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Depression is one of the most common disorders. According to the World Health Organization (WHO), depression is affecting almost 350 million of people in the world. It has been postulated that by the year 2020, depression is the second most disabling disease. The most common cause of suicide is depression. However, depression is frequently undetected and untreated. Similarly, depression is still far behind being researched. Cancer which is known to cause loss of life, has been given the highest funding either in research or health promotion & prevention or treatment unlike depression. In Malaysia, similar scenario is happening. Research in depression is still lacking. The National Morbidity Survey in 2011 reported the prevalence of depressive disorder as 1.8%. This figure is low as compared to the prevalence of depression reported in the developed countries. The difference may be explained by the culturally sensitive issues related to each ethnic which may have defined depression differently. The depression screening scales needed to be translated and validated to the main languages used. The common assessment tools used in Malaysia were Beck Depression Inventory (BDI), Depression, Anxiety and Stress Scale (DASS), Patient Health Questionnaire 9 (PHQ-9) and Hospital Anxiety and Depression Scale (HADS).

We need more research in depression and out-put to be published. Focus on both gender is needed even though many researchers reported that women and men showed different rates of mental illness. Currently there is still lack of study on depression in men. There is possibility that men expressed depression differently and cope in a different way compared to the women. This needs further research.

References

1. Ledford H. Medical research: if depression were cancer. Nature 2014; 515: 182-184
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ORIGINAL PAPER

Substance Misuse Among Patients Having Schizophrenia and Its Effect on Their Clinical and Functional Status

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²Dept of Psychiatry, All India Institute of Medical Sciences, New Delhi, India

Abstract

Objective: Substance misuse is the most common co-morbid problem among schizophrenic patients which results in frequent relapses, high positive symptoms, cognitive impairment and poor outcome. The aim of the study was to examine the prevalence of substance misuse among patients having schizophrenia and its effect on their clinical and functional status. Methods: In a cross sectional survey, 120 adult patients diagnosed with schizophrenia and their family members in out patient psychiatry clinic of AIIMS, New Delhi were selected conveniently. Socio-demographic Schedule, Clinical Profile Sheet, Mini-International Neuropsychiatric Interview (MINI), Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), Positive and Negative Syndrome Scale (PANSS) and Disability Assessment Schedule II (WHODAS II) were used to collect data. Results: Half (49.1%) of patients were current substance users with nearly one third (30%) poly substances users. The most common substances misused were nicotine, alcohol and cannabis. A little over half (54%) of current users were dependent or at high risk. Most of current substance users were male, paid worker, stayed in rural area, had late age of onset of schizophrenia, irregular with follow up and non-complaint to their psychiatric treatment regimen. No difference was found in never, past and current substance users on PANSS subscales. Difficulty in abstract thinking and poor impulse control was found in current substance users with good physical and social functioning. Conclusions: High substance misuse was found among schizophrenic patients. The potential effect of substance misuse identifies in this study may be helpful for designing and implementing preventive and corrective measurers.

Keywords: Substance Misuse, Current Users, Clinical Status, Functional Status, Schizophrenia
Introduction

Substance misuse disorder is by far the most common co-morbid problem among patients having schizophrenia and involves the misuse of nicotine, alcohol, cannabis, cocaine, stimulants, anxiolytics and others. Over the lifetime course of schizophrenia, approximately one-half of all patients experience a co-occurring substance misuse disorder which is shockingly very high as compared to general population. Lifetime prevalence of overall substance misuse (harmful use, abuse and dependent) is typically between 40% to 73% in schizophrenic patients with 12% to 87% of current use. Indian studies report that 38% of the patients having schizophrenia are current cigarette smokers where as 11.23% are misusing cannabis currently.

Co-morbidity of schizophrenia and substance misuse results in exacerbation of symptoms, frequent relapses, more neuro-cognitive impairment, poorer outcome, and reduced treatment compliance. Substance user patients experience more EPS (Extra Pyramidal Symptoms) to antipsychotics medications and require hospital readmissions. These patients are at high risk of suicide and violence due to high impulsivity and aggression.

Empirical data do not document a consistent relationship between substance misuse and functional status. Some studies report that co-morbidity of substance misuse in schizophrenia results in lower functional status, poor social adjustment, high psychosocial burdens and more likely to have medical, legal and social problems. On the contrary, Thomas et al report no relationship between substance misuse and functioning in schizophrenic patients. Some studies support that substance misuse in schizophrenia results in good functional outcome with more social contacts, but these studies have used variable measures of substance use and abuse.

In summary, drug and alcohol misuse by patients with schizophrenia has become one of the most significant problems facing agencies and clinicians involved in their treatment. Literature illustrates very few studies about substance misuse in patients having schizophrenia which are not focused to assess the impact of substance misuse on their clinical and functional status at one point of time. Also available researches report the contrary findings about the effects of substance misuse on clinical and functional status of patients having schizophrenia which prompt researchers to take this project.

The study aim is to assess the prevalence of substance misuse among patients having schizophrenia and to identify its impact on their clinical status and functional status. The finding of the present study will provide baseline data to plan for interventional strategies to improve clinical and functional status of patients with a view to improve treatment outcomes for the long term management of patients having schizophrenia especially the subgroup that is misusing substances.

Methods

Design and setting
A cross sectional survey was conducted at out-patient clinic of Department of Psychiatry at All India Institute of Medical Sciences (AIIMS), New Delhi- a tertiary care referral centre located in northern India.

Sample
A sample of convenience was chosen for the study. Adult patients (18-65 years) seeking
treatment/follow-up who were diagnosed as schizophrenia as per the ICD-10 (DCR) criteria by the treating psychiatrist and Mini International Neuropsychiatric Interview (MINI) by the researchers were recruited for the study. One-hundred and twenty stable (dose of medication had not been altered by more than 50% in the last three months) and willing (to participate) patients who had accompanying family member were included for data collection. Patient who had co-morbid debilitating chronic medical-surgical illness, mental retardation or had organic mental disorder were excluded.

One-hundred and twenty adult (18-65 years) family members were also included in study because self-administered, proxy version of World Health Organization Disability Assessment Schedule II (WHODAS II) was used to measure the functional difficulties patients might have due to schizophrenia.

Substance misuse was defined as use of a psychoactive substance for a purpose not consistent with legal or medical guidelines, as in the non-medical use of prescription medications. A patient having schizophrenia who never used any kind of substance in his/her life was defined as ‘never user’. Those who misused substances in the past but not in the last three months were defined as ‘past user’ where as misusing substances in the last three months were defined as ‘current user’. Family member was defined as an adult relative who was staying with the patient for at least 15 days in the last month and involved in patient care.

Data collection procedure
Firstly, 142 schizophrenic patients and their family members were screened with inclusion and exclusion criteria. Subsequently, 120 eligible patients and their family members were explained the purpose of the study and informed written consent was obtained. Patients were assessed on either in Hindi or English version of the assessment tools for data collection. Then, family member was assessed on Hindi or English version of WHODAS II. Appropriate referral was made for those patients who were misusing the substances. The study protocol was approved by the Institutional Ethics Committee of AIIMS, New Delhi.

Measures
The main survey instrument consisted of two parts: interviewer administered instruments for the patient (tool no. 1 to 5) and a self-administered rating scale (tool no. 6) for family member.

1. Structured Demographic Schedule
Structured Demographic Schedule was developed by researchers to record socio-demographic details of the patient. It was a 10 items structured questionnaire which included age of the patient, sex, marital status, religion, number of years of formal education, current employment status, occupation, annual household per capita income, type of family and place of stay.

2. Clinical Profile Sheet
Clinical Profile Sheet was developed by researchers to measure the psychiatric illness and substance use history. It had two parts: Part one of the tool contained fifteen items on Psychiatric Illness History which were age of onset of schizophrenia, type of onset and course, total numbers of episodes, total duration of schizophrenia, history of psychiatric hospitalization, family history of psychiatric illness, family history of substance misuse, presence of co-morbid psychiatric illness, presence of co-morbid medical illness, current psychotropic medication with dose and route, other medication, side effects of psychiatric medication experienced in last three months,
duration of follow up, follow up in last six months and history of non-compliance of psychiatric medication in last six months.

