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The World Health Organization (WHO) recently announced 'gaming disorder' as a new mental health condition and has included it in the final draft of the 11th edition of the International Classification of Diseases (ICD-11) [1]. There are three major diagnostic features or characteristics of gaming disorder. Firstly, there is impaired control over gaming (e.g. onset, frequency, duration, intensity, termination, context). The second feature is an increasing priority given to gaming to the extent that gaming takes precedence over other daily activities and life interests. The third feature is a continuation or escalation of gaming despite the occurrence of negative consequences. For a diagnosis to be made, the behaviour pattern must be of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning and would normally have been evident for at least 12 months. However, the required duration may be shortened if all diagnostic criteria are met and symptoms are severe enough [2].

WHO and other experts were quick to note that the overall prevalence of this condition is actually 'very low', with no more than up to 3 percent of the gaming population believed to be affected. A research done by Andrew Przybylski and team suggested that very few of those who play internet-based video games have symptoms indicating they may be addicted. They also concluded that gaming is unlikely to be as addictive compared to gambling [3].

Many young people nowadays do not know how to seek help themselves, hence by classifying “gaming disorder” as a separate addiction or clinical diagnoses, helps for the development of effective and efficacious treatment plans that benefit the individuals who require professional help [4]. Besides that, it also allows relevant prevention measures to be taken, development of treatment programmes for people with health conditions identical to those characteristic of gaming disorder and allow people to have early awareness and seek early treatment.

Many researchers have argued that there is insufficient evidence and urges WHO to postpone the formalization until there is stronger scientific support and high clinical utility. They also feel that by classifying ‘gaming disorder’ as a mental health condition may result in a genuine risk of abuse of diagnoses. [5, 6] In addition, some people may have underlying mental health issues such as anxiety or depression and are just using gaming as a coping mechanism. Gaming disorder could be a secondary
diagnosis in coping with a primary diagnosis of a mental health condition and is not a unique stand-alone disorder itself. Furthermore, diagnosing a patient with gaming disorder would be very subjective as the definition does not distinguish between mild, moderate or severe cases and it is diagnosed based on the clinician’s own knowledge and experience – many of whom are not professional gamers and have limited insight into the field of gaming. This could result in premature application of diagnosis in the medical community and the treatment of abundant false-positive cases, especially for children and adolescents. On top of that, this new diagnosis may create unnecessary concerns among parents and also risk stigmatizing many young gamers who are just genuinely enthusiastic about gaming [6].

Overall, people who partake in gaming should be cautious and alert to the pattern of their gaming behaviour and amount of time they spend on gaming activities, particularly when it is to the exclusion of other daily activities, as well as to any changes in their physical or psychological health and social functioning. While there are benefits to formalizing gaming disorder, further ongoing clinical research is required in order to increase the existing evidence with regards to the disorder.

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Psychiatrists in Malaysia: The Ratio and Distribution

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Abstract

Introduction: We are aware of the shortage of psychiatrists in Malaysia. However, there is no formal report on the distribution and ratio of psychiatrists in each state in Malaysia. We aim to do a detailed count of the number of psychiatrists in the country. Methods: We obtained the figures for the psychiatrists practicing in the government, private and university settings by accessing the Ministry of Health database, information from the Malaysian Psychiatric Association, Malaysian Mental Health Association, National Specialist Register and websites of the respective Universities. The total number and ratio of psychiatrists per 100,000 population are calculated. Results: There was a total of 410 registered psychiatrists in Malaysia in the private universities, private clinics, public universities and government hospitals. The state with the highest number of psychiatrists is Wilayah Persekutuan Kuala Lumpur with a total of 94 psychiatrists which has a ratio of 5.24 per 100,000 population followed by Wilayah Persekutuan Putrajaya with 3.38 per 100,000 population. The states with the least ratio of psychiatrists are Sabah with 0.54 and Kedah with 0.55 per 100,000 population. Conclusion: There is a discrepancy in the geographical distribution of psychiatrists in Malaysia. People living in larger, urban states have better access to mental health care whereas the smaller states face a serious lack of psychiatrists. More effort should be taken to improve mental healthcare in Malaysia as recommended by WHO with one psychiatrist for every 10,000 population.

Keywords: Psychiatrist, Malaysia, Count, Ratio, Distribution

Introduction

Malaysia is a developing nation, and located in South East Asia, is the epicenter of the cultural melting pot which defines the region. Consisting of people from a multietnic and diverse cultural background, Malaysia is indeed a colourful and vibrant nation. Mental health issues have been in the spotlight recently as the National Health and Morbidity Survey 2015 reported that 30% of Malaysians suffered from some form of
mental illness. This is a worrying figure as mental health awareness is still in its infancy in Malaysia [1]. Thus mental health resources need to be mobilized as it is clearly lacking in Malaysia, as compared to developed nations.

The history of psychiatric services in Malaysia can be traced back to the setting up of the first asylum for the mentally insane in Penang in the 1890s. In the first decades of the 20th century, two hospitals were built for the mentally ill – Hospital Taiping and also Hospital Tanjung Rambutan. The latter was an institution which housed mentally ill patients and was built in 1911, with 280 beds [2]. In East Malaysia, similar institutions were constructed in Sabah and Sarawak. Some years later, the country’s next mental institution was set up in Johor, which is at the southern tip of the country. This institution was named Tampoi Hospital and is now known as Hospital Permai, and it was completed in 1935.

Up to that point in time, mental health treatment was focused on institutional care, and there was high prevalence of stigma towards the patients. This ultimately led to poor quality of care for the patients and very low remission and recovery rates. Mental health treatment in Malaysia during the early days was seen as managing chronic, irreversible illness and efforts were mainly focused on custodial care, rather than rehabilitative and curative approaches [3]. Thus when the first psychiatry ward in a general hospital was started in the Penang General Hospital in 1958 it was a paradigm shift for Malaysian psychiatry as for the first time people with mental illness were housed under the same roof as other patients [4]. The first local psychiatrist in Malaysia was Dr M. Subramaniam in 1961, followed by Tan Eng Seong in 1963 who was sent to Tampoi Mental Hospital. In 1962, Dr Eric Dax was commissioned by the World Health Organization (WHO) to review the mental health policy and treatment of mental illness in Malaysia. He was instrumental in revolutionizing mental health care in Malaysia. Under his leadership, the Mental Disorders Ordinance 1952 was revised and the quality of mental health delivery in the country was given an upgrade [2]. The Malaysian Psychiatric Association (MPA), which was founded in November 1976 by Dr MP Deva and Dato Sri’ Dr M. Mahadevan, took on the role of nurturing the field of psychiatry, still at its nascent stage at the time [5].

The first psychiatry department at a Malaysian university was set up in 1966 at University Malaya (UM), followed by the Masters in Psychological Medicine programme in 1973. The graduating first batch of UM produced three fledgling psychiatrists who would pave the way for many more future psychiatrists in the country [3]. The setting up of a Conjoint Board in the year 2000 further boosted the development of psychiatry in the country. The board oversaw the general development of the post-graduate Masters programme and played a vital role in coordinating the academic curriculum as well as to collate input from various academician psychiatrists in the country. The number of psychiatrists has continued to grow since the Conjoint Board was set up. In 2010, there were a reported 224 psychiatrists in the country [6], however this number has only increased marginally. This number is a far cry from achieving the WHO’s psychiatrist to population ratio of 1:10000, which requires at least 3000 psychiatrists [7]. In order to fulfil the WHO ratio, the Ministry of Health encouraged the development of the parallel pathway to specialization by encouraging more candidates to train for the Member of the Royal College of Psychiatry
(MRCPsych) qualification between 2012-2014. Expanding recognition to the parallel pathway is expected to encourage more doctors to pursue psychiatry, as there is a great need for psychiatrists in the country. To date, there is no formal report on the number and ratio of psychiatrists in Malaysia. There is imbalance in the distribution of psychiatrists between states in Malaysia. In the current study, we aim to determine the number of psychiatrists who are practicing not only in the government hospitals but also in the private settings and Universities in Malaysia. We will also calculate the ratio and distributions of psychiatrists in each state.

**Methods**

This is a cross-sectional manual count of the number of psychiatrists in Malaysia. As the number of psychiatrists is growing from time to time, we ended the count on 31st June 2018. The psychiatrists included in the count are those graduated from the local masters training program and those overseas graduates who are recognized by the Malaysian Medical Council. For the local graduates, those who completed their gazettement will only be included in the count.

We obtained the number of psychiatrists in the government setting from the Ministry of Health database. For both the public and private universities, the number of psychiatrists is taken from the universities database, websites and personal contacts with the respective head of department.

The number of psychiatrists in private practice is gathered from the psychiatry related pharmaceutical industry database and personal contacts with the senior psychiatrists in each state in Malaysia. The number of counts is counter-checked with the Malaysian Psychiatric Association (MPA) Database and Malaysian Mental Health Association (MMHA) Website. We also check the list of psychiatrists registered in the National Specialist Register (NSR), Malaysia.

The number of psychiatrists in each state was calculated and summed. The population of the country and each state was obtained from the Department of Statistics, Malaysia (www.dosm.gov.my). The ratio of psychiatrists per 100,000 population for each state is calculated using the formula below:

\[
\text{Ratio} = \frac{\text{number of psychiatrists}}{\text{population}} \times 100,000
\]
Results

Table 1. Ratio and Distribution of Psychiatrists in Malaysia in 2018

<table>
<thead>
<tr>
<th>States</th>
<th>Private University&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Public University&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Private Practice</th>
<th>Government Hospital&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Total Psychiatrists in each state&lt;sup&gt;d&lt;/sup&gt;</th>
<th>Population&lt;sup&gt;e&lt;/sup&gt;</th>
<th>Psychiatrist per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perlis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>253100</td>
<td>1.18</td>
</tr>
<tr>
<td>Kedah</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>9</td>
<td>12</td>
<td>2166200</td>
<td>0.55</td>
</tr>
<tr>
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<td>8</td>
<td>9</td>
<td>22</td>
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</tr>
<tr>
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<td>5</td>
<td>32</td>
<td>40</td>
<td>2507200</td>
<td>1.59</td>
</tr>
<tr>
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<td>17</td>
<td>29</td>
<td>78</td>
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<td>1.20</td>
</tr>
<tr>
<td>W. P. Kuala Lumpur</td>
<td>23</td>
<td>28</td>
<td>23</td>
<td>20</td>
<td>94</td>
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</tr>
<tr>
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<td>Negeri Sembilan</td>
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<tr>
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<tr>
<td>Pahang</td>
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<td>12</td>
<td>1664000</td>
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</tr>
<tr>
<td>Terengganu</td>
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<td>17</td>
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<tr>
<td>Sabah</td>
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<td>1</td>
<td>98400</td>
<td>1.01</td>
</tr>
<tr>
<td>TOTAL</td>
<td>45</td>
<td>72</td>
<td>80</td>
<td>213</td>
<td>410</td>
<td>32364200</td>
<td>1.27</td>
</tr>
</tbody>
</table>

<sup>a</sup> University of Malaya, Universiti Kebangsaan Malaysia, Universiti Sains Malaysia, Universiti Malaysia Sarawak, Universiti Putra Malaysia, International Islamic University, Universiti Teknologi MARA, Universiti Malaysia Sabah, Universiti Sains Islam Malaysia, Universiti Sultan Zainal Abidin, Universiti Pertahanan Nasional Malaysia

<sup>b</sup> International Medical University, Penang Medical College, Monash University School of Medicine and Health Sciences, Melaka Manipal Medical College, Universiti Kuala Lumpur - Royal College of Medicine Perak, Cyberjaya University College of Medical Science Faculty of Medicine, UCSI University, Management & Science University, AIMST University, MAHSA University, Newcastle University Medicine Malaysia, Perdana University Graduate School of Medicine, Perdana University Royal College of Surgeon, SEGi University, Taylor's University, Universiti Tunku Abdul Rahman, WIDAD University College, QUEST International University, Asia Metropolitan University School of Medical and Health Sciences, Lincoln University, Universiti Islam Antarabangsa Sultan Abdul Halim Mua’dzam Shah

<sup>c</sup> There were twenty master graduates who passed their professional examination on May 2018 but not included in the count as they have not completed their gazettlement.

<sup>d</sup> Ministry of Health Data

<sup>e</sup> Based on Department of Statistics, Malaysia (www.dosm.gov.my)
Table 1 shows the number of psychiatrists in different states in Malaysia. The total psychiatrists in Malaysia was 410, which is only 0.02% as for the Malaysian population. The three states with the highest number of psychiatrists are Wilayah Persekutuan Kuala Lumpur (66) followed by Selangor (50) and Perak (40). Wilayah Persekutuan Labuan has only one psychiatrist. For the ratio of psychiatrists per 100,000 population in Malaysia in 2018 is only 1.27. Wilayah Persekutuan Kuala Lumpur has the highest ratio (5.24 per 100,000) followed by Wilayah Persekutuan Putrajaya (3.38 per 1000,000). Sabah and Kedah have the lowest ratio which are 0.54 and 0.55 per 100,000 population respectively.

**Figure 1. The Ratio and Distribution of Psychiatrists in Malaysia**

This figure shows the ratio of psychiatrists per 100,000 population in Malaysia. Wilayah Persekutuan Kuala Lumpur has the highest ratio of psychiatrist followed by Wilayah Persekutuan Putrajaya. Sabah is shown to have the lowest ratio of psychiatrist compared to all states in Malaysia.
Discussion

As of year 2018, there is a total of 410 registered psychiatrists in Malaysia with 213 doctors in the government sector, 80 doctors in the private sector, 72 doctors in the public universities and 45 in the private universities. The state with the highest number of psychiatrists is the capital city of Kuala Lumpur with a total of 94 doctors. However, most of the psychiatrists have opted to work in private setting (23 doctors) and universities (51 doctors). This is followed by the state of Selangor, Johor Bahru and Perak with a total of 78, 41 and 40 psychiatrists respectively. Subsequently, Sarawak takes the lead by having 31 psychiatrists in its state. 22 psychiatrists are working in the government sector while the remaining 9 doctors operate their own private clinics. Penang has 13 psychiatrists working in the private sector and 9 in the public hospitals, making up to a total of 22 psychiatrists on the island. Sabah and Negeri Sembilan have 21 and 15 psychiatrists respectively. With 12 doctors in each state are Kedah and Pahang whereby more of the doctor work with the government than privately. Kelantan, Terengganu and Melaka have a total of 17, 11 and 9 psychiatrists respectively. However, for the state of Kelantan and Terengganu, there are no psychiatrists working privately. The states with the least psychiatrists are Labuan, Putrajaya and Perlis. Labuan only has one psychiatrist working in the government sector while Putrajaya and Perlis have a total of three each who are also from the public sector. Overall, we can see that the geographical distribution of Malaysian psychiatrists is strongly correlated to the population size of the different states and they are unevenly distributed throughout the nation.

