seven months old girl was brought by her parents to Psychiatry clinic of this general hospital with the complaints of inability to understand speech and remaining aloof. Social interactions had recently reduced significantly. Delayed developmental milestones were noted on detailed assessment especially language and fine motor developmental milestones. Sudden episodes of hyperactivity and aggressive behaviour mainly towards self were also reported. On further questioning some regression of language milestones was noted while her gross motor function development was relatively normal. Her mother reported, when her daughter turned 2 years old she started to feel concerned about her ability to understand and get involved in routine social interactions. She was unable to play with other children or do any kind of group activity due to her behavioural problems. She ran around the house, repeatedly clapped her hands and hit on her head. These symptoms worsened with time. At the time of presentation she was able to walk and run without support, however she had trouble climbing stairs. She had not achieved a mature pincer grasp and was unable to write or perform other activities requiring fine motor control. She used to say bi-syllables and a few meaningful words, but her speech and the ability to understand it deteriorated with time. She had not achieved bowel or bladder control. She slept well except for on and off disturbances and she also has a good appetite, but needed assistance to eat food.

She stayed with her parents and sibs and did not have a family history of any major disease. Her 4 year and 9 year old brothers were apparently healthy.

The patient had coarse, dysmorphic facial features. She was hyperactive and occasionally engaged in self harming behaviour like head banging. She was admitted in the psychiatry ward for her uncontrollable motor activities that were mostly meaningless. Due to facial dysmorphic appearance she was referred to a paediatrician for further assessment.

Investigations

She was advised various investigations by paediatrician in view of possible inborn error of metabolism. Ultrasonography of abdomen showed mild diffuse hepatomegaly. ECG findings were suggestive of ASD. BERA showed mild hearing loss in right ear and moderate loss in left ear. B type tympanogram was seen on impedance audiometry. X-ray hand AP- Proximal ends of metacarpals were pointing. X-ray PBH- Acetabular roof was horizontal. (hypoplastic inferior ilium). Neck of bilateral femur was shortened with widened femoral epiphysis. X-ray Thoracolumbar spine AP and Lateral- Vertebrae had beaking and fish mouth appearance. All these X-ray findings were suggestive of MPS. MRI brain was suggestive of diffuse cerebral atrophy.

Discussion

This patient was brought to the clinic very late in the course of her disease. Initially, due to the nature of her symptoms she was admitted as a case of pervasive developmental disorder with mental retardation. After investigations the diagnosis was reviewed as a presentation of MPS type III. Developmental delay and behavioural problems like hyperactivity and aggression are commonly seen in mucopolysachharidosis Type III [7]. Autistic features, cognitive decline and presentation with behavioural problems are common with Type IIIB of this disorder [8, 9, 10]. Unfortunately in this case urine glycosaminoglycan screen or serum enzyme
assay could not be done. When parents were informed about the condition, they expressed concern about her symptomatic management only. They were reluctant for any costly investigations, once the child was behaviourally better.

Low dose of various antipsychotic drugs has been reported to be effective in management of behavioural problems though response is unpredictable and side effects are common [7,10]. This patient too had extra pyramidal symptoms with low dose Risperidone (0.25 mg) as well as Aripiprazole (1.25mg) and low dose Clonazapam (0.25mg) had to be given for activity control. Low dose Carbamazepine (50 mg twice a day) was also administered. Use of Carbamazepine to manage inpatient child aggression has been studied, recommended and documented in literature [11].

The patient has two brothers who do not have any similar symptoms. There is a 67% chance of them being carriers of this autosomal recessive disease and they were in need of genetic counselling for the future [12]. Parents of children with MPS face a lot of psychosocial problems in their life. Handling aggressive behaviours, making home “safe” to avoid injuries, financial stress are to be faced by these grieving parents. Parents may often need psychiatric help [9]. Parents of this child were also counselled regarding all these issues. They were explained about genetic transmission, handling everyday problems, prognosis and psychosocial support was provided.

The prognosis of MPS depends on the particular type affecting the patient because each type is associated with specific co-morbidities and estimated lifespan is variable as well though child usually survives till second decade. Specific treatment/cure is limited so a very well organized management plan is needed for such patients. The patient will need timely follow up to access presence of corneal clouding, joint stiffness, increased hearing loss, cardiovascular disease and obstructive airway disease. A team approach to tend to the patients needs involving a pediatrician, ophthalmologist, orthopedic surgeon and a physical and occupational therapist is beneficial.

Since this disease can present with symptoms seen in a number of psychiatric and developmental disorders it is difficult to diagnose at an early stage. The differential diagnosis of an inherent metabolic disorder should always be considered in a child presenting with behavioural problems.