Part two of the tool contained two items on Substance Use History which were age of first misuse of various substances and age of dependent use (drug dependency was assessed with six criteria of ICD-10). Content validity of the Structured Demographic Schedule and Clinical Profile Sheet was established by experts from psychiatry. The reliability was established through test retest method (r =1).

3. Mini-International Neuropsychiatric Interview (MINI)
MINI was selected for a short and accurate diagnosis of schizophrenia. Module L of MINI was used which has ten items. The MINI is a structured and standardized instrument with acceptably high validation and reliability scores. Inter-rater reliability coefficient for MINI was r =0.9.

4. Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)
The ASSIST was used to screen the patients for hazardous, harmful and dependent use of psychoactive substances. It categorized patients in to three groups; never user, past user and current user. It is a standardized, brief and eight items questionnaire which provides information about the substances people had ever used in their lifetime, the substances they had used in the past three months, risk of current or future harm, dependence and injecting drug use. It has a high internal reliability with correlation ranging from 0.76 to 0.84 (p<0.01). Patients who score 1 to 3 are defined as low risk and require no intervention (except for alcohol, score is < 10). Patients those score between 4 to 26 are defined as moderate risk where as patients with more then ≥27score are defined as high risk. The test retest reliability coefficient was r =1.

5. Positive and Negative Syndrome Scale (PANSS)
The PANSS was used to identify the symptoms severity and psychopathology of schizophrenia. It is a 30 item standardized scale which is designed for individuals with schizophrenia and is rated on a seven-point continuum (1=absent, 7=extreme). The assessment provides separate clinical domains of positive symptoms, negative symptoms and general psychopathology symptoms. High scores indicate more impairment in clinical psychopathology. Validity and reliability were established (r =0.83), coefficient analysis showed a high internal reliability and homogeneity with coefficients ranging from 0.73 to 0.83. The Inter-rater reliability coefficient was r =0.82.

6. World Health Organization Disability Assessment Schedule II (WHODAS II)
The WHODAS II was selected to understand the difficulties and disabilities patient might have due to schizophrenia with or without co-morbid substance misuse. It is standardized interview tool. We used the 36-items, self-administered, proxy version which allow someone (in our study, only family member) other than the patient to provide their evaluation of the patient’s difficulties with functioning (doing the activities). These items are categorized into six domains. High scores indicate more difficulties in functioning. Internal consistency reliability coefficient was r =0.90. The test–retest reliability coefficient was r =0.84.

Analytical approach
Statistical analyses were performed with statistical package STATA 9.1 (Stata Corp) version. Descriptive statistics i.e. mean, median, percentage, range and standard
deviation were used to describe and synthesize data. Differences between the three groups (current, past and never users) were analyzed using a one-way analysis of variance (ANOVA) or Independent t-test for continuous variables like age, age of 1st substance misuse etc. If sample was not following normal distribution, Kruskal-Wallis and Wilcoxon rank-sum test was used (years of formal education, annual household income, age of onset of schizophrenia, PANSS subscales, WHODAS II etc). Contingency table and Chi-square test or Fisher’s exact test (F<5 in any cell/N=<30) were used for categorical variables like sex, marital status, religion etc. To correlate the selected variable, Spearman’s or Pearson’s correlation test was used.

**Results**

All the 120 patients were categorized in to never, past and current user groups by ASSIST questionnaire. Table 1 and table 2 compared the socio-demographic characteristics of the never, past and current user groups which shows that most of current substance users were male ($\chi^2=44.9$, d.f=2, p= 0.001), paid worker ($\chi^2=41.5$, d.f=4, p= 0.001) and stayed in rural area ($\chi^2=7.14$, d.f= 2, p= 0.02).

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**Table 1. Distribution of the Patients According to their Socio-demographic Characteristics in Never, Past or Current User Group**

<table>
<thead>
<tr>
<th>Socio-demographic characteristics</th>
<th>‘Never User’ (n=39)</th>
<th>‘Past User’ (n=22)</th>
<th>‘Current User’ (n=59)</th>
<th>F/H</th>
<th>d.f.</th>
<th>p</th>
<th>Total N= 120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in Years</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>F=2.01</td>
<td>2</td>
<td>0.13</td>
<td>33.8 (10.9)</td>
</tr>
<tr>
<td></td>
<td>31.35 (9.99)</td>
<td>33.09 (14.24)</td>
<td>35.77 (9.97)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Years of formal education</td>
<td>10.87 (4.2)</td>
<td>11.77 (3.2)</td>
<td>10.3 (5.2)</td>
<td>H=1.56</td>
<td>2</td>
<td>0.45</td>
<td>10.78 (4.6)</td>
</tr>
<tr>
<td>Annual household / capita income</td>
<td>29630 (19715)</td>
<td>36290 (29324)</td>
<td>29113 (27814)</td>
<td>H=3.1</td>
<td>2</td>
<td>0.21</td>
<td>30597 (25697)</td>
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</tbody>
</table>

* p<0.05

**Table 2. Distribution of the Patients According to their Socio-demographic Characteristics in Never, Past or Current User Group**

<table>
<thead>
<tr>
<th>Socio-demographic characteristics</th>
<th>‘Never User’ (n=39)</th>
<th>‘Past User’ (n=22)</th>
<th>‘Current User’ (n=59)</th>
<th>$\chi^2$</th>
<th>d.f.</th>
<th>p</th>
<th>Total N= 120</th>
</tr>
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<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
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<td></td>
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<tr>
<td>Male</td>
<td>18 (46.2)</td>
<td>21 (95.5)</td>
<td>58 (98.4)</td>
<td>44.9</td>
<td>2</td>
<td>0.001**</td>
<td>97 (80.8)</td>
</tr>
<tr>
<td>Female</td>
<td>21 (53.8)</td>
<td>1 (4.5)</td>
<td>1 (1.6)</td>
<td></td>
<td></td>
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<td>23 (19.2)</td>
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<td>Married</td>
<td>16 (41)</td>
<td>7 (31.8)</td>
<td>33 (56)</td>
<td></td>
<td></td>
<td></td>
<td>56 (46.6)</td>
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<tr>
<td>Unmarried</td>
<td>18 (46.1)</td>
<td>14 (63.6)</td>
<td>23 (39)</td>
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<td></td>
<td>55 (45.8)</td>
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<td>Divorced/widow</td>
<td>5 (12.9)</td>
<td>1 (4.6)</td>
<td>3 (5)</td>
<td>6.7</td>
<td>4</td>
<td>0.16</td>
<td>9 (7.6)</td>
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<tr>
<td>Hindu</td>
<td>34 (87.2)</td>
<td>22 (100)</td>
<td>55 (93.2)</td>
<td></td>
<td></td>
<td></td>
<td>111 (92.5)</td>
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</table>
Prevalence of substance misuse

Nearly half (49.1%, n=59) of the schizophrenic patients were current substance users where as 18% (n=22) of the patients were past users. Thus total 67.1% (n=81) of the patients ever misused any kind of substance in their life. Nicotine (91.5%, n=54) was the most commonly used substance by current users followed by alcohol (30.5%, n=18) and cannabis (15.2%, n=9). Three fifth (61%, n=36) of the current user patients were using only nicotine where as one third (30%, n=18) patients were poly substance users. Ever use of the opioids, inhalants and sedatives was very low (4%, 1% and 4%, respectively). One percent of the patients was using sedatives currently and no one was using opioids and inhalants currently.

The mean age of patients at the time of 1st substance misuse was 18.98 years (SD=±5.7) which was not different between past and current user group (t=0.9, d.f.=79, p=0.5). Out of 59 current user, 54% (n=32) were dependence users.