The ratio of psychiatrist per 100,000 population in Malaysia is only 1.27 which still does not achieve WHO recommendation. As for ratio of psychiatrist according to each state in Malaysia, Wilayah Persekutuan Kuala Lumpur has the highest ratio of psychiatrist which is 5.24 followed by Putrajaya which is 3.38 and Perak 1.59. Meanwhile, Negeri Sembilan, Pulau Pinang and Selangor have ratio of 1.32, 1.24 and 1.2 respectively. Moreover, Perlis, Sarawak, Johor followed by Labuan, 1.18, 1.11, 1.09, and 1.01 subsequently. Furthermore, Melaka, Kelantan and Terengganu have ratio of 0.97, 0.92, and 0.90 respectively. Whereas, the states with the least ratio of psychiatrists are Pahang, Kedah, Sabah which are 0.72, 0.55 and 0.54 respectively.

More and more people around the world are facing mental health issues nowadays. According to the Global Health Estimates report by WHO, nearly 50% of the total number of people having depression live in the Western-Pacific and South-East Asia Region due to the relatively large population size of these two regions [8]. South-East Asia is made up of 11 countries and most of these countries are classified under the low-income group according to the World Bank criteria. The poor financial state and severe lack of human resources in these affected countries contribute to a high treatment gap of 90%, exposing them to various mental health issues and challenges. Out of these 11 countries, 9 of them have lesser than one psychiatrist per 100,000 people. [9] The WHO’s Global Health Observatory data repository has shown that Indonesia, Philippines and Thailand have only 0.29, 0.46 and 0.87 mental health doctors per 100,000 population respectively. Singapore has 3.48 psychiatrists per 100,000 population which is a higher figure in comparison to the other countries in its region. China has 1.53 psychiatrists per 100,000 population for the year 2011.
whereas India has about 0.30 mental health doctors per 100,000 people [10]. In the US, there are around 28,000 psychiatrists and 12.4 doctors per 100,000 population. However, there is a rapid decrease in numbers as many are close to retirement age - at least 3 out of 5 practising psychiatrists are older than 55 years old [11].

It is estimated that 1 in every 10 persons may require mental health support at a point in time. There is still a shortage of psychiatrists as the global median remains only around one psychiatrist per 100,000 population. In comparison to low-income countries, richer countries have approximately 120 times more mental health doctors [12]. In Malaysia, the prevalence of mental health issues has been steadily increasing from 10.7% in 1996, to 11.2% in 2006, to 29.2% in 2015. World Health Organization (WHO)’s Global Health Observatory data repository showed that there were only 0.76 psychiatrists per 100,000 population for Malaysia in 2015 [10]. WHO has recommended a ratio of psychiatrists to the Malaysia population of 1:10,000. However, the current ratio is only 1:200,000 [13]. In the current study, we showed that there were only 1.27 psychiatrists per 100,000 population in Malaysia. This severe shortage of psychiatrists in the country may pose several problems for those who are facing mental health problems, including delay in seeking treatment, seeking alternative treatments which are not evidence-based, long waiting time for psychiatric consultation, low-quality outpatient mental health care, poor compliance to follow-up and treatment, increase in drug abuse and addiction cases, surge in suicide rates, unemployment and homelessness. In addition, general practitioners have to shoulder the burden of treating these patients and are unlikely to provide the requisite standard of care e.g. psychotherapy. Current practiseing psychiatrists may also face high burnout rates due to the increasing demand. The psychiatric workforce is unevenly distributed in most countries with larger, affluent cities being most concentrated with psychiatrists. Hence, the rural poor may face difficulty accessing basic mental health care due to the lack of resources.

The growing world population means that the number of people with mental health problems is on the rise especially in lower-income countries. In 2015, it was estimated globally that more than 300 million people have depression [8]. Clearly, there is an increasing need for more psychiatrists in order to meet the new demand. To address this shortage issue, it is important for the government, medical council and media to help increase awareness among healthcare professionals, workers and public regarding the urgent need in this field. Besides that, in order to encourage more doctors to specialise in psychiatry, medical undergraduates should be provided with a high-quality psychiatry rotation as part of their medical course. By having more clinical experience with real-life patients, hands-on mental health training and dedicated tutors to mentor them, students will be more engaged in this field and this will simultaneously increase their interest to become future psychiatrists. Furthermore, psychiatrists should partner closely with other mental health professionals such as psychologists and counsellors to provide other forms of therapy for their patients and also help ensure increased access and a better standard of care for them. In addition, more training positions, specialty programmes or certifying examination for psychiatry should be introduced or provided for doctors who are interested in pursuing psychiatry. Efforts should also be made to ensure that the Malaysian population has
greater access to self-care resources, mental health promotion, mental health literacy and prevention of mental illness. Greater use should be made of information and communication technology (ICT) especially mental health websites, mobile applications, helplines, telemedicine and artificial intelligence to mitigate the effects of having small numbers of psychiatrists and other mental health practitioners.

There are some limitations in this study. Firstly, there is difficulty in obtaining an exact count of the total number of psychiatrists who are working in the government and private setting in Malaysia as there is no formal or official database. Most of the data were obtained through manual online search, calls and emails to various medical institutions and hospitals, word of mouth and various colleague contacts. Secondly, there are some new masters graduates in psychiatry who are yet to be included officially in the Ministry of Health’s list. Thirdly, some psychiatrists might have stopped working or retired but their names were still on the official list. Hence, the contents of the data may be subjected to some under- or overestimation. However, we have tried to minimize error by thoroughly checking through the data we have obtained from various sources and ensuring there is no overlapping between psychiatrists.

Overall, there is a discrepancy between the geographical distributions of psychiatrists in Malaysia. People living in larger, urban states have better access to mental health care whereas the smaller states face a lack of psychiatrists. There should be a more uniform distribution between all geographical locations within the country. At the same time, more effort and steps should be taken to address the issue of shortage of psychiatrists in Malaysia in view of the increasing demands of mental health services. Collaborative effort between all parties involved is required to help achieve a ratio of psychiatrists to the Malaysia population of 1:10,000 as recommended by WHO.

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The Association between Socio-Demographic Characteristics and Marital Satisfaction among Nurses in Benin, Nigeria

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Abstract

Objectives: The objective of this study was to determine the potential socio-demographic characteristics (age, job experience, educational attainment and length of marriage) that could contribute to marital satisfaction among Nigerian nurses.

Method: This study utilised a cross-sectional survey design and data were collected from 181 (173 female and 8 male) respondents selected through the purposive sampling technique at the University of Benin Teaching Hospital, Benin City, Nigeria. The mean age was 35.39 years (SD = 8.65, range = 21-59 years). Nurses completed a questionnaire consisting of the Revised Dyadic Adjustment Scale (α = .62).

Results: There was a significant difference between the degree-holder nurses and the holders of each of the other two certificates (Registered nurse and Registered Midwife) on marital satisfaction. However, age, job experience, and length of marriage did not significantly influence marital satisfaction.

Conclusion: Educational attainment is an important factor to be considered by employers of labour, clinicians, guidance counsellors, family life educators and nurses experiencing conflict between paid work and family life which affecting their marital satisfaction.

Keywords: Staff Nurses, Marital Satisfaction, Socio-Demographic Characteristics, Nigeria

Introduction

Marital satisfaction is an overall evaluation of the state of one’s marriage and a reflection of marital happiness and function [1]. It has been broadly examined in several studies of marriage and family. Family life and marital satisfaction, in particular, are known as main predictors of overall quality of life [2,3]. In the United States, the most prominent pointer to couple distress is a constant divorce rate of approximately 50% among married couples [4], with about half of these instances of divorce taking place within the first 7-8 years of marriage [5]. Just one third of married persons report being “very happy” with their marriage, which is down more than half from 25 years ago [5]. According to Animasahun and Oladeni, the condition could be worse in Nigeria, particularly in Lagos, where marital relationships are being broken on a daily basis.
basis. Some divorce cases in 2005 at Grade “A” customary court, Somolu Local Government Area, Lagos showed that five (5) of the eight (8) cases (62.5%) ended up in divorce. One (1) of the eight cases (12.5%) did not end up in divorce; while two (2) of the eight (8) cases (25%) were yet to be decided [6]. This shows that marital relationships are in a serious mess.

Relationship researchers have suggested that nearly all, if not all, couples go through different phases that cause important suffering and put individuals at jeopardy [7]. Marital satisfaction can have an effect on not only the physical and mental health of both spouses [8,9], but also on children’s development, well-being, academic performance, social skills, and relationships [10,11]. Each couple brings a set of expectations, personality dynamics, a particular level of emotional or physical health and family background into the marriage. What determines marital satisfaction for the couple is how these components unite and interrelate with one another [12].

Professionals like nurses are, to a large extent, prone to have feeling of being displeased and discontented with marital relationship, as they are employed in a demanding occupation, which is further complicated by shift duty, long hours of duty and insufficient remuneration [13]. Nursing personnel are subject to psychological stress as a consequence of shift rotation, extended work schedules, and prolonged contact with irritable and depressed patients. Research on the physical, psychological and medical effects of night work agreed that if night shift work is repeatedly performed, it causes harmful effects on the health and family life of workers, whether male or female [14]. Cole and Nelson claim that 93% of nurses are frequently affected by workplace stress and that this can affect their physical and mental health [15].

Understanding the fundamental elements that lead to marital satisfaction is essential for identifying how to approach couples seeking treatment for distress in their marriages [16]. Individuals go into marriage with the intention of having a blissful marriage, which is conceived as a successful marriage. It is important to study those characteristics that can be relevant to marital satisfaction in order to determine what variables could potentially predict the effect of marital success. In this study, the potential socio-demographic characteristics that could contribute to marital satisfaction are explored in an effort to better understand the marital dyad, especially variables that contribute to its success.

Many studies have revealed that marital satisfaction is higher in men than in women [17,18,19]. Since Jessie Bernard’s provocative thesis that men achieve greater benefits from being married than women, a wide range of studies has examined gender differences in marriage [17]. On the basis of Bernard’s convincing statement, researchers on family have accepted that women consistently experience significantly less marital satisfaction than men [20]. For instance, one group of scholars reported that “women consistently report lower marital quality than men in national surveys” [21]. Definitely, several studies have established that wives reports of marital satisfaction are significantly lower than husbands [22,23,24,25]. Other studies, nevertheless, have found no gender differences [26,27]. For example, using national probability data from the National Study of Families and Households, Guger and Sanchez found no significant differences in the mean levels of
husbands’ and wives’ marital satisfaction [28].

It is widely accepted that, as we age, our marital relationships can offer emotional support and operate as a priceless basis of positive affect. Carstensen’s theory of socio-emotional selectivity postulates that an important goal of late life is to enhance emotional closeness in our significant personal relationships [29]. As a result; older individuals regulate their emotions such that emotional benefits will increase. In the study conducted by Weinstein et al. age was positively associated with marital satisfaction, with age ranging from young adult to early middle age [30]. This is consistent with a few other studies [31,32,33] who have found positive association between age, as evident in length, and marital happiness.

On the contrary, Edwards established that participants who were less than 45 years of age reported significantly greater satisfaction with their marriages than those who were more than 45 years old [34]. However, a study among the newly wedded couples in Nigeria showed that age did not have a significant effect on marital satisfaction [35].

There are a number of studies suggesting that the quality of marital relationships is positively associated with partners’ education 36,37,38,39,40]. In the same vein, Adler found that educational level is not a correlate of marital satisfaction [7], as measured by the Dyadic Adjustment Scale [41].

Creighton-Zollar and Williams found no association between education and marital quality of Blacks [42]. Edwards, however, found that participants with less than a high school diploma reported greater satisfaction with their marriage than those with a high school diploma [34]. Heaton found that education negatively correlated with divorce, unless the woman had more education than her spouse [43]. Heaton furthermore found that women with education higher than their husbands’ had a greater probability to have marriage that ended in divorce [43]. As women become more educated, they gain more power in the relationship and see more alternatives for their lives [44]. Broman discovered that wife’ educational level and having a higher income than their husbands’ among Blacks is a factor commonly projected to affect marital quality [45].

Zainah et al. found that the longer the duration of marriage, the more satisfied the individual was with his or her marriage. Their study claimed that couples who had been married for 10 years and above reported a better satisfaction in their marriage compared to couples who were less than 10 years in marriage. These authors assert that older couples in marriage may have passed the stage of adjustment and adaptation and will experience less psychological problems and distress [46].

Early cross-sectional surveys of marital satisfaction suggested that marital satisfaction declines steadily during the first 10 years of marriage [47,48,49,50]. In view of these findings, a continuing decline in marital satisfaction over the course of marriage might be expected. However, more recent surveys, which included marriages of longer duration, revealed a different picture. Marital satisfaction appeared to follow a curvilinear path over the course of marriage [51,52,53,54], starting high, dropping sharply after the birth of children, reaching an all-time low level when children leave home and couples retire [55].
While some cross-sectional studies with spouses at varying marital durations revealed that marital satisfaction follows a curvilinear path, waning from high levels at the start of marriage and the returning to near newlywed levels in the later years of marriage [56,57], other studies showed further stableness in marital satisfaction on a high, moderate, or low level [58] or indicated that marital quality decreases with age [59].

Despite the growing attention to work and family issues in the general occupational health literature, there is paucity of research investigating these issues among health care providers most especially the nursing profession. This study aims to begin to fill this gap by examining the socio-demographic characteristics as predictors of marital satisfaction among nurses in Benin City, Nigeria. As a result of the above discussions, the following hypothesis were formulated and tested: there will be a significant effect of age on marital satisfaction; nurses who have had longer period of job experience will exhibit higher marital satisfaction than other nurses who have had medium and shorter periods of job experience; nurses with university degree will report significantly higher satisfaction with their marriage than nurses with Registered Nurse and Midwife certificates; and nurses with longer length of marriage will experience significantly greater marital satisfaction than nurses with both medium and shorter lengths of marriage.