Conclusion and Clinical Implications

Rare condition like MPS should also be considered in a child presenting with behavioural problems, who appears intellectually subnormal. Early diagnosis can improve chances of effectiveness of newer treatments available. Symptomatic treatment with psychotropic drugs is helpful for the child and genetic counselling helpful for planning subsequent pregnancy. Drug treatments as well as psychosocial support for psychological distress and burnout in parents are deemed necessary. Early identification of these cases is possible with high level of clinical vigilance, which will improve survival and quality of life of both child and parent alike.

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Received: 20 April 2014 Accepted: 17 June 2014
Delayed Neuropsychiatry Sequelae (DNS) Of Carbon Monoxide (CO) Poisoning – A Case Report


CASE REPORT

DELAYED NEUROPSYCHIATRY SEQUELAE (DNS) OF CARBON MONOXIDE (CO) POISONING – A CASE REPORT

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Abstract

Objective: Several cases of suicide attempt by charcoal burning producing CO have been reported in Malaysia. This case report highlights a case of delayed neuropsychiatry sequelae (DNS) in CO poisoning. Method: We report a young Chinese homemaker who presented with DNS who was detained in a Malaysian forensic psychiatric ward. Results: After approximately two weeks of admission, in a familicide attempt, she had started to exhibit subtle changes in her behaviour, including social withdrawal, impaired memory, and there was lack of emotional distress. Conclusion: We report an interesting DNS as one of the two forms of chronic sequelae of CO poisoning, whereas the other type of neuropsychiatric sequelae is the persistently progressive type. ASEAN Journal of Psychiatry, Vol. 16 (1): January – June 2015: 131-134.

Keywords: Delayed Carbon Monoxide Poisoning, Neuropsychiatric Sequelae

Introduction

Suicide attempt by charcoal burning has been a familiar method in Asian countries [1], not precluding Malaysia, despite a lack of data of such a suicide method [2]. The diagnosis of delayed neuropsychiatry sequelae (DNS) of carbon monoxide (CO) poisoning due to charcoal burning is not a familiar term among psychiatrists, especially junior ones. The occurrence of such a disorder is hardly commonplace in the local psychiatry setting, as most cases would either be treated during the acute event in emergency department or would have not survived from the cerebral insult. The aim of this case report is to discuss presentations of DNS in relevance to psychiatry, and its remarkable recovery, without any specific treatment for CO poisoning.

Case Report

A 37 year old Malaysian Chinese homemaker was detained in our forensic psychiatry ward under court order for investigation into the murder of her five-year-old daughter. This murder charge was in the context of an attempted familicide, perpetrated by both the patient and her husband, by inhalation of burnt charcoal in an enclosed room for two consecutive nights, where their two children were also sleeping, after ingestion of over the counter hypnotic medications. The youngest of the children had succumbed to death on the second attempted familicide night, while the seven-year-old son and his parents survived and remained in their apartment for four days before being discovered by an acquaintance who notified the police. The parents were apprehended and later detained in the forensic psychiatry ward. This act of deliberate self-harm is criminalized under the Malaysian Penal Code, and requires a psychiatric assessment of the perpetrator, by a court order.

The main stressor was that the patient’s husband, was no longer able to provide
financially for his family in the preceding six months of the incident. This was coupled with pressure of having borrowed money from loan sharks and being unable to repay their mounting debt, which included credit card debts. This account of the history was reported by the patient upon her admission into our ward. Mental state examination at the time was reported as unremarkable. Subsequent mental state assessments revealed that she was grieving the loss of her child and this was assessed to be a normal bereavement process.

After approximately two weeks of admission, which was approximately 40 days after the familicide attempt, patient had started to exhibit subtle changes in her behaviour. She initially appeared not forthcoming during the interview, by not talking as much as she did before, and had been keeping to herself in the ward. Later, there were signs of impaired memory; not being able to recall the details of the incident, and there was lack of emotional distress associated with this. Her affect was described as blunted due to lack of emotional tone, and appearing dulled throughout serial interviews. There was also a gradual change in her gait over a period of two weeks, best described as mild shuffling, but was not unsteady. There were no falls and Rhomberg’s sign was negative. Physical examination revealed mild rigidity over her proximal upper limbs and pupils were dilated at 4mm bilaterally. Nursing staff also started to report patient appearing dazed and did not know how to carry out complex activities, such as washing her dishes, bathing, and toileting. Subsequently, she developed double incontinence (day 44), and had required the use of pampers. By this time, she required close supervision and assistance in her basic activities of daily living. Interestingly, her clinical deterioration had paralleled her husband’s, albeit behind in presentation by a week’s duration, who was also detained in the male ward, under a different treating forensic psychiatrist.