Comparison of the clinical status

As shown in table 3 and table 4, current substance users had late age of onset of schizophrenia (H= 8.95, d.f.=2, p= 0.02), irregular with OPD follow up (χ²= 26, d.f.=2, p= 0.001) and non-complaint to their psychiatric treatment regimen (χ²= 18.6, d.f.=2, p= 0.001).

### Table 3. Comparison of Clinical Status between ‘Never User’, ‘Past User’ and ‘Current User’ Patients

<table>
<thead>
<tr>
<th>Clinical characteristics</th>
<th>‘Never User’ (n=39)</th>
<th>‘Past User’ (n=22)</th>
<th>‘Current User’ (n=59)</th>
<th>H</th>
<th>d.f.</th>
<th>p</th>
<th>Total N=120</th>
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<tr>
<td>Age of onset of schizophrenia</td>
<td>Mean (SD)</td>
<td>Mdn</td>
<td>Mean (SD)</td>
<td>Mdn</td>
<td>Mean (SD)</td>
<td>Mdn</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td></td>
<td>23.69 (8.09)</td>
<td>22</td>
<td>24.63 (9.88)</td>
<td>21</td>
<td>28.45 (9.47)</td>
<td>26</td>
<td>8.95</td>
</tr>
</tbody>
</table>
Table 4. Comparison of Clinical Status between ‘Never User’, ‘Past User’ and ‘Current User’ Patients

<table>
<thead>
<tr>
<th>Clinical characteristics</th>
<th>‘Never User’ (n=39)</th>
<th>‘Past User’ (n=22)</th>
<th>‘Current User’ (n=59)</th>
<th>χ²</th>
<th>d.f.</th>
<th>p</th>
<th>Total N= 120</th>
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<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
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<td>Diagnosis by MINI</td>
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<tr>
<td>Life time</td>
<td>21 (53.8)</td>
<td>13 (59.1)</td>
<td>22 (37.3)</td>
<td></td>
<td></td>
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<td>56 (46.6)</td>
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<tr>
<td>Current</td>
<td>18 (46.2)</td>
<td>9 (40.9)</td>
<td>37 (62.7)</td>
<td>4.2</td>
<td>2</td>
<td>0.12</td>
<td>64 (53.4)</td>
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<td>Type of onset of</td>
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<td>schizophrenia</td>
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<tr>
<td>Abrupt</td>
<td>6 (15.4)</td>
<td>5 (22.7)</td>
<td>7 (11.8)</td>
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<td>18 (15)</td>
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<td>Acute</td>
<td>8 (20.5)</td>
<td>9 (40.9)</td>
<td>24 (40.7)</td>
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<td>41 (34.2)</td>
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<td>Insidious</td>
<td>25 (64.1)</td>
<td>8 (36.4)</td>
<td>28 (47.5)</td>
<td>6.8</td>
<td>4</td>
<td>0.14</td>
<td>61 (50.8)</td>
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<td>Course of illness</td>
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<tr>
<td>Continuous</td>
<td>23 (59)</td>
<td>10 (45.4)</td>
<td>28 (47.4)</td>
<td></td>
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<td>61 (50.8)</td>
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<td>42 (35.3)</td>
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<td>11 (50)</td>
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<td>2 (9.1)</td>
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<td>9 (7.5)</td>
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<td>Side effects of drugs</td>
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<td>&lt;Monthly</td>
<td>7 (18)</td>
<td>3 (13.6)</td>
<td>5 (8.5)</td>
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<td></td>
<td></td>
<td>15 (12.5)</td>
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<tr>
<td>Monthly</td>
<td>16 (41)</td>
<td>10 (45.5)</td>
<td>29 (49.1)</td>
<td></td>
<td></td>
<td></td>
<td>55 (45.8)</td>
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<tr>
<td>&gt;Monthly</td>
<td>16 (41)</td>
<td>9 (40.9)</td>
<td>25 (42.4)</td>
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<td>4</td>
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<td>50 (41.7)</td>
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<td>Follow up in last 6 months</td>
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<td>as advised (as per records)</td>
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<td>Irregular</td>
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<td>7 (31.8)</td>
<td>39 (66.1)</td>
<td></td>
<td></td>
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<td>52 (43.4)</td>
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</tbody>
</table>
History of non compliance with psychiatric medication regimen

<table>
<thead>
<tr>
<th>History of non compliance with psychiatric medication regimen</th>
<th>33 (84.6)</th>
<th>15 (68.2)</th>
<th>20 (33.9)</th>
<th>26 (2)</th>
<th>0.001**</th>
<th>68 (56.6)</th>
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</thead>
<tbody>
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<td>34 (87.2)</td>
<td>13 (59.1)</td>
<td>26 (44.1)</td>
<td>73</td>
<td>(60.8)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5 (12.8)</td>
<td>9 (40.9)</td>
<td>33 (55.9)</td>
<td>18.6</td>
<td>2</td>
<td>0.001**</td>
</tr>
</tbody>
</table>

*p<0.05 **p<0.01

**Table 5.** Comparison of Severity of Symptoms between ‘Never User’, ‘Past User’ and ‘Current User’ Patients

<table>
<thead>
<tr>
<th>Severity of illness of the patients</th>
<th>Groups of patients</th>
<th>'Never User' (n=39)</th>
<th>'Past User' (n=22)</th>
<th>'Current User' (n=59)</th>
<th>H</th>
<th>d.f.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive symptoms</td>
<td></td>
<td>13.2 (5.4)</td>
<td>12</td>
<td>11.9 (5.7)</td>
<td>9.5</td>
<td>14.2 (5.9)</td>
<td>3.3</td>
</tr>
<tr>
<td>Negative symptoms</td>
<td></td>
<td>19.4 (7.0)</td>
<td>19</td>
<td>17.8 (7.4)</td>
<td>20</td>
<td>20 (7.3)</td>
<td>19</td>
</tr>
<tr>
<td>General psychopathology symptoms</td>
<td></td>
<td>34.8 (11.3)</td>
<td>31</td>
<td>30.4 (10.1)</td>
<td>29.5</td>
<td>34.7 (11.7)</td>
<td>34</td>
</tr>
<tr>
<td>Total PANSS score</td>
<td></td>
<td>67.3 (21.2)</td>
<td>63</td>
<td>60.5 (19.8)</td>
<td>60</td>
<td>69.6 (20.1)</td>
<td>69</td>
</tr>
</tbody>
</table>

*Table 5 shows that no association of substance use was found in never, past and current user groups with the positive symptom, negative symptoms, general psychopathology symptoms and total symptoms severity on PANSS. But when individual analysis of 30 items of PANSS was done, we found that current substance user had the difficulty in abstract thinking (H= 6.9, d.f.=2, p= 0.03) and poor impulse control (H= 6.8, d.f.=2, p= 0.03) as compared to past and never user.

Further we did the comparison of severity of symptoms of the patients on PANSS with each substance use, we found that those patients who were using high nicotine (score >26) had significantly high negative symptoms (H= 6.4, d.f.=2, p= 0.04), general psychopathological symptoms (H= 8.8, d.f.=2, p= 0.01) and total symptoms severity (PANSS score) (H= 7.0, d.f.=2, p= 0.02) (shown in table No. 6). We could not find any association between PANSS total symptoms severity with alcohol (Z= -1.5, p= 0.8) and cannabis (Z= -0.1, p= 0.9) misuse.

**Comparison of the functional status**

**Table 6** shows that ‘never user’ group of patients had significant disability in their life activities domain of WHODAS II (H= 8.7, d.f.=2, p= 0.01). No significant differences were found with reference to remaining five domains of WHODAS II in all the three groups of patients. When we compared the total functional status (WHODAS II score) between three groups, we found that ‘never user’ group of patients had significant high disability in their overall functioning and activities (H= 7.6, d.f.=2, p= 0.02).

Further we did the comparison of total functional status of the patients in low, moderate and high risk groups with nicotine use, we found that patients with moderate nicotine use had significant lesser disability...
in overall functioning (H= 15.7, d.f.=2, p=0.0004). For alcohol and cannabis, we found that patients with moderate to high alcohol (Z= 2.1, p= 0.03) or cannabis (Z= 2.0, p= 0.03) use had lesser disability in their overall functioning, respectively.