Methods

Participants and Procedure

One hundred and eighty one (181) married nurses were conveniently selected from the University of Benin Teaching Hospital (UBTH), Benin City, Nigeria, with age range of 21-59 years (\(\bar{X} = 35.39, SD = 8.65\)). This study was approved by the Ethics and Research Committee of the institutions before data collection ensued. The married nurses who participated in this study were given a detached informed consent document that described the current research, the minimal risks involved, and contact information on the investigators. The participants were informed that taking part in the study was voluntary and that precautions had been taken to ensure anonymity. Furthermore, the participants were told of their right to withdraw from the study at any time they feel like not continuing.

Measures

Revised Dyadic Adjustment Scale: The Revised Dyadic Adjustment Scale (RDAS) [60] is a self-report questionnaire that assesses seven dimensions of couple relationships within three overarching categories, including consensus in decision-making, value and affection, satisfaction in the relationship with respect to stability and conflict regulation, and cohesion as seen through activities and discussion. The RDAS includes only 14 items on marital satisfaction, each of which asks the respondents to rate certain aspects of his/her relationship on a 5- or 6-point scale. Scores on the RDAS range from 0 to 69, with higher scores indicating greater relationship satisfaction and lower score indicating greater relationship distress. The RDAS appears to have excellent test-retest reliability. For the total RDAS, Cronbach’s Alpha was reported to be ’90. Construct validity for the RDAS is supported by its high correlation (.68, <.01) with a similar measure, the Locke-Wallace Marital Adjustment Test (MAT). The coefficient alpha for this study was .62
**Statistical Analysis**

The information obtained from the questionnaire was entered into a computer program, Statistical Package for the Social Sciences (SPSS). The data was analyzed by use of descriptive statistics, percentages and means. Other analyses included reliability assessment of the dependent scales (Cornbrash’s alpha), and one way ANOVA to determine the influence of age, length of marriage, job experience and educational level on marital satisfaction.

**Results**

The participants in this study were 181 married nurses who were staff at the University of Benin Teaching Hospital, Benin City. These nurses were attached to the different departments in the hospital. The sample comprised 8 men (4.4%) and 173 women (95.8%). The average age of the participants was 35.39 years (SD = 8.65, range = 21-59 yrs.). In terms of their self-reported demographics, 40 nurses had Registered Nursing Certificate (n = 40), while 23 had Bachelor’s Degree in Nursing (n = 23, 12.7%). With respect to self-reported job experiences, 109 had less than 10 years’ working experience (n = 109, 60.2%); 54 had between 11 and 20 years’ working experience (n = 54, 29.8%); and 18 had more than 21 years’ working experience (n = 18, 9.9%). A majority of the nurses (n = 117, 64.6) had married for less than 10 years; 45 (24.9%) had been married for between 11 and 20 years; while 19 (10.5%) had been married for more than 21 years (Table 1).

<table>
<thead>
<tr>
<th>Sample</th>
<th>Demographics</th>
<th>Total (%)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>4.4</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>95.6</td>
<td>173</td>
</tr>
<tr>
<td></td>
<td>Less than 30 years</td>
<td>35.9</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>31 to 40 years</td>
<td>36.5</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>41 to 50 years</td>
<td>22.7</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>50 years and Above</td>
<td>5.0</td>
<td>9</td>
</tr>
<tr>
<td>Job Experience</td>
<td>Shorter Job Experience</td>
<td>60.2</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Medium Job Experience</td>
<td>29.8</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Longer Job Experience</td>
<td>9.9</td>
<td>18</td>
</tr>
<tr>
<td>Educational Levels</td>
<td>Registered Nurse</td>
<td>22.1</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Midwife</td>
<td>65.2</td>
<td>118</td>
</tr>
<tr>
<td></td>
<td>Graduate Nurse</td>
<td>12.7</td>
<td>23</td>
</tr>
<tr>
<td>Lengths of Marriage</td>
<td>Shorter Length of Marriage</td>
<td>64.6</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>Medium Length of Marriage</td>
<td>24.9</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Longer Length of Marriage</td>
<td>10.5</td>
<td>19</td>
</tr>
</tbody>
</table>

The results of the hypotheses tested are presented in this section. This study examined the influence of socio-demographic variables (age, job experience, educational attainment and length of marriage) on marital satisfaction. The results are presented in this section.

The first hypothesis, which states that there will be a significant effect of age on marital satisfaction, was tested using One-way Analysis of Variance (ANOVA). This is because we wanted to determine whether there were any significant differences among the mean of the four age groups (<30 years, 31-40 years, 41-50 years, and 50 years and above).
years, 31 to 40 years, 41 to 50 years and >50 years) in this study. As shown in Table 2, it can be ascertained that there was no statistically significant differences across the four age groups used for this study. \[ F(3,177) = .28, p > .05 \].

Table 2. Descriptive scores for all variables according to some demographic variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Levels</th>
<th>( \bar{X} ) (SD)</th>
<th>p-value (ANOVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Less than 30 years</td>
<td>46.62 (7.56)(^a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31 to 40 years</td>
<td>46.36 (9.57)(^a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>41 to 50 years</td>
<td>46.90 (8.78)(^a)</td>
<td>0.838</td>
</tr>
<tr>
<td></td>
<td>50 years and Above</td>
<td>44.00 (10.00)(^a)</td>
<td></td>
</tr>
<tr>
<td>Job Experience</td>
<td>Shorter Job Experience</td>
<td>46.05 (8.46)(^a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium Job Experience</td>
<td>47.50 (8.66)(^a)</td>
<td>0.574</td>
</tr>
<tr>
<td></td>
<td>Longer Job Experience</td>
<td>45.83 (10.21)(^a)</td>
<td></td>
</tr>
<tr>
<td>Educational Levels</td>
<td>Registered Nurse</td>
<td>48.02 (8.23)(^a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Midwife</td>
<td>44.53 (8.12)(^a)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Graduate Nurse</td>
<td>53.65 (8.18)(^b)</td>
<td></td>
</tr>
<tr>
<td>Lengths of Marriage</td>
<td>Shorter Length of Marriage</td>
<td>46.33 (8.63)(^a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium Length of Marriage</td>
<td>46.31 (8.41)(^a)</td>
<td>0.839</td>
</tr>
<tr>
<td></td>
<td>Longer Length of Marriage</td>
<td>47.58 (9.91)(^a)</td>
<td></td>
</tr>
</tbody>
</table>

Mean with the same superscripts (a, b, c) are not significantly different (p > 0.05)

Hypothesis two states that nurses who have had longer period of job experience will exhibit higher marital satisfaction than other nurses who have had medium and shorter period of job experience. This hypothesis was tested using One-way Analysis of Variance (ANOVA) and the result is presented in Table 2. From this table, it can be observed that there were no significant statistical differences across the three periods of job experiences used for this study \[ F(2,178) = .56, p > .05 \].

The third hypothesis, which postulates that nurses with university degree will report significantly higher satisfaction with their marriage than the nurses with Registered Nurse and Midwife certificates, was tested using One-way Analysis of Variance (ANOVA). As shown in Table 2, the result indicated that there was a significant difference between the degree-holder nurses and holders of each of the other two certificates (Registered Nurse and Registered Midwife) on marital satisfaction \[ F(2,178) = 13.02, p < .01 \].

To determine the direction of significant difference, a post hoc test (Duncan) was carried out for marital satisfaction. The result of the post hoc test showed that the mean score of nurses with the university degrees (\( \bar{X} = 53.65 \)) was significantly higher in marital satisfaction than the mean scores for those who were Registered Nurses (\( \bar{X} = 48.02 \)) and Midwives (\( \bar{X} = 44.53 \)). However, the mean scores for the holders of the other two certificates: Registered Nurse and Registered Midwife were not statistically different from each other on marital satisfaction.

The last hypothesis states that nurses with longer length of marriage will experience significantly greater marital satisfaction than nurses with both medium and shorter lengths of marriage. The result of the One-way
Analysis of Variance (ANOVA) used to test this hypothesis is also presented in Table 2. Based on the results in this table, it can be concluded that there was no statistically significant difference across the three groups of length of marriage, \[ F (2,178) = .18, p > .05 \].

**Discussion**

The result with regard to hypothesis one showed that age did not significantly affect marital satisfaction. This finding is in line with another study among the newly wedded couples in Nigeria, which revealed that age did not have a significant effect on marital satisfaction [35]. However, these finding are contrary to what other authors have reported. According to Carstensen, older individuals regulate their emotions such that emotional benefits will accrue [29]. In the same vein, Weinstein et al. claim that age was positively associated with marital satisfaction with age ranging from young adult to early middle age [30]. This is consistent with a few other studies [31,32,33] that found positive association between age, as evident in length, and marital happiness.

Furthermore, hypothesis two was also not significant. The hypothesized relationship was informed by the fact that 98% of nurses have been found to be frequently affected by workplace stress that can affect their physical and mental health [15]. Therefore, one would have expected those nurses who have long been on the job to have the tendency to develop job burnout which can latter impact negatively on their marital processes at the home compared to those who were new on the job. According to Abdul Azeez, professionals like nurses are much prone to have dissatisfaction from marital relationship, as they are engaged in a stressful job which has complications with regard to shift, long hours of duty and low payment [13].

Hypothesis three was confirmed. In line with the prediction, the results demonstrated that nurses with university degrees reported greater marital satisfaction than nurses with either Registered Nursing certificates or Registered Midwife certificates. According to Tampieri, acquiring higher education has several advantages at work – a better kind of job, a better salary and more bargaining power in the job market. All these advantages are expressed by a greater job satisfaction. It also increases the chances of marrying an educated partner, as the educational levels of partners are strongly interrelated [61]. Heaton found that education was negatively correlated with divorce, unless the woman had more education than her spouse [43].

The last hypothesis was not confirmed. The result suggested that length of marriage did not determine marital satisfaction. Corroborating the finding in this study, Osiki, who investigated the effect of marital duration, among others, on marital happiness, found that marital duration of married couples did not have any direct relationship with the level of marital satisfaction [62]. The findings in this study, is, however, at variance with several other studies. Most newly married couples reported very high satisfaction and any change from that point would probably be in a downward direction [63]. In a longitudinal study, Huston et al. found a substantial decline in reported marital satisfaction during the first year of marriage [64]. Glenn estimated that marital satisfaction, as indicated by the percentage of people who claimed that their marriages were “very happy”, decreased steadily for at least the first 10 years and maybe for 25 years or longer [65]. However, Zainah et al. aver
that the longer the duration of marriage, the more satisfied the individual is with his or her marriage. Their study noted that couples who had been married for 10 years and above reported a better satisfaction in their marriage than couples who were less than 10 years in marriage. They claim that older couples in marriage may have passed the stage of adjustment and adaptation and will experience less psychological problems and distress [46].

This study is not without limitations. The sample is not representative of the Nigerian population; therefore, the results may not be confidently generalized to the population at large. Also, only those nurses working in government hospitals were selected to be included in the sample. If significant differences exist between nurses working with government and nurses working with in private hospitals/clinics was not explored. This study also did not distinguish between dual-earner and single-earner families, and such structural differences can affect the type of work-family conflict experienced [66].

Another limitation of the study is that it was cross-sectional in nature and it sampled only one part of the participants’ lives. Thus, causality could not be determined. Also, marital satisfaction levels might change depending on what the individual experiences throughout his or her life. Moreover, the survey method was to obtain data from participants in this study. Inherent in all survey methods is the possibility that participants might give untruthful answers to conform to social norms or show social desirability.

**Implication of findings**

This study has some theoretical and practical implications. Theoretically, the results obtained could be used to improve existing theories of marital satisfaction or could be added to current marital satisfaction models. Practically, marital satisfaction studies are extremely useful in improving the quality of life, happiness, contentment and satisfaction within marriage. Marital satisfaction has been considered to be the health, well-being, and stability of marriage [67]. By pointing out the characteristics involved in increasing or decreasing marital satisfaction, employers of labour, clinicians, guidance counselors, family life educators and individuals experiencing conflict between paid work and family life can work towards reducing or promoting them. An example would be to have family groups for these couples to express their problems and concerns as well as find healthy and effective ways to deal with their negative marital relationships.

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You Need the Operation, Sign the Consent: A Case Report on Mental Capacity Assessment

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Abstract

Decision making capacity is the basis for medical decision making. A person’s right to determine his or her own health care related decision has long been established and this forms the essence of medical treatment. This fundamental right extends to patients with mental health disorder who have the capacity to make such decisions. Where a mental disorder is evident, our experiences in the local settings suggested that clinicians are inclined to state that incapacity to decide for medical treatment is present without much assessment or exploration and explanation on the proposed treatment. Many patients with mental disorder in fact are capable at making decisions related to health care. Their rights to decide on medical treatment should be respected and not to be ignored.

Keywords: Assessment, Capacity, Consent, Schizophrenia

Introduction

Studies have shown that majority of psychiatric in-patients are capable of making health care related decisions. Many countries have introduced legislation to regulate decision making for people who lack capacity. For example, in England and Wales, there is this Mental Capacity Act (MCA) 20051. In Malaysia, we have the Mental Health Act 2001 but there is little guidance to help clinicians in the assessment of decision making capacity.

The case report below is an example of a scenario whereby a patient was thought to have incapacity to make health care related decision mainly because he has a chronic mental disorder. He was referred to psychiatry for capacity assessment. Some of the highlights of discussion in this case report is the simple clinical assessment that can be easily performed at bedside by any clinicians that will improve clinicians’ ability to identify patients who lack capacity.

Case report

Mr N is a 49 years old Malay man, who has underlying Schizophrenia for the past 30 years. He was recently diagnosed with uncontrolled diabetes mellitus when he presented with non healing toe ulcer. He was admitted to the orthopedic ward for an infected right big toe. He was referred to
psychiatry for assessment of capacity to give consent for an operation; dis-articulation of right big toe.