She was then referred to the visiting neurologist of the nearby general hospital and underwent brain Magnetic Resonance Imaging (MRI) (day 54) which revealed T1WI hypointensities and T2WI hyperintensities in both globus pallidus and periventricular white matter with some extension to subcortical white matter at the frontal region. There were no cortical, cerebrum or brainstem abnormalities. MMSE revealed cognitive impairment with a score of 11/30; with impairments in the domains of orientation, memory, concentration and visuospatial abilities. A diagnosis of delayed neuropsychiatric sequel (DNS) of carbon monoxide (CO) poisoning was made based on clinical and radiological findings. Management involved supportive treatment, mainly with assistance with basic daily living. Neurobion, which is a combination of vitamin B1/B6 and B12, was started as a supplement. There were no behavioural disturbances and no psychotic symptoms.

In the following one month of hospitalization, which was approximately 70 days after the familicide attempt, the status of her condition, was at best described as no further deterioration, as demonstrated by (a) serial MMSE; score range between 13/30 to 15/30, with impairment noted on orientation, attention, registration, recall and visuospatial skills; (b) no worsening of her activities of daily living (lesser degree of assistance needed); (c) lesser extrapyramidal rigidity in muscle tone over upper arms; and (d) lesser frequency of incontinence. She was not fit to stand trial in court to face her charge of criminal offence and hence an extension into her forensic assessment was obtained. Astonishingly, her condition took a turn for the better, gradually, over the following month (approximately 85 days after the suicide attempt). Her motor and cognitive deficits had started to improve after the above clinical dip, in two weeks. She recorded MMSE score of 22/30 (day 99) on the last assessment, with full score on recall memory. Nursing observation reported she was fully independent in activity of daily living (ADL) by then and was no longer incontinent.

She was finally deemed fit to stand trial for the charge brought against her and was discharged from the forensic ward. Her husband also, remarkably, had similar clinical improvement that he was mentally fit to stand trial for the same criminal charge.

**Discussion**

This case demonstrates an attempted
familicide that turned into a homicide investigation. While the acute presentation of CO poisoning is recognisable, the delayed effects of this toxic exposure is less easy to be identified; in part due to its non-specific cluster of neuropsychiatry changes, and also due to a latency onset that ranges between 3-240 days [3]. The survivors, including the patient, of this botched suicide attempt were discovered after four days, and during this period, could have recovered from the acute intoxication effects of CO without any overt residual signs. It was assumed that the patient had substantial exposure to CO, based on the history of having attempted charcoal burning suicide twice in a row over two days, and remained in their apartment in the following four days, and that the youngest child had succumbed to death from the exposure. However, during discovery (day 4), she was apparently not ill enough to require medical attention and this was regarded as the latency period before the onset of DNS. It took approximately 40 days for the signs of DNS of CO poisoning to appear in this patient, and a further 30 days before she showed signs of recovery from DNS; well enough to have the mental capacity to stand for court trial.

The onset of this patient’s DNS was heralded by the gradual blunting of her affect or apathy, followed by an abrupt decline in gross intellectual function and subsequently motor and neurological deficits. The apathy was associated with psychomotor retardation, and was initially thought to be part of her grieving process. However, when this quickly took a turn for the worst, with the development of disorientation, executive dysfunction such as inability to carry out basic ADLs, and later double incontinence with gait abnormality, the possibility of a delayed onset effect of CO poisoning was suspected. Her clinical picture had also coincided with that of her husband’s, who was an inpatient in another ward in the same psychiatric facility. The diagnosis of DNS was corroborated with MRI imaging which revealed characteristic changes, and neurologist’s confirmation of the diagnosis.

This patient had manifested several of the most commonly reported clinical manifestations of DNS in literature: apathy, double incontinence, and gait disturbance [4]. Neuroimaging study on this patient also correlated with the most common conventional MRI brain findings in the chronic phase (22 days and beyond) of CO exposure: T2 weighted hyperintensities in bilateral globus pallidus and cerebral white matter [5]. The reason for the lucid interval; the apparent asymptomatic interval after recovery from acute CO intoxication; and the occurrence of neuropsychiatry sequelae has not been determined thus far. However, risk factors for developing DNS has been suggested [6]. DNS is one of the two forms of chronic sequelae of CO poisoning, the other type being the persistently progressive type. The reported incidence is variable and recovery from this has been documented as almost 70% of cases within a year [7]. In conclusion, a presentation of a delayed onset of brain syndrome as a result of CO poisoning can be an interesting case report.

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Received: 2 February 2014 Accepted: 19 June 2014