Table 6. Comparison of Functional Status between ‘Never User’, ‘Past User’ and ‘Current User’ Patients

<table>
<thead>
<tr>
<th>Domains of functioning (WHODAS)</th>
<th>Groups of patients</th>
<th>H</th>
<th>d.f.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>‘Never User’ (n=39)</td>
<td>‘Past User’ (n=22)</td>
<td>‘Current User’ (n=59)</td>
<td></td>
</tr>
<tr>
<td>1. Understanding and communicating</td>
<td>Mdn 7</td>
<td>Mdn 4</td>
<td>Mdn 5</td>
<td>4.9</td>
</tr>
<tr>
<td>2. Getting around</td>
<td>Mdn 4</td>
<td>Mdn 2.5</td>
<td>Mdn 2</td>
<td>5.5</td>
</tr>
<tr>
<td>3. Self care</td>
<td>Mdn 2</td>
<td>Mdn 1</td>
<td>Mdn 1</td>
<td>2.6</td>
</tr>
<tr>
<td>4. Getting along with people</td>
<td>Mdn 4</td>
<td>Mdn 5</td>
<td>Mdn 4</td>
<td>1.0</td>
</tr>
<tr>
<td>5. Life activities</td>
<td>Mdn 10</td>
<td>Mdn 5</td>
<td>Mdn 5</td>
<td>8.7</td>
</tr>
<tr>
<td>6. Participation in society</td>
<td>Mdn 13</td>
<td>Mdn 11</td>
<td>Mdn 11</td>
<td>2.8</td>
</tr>
<tr>
<td>Total functional status (WHODAS)</td>
<td>43.4</td>
<td>29.2</td>
<td>32.6</td>
<td>7.6</td>
</tr>
</tbody>
</table>
*p<0.05

Correlation of substance misuse with selected variables

A moderate negative correlation was found between nicotine use and functional status in ‘past user’ group (r= -0.4243, p=0.04) which means that high nicotine use improves the patient’s functional status. High positive correlation was found between symptoms severity on PANSS and functional status in never, past and current user groups (p=0.0001, p=0.001, p=0.0001) respectively which means high clinical symptoms severity results in high impairment in functioning among patients. A moderate negative correlation was found between age of onset of schizophrenia and functional status of the patients in ‘current user’ group (r= -0.3386, p=0.0087) which shows that current substance users who had late onset of schizophrenia had less impairment in functioning.

Discussion

To our knowledge, this is the first study to examine the prevalence of substance misuse among patients having schizophrenia and their associations with two important dimensions: clinical status and functional status at one point of time. Our results suggest that the mean age of the patient in the ‘never user’, ‘past user’ and ‘current user’ groups were not significantly different. On the contrary, in previous studies, the substance using patients were younger than non users and it was reported that substance use precipitated the symptoms of schizophrenia. The reason for the difference between previous and present study are not immediately apparent.

In the present study, most of substance users (in past and current user groups) were male which is consistent with previous findings. The possible reason might be the Indian culture in which substance use by women is not socially accepted. Most of the women in the present study were homemakers and they might not have ready access to substances. We found that substance user patients were paid worker. The difference could be due to the fact that the most of the women (n=21, 91%) were in ‘never user’ group and they were working as homemaker (non-paid work).
Paid work might be assisting substance user by providing more opportunities and better financial and social recourses to access substances for misuse.

In the present study, marital status, religion, annual household per capita income, current employment status and type of family of the patients in all the three groups were not found to be significantly different. So these variables are poor predictors of substance misuse. Similar findings were also found in the studies reviewed.8,23,44,45 Our results suggest that patients who stayed in rural areas were more likely to misuse substance currently. The probable reasons might be non-availability of the antipsychotic medication at the rural chemist shop or the patients might not have sufficient money to purchase the costly psychiatric medications. Long distance between their home and the treatment center (AIIMS) might also be a hurdle. These reasons might result in substance use by the patients to manage their disease symptoms. On the contrary, place of stay was not significantly associated with substance misuse in western studies.8,23,44,45

Present study showed high prevalence (49.1%) of the current substance misuse by the patients, where as 18.3% were past users. This is in line with published national and international data3,4,6,7,10,12,13,24,27,29,36,42,43,44 indicating nearly 50% of the patients misused substance. This prevalence is very high as compared to general population in India as projected in National Household Survey5,46 and other Indian studies.47,48,49. As reported in the most of the previous studies, this study also suggest that nicotine was the most frequently used substance by the patients having schizophrenia followed by alcohol and cannabis use in both ‘ever user’ and ‘current user’ groups.3,4,20,34,44

Psychoactive substances like cocaine, amphetamine and hallucinogens were not used by our patients as these substances are not commonly available in the Indian market. Patients coming to the center (AIIMS) are probably unable to access these substances. Drug choice might depend on the availability of the various illicit drugs in the geographical environment of the patients.

Nearly 54% of current users were dependent or at high risk of becoming dependent and probably experiencing health, social, financial, legal and relationship problems as a result of their substance misuse. These patients required intensive interventions.

The findings of this study seem to indicate that substance misuse was associated with later onset of schizophrenia. Previous studies3,23,29,35,36,41,42,43 had reported contrary results that substance users were younger and early onset of schizophrenia may be precipitated by the substance misuse. However, outcome studies like IPSS and DOSMED etc. have also shown that findings regarding schizophrenia in developed and developing countries can run contrary to expectation and underlie the need to have those studies in developing country populations.

In our study, the start of the substance misuse preceded the onset of schizophrenia by several years in most of the patients, which seem to contradict the self-medication hypothesis. However, as pointed out by other authors, it is possible that substance misuse improves some latent symptoms experienced by the patients before the onset of schizophrenia.

In previous studies23,24,33 it was found that substance users were hospitalizing more often as compared to non users but this was not found in the current study. The reason
might be low availability of the inpatients recourses and also stigma associated with the hospitalization due to psychiatric illness (schizophrenia) in Indian society. S Potvin et al\textsuperscript{22} reported that schizophrenia patients with a co-morbid substance use disorder displayed more EPS compared with non-abusing patients but we did not find it.

In this study, current substance users were irregular with their OPD follow up in last 6 months as advised and were non-compliant to psychiatric medication regimen. The possible reason could be that they might be self-medicating with substances themselves at their homes. Similar results were found in previous studies.\textsuperscript{4,15,21}

We did not found any difference on clinical symptoms of PANSS sub-scales and total symptoms. Similar findings were reported by other researchers\textsuperscript{28,50} which argues against the notion that the substance using patients were self-medicating their symptoms of schizophrenia. The reason of this finding could be that the substance users may use less amount of substance which effects can not be visualized clinically. Other researcher reported contradictory view on this issue in which few reported increase in psychotic symptoms\textsuperscript{4,14,15,33} due to their substance use where as some reported that substance use might attenuate negative symptoms.\textsuperscript{10,20,26}

However difficulty in abstract thinking and poor impulse control were significantly high in current substance users which is in line with previous studies.\textsuperscript{15,28} This could be explained in two ways: 1) Schizophrenia results in high impulsivity and impairment in abstract thinking which might lead to substance use. 2) Substance misuse by patients might worsen the abstract thinking and may cause high impulsivity which are also the characteristics of schizophrenia.

This study suggest that high nicotine users patients had more difficulties in negative symptoms, general psychopathological symptoms and total symptoms severity where as there was no effect of alcohol and cannabis on these symptoms. The smaller sample in the later groups may have obscured true positive findings.