Mr N. had several admissions to psychiatry ward in the past and his latest admission was 20 years ago. He is on medications and regular follow up at a government clinic near his house. He is single and lives with his brother. He works as part-time gardener for his sister, earning approximately RM 100 a month. He had residual auditory hallucinations of derogatory in nature that happened occasionally. There were no significant mood symptoms.

Mr. N was able to understand what was being told to him by the orthopedic doctor. He knew that they wanted to cut his right big toe because it has pus in it. He was able to retain the information given by the orthopedic doctor. He understood that the infection may spread if he does not go for the operation and that it could be life threatening if infection spread to the rest of the body. However, he was fearful about the pain that he might experience if he agreed for the operation and was not keen for the operation.

Discussion

There are situations where mental disorder may lead to a patient unable to have the capacity to make a decision about treatment because it impairs the patient’s ability to understand, retain or use the relevant information or to communicate the decision. Studies that looked into mental incapacity among psychiatric population found that patients with dementia, psychosis and mania are much more likely to have lack decision making capacity than those with depression or personality disorder1. Severity of symptoms, involuntary admission and treatment refusal were some factors found to be strong risk factors for incapacity in a systematic review done on mental capacity in psychiatric patients2.

From our assessment, Mr. N was found to have a stable mental state. His schizophrenia was in partial remission and he was compliant to treatment. There were minimal residual auditory hallucinations but it did not disturb his functioning. There was no history of psychiatric admissions for the last 20 years. In terms of capacity assessment, we generally looked into these five aspects; the patient’s understanding, appreciation, ability to retain relevant information, reasoning and communicating own choices. Mr. N was able to understand what was explained to him by the orthopedic doctors which was they want to cut his toe because it contained pus in it. He was able to appreciate the severity of the toe infection. He knew that the infection might spread further up to his foot and understood that it is potentially life threatening if the infection spread to the rest of his body. He was able to retain the relevant information given to him and use the information to weigh up the risks and benefits of going for the procedure. However, he conveyed his wishes that he did not want to go for the operation because he was afraid of the pain postoperative as he has never undergo any operation before. It was clear to us that no one had discussed this issue with him before. Our team provided him with some basic information about analgesic use intraoperative and postoperative in a simple manner that he can understand. He seemed to find some relieved after knowing it. Nevertheless, we suggested that he discussed about it again with the orthopedic team to know more about the pain control. Before leaving, we spoke to his orthopedic doctor in charge to let the managing team know what was happening and the reason behind the patient’s refusing the procedure. Mr N had
decided to proceed with the proposed procedure after another discussion with the orthopedic team doctors.

There are a variety of validated tools exists to aid the assessment of decision making capacity among patients with suspected lack of capacity to give consent. MacArthur Competence Assessment Tools for Treatment (MacCAT-T) is regarded as a specific capacity assessment tool with excellent reliability. However, MacCAT-T requires training for its administration and interpretation of result limiting its clinical applicability in our daily practice. Familiarizing ourselves with a simple clinical assessment that touched the core aspects of capacity such as understanding, appreciation, ability to retain relevant information, reasoning and communicating choices most often provides sufficient capacity evaluation.

Other key messages from this case report were that we must start with the presumption that the patient has capacity to make the decision in question and we should not allow assumptions about the patient’s underlying mental disorder to affect our judgment in this matter. We also need to help the patient to understand the proposed procedure and address patient’s concern. We should involve appropriate parties in the discussion to help support the patient in making the decision.

References


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Alcohol-Induced Psychotic Disorder with Suicidal Attempt: 
A Case Report

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Abstract

Alcohol-induced psychotic disorder (AIPD) is a rare complication of alcohol abuse which is characterized by an acute onset of auditory or visual hallucinations that occur either during or after a period of heavy alcohol consumption. Other symptoms include delusions, thought disorder, psychomotor disturbances, and abnormal affect. To establish the diagnosis, one must rule out other disorders such as alcohol withdrawal delirium or other psychotic disorders. Although it is well recognised, relatively little is known about the condition. Moreover, the pathogenesis and treatment of AIPD are still unclear despite high co-morbidity with other psychiatric disorders, high re-hospitalization as well as mortality rates and suicidal behaviour. Therefore, the prognosis appears less favourable. We present a case of young man with AIPD with suicidal attempt secondary to auditory hallucination.

Keywords: Alcohol-induced Psychotic Disorder (AIPD)

Introduction

Alcohol-induced psychotic disorder (AIPD) also known as alcoholic hallucinosis is a rare complication of chronic alcohol abuse [1]. It is characterized by an acute onset of auditory hallucinations that arise either during or after a period of heavy alcohol intake. Other manifestations may include delusions, thought disorder, psychomotor disturbances, and abnormal affect. It is important to rule out other diagnoses such as alcohol withdrawal delirium or late onset psychotic disorder prior to establishing the diagnosis of alcoholic hallucinosis [2]. Present evidence suggests AIPD can be clinically distinguished from alcohol withdrawal delirium and schizophrenia. Apart from that, AIPD is associated with high co-morbidity with other psychiatric disorders, high re-hospitalization and mortality rates and suicidal behaviour leading to a less favourable prognosis [3]. Therefore, more exploration on this topic is needed for further management of patients with this condition. Here, we present a case of a young man with AIPD with suicidal attempt secondary to auditory hallucination.
Case Report

Mr MS, a 29 years old Malay man with a 16-year history of alcohol use and multiple physical co-morbidities, started hearing voices two to three days prior to the admission. Those were multiple third-person, male and female voices, which talked loudly near his ears. The voices were discussing bad things about him. Also, the voices would follow and comment on what he was doing, while he was showering. This was not the first time he heard voices. He had 3-4 similar episodes of hearing voices in the past three years (2015), but unlike the previous episodes, this current episode was unusual as the voices were persistent, very loud and clear as if the persons were talking next to his ears. He was unable to control the voices. Before this, each episode lasted about two to three days. He was described as well in between the episodes.

Apart from that, he had a feeling that somebody was touching his arms and pressing his body. On the night before the incident, he saw a shadow of a human figure in front of his house, but he was unable to tell who the person was or what the person was doing. He started to suspect somebody was going to rob the house. He also believed that people wanted to cast black magic on him. However, none of his family members shared the same beliefs. He was frightened and was unable to sleep for the night.

On the next morning, the voices he heard became so loud that he was no longer able to tolerate. He did not confide in his mother regarding the disturbing voices but instead told his mother that he had abdominal pain and requested mother to bring him to the hospital. His mother then went to the neighbour’s house to seek help for transportation. Meanwhile, he took a knife from the kitchen and stabbed his left upper chest once. He thought the voices would disappear if he died. After stabbing himself, he ran out of the house and found his mother. He was immediately brought to the hospital for treatment. He sustained massive left haemothorax and was sent for emergency exploratory thoracotomy. He was then admitted to the cardiothoracic intensive care unit for one day before being transferred to the cardiothoracic ward.

This was the first incident of self-harm, and he was conscious at the time of the incident and was aware of his surroundings. His act of stabbing himself with the knife was to kill himself so that the voices would stop, and this was unplanned. He denied he was being controlled by other people or external forces. He explained that if he did not experience the disturbing voices, he would not attempt to harm himself. After he was saved, he felt remorseful but was unsure whether he would do this again if the voices recurred.

After the incident and the surgery, he still heard voices, but it was a voice calling his name from a far distance. It was transient and occurred mostly at night. The volume of the voice was very soft, and the intensity had reduced significantly. He denied having visual or tactile hallucinations now. However, he still believed that his symptoms were due to being black magic by people, though the belief was not as strong as before.

He started taking alcohol when he was 13 years old. This was introduced by his friends. Initially, he took alcohol 3 times per week. However, after the accident in 2015, his alcohol intake increased to daily use. For the past 3 years, he took 2 bottles of 150ml liquor (local brands which contain 33% of alcohol) every day, spending RM15 per day to buy the drinks. He drank as he did not
have other activities to do. He usually took alcohol alone or with his friends at the beach near his house, in the evening, and he could easily get alcoholic drinks in his village. Sometimes, he got drunk and fall asleep. He had to continue taking alcohol as, if he did not, he would turn irritable and would start having restlessness, hand and body shakiness after 1 day. His longest period of abstinence was a week, in last year. He relapsed due to influence from his friend. His last use of alcohol (a bottle of Tyson) was the day before admission.

As he did not work, he had to ask his father to give him money to buy alcohol. When the father did not give him money, he would become angry, verbally and physically aggressive towards his family members. There were many episodes when the father was hit by him due to above reasons.

He claimed the good effect of alcohol was to make him happy. He knew the bad effects of alcohol especially on his pancreas. He was also involved in a few accidents under the influence of alcohol, sustained injuries but denied history of having seizures. He wanted to cut down on his drinking and did feel guilty but he continued to drink. He got annoyed when his parents told him to stop. He denied needing alcohol as eye-opener in the morning. He denied taking other recreational drugs. He denied recent increased alcohol intake or getting drunk after taking the alcohol. He had no slurred speech, loss of consciousness and unsteady gait. After thoracotomy, he had mild craving for alcohol and hand tremors but no nausea or vomiting, anxiety, restlessness or increased sweating.

On further history, he admitted, for the past three years, after he met with a motor vehicle accident and sustained multiple injuries and was unable to work, he felt sad on and off. This was because he had undergone multiple surgeries and complications including pain that had affected his functions. There were also a sense of emptiness and hopelessness, and occasional passive death wishes but these were not persistent. His family noted him to be irritable and sometimes verbally abusive especially when his demands were not fulfilled.

His sleep and appetite had been normal prior to this incident. He denied symptoms of depression, anxiety and mania. He denied having forgetfulness or other cognitive deterioration.

Mental state examination revealed a thin Malay man with good hygiene. He was calm and cooperative. His speech was relevant and coherent. The mood was euthymic and the affect was appropriate and congruent to his thoughts. He had no perceptual and thought disturbances. His cognition was intact. The judgement and insight were partial. The neurological examination was unremarkable.

In ward, he was started with benzodiazepine and thiamine. No psychotropic medication was initiated in view of his psychotic symptoms improving.

Discussion

Alcohol-induced psychotic disorder (AIPD) is a relatively rare schizophrenia-like disorder characterized by auditory hallucinations and delusions without disorders of consciousness and orientation. Like other psychotic disorders, it has a high risk for rehospitalization and relapse [4]. However, there was no history of admission to psychiatric ward in this patient.

The lifetime prevalence of AIPD is 0.5%
and highest among working age men (1.8%). Younger age at onset of alcohol dependence, low socioeconomic status, father’s mental health or alcohol problems and multiple hospital treatments are associated with increased risk of AIPD. Moreover, people with earlier onset of alcohol problems with associated drug use has higher relation with psychotic disorders than in those without. Heavy alcohol use over many years often precedes alcohol-induced psychosis [5]. This patient has many risks of AIPD such as young onset of alcohol dependence, low socioeconomic status and heavy alcohol consumption.

Prominent psychiatrists began denoting AIPD as a specific alcoholic psychosis since 19th century [6]. However, the diagnostic entity of this disorder has been questioned. The phenomenon of hallucinatory psychosis in chronic alcohol users garnered substantial attention but did not gain recognition as a diagnosis [7]. This is because, the distinction from the various disorders remains less well defined even though the psychotic manifestations AIPD have been documented for many years. Apart from that, patients often have comorbid elements of several disorders, and the psychotic phenomenons are often diverse. The paranoid-hallucinatory symptoms with alcoholic hallucinosis and paranoid schizophrenia are very similar. Furthermore, auditory hallucinations and delusions of reference are common in both groups. However, psychotic ego disturbances, younger age and more gradual onset, and family history of schizophrenic psychosis are more common in schizophrenia patients as compared with alcoholic hallucinosis patients[8]. The points against schizophrenia in this patient are; the brief duration and transient nature of the psychosis. The characteristics of disturbance also do not meet the criteria A of schizophrenia in DSM-V.

Differentiating between alcoholic hallucinosis and schizophrenia is important because these conditions require different pharmacological treatment and further therapeutic management. Alcoholic hallucinosis is sometimes misdiagnosed as schizophrenia which leads to unnecessary lifelong treatment with antipsychotics. The onset of alcoholic hallucinosis is a clear indication for neuroleptic treatment. Usually the paranoid-hallucinatory symptoms can be eliminated within a few days or weeks. Given abstinence, further prognosis is good and continued neuroleptic treatment is not indicated. Additionally, patients who develop alcoholic hallucinosis tend to be suicidal and should be admitted to a psychiatric hospital[9]. This patient presented with suicidal attempt secondary to the voices. However, he denied persistent passive death wishes prior to this.

The psychopathology of this group is similar as reported in the West. The majority had brief auditory hallucinations that responded rapidly to thiamine, benzodiazepine and in prolonged cases, an antipsychotic. Those with long standing delusions of persecution and infidelity of spouse progressed badly. Although the hallucinations went away, the delusions still persisted. Delusions may take 1 - 2 weeks to resolve. Some also established speech disorder when interviewed. This is unusual in alcohol induced psychotic disorder which may lead to being misdiagnosed as schizophrenic illness [10].

In AIPD, onset and course of the illness are difficult to predict. Most patients report that the hallucinations start during withdrawal, while some still had persistent hallucinations even when they started drinking alcohol again. In some cases, alcoholic hallucinosis tends to become chronic. Compared to AIPD, alcohol withdrawal delirium is a life-
threatening condition, which requires adequate treatment (clomethiazole or benzodiazepines, intensive care treatment), while neuroleptics are the treatment of choice in alcoholic hallucinosis [11].

A variety of hypotheses have been offered but none of them can sufficiently explain the development of acute or even chronic hallucinosis in some alcoholics. Nevertheless, since AIPD closely resembles schizophrenia and might even serve as a model for schizophrenia, further research in this area is warranted [12]. A greater cognitive deficits in AIPD compared to in uncomplicated alcohol dependency supports the notion that several brain regions and possibly several neurotransmitter systems are involved in the pathogenesis of AIPD [13].

AIPD has a high rehospitalization rate and a more chronic relapsing course. Patients should therefore be more closely monitored during follow-up. However, there are no relevant therapeutic studies that have been performed in patients with AIPD. Some case reports have been published, and most authors suggest neuroleptics for treatment. One group has proposed valproate and glycine as alternative medications [14].

There is sufficient evidence to caution patients that even controlled drinking may lead to the return of psychotic symptoms. Apart from that, there is insufficient evidence for other treatments reviewed here to recommend their routine use in the treatment of AIPD[15]. Furthermore, for acute hallucinosis, Valproate is effective and is generally well tolerated[16]. This patient was only being given benzodiazepine for alcohol withdrawal. Anti-psychotic was not initiated in view of his psychotic symptoms improving.

As a conclusion, alcohol-induced psychotic disorder (AIPD) is a severe mental disorder with poor outcome. However, quite little is known about the disorder. Moreover, the variability of psychotic symptoms in AIPD (auditory, visual hallucinations and delusions) seems to make it difficult to differentiate it with other psychotic disorders. This problem seems to be a confusing but a promising one. Further research on this topic should include, genetic, brain function and morphology, which may contribute to the understanding of the pathological mechanisms in AIPD.

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CASE REPORT

Late Onset Mania Post Dengue Fever in an Elderly Patient: A Case Report

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Abstract

Manic symptoms secondary to post dengue fever are rare or might be under-reported. Awareness of this phenomenon is important for therapeutic considerations of patients. We present a case of late onset mania in an elderly gentleman who developed manic symptoms post dengue fever.

Keywords: Mania, Dengue Fever, Elderly Patient

Introduction

Dengue viruses, single stranded RNA viruses of the family Flaviviridae, are the most common cause of arboviral disease in the world [1]. In Malaysia, the dengue situation has worsened with an increasing number of reported cases and deaths during the last decade [2].

The spectrum of dengue fever includes, benign self-limiting disease to multi organ dysfunction syndrome with variable mortality. Atypical manifestations and uncommon clinical pattern of presentations, have been increasingly noticed since the last few years [3]. One of the uncommon atypical manifestations of dengue fever is psychiatric presentation.

Neurological and psychiatric involvement in dengue patients can be due to the infection itself with viral encephalitis or secondary to metabolic disturbances [4].

We present a case of late onset mania in an elderly gentleman post dengue fever. His manic symptoms worsened after his illness was complicated with epididymo-orchitis.

Case report

Mr. CHY, a 60 years old married Chinese gentleman, a retired small business owner, with education level up to Form 5, developed an episode of mania after dengue fever. He had underlying hypertension diagnosed 6 years ago but was not compliant with antihypertensive. There was no family history of psychiatric illness or past psychiatric contact. Histories of seizure, head trauma, or substance abuse were absent.

Mr. CHY was initially admitted to Medical Ward for dengue fever and was discharged well on Day 8 of illness in recovery phase. However, he soon presented 1 week later with irritability, increased goal directed activities, talkativeness, increased energy...
and reduced need for sleep. There were no features to suggest delirium such as fluctuating or altered consciousness level. He was easily irritable towards his family members over trivial issues which was unlike his usual self. He kept rearranging furniture around the house but in odd inconvenient positions with the intention to make the house looked like a palace so he could invite people to come over; he cleaned the toilet vigorously multiple times as he felt the toilet was still not clean; as well as exercising almost every waking hour. Furthermore, he planned to study all the religions in the world -especially Christianity and Buddhism with the purpose of finding the best religion and aspired to be a pious man, close to God in order to attain youth and longevity. He also wished to travel to Kuala Lumpur as well as other states to make new friends. His sleep was disturbed, only sleeping for 2 to 3 hours at night as he had too many things to do. He saw some black images in the toilet and maggots on the table but there were no other psychotic symptoms such as auditory hallucinations or delusions. Otherwise, there was no identifiable stressor prior to the onset of illness except for his recent admission. His premorbid personality was described as quite a sociable, and good-natured man.

Upon mental status examination, he appeared of stated age and had poor eye contact. He was preoccupied with doing exercises and frequently changed his position from lying down to standing and squatting. His speech was increased in amount but with normal volume and rate. His mood was elated with restricted affect. There were no perceptual disturbances or thought disturbances noted. He had poor insight of his illness with poor judgement but was alert and orientated. Physical examination did not reveal any neurological deficit.

The acute onset, elderly age and recent dengue fever raised suspicion of a mood disorder secondary to organic cause. Initial investigations showed hyponatremia and hypokalemia with levels of 127mmol/l and 3.2mmol/l respectively. Other blood parameters including complete blood count, liver function tests, serum cortisol and thyroid function test were within normal limits. Brain computed tomography (CT) showed no significant findings. Blood levels normalized following fluid replacement and oral potassium replacement. Meanwhile, his blood pressure readings remained within normal range throughout admission therefore he was not restarted on any antihypertensive.

However, he continued to display manic symptoms. He was diagnosed with mood disorder secondary to dengue fever and his progress was reviewed daily by the Psychiatry Team in the Medical Ward. He occupied himself with reading pamphlets and books on Christianity and Buddhism that were brought by his family members upon his request, as well as exercising and tidying his bed area during most of his time in the ward. He was stubborn and irritable whenever his family members advised him to rest but there was no aggressive behavior during the admission. He was subsequently discharged home with Tab Olanzapine 2.5mg ON and Tab Zolpidem 5mg PRN with scheduled Psychiatry appointment in 1-week time to review his condition.

However, he presented to the Emergency Department 3 days later with worsening manic symptoms and hence admitted to the Psychiatric Ward. Family was particularly concerned of his labile mood. He was easily irritable and had impending physical aggression including wanting to hit his wife and almost hitting his son with a stick. Most of his time was spent on rearranging
furniture around the house, cleaning the compound to prevent mosquito breeding, and also practicing Yoga for long hours up to 6 hours every day. Unnecessary purchases were made which included spending spree of more than RM300 of 3 trolleys of food at the supermarket using his credit card. He was adamant to use his credit card up to RM10,000 so he could get himself a free phone as advertised on television but managed to be stopped by his family. He was much more talkative and overfriendly with inflated self-esteem stating that he was a wealthy, clever man and had made many new friends. He had plans to start an online venture by selling his own household items such as toy cars and vases, and wanted to drive recklessly to cause own motor vehicle accident in order to file a car insurance claim.

Upon mental status examination, he was overfriendly and talkative with elated mood. He demonstrated poor insight and judgement. Otherwise, he was alert and orientated. On physical examination, he was febrile with temperature of 38°C and noted an erythematous, tender right testicular swelling along with erythematous swollen left forearm. Blood investigations showed significantly elevated white cell count with level of 30x 10^9/L, raised C reactive protein at 242.5ml/L and hyponatremia at level of 125mmol/L. Blood culture grew Staphylococcus aureus. He was referred to Urology Team and Medical Team and was diagnosed with right epididymo-orchitis, and Staphylococcus aureus bacteremia. Intravenous antibiotic was commenced for the concurrent infections. He was subsequently transferred to Medical Ward for further investigation and management. Lumbar puncture was done with normal cerebrospinal fluid (CSF) analysis. Intravenous antibiotic was continued for 1 week.

Clinical improvement was observed within the next few days with reducing trend of white cell count and C reactive protein, normalized sodium levels with gradual reduction of the scrotal swelling. Repeat blood culture showed no growth. However, he was still diligently performing exercises, energetic, talkative and irritable. Thus, he was transferred back to Psychiatry Ward for continuation of management. Olanzapine was titrated to 15mg OD, and Sodium Valproate was added with gradual improvement in his psychiatric symptoms. Psychoeducation was given to patient and family. He was discharged well on Day 17 of admission with Tab Olanzapine 20mg OD, Tab Sodium Valproate 200mg ON and oral antibiotic. Upon subsequent follow ups, he remains well with no depressive, manic or psychotic symptoms. He remains compliant with medications with presence of good family support.

**Discussion**

Late onset mania may have a different pathophysiology from earlier onset cases. It may represent a secondary condition to cerebral disorders associated with aging and indirectly carries a high risk of early mortality, particularly in men [5]. Review of published case reports revealed that most of late onset mania have suspected underlying organic causes which included vascular causes, iatrogenic drug use, electrolyte imbalance, dementia and thyroid disease. Treatment of infection contributes to successful remission of the manic episode [6]. Secondary mania in older adults is a serious medical condition that requires a comprehensive differential diagnosis. Older adults are more susceptible to disorders that can lead to secondary mania, thus a thorough past psychiatric history is essential [7].
In this particular case, the patient developed mania post dengue fever. Study showed that a fraction of dengue patients exhibits psychiatric symptoms. During the acute phase, nearly all the patients exhibited thanatophobia (fear of death, 90.3%). Over 80% of the subjects had panic attacks. During the recovery phase (at the end of first week), all the observed psychiatric symptoms decreased both in frequency as well as severity[8]. Psychiatric disorders can emerge even in the post dengue convalescence phase [9].

In addition, this patient had no family history of mental illness and no recent stressor that might induce his manic symptoms. The emergence of manic symptoms in the absence of risk factors such as a personal and a family history of bipolar illness or cyclothymia as well as an onset after dengue fever, suggests an organic condition which is responsible for mania [10].

The neuropsychiatric manifestations of dengue fever are not well understood. Some tropical diseases are the direct cause of severe disturbances of cerebral function while others affect only finer cerebral systems controlling fear, anxiety and personality traits. Neuropsychiatric symptoms may be caused by a number of different mechanisms including bacterial toxins, release of cytokines, hyperthermia, shock (poor perfusion), acute renal insufficiency, pulmonary failure (shock lung), coagulopathy, disruption of the blood-brain barrier, and/or the nest of pathogens into the central nervous system [11]. In addition, the pathophysiology of neurological complications of dengue fever also is not well understood. It can be related to neurotropic effect of the virus, systemic effects of the infection and can be immune mediated [12].

Moreover, mood disorders appear to have a strong association with inflammation. The mechanism of this relationship is still being clarified; however, pre-clinical evidence suggests that raised cytokines act at multiple levels to induce mood symptoms. Accumulating evidence attributes inflammation as a critical mediator in the pathophysiology of mood disorders. Indeed, elevated levels of pro-inflammatory cytokines have been constantly demonstrated in both major depressive disorder (MDD) and bipolar disorder (BD) patients [13].

Thus, knowledge of the neuropsychiatric symptoms accompanying dengue fever is important in order to increase the awareness of these problems. However, this area is not well understood and warrants further study.

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Manic Switch On Mirtazapine: A Case Report

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Abstract

Background: In recent years, more cases of manic switches on Mirtazapine have been reported. In this report, we discuss a case of manic switch in a gentleman who was treated as unipolar depression. A 66-year-old man presented to psychiatry 8 months following a nephrectomy for symptoms of depression. Treatment with Sertraline 50mg daily was initiated and titrated to 150mg, along with Zolpidem and Clonazepam to aid his sleep. Despite these medications he never achieved remission and continued to have persistent anxiety and insomnia. Due to suboptimal control, treatment was changed to Mirtazapine 15mg daily. At day 20 he showed symptoms of mania which included talkativeness, increased goal directed activities, reduced need for sleep and socially disinhibited behavior. Mirtazapine was discontinued, and treatment was changed to Sodium Valproate, optimized to 1000mg daily, augmented with Quetiapine 150mg daily. Remission was achieved after 4 months and he has remained asymptomatic for 2 months. This was his first episode of mania, and a diagnosis of Bipolar I disorder was made. In conclusion, antidepressant induced manic switches are common, they are relatively under-appreciated and under-reported, especially with the use of sleep-promoting antidepressants. All antidepressants should be considered to be a potential mediator of a switch in view of its pharmacological properties.

Keywords: Mania, Switch, Bipolar, Antidepressants, Mirtazapine, Depression

Introduction

Antidepressants have been long known to induce mania, either alone or in combination. Mirtazapine belongs to noradrenergic and specific serotonergic antagonistic group, with relatively less numbers of reports [1] causing manic switches compared to older groups like TCAs, SSRIs, and Venlafaxine. However, over the last several years, more cases of manic switches caused by mirtazapine have been reported [2-6]. Here, we discuss a case of manic switch after initiation of Mirtazapine in an elderly man who has been treated as unipolar depression.

Case Report

Mr CAL is a 66-year-old married man, who has undergone Right nephrectomy at 58 years old, for renal carcinoma. He was
initially referred to psychiatry by his surgeon, for symptoms suggestive of depression following the nephrectomy. He experienced poor sleep, lethargy, loss of interest, and multiple somatic complaints over a period of 8 months. His main stressor was the nephrectomy and the thought of living with 1 kidney. He exhibited no symptoms of mania, hypomania or ADHD in the past and had no family history of bipolar affective disorder. He was treated as depression and prescribed with Sertraline 50mg daily, which was later titrated up to 150mg daily. Concomitant medications were Zolpidem and Clonazepam to aid his sleep. Despite these medications, he has never achieved remission. Persistent anxiety and insomnia remained as a disabling symptom. Due to long duration of suboptimal control, treatment was changed to Mirtazapine at 15mg daily. At day 20 of Mirtazapine, he became increasingly talkative, easily irritable, and had increased energy level despite reduced amount of sleep. He also exhibited increased goal directed activities and socially disinhibited behaviour. No features of delirium were present. These symptoms continued for 9 days before his clinician was alerted about the switch. Blood parameters were within normal limits with the exception of his creatinine level (144 umol/L). Mirtazapine was discontinued at day 29 of treatment, and sodium valproate was started on 400mg daily. Though Mirtazapine was completely discontinued, Mr CAL took 4 months to achieve remission of manic symptoms. Sodium valproate was optimized to 1000mg daily and augmented with Quetiapine 150mg daily. He remained asymptomatic for 2 months following combination of sodium valproate and quetiapine. This was his first episode of mania, and a diagnosis of Bipolar type I disorder was made.

Discussion

Over the years, studies have shown manic switch while on antidepressants were reported to be higher in the case of tricyclic antidepressants (TCAs) and venlafaxine, with lower risk for selective serotonin inhibitors (SSRIs) and bupropion [7]. In fact, other antidepressants like mirtazapine, trazodone, and agomelatine, were even safe to be use in low dose in bipolar patients for their hypnotic effects [7].

Several studies have attempted to hypothesized the possible underlying process in the development of a manic switch, however it is found that the precise mechanism has yet to be elucidated.