An other important observation in this study was made that substance using patients (current and past) had significant good functional status as compared to ‘never user’ patients. Patients using substances reported less disability and fewer difficulties in life activities domain of WHODAS. This result was consistent with findings of Salyers and Mueser\textsuperscript{35} and Marvin S et al.\textsuperscript{9} This might be because a certain level of initiative, organization and contact is a precondition for engaging in drug-involvement and procuring licit and illicit substances by the patients. The other reason might be level (amount) of involvement by the patients with substance (for example, abuse and dependence as compared to use). Low level of involvement may elevate mood and functioning of the patients without showing impairment in clinical psychopathology. Higher functional status among substance user was also reported by Drake and colleagues\textsuperscript{51} that substance use by the patients having schizophrenia reflects immersion of this population in neighborhoods and peer social network in which drugs are used. Opposite findings were reported by some researchers\textsuperscript{20,31,32,34} that substance use worsens socio-occupational functioning and causes high psychosocial burden in patients having schizophrenia.

**Conclusions**

Half (49.1\%) of patients having schizophrenia were current substance users.
The most common substances used by the patients were nicotine, followed by alcohol and cannabis. A little over half (54%) of current users were dependent or at high risk of becoming dependent and these patients require intensive interventions. Most of current substance users were male, paid worker, stayed in rural area, had late age of onset of schizophrenia, irregular with OPD follow up and non-complaint to their psychiatric treatment regimen. Difficulty in abstract thinking and poor impulse control was found in patients misusing substances currently. Good physical and social functioning was found in patients misusing substances currently.

Implications

Patient and caregivers has to be given psycho-education about the treatment of schizophrenia, high risk of substance misuse in illness, its effects on outcome, importance of treatment adherence and regular follow up, so that the risk of substance use by the patients can be minimized. A standard protocol can be developed for counseling.

Recommendations

Future research can be done with longitudinal designs that examine the effects of substance abuse on schizophrenia patients’ symptoms, neurocognition and functional outcome. Objective methods for assessing substance misuse can be used to confirm current substance use.

Limitations

Study is limited in several ways. Firstly, these cross sectional data can not actually demonstrate casual connection between variables; rather they show statistical associations which may be consistent with several casual formulations. Secondly, we used the convenience sampling method which reduces the subjects to be equally selected for the study, irrespective of their substance use. Thirdly, we did not use any laboratory assays (urine or hair sample) to detect substance use. As a result, findings regarding substance uses were solely depending on self-report than the estimate of substance use. It is great possibility that participant did not revealed true information (due to stigma associated with substance use) regarding their type and pattern of substance use which might result in under estimate of prevalence on substance use. In addition, we did not ask participants to estimate their consumption of substance which unable us to make finer-grained distinction about the level of consumption of each substance. Finally, participants in the present study may not be representative of all people with schizophrenia- particularly those who were not coming for regular follow-up were at highest risk for substance use.

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None

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Self

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Linking Personality Dimensions, Imprisonment Status and Type of Crime to Anxiety and Depression Among Prison Inmates

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Department of Mental Health, University of Benin Teaching Hospital, Benin City, Nigeria

Abstract

Objectives: This study examined how inmates’ personality, imprisonment status, and type of crime committed contribute to anxiety and depression in a sample of jail inmates in a Nigerian prison. Methods: A total of 252 (228 male and 24 female) participants were selected through stratified sampling technique at the Benin Prison. The mean age was 33.66 years (SD = 9.50). Anxiety and depression were measured by Hospital Anxiety and Depression Scale (HADS), while personality dimensions were measured using the Big Five Inventory (BFI) and a self-designed, semi-structured questionnaire to elicit various demographic variables. Descriptive analysis, regression analysis, one-way analysis of variance and t-test for independent sample were applied for statistical analysis. Results: The results show that neuroticism significantly independently predicted anxiety and all the personality factors, as predictor variables, jointly predicted anxiety. Further, openness to experience significantly independently predicted depression. The prison inmates who were on death row were significantly more anxious than the inmates serving the short-term prison sentence. Lastly, the inmates who were incarcerated based on violent crime were significantly more anxious than the inmates who were incarcerated based on non-violent crime. Conclusions: Mental health professionals involved in the psychological treatments of anxiety and depression of prison inmates in various correctional facilities should look out for these factors, so as to enhance stable mental health for the prison inmates.

Keywords: Personality Dimensions, Anxiety, Depression, Prison Inmates

Introduction

The Nigerian prisons are very overcrowded. This development has turned out to be a major worry to the prison authorities, the judiciary and the police. Over the years, inmates have outnumbered the capability of prison lockups and services and the prisons are being overstrained. For the 49,000 inmates in several Nigerian prisons (29,000 of whom are awaiting trial, while 806 are on death row) hell cannot be worse.

This overcrowding may well have
undesirable effects on the physical and mental health of prisoners. As there are not sufficient means to take care of inmates, undernourishment and unfortunate health facilities become predominant. This also increases the inmates’ vulnerability to physical attack among themselves.

An association has been established amid crowding and the psychological effects of imprisonment. In 1988, Paulas finalised a fifteen-year study on the effects of prison crowding and revealed that swelling the number of inmates in correctional facilities considerably increased harmful psychological effects, such as, stress, anxiety, tension, depression, hostility, feelings of helplessness, and emotional distress.

Study has made it known that prison inmates display greater heights of anxiety and depression than the general population. Furthermore, the danger or insistent dread of oppression among inmates that is presented in the prison environment can lead to hypervigilance, which is the “sustained heightened cognitive and affective arousal in the service of scanning the environment for threat” and is an important constituent of anxiety-related syndromes. This condition is even most horrible for the prison inmates on death row. Inmates on death row in countries such as Belarus, Botswana and Egypt and Japan, are obscured from the forthcoming execution, establishing a deepened sense of terror and day-to-day uncertainty.

Autonomous investigations by Gunn et al. – including sentenced prisoners–and Maden et al. – including remanded prisoners – conducted in the UK in the early nineties showed a very high frequency rate (27% and 91%, respectively) of neurotic difficulties in the form of disturbed sleep, depression, worry, fatigue and irritability. Comorbidity was present in 25% of the men and in about a third of the women in remand prisons. Both surveys were point prevalence studies conducted on samples of prison inmates.

Anxiety and depression are both defined by high levels of negative affect. However, they are differentiated from each other by two definite factors: positive affects, which is low in depression, and hyper arousal, which is common in anxiety. Kjelsberg et al. approximated that 25% of inmates showed signs of clinical anxiety and 38% showed signs of depression in a Norwegian prison.

Slater devised the exact syndrome of “prison anxiety” to describe the considerable disturbance of inmates to correctional placements. He defined this syndrome as a grouping of tension, irritability, sleeplessness, nightmares, lack of ability to think clearly or concentrate and fear of imminent loss of impulse control. He hypothesized that prison anxiety (1) impairs sleep, concentration, and work; (2) inclines inmates to suicide behaviour, brief psychotic reaction, and psychophysiological reactions. He concluded that prison anxiety was frequently abandoned in psychiatric treatment.

A connection between personality and mental health has been put forward since the time of the olden Greek and psychology has continued to enlarge this belief since the first days of the field. The vulnerability model postulates that traits contribute etiologically to development of mental disorder, that is, personality score can envisage who acquires the condition among formerly stable individuals, whereas the pathology model declares that traits influence the course and severity of the disorder once it develops.
Human personality can be explained in terms of five dimensions, universally assigned as the ‘Big Five’\textsuperscript{15}. They include the following: neuroticism, which is the tendency to experience unpleasant emotions relatively easily; extraversion, which is the tendency to seek stimulation and to enjoy the company of other people; agreeableness, which is also the tendency to be compassionate towards others and not be antagonistic; conscientiousness, the tendency to show self-discipline, to be dutiful, and to strive for achievement and competence; and openness to experience, which may also be the tendency to enjoy new intellectual experiences and new ideas\textsuperscript{16}.