In a review by Salvadore et al [8], it was suggested that the role of the serotonergic, catecholaminergic, noradrenergic, and dopaminergic systems targeted by antidepressants may provide clues to the mechanism of switch process. Based on the review, dopaminergic drugs showed a higher rate of mania, as evidenced by a study done by Murphy and colleagues [9] where 6 out of 7 subjects who were treated with L-dopa developed hypomania. This suggests that the increased functional brain norepinephrine and dopamine may be associated with development of a manic switch. Similarly, stimulants with dopaminergic properties such as amphetamines produced manic like states in animal models with bipolar disorder [10-14]. This is further evidenced by animal models where decreased dopaminergic activity in the mesolimbic cortex and nucleus accumbens lead to depressive like states which were reversed by the use of antidepressants that potentiate dopaminergic activity [15]. Glutaminergic system has also been implicated in the switch phenomenon,
where inhibition of certain glutamic receptors in rodents produced symptoms that resembles mania [16]. Alternatively, many studies have also mentioned the role of sleep deprivation as a significant trigger of manic switches in both bipolar and unipolar depression [17-19]. One possible explanation is by direct regulation of brain dopaminergic receptor sensitivity seen in a study done on the rat limbic system[20]. Discontinuation of an antidepressant may also precipitate a switch, where withdrawal of SSRI have been implicated in a study where they reported 10 out of 19 patients with bipolar depression developed mania after SSRI was discontinued [21]. Several hypotheses were postulated to explain this phenomenon, which includes hyposerotonergic mania, noradrenergic hyperactivity, rapid eye movement rebound, and hyperdopaminergic mania [22-25]. In Mr CAL, the combination of long standing insomnia and the abrupt withdrawal of chronic SSRI use may have contributed to his manic switch. In addition, pharmacological properties of Mirtazapine, namely noradrenergic and serotonergic antagonist may have aided in the switch.

Various risk factors have been identified that may predict a switch during treatment with antidepressants. In a study done by Henry et al [26], 27% of bipolar depressed patients developed switches to hypomania and mania shortly after starting antidepressants. In the study, it was found that gender, age, and diagnosis (Bipolar type I and Bipolar type II) did not affect the risk of switch, however patients who had a hyperthymic temperament was shown to have a greater risk of switching[26]. Other risk factors for mania includes a family history of bipolar disorder, a depressive episode with psychotic,melancholic, and atypical features, a younger age of onset of depression, and treatment resistant depression [27].

Lower risk of manic switch with mirtazapine and other sleep promoting antidepressants like tradozone, have been found in various clinical trials [7]. One in particular showed the rate of treatment induced manic switch was highest with bupropion (35.7%), followed by venlafaxine (30.6%) and SSRI (30.1%), but no switches were observed for mirtazapine [28]. In a review by Fawcett et al on the safety profile of Mirtazapine, it was found to have lesser anxiety inducing effect compared to placebo, making it a safer option because of its sedating profile [29]. Thus, based on its sedating effect, its treatment of insomnia in bipolar patients may improve the outcome of the disorder, and may even decrease the risk of switching, provided other risk factors for manic switch have been examined, ie; extreme age of onset or family history of bipolar illness and past history of mania [28].

However, despite mirtazapine having less incidence of switches, manic switch have been mentioned in multiple cases [28]. The first was seen in a patient where it was used to augment fluoxetine [30]. In another patient, hypomania was reported after combining with sertraline [31]. In another 2 cases, Liu et al reported a case of manic switch in an elderly woman with hypertension and diabetes mellitus presenting with depression at a later age, and De Leon et al reported a manic switch involving a case of depression with comorbid stroke affecting the frontal lobe [32,33].

**Conclusion**

Although in practice, antidepressant induced manic switches are common, they are relatively under-appreciated and under-reported, especially with the use of sleep promoting antidepressants. It is important to identify risk factors for manic switch,
especially in extreme age population. All antidepressants should be considered to be a potential mediator of a switch in view of its pharmacological properties.

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CASE REPORT

Tianeptine Dependence: A Case Report

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Abstract

Tianeptine is an atypical tricyclic antidepressant that is prescribed mainly for the treatment of depression and anxiety disorder. There have been scattered reported cases of tianeptine dependence and abuse in the literature. We report the case of a 32-year-old gentleman with resistant major depressive disorder that was initially successfully treated with Tianeptine. When his depression relapse due to work-related issue, he step-up his dosages without supervision. He developed tolerance and withdrawal to tianeptine making it difficult for him to stop without help. This case highlights the possibility of tianeptine abuse to its high tolerability and easy access for purchase.

Keywords: Tianeptine, Dependence, Abuse, Detoxification, Depression

Introduction

Dependence is a state where a person becomes reliance on a chemical substance. A person with substance dependence would have compulsions to continue consuming the substance either to obtained its positive effect or to avoid the discomfort of its withdrawal. The Diagnostic and Statistical Manual of Mental Disorder Fifth Edition (DSM-5) made further refinement in diagnosis substance dependence with the introduction of the term “Substance use Disorder” [1]. Common substance known to cause dependence are non-prescriptive substance such as alcohol, nicotine, opioids, cocaine, cannabis, and amphetamine. However dependence are also known to develop in prescribed anxiolytics and sedatives. The prescriptive medication being abused includes the benzodiazepines, carbamates and barbiturates. There has also been some rare cases of antidepressant dependence being reported especially those with amphetamine effects [2].

Tianeptine is an atypical tricyclic antidepressant which is indicated primarily for treatment of depression and anxiety disorders. Its mechanism of action in managing depression is unknown. In contrast to SSRIs and tricyclic agents, systemic administration of tianeptine modestly enhanced the mesolimbic release of dopamine (DA) but it is unclear how tianeptine strengthens dopaminergic transmission [3]. It has also been suggested for the treatment of alcohol and other substance use disorders [4, 5]. Interestingly, there has been concerns that tianeptine itself
has a potential to be addictive and being abuse in recent years [2, 6, 7]. The reported case here further emphasise the possibility of Tianeptine abuse and dependence following the treatment of major depressive disorder.

**Case report**

A 32 years old man came to the psychiatry clinic admitting he has been abusing tianeptine and would like to be treated. He was diagnosed with major depressive disorder when he was 20 years old and was initially treated with escitalopram which was able to control his symptoms in those early years. At age 25 years old, he started working as a banker which precipitated worsening of his symptoms which was not well controlled with the same medication. Eventually he had to undergo electroconvulsive therapy at age 28 years old when he developed severe depression that was resistant to medications. Following that episode, he was on trial of many antidepressant all of which was unable get his symptoms under control. He was eventually started on tianeptine at age 29 years which finally could manage his symptoms. He felt well and able to perform in his work again and continued this medication with the dosage of 12.5mg three times a day.

After 6 months, he started to feel that the tianeptine was becoming less effective. His started to have low mood, poor appetite, poor sleep, anhedonia and inability to concentrate in his work and daily life. His work performance took the most hit and was given warnings by his employer to improve his productivity. In this period of elevated stress he decided to increase the tianeptine dosage hoping that this will resolve his symptoms and save his job. He felt that the dose increase did wonders and saw an improvement in resolving his symptoms.

However with each increase in dose he would felt better only for few weeks before he felt it becoming less effective thus he would further increase the dose. This cycle continued for several months as he kept increasing the dosages once he felt the effectiveness wanes or when he felt his depression symptoms re-appears. He was able to get supply for his needs online thus had no problem continuing this pattern of consumption. In the few months before presenting himself, he started to have withdrawal symptoms with the development of palpitations, sweating, inability to concentrate, nausea and trembling. These symptoms would typically develop four to six hours after the last intake thus he had to take the tianeptine every four hours to avoid these symptoms.

He started to feel this issue as a problem as he felt his life was now resolving around getting the next dose of tianeptine. He was unable to work as a banker or be good son to his parents, as he could only think about getting the next dose of tianeptine. He also worried as he felt he was taking too much with his tianeptine intake at that point was around 150mg to 175mg six times a day making total usage per day to 900mg to 1050mg. He finally presented himself to UMMC psychiatric clinic to get help for this problem and was planned for tianeptine detoxification. He was electively admitted and the tianeptine was stopped. He was started on Mianserin 90mg once a day, clonazepam 4mg twice a day, sublingual buprenorphine 8mg /naloxone 2mcg twice a day and was observe in the ward for few days to assess any withdrawal effects. He was discharge well and is currently on review visits to monitor his major depressive disorder symptoms and also compliance to the treatment of his tianeptine dependence.
Discussion

In diagnosing substance use disorder, the patient must be identified to have presentation of impaired self-control in using the substance, social impairment due to it, persistent use even with the risks it cause and presence of pharmacological effect which is withdrawal and tolerance [1]. These presentations are detailed in eleven criterion in the DSM-5 with the presentation of at least two of eleven criterion for more than 12 month would fit into the diagnosis of substance use disorder [1]. In the presented case, he presented with symptoms of substance use disorder for at least 24 month thus meeting the duration criteria for the diagnosis. He also had more than 2 criterion for diagnosis. He had been using tiapentine in larger amount and longer than prescribed, had desire to stop, spent most of his time thinking, planning and taking tiapentine, had craving for it, unable to function as a banker, having tolerance and also presence of withdrawal symptoms. This first reported case in Malaysia is therefore further proof of the potential of abuse of tianeptine.

Tianeptine clinical efficacy in treating depression has been mentioned to be at least as effective as selective serotonin reuptake inhibitor [8]. Its mechanism of action however are still debated with the theory on enhancing serotonin re-uptake is being challenged [9]. Furthermore, its anti-depressive effects are also attributed to its action of normalization of glutamate concentration in the synapse which allows re-establishment of the optimal affective functioning [9]. It also causes release of dopamine in nucleus accumbens of the Dopaminergic reward system [10]. This effect on the mesocorticolimbic dopamine pathway is believed to be the essential part to explain cases of dependence to tianeptine [2, 7]. Furthermore, tianeptine is known to have minimal sedative and anticholinergic effects compared to tricyclic antidepressant thus making it more tolerable for abuse. To add to this, the easy access to obtain tianeptine especially through online purchases makes abuse of tianeptine more convenient [6]. This is demonstrated clearly in our reported case with easy purchase online and high tolerance with minimal side effects even with dose in access of 1000mg per day.

There have been several reported cases of tianeptine abuse [2, 6, 7]. This article the first reported case in Malaysia. Compared to previous reported case, what is apparently similar is the age group of people abusing tianeptine is around 30 to 45 years old [6, 7]. Reasons for this is unclear but probably related to the abuse following prescription and not for recreational use which usually happens in younger age group. Further findings from previous reported case are more female is affected which probably due to the higher incidence of depression among females [7]. While the doses taken by this reported case are around 1000mg per day, this is actually in keeping with previous reported cases which reports an average dose of 1645mg per day [7]. This is further proof of tianeptine high tolerability even with dose reaching 4000mg per day [7].

Once diagnose with Tienepptine use disorder, the management of such condition has no uniform standard. In this reported case, he was admitted for detoxification and was started on Mianserin 90mg once a day, clonazepam 4mg twice a day, sublingual buprenorphine 8mg /naloxone 2mcg twice a day to manage his withdrawal effects and also depression. This regime was prove to be successful in this case. Kisa et al. in their reported case also admitted their patinet and started her on benzodiazepine and anti-
Their case was prescribed with Diazepam 20 mg per day of and venlafaxine, 75 mg per day which was also successful in detoxifying her tianeptine dependence [2].

In conclusion, tianeptine is an antidepressant with potential for abuse due to its high tolerability and its relatively ease of access for purchase. Clinician managing psychiatric patients should have awareness for such possibility. Further steps such as educate patients and their family on such possibility would also be necessary.

References


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Effects of Nicotine on Schizophrenia and Antipsychotic Medications: A Systematic Review

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Abstract

Background: Majority people with schizophrenia who smoke cigarettes, tend to be heavy smokers than other psychiatric patients and general population. Nicotine is one of the main components of cigarettes that can produce nicotinic interactions with antipsychotic drugs. Nicotine can also alleviate psychotic symptoms of schizophrenia. Aim: The objective for this systematic review is to examine the effects of nicotine and nicotine-based products in the treatment of schizophrenia, in comparison with placebo, no treatment or antipsychotic medication. Results: All studies comparing nicotine or other related products as the only treatment or adjunctive treatment for schizophrenia patients excluding the animal studies and case studies are reviewed. The use of traditional or known as typical antipsychotics may cause the patients to smoke frequently while patients taking atypical antipsychotics may smoke less. Patients who smoke may metabolize antipsychotics faster than non-smoking patients. There is less report related to smoking cessation among the schizophrenia patients. Conclusion: Neurobiological and psychosocial factors reinforce the high use of nicotine by patients with schizophrenia. Prior to smoking cessation implementation, it is crucial to understand on the ways and reasons for schizophrenia patients to consume nicotine for self-medicate symptoms which may lead to the development of new treatments for schizophrenia and nicotine dependence.

Keywords: Nicotine, Schizophrenia, Antipsychotics, Smoking

Introduction

Schizophrenia is a chronic, deteriorating and complex disorder that can affect the perception, language and communication. It also affect thought processes, volition and drive, attention and executive function of the individual [1]. A study showed that 68% of people with schizophrenia who smoked were classified as heavy smokers (25 or more cigarettes daily) compared with 11% of the general smoking population [2]. One of psychoactive component of tobacco is nicotine. Nicotine affects central nervous system and improves symptoms of schizophrenia by producing its positive reinforcing and addictive properties by activating dopaminergic pathway [3].
There are several reasons that cause the schizophrenia patient to smoke. The reasons are to break the monotony associated with the disorder, attain social contact, experience some pleasure, self medicate some of the symptoms of schizophrenia or side effects of antipsychotic medication and/or cope with nicotine withdrawal [1].

However, there are reports that some smokers with schizophrenia experience an acute increase in psychotic symptoms during attempts to quit smoking which favour a self medication model [4]. The positive symptoms include delusions, hallucinations, disorganized speech, and catatonic motor behaviors. The negative symptoms involve affective flattening, alogia and avolition [5]. The symptoms of schizophrenia may be explained by abnormalities in dopaminergic synaptic transmission that seems to produce excessive dopamine and leads to overactivity of synapses in the mesolimbic and prefrontal cortex.

Smoking may affect more significantly the negative than the positive symptoms of schizophrenia [6]. Individuals with schizophrenia who smoke or are administered nicotine improve on neuropsychological and psychophysiological test measures example attention and vigilance. Tobacco cessation among patients with schizophrenia has been associated with slowed motor speed but not with worsening of cognitive performance [1]. Some smokers with schizophrenia experience an acute increase in psychotic symptoms during temptation to quit smoking [3].

Significant attention should be put on the smoking cessation in schizophrenia patients [2]. Future studies should be focused on some pharmacotherapy strategies involving a higher-dose nicotine patch, combining nicotine gum and a patch, and augmentation medication to nicotine replacement [7]. Pharmacotherapies for schizophrenia may aim at the positive or negative symptoms, cognitive deficits and/or reduction of extrapyramidal symptoms.

Objectives

Hence, the objectives of this review are to study the effects of nicotine and nicotine-based products in the treatment of schizophrenia, in comparison with placebo, no treatment or antipsychotic medication. Besides, studies were reviewed to determine how nicotine can affect the usage of antipsychotic drugs. This could trigger a new study to be done in the future for developing a suitable therapy for smokers of schizophrenia patients.

Rational of study

To understand the effects of nicotine and the nicotine-based products in the treatment of schizophrenia.

Method

Data Sources

A systematic review was conducted by using databases for example Springer Link, and Science Direct to search for relevant articles for this study. Google Scholar and the literature search of Mendeley were used as the important search engines which are related to these databases. The keywords ‘nicotine’, ‘schizophrenia’ and ‘antipsychotics’ were used to search all major research databases. All studies searched were examined by looking to its abstracts related to the objectives of this systemic review, although not all were reviewed here. The review focuses on studies published since 1997 with the relevant evidences.
**Inclusion Criteria And Exclusion Criteria**

This review only includes the articles that present the data of effects of nicotine on schizophrenia patients with or without the treatment using antipsychotic medications. However, it also includes other antipsychotic disorders as comparison to schizophrenia. Only research articles between year 1997 to 2014 are considered in this systemic review.

Several studies related to the animal case studies and related to narcoleptic–induced movement disorders, nicotinic receptor interactions and molecular mechanisms underlying the etiology of schizophrenia were excluded from this systematic review.

**Search Strategy**

PRISMA checklist flow diagram was used to guide the systematic analysis for all the research papers located. The Science Direct database found 3059 articles. The Springer Link search yielded 1050 articles while Google Search provided 19 500 articles. The duplications of articles between these databases were removed and found 185 articles. After screening all the articles related to the inclusion criteria outline, only 48 full text articles are assessed for eligibility. The research articles with too detail scientific information regarding the pharmacologic effects of nicotine on brain, animal studies and case reports were excluded. The total of 30 articles is reduced to 16 articles after thorough qualitative analysis. Then, the data were extracted to be included in this systematic review.
PRISMA 2009 Flow Diagram

1.4 IDENTIFICATION
Records identified through database searching (n = 3059 Sciencedirect)
(n = 1050 Springer Link)

Additional records identified through books (n = 0)

Records after duplicates removed (n = 185)

Records screened (n = 48)

Records excluded (n = 18)

Full-text articles assessed for eligibility (n = 30)

Full-text articles excluded, with reasons (n = 10)

Studies included in qualitative synthesis (n = 16)
Results

Description of studies

Excluded studies

About 18 references are identified and rejected as not relevant on the basis of information provided in the title and abstract and these articles had wide inclusive criteria. Due to the reasons of lack of randomization and irrelevant interventions or outcomes, about 10 studies were excluded. The most important reason of being excluded is because the studies were based on experiment in vitro.

Besides, due to the inappropriate study participants, one study needs to be excluded. Although it had normal healthy people and schizophrenia patients but no useful data can be extracted from it. One study is excluded as it concerns on the relationship between cigarette smoking and DNA methylation without relating to schizophrenia specifically. Some studies have inappropriate interventions as the interventions were not nicotine.

Included studies

No studies really met the inclusion criteria for this study. However, there is a study by Matthews and her colleges that discussed about the effects of typical and atypical antipsychotic drugs to smoking behavior of schizophrenia patients. This study suggested that typical antipsychotics may increase basal smoking and decrease patient’s ability to stop smoking whereas atypical antipsychotics decrease basal smoking and promote smoking cessation [8].
<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Year</th>
<th>Publisher</th>
<th>Study Type</th>
<th>Title</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Úcok et al.</td>
<td>2004</td>
<td>Psychiatry and Clinical Neurosciences</td>
<td>Case series</td>
<td>Cigarette smoking among patients with schizophrenia and bipolar disorders.</td>
<td>To investigate the ratio of smokers and the relationship of cigarette smoking to clinical features in patients with schizophrenia and bipolar disorders.</td>
</tr>
<tr>
<td>2</td>
<td>Kelley et al.</td>
<td>2011</td>
<td>Schizophrenia Bulletin</td>
<td>Case control study</td>
<td>Cigarette smoking and mortality risk in people with schizophrenia.</td>
<td>Cigarette smoking, particularly in people aged 35–54 years, contributes to an increased risk of death. Greater smoking severity significantly increases this risk. Smoking cessation in people with schizophrenia deserves significant attention.</td>
</tr>
<tr>
<td>3</td>
<td>Ziedonis &amp; George</td>
<td>1997</td>
<td>Schizophrenia Bulletin</td>
<td>Cross sectional studies</td>
<td>Schizophrenia and nicotine use: report of a pilot smoking cessation program and review of neurobiological and clinical issues.</td>
<td>Pharmacotherapy strategies of a higher-dose nicotinepatch, combining nicotine gum and a patch, and augmentation medication to nicotine replacement should be evaluated in future studies in this population.</td>
</tr>
<tr>
<td>4</td>
<td>Tsuda, Saruwatari, &amp; Yasui-Furukori,</td>
<td>2014</td>
<td>BMJ Open</td>
<td>Meta analysis</td>
<td>Meta-analysis: the effects of smoking on the disposition of two commonly used antipsychotic agents, olanzapine and clozapine.</td>
<td>This study suggest that the doses of olanzapine and clozapine should be reduced by 30% and 50%, respectively, in non-smokers compared with smokers in order to obtain an equivalent olanzapine or clozapine concentration.</td>
</tr>
<tr>
<td>5</td>
<td>Spring, Pingitore, &amp; McChargue</td>
<td>2003</td>
<td>The American Journal of Psychiatry</td>
<td>Qualitative study</td>
<td>Reward value of cigarette smoking for comparably heavy smoking schizophrenic, depressed, and nonpatient smokers.</td>
<td>Schizophrenic and depressed smokers recognize have many drawbacks associated with smoking, but compared to nonpatients who smoke as heavily, they also perceive more benefits and find cigarettes more appealing than alternative rewards.</td>
</tr>
<tr>
<td>No.</td>
<td>Author(s)</td>
<td>Year</td>
<td>Journal</td>
<td>Research Type</td>
<td>Summary</td>
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<tr>
<td>6</td>
<td>Wijesundera, Hanwella, &amp; de Silva</td>
<td>2014</td>
<td>Annals of General Psychiatry</td>
<td>Cross sectional studies</td>
<td>Antipsychotic medication and tobacco use among outpatients with schizophrenia: a cross-sectional study. Prevalence of smoking was less than in many countries. This is influenced by prevalence in the general population and low affordability. Risk of tobacco use was significantly less among patients treated with clozapine.</td>
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<tr>
<td>7</td>
<td>Robert et al.</td>
<td>2002</td>
<td>Neuropsychopharmacology: official publication of the American College of Neuropsychopharmacology</td>
<td>Randomised control clinical trials</td>
<td>Effects of cigarette smoking and nicotine nasal spray on psychiatric symptoms and cognition in schizophrenia. These results suggested that acute smoking of cigarettes may transiently decrease negative symptoms in patients with schizophrenia, but it is unclear whether this effect is attributable to nicotine, other components of cigarettes, or the act of smoking.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>McNeill</td>
<td>2001</td>
<td>Smoke-free London.</td>
<td>Systematic reviews</td>
<td>Smoking and mental health Smokers with mental health problems are motivated to quit and can be successfully helped to stop smoking. Effective treatments include group therapy, NRT and bupropion.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Zammit et al.</td>
<td>2003</td>
<td>The American Journal of Psychiatry</td>
<td>Cohort study</td>
<td>Investigating the Association Between Cigarette Smoking and Schizophrenia in a Cohort Study Stanley The authors investigated whether cigarette smoking alters the risk of subsequently developing schizophrenia. No longitudinal studies have previously examined this relationship. Cigarette smoking may be an independent protective factor for developing schizophrenia.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Allen, et al.</td>
<td>2011</td>
<td>The American Journal of Psychiatry</td>
<td>Random, placebo control study</td>
<td>Effect of Nicotine Replacement Therapy on Agitation in Smokers With Schizophrenia: A Double-Blind, Randomized, Placebo- Participants were 40 smokers 18–65 years of age with schizophrenia were screened for agitation with the excited component subscale of the Positive and Negative Syndrome Scale (PANSS) and for nicotine dependence with the Fagerström Test for</td>
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<td></td>
<td>Study</td>
<td>Year</td>
<td>Journal/Source</td>
<td>Type</td>
<td>Title</td>
<td>Conclusion</td>
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<td>11</td>
<td>Matthews et al.</td>
<td>2011</td>
<td>CNS drugs</td>
<td>Review</td>
<td>The role of antipsychotic in smoking and smoking cessation.</td>
<td>The study showed a better characterization of what features of antipsychotic medications alter smoking behaviours which may lead to new treatments.</td>
</tr>
<tr>
<td>12</td>
<td>Harris et al.</td>
<td>2004</td>
<td>Neuropsychopharmacology: official publication of the American College of Neuropsychopharmacology</td>
<td>Cross sectional study</td>
<td>Effects of Nicotine on Cognitive Deficits in Schizophrenia</td>
<td>Attentional function was increased in non-smokers but decreased in nicotine-abstinent smokers after nicotine administration.</td>
</tr>
<tr>
<td>13</td>
<td>Kumari &amp; Postma</td>
<td>2005</td>
<td>Neuroscience and Biobehavioral Reviews</td>
<td>Review</td>
<td>Nicotine use in schizophrenia: The self medication hypothesis</td>
<td>This review relating the behaviour to sensory gating and cognitive deficits in this disorder that have been viewed as major support for the self-medication hypotheses.</td>
</tr>
<tr>
<td>14</td>
<td>Lyon</td>
<td>1999</td>
<td>Psychiatric Services</td>
<td>Review</td>
<td>A review of the effects of nicotine on schizophrenia and antipsychotic medications.</td>
<td>Nicotine affects both schizophrenia and antipsychotic medications.</td>
</tr>
<tr>
<td>15</td>
<td>Montoya &amp; Vocci</td>
<td>2007</td>
<td>NIH Public Access</td>
<td>Review</td>
<td>Medications Development for the Treatment of Nicotine Dependence in Individuals with Schizophrenia</td>
<td>Nicotine improves neuropsychological deficits associated with schizophrenia such as in the P50 evoked auditory potentials, spatial working memory, and attention. Studies have evaluated the efficacy of smoking cessation medications in patients with schizophrenia.</td>
</tr>
<tr>
<td>16</td>
<td>Punnoose &amp; Belgamwar</td>
<td>2006</td>
<td>The Cochrane Collaboration</td>
<td>Review</td>
<td>Nicotine for schizophrenia</td>
<td>This review included all the randomised clinical trial comparing nicotine and placebo. Further research of nicotine for schizophrenia by parallel group design randomised controlled trials</td>
</tr>
</tbody>
</table>
investigating the effects of nicotine on symptoms of schizophrenia as well as on side effects of antipsychotic drugs.

Generally, the findings show that nicotine has some effects on schizophrenia and antipsychotic medications. Daily cigarette consumption among the patients with schizophrenia was higher than that for the bipolar patients, and control group. Recent data indicate that the smoking rate in schizophrenia is somewhat higher than in other psychiatric disorders, such as mood disorder [9] and bipolar disorder [10]. Analysis of other psychotic illnesses including affective psychoses and substance-induced psychoses did not show the same association with smoking, suggesting that smoking may have a rather specific effect in reducing the development of schizophrenia but not of other psychotic disorders [11].

The reasons for the widespread smoking behavior seen in schizophrenia are not well understood but several possible mechanisms have been advanced. Most of these suggest that nicotine as a form of self-medication to reduce the side effects of antipsychotic medications, to enhance the therapeutic effect of antipsychotics and so alleviate negative symptoms and or to improve a number of cognitive deficits associated with schizophrenia [12].

Smoking cessation in people with schizophrenia deserves significant attention, since smoking cigarettes will increase the risk of death [2]. Moreover, some antipsychotic medications were affected with smoking cigarettes. For example, olanzapine and clozapine should be reduced by 30% and 50%, respectively, in non-smokers compared with smokers in order to obtain an equivalent olanzapine or clozapine concentration [13].

The heightened reward value of smoking warrants attention in tailoring tobacco control interventions for schizophrenic smokers. This is because the prevalence of smoking in schizophrenia is higher than in the general population. Biological, psychological and social factors influence smoking in patients with schizophrenia [14]. Therefore, smoking cessation medications should also be considered for schizophrenia patients since many studies have evaluated the efficacy of smoking cessation medications in patients with schizophrenia [1].

Discussion

**Effects of nicotine**

Nicotine interacts with nicotinic receptors on nerves throughout the body and brain. In the brain, nicotine acts on nicotinic acetylcholine receptors (nAChR) causing transmitter to release and metabolized. Chronic nicotine use causes inactivation of the receptors which might cause a subsequent increase in their number. The brains of smokers have an increased number of high affinity nicotinic receptors [15]. However, people with schizophrenia have a lower number of nicotinic receptors. Leonard hypothesized that this might be due to an abnormality of the genes relating to neuronal nicotinic receptors in schizophrenia.
Nicotine causes an elevation of concentrations of circulating hormones for example norepinephrine and epinephrine and an increase in the release of vasopressin, beta-endorphin, ACTH and cortisol which are thought to cause stimulatory effects of nicotine on the central nervous center. Thus, nicotine causing positive reinforcing and addiction. There is also an evidence of improved focusing of attention in smokers over nonsmokers [16]. The future schizophrenia patients smoke cigarettes to improve pre-morbid anxiety and depression [17]. In patients with various disorders, have indicated that cigarette smoking and/or nicotine may improve memory, attention, and spatial perception [6].