Neuroticism trait scores increased with the occurrence of anxiety disorders\textsuperscript{17}. This finding is in line with other studies which show that neuroticism scores predict subsequent episodes of anxiety disorder\textsuperscript{18-20}. The core of personality trait neuroticism is theorised to be sensitive to negative stimuli\textsuperscript{21}, thereby causing high trait scorers to experience a broad range of negative moods, including fear/anxiety, sad/depression, guilt, hostility and self-dissatisfaction\textsuperscript{22}. Openness to experience was shown to be significantly positively associated with depression\textsuperscript{23,24}. Studies have found neuroticism to increase and extraversion to decrease during depressive episodes, either momentarily\textsuperscript{25,26} or even perpetually in some\textsuperscript{27} but not all studies\textsuperscript{26,28}. A number of studies have found conscientiousness agreeableness and openness to be stable during a depressive occurrence\textsuperscript{29,31}.

This study examined how inmates’ personality, imprisonment status, and type of crime contribute to anxiety and depression in a sample of 252 jail inmates in a Nigerian prison. The paucity of jail mental health services has pushed many correctional facilities to adopt a triage model in which interventions are provided only to people with very severe conditions\textsuperscript{32-34}. As a result, anxiety and depression and other “milder” forms of psychopathology are basically ignored. Additionally, greater understanding of the mental health status of jail inmates under preventive detention may provide useful information for developing crime prevention measures and for successful rehabilitation programmes.

Materials and methods

Study Population
This study was carried out at Benin prison, Benin City, Edo State, Nigeria from July to August, 2013. The study size included 252 prison inmates and ranged in age from 18 to 63 years, with a mean age of 33.66 years (SD = 9.50). The selected prison inmates were made up of 224 males (90.5%) and 28 females (9.5%). Among the prison inmates studied, 149 (59.1) were in prison owing to violent crime (such as murder, armed robbery, kidnapping, and rape), while 103 (40.9) were in prison because of non-violent crime (such as fraud, pick pocketing, burglary, and drug-related offences). Furthermore, in terms of imprisonment status, 103 (42.9%) were awaiting trials, 31 (12.3) were serving short-sentence (< 3 years), 77 (30.6%) were serving long sentence (3 year and above), 9 (3.6%) were serving life sentence, and 27 (10.7) were on death row.

Procedure
Participants for this study were selected from prison inmates at Benin Prison, Benin City, Edo State, Nigeria. The relevant authority at Benin Prison was approached through a detailed letter explaining the purposes of the research and requesting to allow their prison inmates to participate in the research. The request was granted and
the staffs at the Social Welfare Unit of the prison were instructed to assist in the administration of the questionnaire. Participants were selected using stratified sampling technique. The sample was stratified by the categories of imprisonment status (short-term, long-term, lifers and death row) to ensure adequate representation of all offence categories. The test administration for all participants took place in the same waiting room. Each prison inmate was given the same brief explanation of the purposes of the study and what his/her participation entailed. The participants were given the chance to refuse to participate if they felt uncomfortable in completing the measure. Subsequently, each prison inmate was asked to read an informed consent form stating his/her understanding of the investigation and his/her willingness to participate. The prison inmates who were less than 18 years, those who could not read and understand the English language and those undergoing treatment for psychiatric illness were exempted from the study.

Measures
The questionnaire package investigated background data, personality dimensions, levels anxiety and depression. Background variables were gender, age, type of crime and imprisonment status.

Big Five Inventory (BFI): Personality characteristics were measured with the Big Five Inventory (BFI)

Hospital Anxiety and Depression Scale (HADS): This instrument was originally developed by Zymond and Snaith. The HADS is a 14-item scale for the assessment of anxiety and depression. Seven of the items relate to anxiety and seven relate to depression, with each item rated on a 4-point scale. Although initially developed in a hospital setting, the HAD has been shown to be valid and useful in the general population. Bielland et al. through a systematic review of a large number of studies identified a cut-off point of 8/21 for anxiety or depression. Anxiety (HADS – A) gave a specificity of 0.78 and a sensitivity of 0.9. Depression (HADS – D) gave a specificity of 0.79 and a sensitivity of 0.83.

Statistical analysis
The data were analysed using Statistical package for Social Sciences (SPSS version 16.0 for Windows). Apart from descriptive statistics, the analyses included regression analyses to assess the predictive ability of Big Five personality dimensions on anxiety and depression. One-way ANOVA was used to determine the influence of imprisonment status (short-term, long-term, lifers and death row) on anxiety and depression. T-test for the independent sample was used to establish the effects of type of crime (violent crime and non-violent crime) on dependent variables. All statistical tests were considered significant at p < 0.05.

Results
The mean, standard deviation and correlation of variables measured with interval scales and the findings from this study are presented in this section. Table 1 shows a correlation matrix of the important
variables measured in the continuous format in the study.

### Table 1. Correlation Matrixes of Major Variables

<table>
<thead>
<tr>
<th>S/N</th>
<th>Variables</th>
<th>X</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Extraversion</td>
<td>23.77</td>
<td>3.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Agreeableness</td>
<td>30.12</td>
<td>5.88</td>
<td>-.059</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Conscientiousness</td>
<td>28.49</td>
<td>5.60</td>
<td>.134*</td>
<td>.435**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Neuroticism</td>
<td>22.98</td>
<td>4.43</td>
<td>-.175**</td>
<td>-.249**</td>
<td>-.242**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Openness</td>
<td>31.73</td>
<td>5.54</td>
<td>.148*</td>
<td>.413**</td>
<td>.424**</td>
<td>-.109</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Type of Crime</td>
<td>1.41</td>
<td>0.49</td>
<td>.007</td>
<td>.136*</td>
<td>.081</td>
<td>-.090</td>
<td>-.021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Imprisonment status</td>
<td>3.27</td>
<td>1.33</td>
<td>-.110</td>
<td>-.031</td>
<td>.129*</td>
<td>-.048</td>
<td>-.284**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Anxiety</td>
<td>10.94</td>
<td>3.96</td>
<td>-.072</td>
<td>-.195**</td>
<td>-.187**</td>
<td>.251**</td>
<td>-.096</td>
<td>-.217**</td>
<td>.112</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Depression</td>
<td>10.74</td>
<td>3.88</td>
<td>.003</td>
<td>.122</td>
<td>.076</td>
<td>.027</td>
<td>.173**</td>
<td>-.069</td>
<td>-.023</td>
<td>.390**</td>
</tr>
</tbody>
</table>

**P < .01  *p < .05

The finding shows that agreeableness had a negative relationship with anxiety among the inmates (r = - .19, p < .00). The negative relationship of agreeableness with anxiety indicates that the higher the score on agreeableness, the less anxious those prison inmates. Conscientiousness was significantly negatively related to anxiety (r = - .19, p < .00). This finding suggests that the more conscientious the prison inmates, the less their level of anxiety. Furthermore, neuroticism was significantly positively associated with anxiety (r = .25, p < .00). The positive relationship of neuroticism with anxiety indicates that the higher the neuroticism, the more the manifestation of anxiety among the prison inmates. Openness to experience had a positive relationship with depression (r = .17, p < .00). This implies that the more the prison inmates were opened to experience, the more they were depressed. As shown in Table 1, type of crime was significantly negatively related to anxiety (r = - .22, p < .01), suggesting that inmates who committed violent crime manifested increased anxiety than those who were in jail for none-violent crime.

Multiple regression statistics was used to test the independent variables that would yield an optimal predictive equation of anxiety. The independent variables selected were neuroticism, extraversion, and openness to experience, agreeableness and conscientiousness.

### Table 2. Multiple Regression Analysis on Predictive Ability of Personality Dimensions on Anxiety

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>B</th>
<th>T</th>
<th>P</th>
<th>R²</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>-.04</td>
<td>-.04</td>
<td>-.63</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.07</td>
<td>-.11</td>
<td>-1.60</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.06</td>
<td>-.09</td>
<td>-1.26</td>
<td>ns</td>
<td>.09</td>
<td>4.87</td>
<td>0.00</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.17</td>
<td>.19</td>
<td>3.01</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.01</td>
<td>.02</td>
<td>.26</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As shown in Table 2, neuroticism ($\beta = .17$; $t=3.01$; $p <.00$) was the only personality factor that significantly independently predicted anxiety among the prison inmates. This implies that the more neurotic the prison inmates, the greater the tendency to manifest anxiety symptoms. However, all the personality factors as predictor variables jointly predicted anxiety ($F [5, 246] = 4.87; p <.00$) with $R^2 = 0.07$. This indicates that all the predictor variables accounted for 7 percent of the proportion of variance in anxiety among the prison inmates.

Multiple regression statistics was also used to test the independent variables that would yield an optimal predictive equation of depression. The independent variables selected were neuroticism, extraversion, and openness to experience, agreeableness and conscientiousness.

### Table 3. Multiple Regression Analysis on Predictive Ability of Personality Dimensions on Depression

<table>
<thead>
<tr>
<th>Variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$T$</th>
<th>$P$</th>
<th>$R^2$</th>
<th>$F$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>-.04</td>
<td>-.04</td>
<td>-.63</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.07</td>
<td>-.11</td>
<td>-1.60</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.17</td>
<td>.19</td>
<td>3.01</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.09</td>
<td>.26</td>
<td>.09</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.06</td>
<td>.09</td>
<td>-1.26</td>
<td>ns</td>
<td>.09</td>
<td>4.87</td>
<td>0.00</td>
</tr>
</tbody>
</table>

It can be seen in Table 3 that openness to experience ($\beta = .15$; $t = .91$; $p <.05$) was the only personality factor that significantly independently predicted depression among the prison inmates. All the personality factors as predictor variables did not jointly predict depression among the prison inmates ($F [5, 246] =1.87$; ns. This suggests that the more the prison inmates were opened to experience, the greater their tendency to be depressed.

Regarding the determinants of anxiety based on imprisonment status, a One-Way Analysis of Variance was used. A summary of the test is presented in Table 4.

### Table 4. Anxiety and Depression According to Categories of Inmates

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Awaiting Trials (SD)</th>
<th>Short-Term Sentence(SD)</th>
<th>Long-Term Sentence(SD)</th>
<th>Lifers(SD)</th>
<th>Death Row Inmates(SD)</th>
<th>P-value (ANOVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>10.81(3.84)</td>
<td>9.10(4.33)</td>
<td>11.44(4.06)</td>
<td>11.22(3.11)</td>
<td>12.07(3.35)</td>
<td>0.05</td>
</tr>
<tr>
<td>Depression</td>
<td>10.99(4.04)</td>
<td>9.10(8.39)</td>
<td>11.24(3.81)</td>
<td>10.22(4.43)</td>
<td>10.33(3.46)</td>
<td>ns</td>
</tr>
</tbody>
</table>

*Significantly different at $p < .05$

As shown in Table 4, the results indicate that there was a significant effect of imprisonment status (Awaiting trials, Short-term, Long-term, Lifers and Death row) on anxiety ($F [4, 247] = 2.65, p <.05$). To determine the direction of the significant effect, multiple comparisons using the Duncan test show that the inmates who were on death row ($\bar{x}=12.07$) were significantly more anxious than the inmates serving the short-term prison sentence ($\bar{x}= 9.10$). However, other imprisonment status, such as those awaiting trail, those on long-term sentence, and those on life imprisonments, were not significantly different from one another on the measure of anxiety ($p > .05$).
Furthermore, imprisonment status did not significantly influence depression $F [4, 247] = 1.97, p > .05$. This finding suggests that the manifestation of depression among the imprisonment status were not significantly different from each other.

Lastly, the result of the t-test for the independent sample reveals that type of crime (violent and non-violent crime) significantly influenced prison inmates’ anxiety $t (250) = p < 0.01)$. The result further shows that inmates who were incarcerated based on violent crime ($\bar{x} =11.66$) were significantly more anxious than inmates who were incarcerated based on non-violent crime ($\bar{x} = 9.91$). However, type of crime did not significantly influence depression ($t (250) = p > .05$). This finding suggests that inmates incarcerated both for violent and non-violent crimes were not statistically different on depression.

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Violent Crime(SD)</th>
<th>Non-Violent Crime(SD)</th>
<th>P-value (T-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>11.66(3.91)*</td>
<td>9.91(3.82)*</td>
<td>0.01</td>
</tr>
<tr>
<td>Depression</td>
<td>10.96(4.05)</td>
<td>10.42(3.63)</td>
<td>ns</td>
</tr>
</tbody>
</table>

*Significantly different at $p < .05$

Discussion

The primary aim of this study was to link personality dimensions, imprisonment status and type of crime to the emotional disturbance of inmates in a Nigerian prison. Benin Federal Prison, Nigeria can be a suitable setting to carry out prison inmates’ emotional disturbance-related studies, as inmates in this prison comprises inmates convicted from different parts of Nigeria. We found that neuroticism was the only personality factor that predicted anxiety among the prison inmates. This result buttresses previous findings about relationship between neuroticism and anxiety. According to Karsten et al., neuroticism trait scores increase with the occurrence of anxiety disorders. Matthew and Deary argue that individuals who score high on neuroticism are more probable to experience such feelings as anxiety and they experience this feeling more strongly than those who score lower on neuroticism. Neuroticism is a precise strong predictor of impending psychopathology in reaction to life stress together with anxiety and other forms of psychopathology. Neuroticism is able to contribute both diathesis and stress, providing exposure by means of both reactive and evocative person-environment interactions. Persons high in neuroticism react to events with high levels of distress, anxiety and worry, providing an obvious threat for numerous forms of psychopathology, principally mood and anxiety disorders.

This research revealed that openness to experience was the only personality factor that significantly independently predicted depression among the prison inmates. This finding is in line with other studies. Both studies showed that openness to experience was significantly positively associated with depression. However, some studies have found openness with conscientiousness and agreeableness traits to be unwavering in the course of a depressive experience.
The findings of this study also indicate a significant effect of imprisonment status (Awaiting trials, Short-term, Long-term, Lifers and Death row) on anxiety, with the inmates who were on death rows showing significantly greater anxiety than the inmates serving the short-term prison sentence. Research has suggested that awareness of death and mortality generates anxiety for individuals. Sharon avers that death row inmates usually undergo solitary confinement for lengthy days; this aggravates anxiety and nervousness. In addition, they have to continue to live under an ever-present sentence of death, with much of this time spent not knowing when the actual execution will take place. Death row syndrome is common among inmates on death row. Inmates living under such conditions have been seen to undergo higher-than-average rates of anxiety.

Lastly, this study revealed that the type of crime (violent and non-violent crime) significantly influenced prison inmates’ anxiety, with inmates who were incarcerated based on violent crimes manifesting significantly more anxiety than inmates who were incarcerated based on non-violent crimes. Værøy claims that quite a lot of studies have established a link between aggressive behaviour and affective disorders. Some have shown that negative affective disorders increased the probability of impulsive antisocial or aggressive behaviour. Hodgins, De Brito, Chhabra and Cote found that more of the offenders with anxiety disorders had been convicted of serious crimes involving interpersonal violence. In addition, in some people, anxiety can provoke an aggressive response. They are very real and can be challenging for those that suffer from them. An explanation given was that anxiety causes irritability and this type of irritability commonly causes people to close off or develop passive aggressive behaviour. However, the same irritation causes some people to respond more intensely and, perhaps, show aggressive behaviour.

**Conclusion**

This study shows that neuroticism and openness to experience personality dimensions are important predictors of anxiety and depression, respectively. Furthermore, being on death row and being a violent crime offender can result in the manifestation of anxiety. In the light of the established link, these findings are grounds for worry. Mental health professionals involved in the psychological treatments of anxiety and depression of prison inmates in various correctional facilities have a duty to look out for these factors. Effective management package may well reduce these risk factors, thus improving a stable mental health for the prison inmates. This research has a limitation. The participants were selected from one prison located in the metropolitan city of Benin. However, there is no confirmation that the studied prison was different from other Nigerian prisons. Despite this limitation, the appraisal is sufficient to validate promotion for new approaches of care for the population of prison inmates.