**Antipsychotic medications for schizophrenia**

People with schizophrenia and some other mental health disorders are often treated with antipsychotic medications. Generally, antipsychotic drugs block dopamine receptors in the brain which block the passage of nerve signals by dopamine. Hence, they reduce the symptoms of schizophrenia [18] As the serotonin (5-HT) system also interacts with the dopaminergic system, 5-HT may also be involved [19].

Antipsychotic medications are divided into first generation (typical) and second generation (atypical) drugs. Typical Medications such as Haloperidol were introduced into the market from the 1960s onwards. Atypical medications such as Clozapine were developed during the 1990s and work on a wider range of symptoms and tend to be associated with fewer side effects [20].

There are two types of symptoms in schizophrenia, which are positive symptoms and negative symptoms. Positive symptoms (such as voices, hallucination, delusion and confusion) are thought due to excess of dopamine in brain, whereas negative symptoms (such as withdrawal, anhedonia, inertia, lack of motivation) are due to concurring deficits of dopamine in the cortex [21].

People with schizophrenia who smoke present more positive psychiatric symptoms of schizophrenia than nonsmokers [22]. Antipsychotic medication more effectively controls positive symptoms of schizophrenia than negative symptoms. Newer drugs appear also to act more effectively on negative symptoms. The example is Clozapine, which have shown the potential to decrease negative symptoms, are thought to do so by increasing cortical dopamine levels, possibly in a similar way to nicotine [23].

**Smoking and antipsychotics**

Cigarette smoking can decrease levels of many antipsychotics used to treat schizophrenia by as much as 50 percent by increasing metabolism of that medications [24]. This leads to the need of a higher dosage in smokers with schizophrenia to achieve therapeutic blood levels relative to non-smoking schizophrenia patients [7].

A recent study on schizophrenia patients in British Columbia found that patients treated with atypical (second generation) antipsychotics especially Clozapine had significantly lower expired air carbon monoxide values (an indicator of smoke inhalation) than patients treated with depot (injected) neuroleptics [25]. Clozapine may reduce smoking through its specific action of reducing cognitive deficits. Another possibility is that the improved therapeutic response to Clozapine also reduces risk of smoking [14].
Decreased smoking rates do not appear to be associated with other atypical antipsychotic medications [26].

A study of 39 patients with schizophrenia spectrum disorder found that patients on typical (first generation) antipsychotics for example Haloperidol had the highest prevalence of smoking [26]. Typical antipsychotic drugs have a strong dopamine blocking action and smoking might able to relief some of the side effects through its efficacy in stimulating dopamine release. However, typical antipsychotics are probably less effective than Clozapine in correcting abnormal sensory processing and cognitive impairment associated with schizophrenia [27].

**Smoking/Nicotine reduction**

According to a study [28], it showed that there is no difference in the effect of wearing nicotine or placebo patches during withdrawal on psychotic symptoms. This data suggests that problems patient might have during the early stage of smoking or nicotine withdraw for example agitation are not related to increased psychotic symptoms.

A recent study involved 101 patients with schizophrenia in which antipsychotic medication was discontinued. At baseline, smokers had more positive symptoms and were apparently more functionally impaired than nonsmokers. This difference was however no longer evident after a 30-day medication discontinuation period [1]. This suggests an interaction between the medication, smoking and positive symptoms of schizophrenia.

Based on a study finding [29], the transdermal delivery of nicotine is important for its predictability but nicotine gum should also be effective and has a rapid onset.

Hence, it may be necessary to combine gum with the patch or otherwise obtain higher doses of antipsychotics to better manage agitation for nicotine dependence population. The nicotine replacement in addition to usual care reduces agitation by about one-third.

Another study [30] was consistently using a combination of antipsychotic medication and nicotine transdermal patch. It is possible that commonly used smoking cessation aids may alter the effects of antipsychotics on smoking. More research is required to better understand the effects of antipsychotics on smoking cessation attempts and how any positive effects might be enhanced by combination with other medications.

The findings of another study [1] showed that the patients appreciated the drawbacks of smoking as fully as the non-psychiatric comparison subjects but considered them outweighed by smoking’s advantages. The schizophrenic and depressed smokers chose smoking twice as often as the normal subjects than other pleasant activities. Thus, the voluntary smoking cessation is quite difficult unless the benefits of smoking cessation are higher than the non-psychiatric subjects received. This exhibit greater nicotine dependence in schizophrenic and depressed patients than normal subjects. The smokers need to experience a decline in the perceived advantages of smoking in an attempt to quit smoking [31].

Nevertheless, the studies on the ‘self-medication’ hypotheses about smoking and mental illnesses have shown mixed results. One study has shown that patients treated with clozapine reduced smoking and this reduction is due to reduction in positive and negative symptoms [32]. However another studies by Frakenburg and colleagues have shown no effects on measures of akathisia, positive or negative symptoms, global
symptoms reading or vocabulary scores. This study showed that the smoking cessation in patients treated with clozapine was associated with weight gain and it also suggests that smoking might be used to counter the sedating effects of antipsychotics [33]. Hence, definitely stating that smoking is associated with self-medication had lack of evidences and requires further research to be done on this issue.

Conclusion

Nicotine in cigarettes has significant implications for schizophrenia patients who take antipsychotic medications. Nicotine may increase dopamine which believed to improve negative symptoms of schizophrenia. Typical antipsychotics are likely to increase smoking whereas the atypical antipsychotics may decrease this behavior. Heavy smoking may decrease the blood levels of antipsychotic medication by 50 percent. There are several recommendations based on the studies reviewed. The schizophrenia patients should try to stop smoking to avoid addiction and other health problems. Patients with schizophrenia who are dependent on nicotine should not be denied smoking opportunities without being provided alternatives. The use of cigarettes should be monitored. The clinicians conducting psychiatric evaluations of schizophrenia patients should determine how many patients smoke and consider prescribing antipsychotic medications for them. This is due to the fact that smoking can alter the metabolism of psychotic drugs. Special smoking cessations programs for schizophrenia patients should be developed especially for the chronic inpatients.

Limitation

Research regarding the therapeutic effects of smoking on individuals with schizophrenia has produced mixed results, which may be primarily due to study design. Many studies had very small sample sizes, lacked information on confounders, and, in some cases, were cross-sectional rather than longitudinal, thus only capturing data at a single point in time. The journals obtained did not undergo critical appraisal to know the quality of the journals. Some relevant journals could not be obtained as the journals need to be purchased online.

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BRIEF COMMUNICATION

Media Reporting of Suicide in the Era of “Malaysia Baru”

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Abstract

Introduction: The media can be a double-edged sword in suicide prevention with the Werther and Papageno effect as risk and protective factors respectively. Objective: This article provides a brief overview of the impact of media suicide reporting on suicidal behaviour and suicide prevention. Results: In the Malaysian context, current practices of media suicide reporting, advocacy strategies for responsible media suicide reporting as well as challenges in stakeholder awareness and engagement are highlighted. A review of the literature suggested limited implementaton and adherence of media guidelines locally. Conclusions: Future research is warranted to establish the evidence base for effective strategies to improve stakeholder awareness, engagement and implementation of responsible media reporting of suicide.

Keywords: Media Reporting, Guidelines, Suicide, Prevention

Introduction

The impact of reporting and portrayal of suicide in the media has become an increasingly significant public health issue in terms of suicide prevention [1]. This is particularly relevant in the light of the extensive worldwide media coverage of recent celebrity suicides [2]. Findings from Fink et al.’s (2018) [3] time-series analysis suggest that rates of suicide in the United States increased by 9.85% during the months after the death of Robin Williams, a famous Hollywood actor and comedian. The authors argued for a possible link between the parallel in time of sensationalized media reporting of Robin Williams’s suicide and the marked increase in suicide deaths, especially in the similar demographic profile and type of suicide method in William’s case. There is accumulating evidence of the association between media suicide reporting...
that emphasizes explicit details of the suicide in particular, suicide methods; and “copycat suicides” among individuals who have pre-existing vulnerabilities of suicidal behavior. This phenomenon of media suicide contagion is known as the “Werther effect”, in reference to the anecdotal reports of young people who had imitated the detailed suicide method of Werther, the protagonist in Goethe’s popular book, “The Sorrows of Young Werther” [4]. Social learning theory provides the theoretical framework to explain the mechanism of media suicide contagion [5, 6]. Over-identification of vulnerable individuals with the details of sensationalized reports of suicide in the media may increase the risk of modeling the suicidal behaviour, especially lethal methods of suicide.

The Malaysian scenario

The World Health Organization’s (WHO) guidelines for responsible media reporting of suicide include the Werther and Papageno effect [9]. Bohanna and Wang’s (2012) review demonstrated that guidelines could have an effect on changing the style of media reporting of suicide to be more positive, which in turn was associated with a reduction of suicide rates [10]. Nevertheless, this effect was highly variable across different countries and was dependent on good media collaboration and training. Implementation of media guidelines were reported to be relatively successful in countries such as Australia, Austria and Switzerland with strategic engagement between the mental health community, the media and policy-makers. However, media guidelines in New Zealand were perceived to be too restrictive towards the press [10].

In Malaysia, media guidelines for responsible reporting of suicide were developed following a 2004 media training workshop. This was a collaboration between media journalists and mental health professionals (MHPs) from the Ministry of Health (MOH) and Ministry of Education (MOE). However, the effectiveness of surveillance and implementation efforts in terms of suicide prevention related to media reporting in Malaysia has yet to be determined. Suicide rates of 1.18 per 100000 population in 2009 according to the National Suicide Registry of Malaysia (NSRM, currently inactive due to lack of funding) [11] are likely to be underreported [12]. Other studies have reported rates of 8-13 per 100000 [13] and 6-8 per 1000000 [14].

Local Non-governmental organisations (NGOs) i.e. the I-Life Suicide Prevention Campaign (ISPC) in Penang and MHPs have actively engaged the local media in suicide prevention activities. These include
featuring regular articles with expert opinions by MHPs, and publicising activities on suicide prevention especially surrounding World Suicide Prevention Day on 10th September. Press conferences were organised to publicise community level suicide prevention activities, however, these were attended by only approximately half of invited members of the press, of which few were from the mainstream media. During the press conferences, the importance of responsible reporting of suicide news was emphasised. However, the tangible impact of such efforts on local media practice is unclear. Journalists’ feedback included the press prioritising news, especially headlines (editors’ prerogative) that could attract public attention and boost newspaper sales. Social media platforms are currently being utilised by NGOs and MHPs to disseminate information related to suicide prevention activities and advocate for responsible media reporting of suicides. For example, ISPC published factsheets on depression and suicide which contained local helplines (https://www.facebook.com/SPC.Penang/), while a Facebook page run by Malaysian early career psychiatrists, posted infographic posters (Figure 1) on responsible media reporting on Facebook. Both pages support work by the International Association for Suicide Prevention.
Figure 1. Infograph on responsible media reporting of suicide
Currently, there is limited published data in terms of the level of adherence to media guidelines in Malaysia. One study by Johari et al (2017) [15] concluded that the media portrayal of suicide in local newspapers from March 2016 to November 2016 was more harmful rather than productive. Graphic photographs were included. Out of a total of 45 photographs related to suicide in Malaysia that were identified; 17 (37%) depicted actual suicidal acts and 55% revealed real photographs of the suicidal persons. In contrast, only twelve (15%) of the 81 identified suicide-related articles discussed early treatment for psychiatric disorders or specific suicide prevention strategies. Another recent preliminary survey performed by CLF and NAR of 7 local English and Malay online newspapers from January 2017 to April 2018, showed that all identified 256 articles on local or international reported cases of suicide or suicide attempt had explicitly stated methods of suicide while merely 15 articles (6.1%) provided information on helplines for a suicidal crisis.

There have been ongoing efforts to improve the interdisciplinary collaboration of involved stakeholders and engagement between the media as well as to improve awareness of the importance of implementing our local media guidelines. For example, a symposium entitled ‘Suicide Prevention and the Media: Engagement and Partnership’, organized by the Malaysian Psychiatric Association was held on 19 July 2018 during the 22nd Malaysian Conference of Psychological Medicine in Kuala Lumpur, Malaysia. Speakers and forum panellists included MHPs from the MOH and MOE, a representative of Mindframe, an Australian governmental organization with a specific focus on media and suicide prevention, as well as a journalist of a local newspaper with lived experience of mood disorder. Participants included MHPs, NGOs and representatives from the media industry (newspapers) as well as social media. Topics that were discussed included the impact of media reporting of suicide on suicide prevention, the Malaysian public health perspective on suicide rates and implementation of responsible media reporting on suicide, local experience of engagement and collaboration with the media on general mental health advocacy from an academician’s perspective, as well as the media’s perspective on priorities and challenges in terms of reporting of suicide. Mindframe presented their extensive engagement with the media and sectors that influence the media i.e. universities delivering journalism and public relations, media, the Australian mental health and suicide prevention sector, police and courts, stage and screen. Such work has translated into implementing behaviour change for responsible reporting of suicide in Australia. The challenge in containing the ubiquity of unregulated dissemination of suicide news on social media by the general public at large was also discussed.

**Future recommendations**

Despite the challenges in the implementation and adherence of responsible media reporting of suicide media guidelines in Malaysia, there are potential windows of opportunities to engaging all stakeholders in targeting specific suicide preventive strategies in this area of collaboration with the media. Firstly, a robust database needs to be established in terms of accurate reporting and surveillance of suicide rates in Malaysia. This is essential in order to measure interventional outcomes and to examine the level of evidence for suicide preventive strategies. Thus, increased intersectoral and inter-ministral efforts need to be stepped up with the
support of required resources and funding from governmental policy-makers and NGOs. The level of awareness of the importance of responsible media reporting of suicide also needs to be increased not only among the mental health community, policy-makers and the media, but also in the general public. Strategies like forum discussions, media training workshops and various other awareness campaigns should be carried out, not just short-term but long-term for sustained effectiveness. The role of legislature and regulatory bodies to oversee adherence to guidelines for responsible reporting and portrayal of suicide is also an issue to consider in terms of the balance between benefits (stricter adherence) versus drawbacks (counterproductive restriction of freedom of press). Future translational research is warranted to establish the evidence base for effective implementation and sustainability of strategies to ensure responsible media reporting of suicide in Malaysia.

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