**Acknowledgements**

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Cross-sectional Study of General Health Questionnaire Among University Students in Malaysia: A Reliability Study

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Abstract

Background: The General Health Questionnaire is a widely used scale to measure psychological distress. This scale is available in many languages. The original version comprised of 60 items. It is available in 30-items, 28-items, 20-items and 12-items. The shorter version is as good as the longer version of the scale. Objective: The aim of this investigation was to determine the sensitivity, specificity and reliability of the 12-item General Health Questionnaire (GHQ-12) among university students. Method: A total of 280 undergraduate students were selected using convenient sampling. Result: The results of this study showed that the GHQ-12 is multidimensional and contains three factor structures. It has a high internal consistency and a useful instrument to measure the psychological wellbeing of university students in Malaysia Previous authors have suggested that the cut-off point is determined by the mean. Findings from this study, based on sensitivity and specificity, suggests that mean may not be a good option. This study recommends the best cut-off point is determined by the ROC. Conclusion: This study shows that the GHQ-12 is a valid and reliable instrument to detect psychological distress among university students. The optimum cut-off point of the GHQ-12 score to detect psychological distress was 15/16.

Keywords: GHQ Factor Structure Alpha Reliability Sensitivity, Specificity

Introduction

It goes without saying that life in the university is stressful. Stress arises due to a variety of factors such as social adjustment to the environment, assignments, peer relationship, peer pressure to achieve a high score in exams. The ability to adjust to stress depends on the individual coping strategies. Over exposure to stress can cause physical, emotional and mental health problems. In study done by Zaid et al in Malaysia, it was found that the prevalence of emotional disorders among students was high. Zaid et al reported that there was significant association between emotional disorders and respondents' relationship with their parents, siblings and lecturers, as well as level of pressure prior to exam. It is important to detect emotional disorders at an early stage so that treatment necessary can be given to those affected.

Psychological distress can be measured...
using standardized instruments, which can help in detecting cases who have psychological distress. The General Health Questionnaire (GHQ-12) is a self-reporting measure. This scale focuses on breaks in normal functioning rather than on life-long traits; therefore, it only covers disorders or patterns of adjustment associated with distress. The original version is composed of 60 items. In recent years the 12-item General Health Questionnaire (GHQ-12) has been extensively used as a short screening instrument, producing results that are comparable to longer versions of the GHQ. The GHQ-12 is a measure of current mental health. It focuses on two major areas: inability to carry out normal functions and the appearance of new and distressing experiences.

The 12-item General Health Questionnaire (GHQ-12) has been widely used in many countries for detecting psychological morbidity. It has been translated and validated in many languages. The GHQ-12 is also validated and available in Malay language where the internal consistency was excellent. A high degree of internal consistency was observed for each of the 12 items in the Malay version. In a similar study, Zulkefly & Baharudin have validated the GHQ-12 however; the current study differs in various aspects. Unlike the previous study that was done in Peninsular Malaysia, the current study was conducted in East Malaysia with different sample size and different sampling technique. The current study also uses the DASS-21 as an instrument to assess the gold standards. The cut-off point used by Zulkefly & Baharudin was 6, in this study the cut-off point will be determined by ROC.

If investigators wish to use a screening instrument as a case detector, the shorter GHQ is remarkably robust and works as well as the longer instrument. The latter should only be preferred if there is an interest in the scaled scores provided in addition to the total score. The GHQ threshold is partly determined by the prevalence of multiple diagnoses, with higher thresholds being associated by higher rates of both single and multiple diagnoses. The mean GHQ score for the whole population of respondents provides a rough guide to the best threshold.

The GHQ-12 was designed as a unidimensional scale with positively phrased and negatively phrased items. Factor-analytic studies have reported that the GHQ-12 has two or three dimensions.

Reviewing past research which indicates that the GHQ-12 is a brief and easy to understand screening instrument it was intended to investigation the psychometric properties of the General Health Questionnaire (GHQ-12) among university students. The aim of this investigation was to determine the sensitivity, specificity and reliability of the 12-item General Health Questionnaire (GHQ-12) among university students.

Materials and Methods

Participants
The study was conducted at University in Sarawak, Malaysia. The study participants were selected using convenience sampling. The questionnaire consists of part 1 which included the demographic aspects and part 2, the General Health Questionnaire (GHQ-12) and The Depression Anxiety Stress Scale (DASS-21). Permission was obtained from the university before conducting this study. Undergraduate students were told about the purpose of the study and only those volunteered to participate were given the self-administered
questionnaire in the classroom. Data was collected from 300 students. Seven percent of the sample had to be excluded. The reason for exclusion was either the questionnaire was incomplete or the all 12 items of GHQ-12 were not completed in all respects. The data obtained from 280 students was taken up for final data analysis.

**Instruments**

Goldberg’s General Health Questionnaire (GHQ-12) with 12 items has four responses. The GHQ-12 can be classified as either positively worded or negatively worded. Six items referred to health is considered to be positively worded. The response range from ‘more than usual’ to ‘much less than usual’. 6 items referring to disease are negatively worded. The response ranges from ‘not at all’ to ‘much more than usual’. Items can be scores according to the three scoring methods. Likert method (all items coded 0-1-2-3), GHQ method (all items coded 0-0-1-1), and C-GHQ method (PP items coded 0-0-1-1; NP items coded 0-1-1-1).

In this study, the Likert method of scoring (0-1-2-3) was chosen. The scores were summed up by adding all the items on the scale ranging from 0 to 12. Due to the various thresholds of the GHQ-12, the mean GHQ score for a population of respondents was suggested as a rough indicator for the best cut-off point\(^{10}\). Based on the mean score from the study the cut-off point 12 was used.

The Depression Anxiety Stress Scale (DASS-21) is a self-report instrument designed to measure the three related negative emotional states of depression, anxiety and tension/stress. It is also available with 42 items (DASS-42). Each of the three DASS sub scales contains 7 items. Scores for each sub scales are calculated by summing up the scores. The final score is obtained by multiplying the three sub scales by 2. The cut off of DASS-21 score for a case as a gold standard for comparison with GHQ-12 was 14, in this study.

**Statistical analysis**

SPSS 21 was used to process the data. Descriptive analysis was done to study the frequency of students who with least score and highest score. Dimensionality was assessed using factor analysis. Exploratory factor analysis (EFA) was done using the principle component analysis.

Rotation method used was Varimax with Kaiser Normalization. Factor loading was based on absolute value greater than 0.40. Cronbach’s\(^{13}\)’s alpha coefficient was used to calculate the reliability of the scale. Cronbach's alpha is an index of reliability associated with the variation accounted for by the true score of the "underlying construct." Construct is the hypothetical variable that is being measured\(^{14}\). The higher the score, the more reliable the generated scale is. Nunnaly\(^{15}\) has indicated 0.7 to be an acceptable reliability coefficient.

In this study the depression sub scale of DASS-21 was applied as gold standard to determine the sensitivity and specificity of the Receiver Operators Characteristics (ROC). Sami AR Al-Dubai et al\(^{16}\) in their study have used DASS-21 as gold standards. In order to determine the specificity and sensitivity, the GHQ-12 was tested against the DASS-21. SPSS 21 was used to analyse the ROC. Microsoft Excel was used to obtain the cut off graph.

**Results**

The mean age of the respondents was 21 years. 34 % were male and 66% were female student respondents. 4% were in the first year of under graduation, 64% were in
the second year and 32% were in the third year. 62% were Muslims, 24% were Christians, 12% Buddhists and 2% Hindus. The mean GHQ-12 score in this study was 12.32 (S.D=5.23).

**Factor Structure**

KMO value is 0.813, which is considered meritorious. Results of Bartlett’s test of sphericity shows \( \chi^2=1163.07 \) (df=66, \( p<0.000 \)). In this study, the sample inter correlation matrix did not come from a population in which the inter correlation matrix is an identical matrix. There was no correlation error among the variables.

Based on eigen value more than 1, results from EFA revealed three dimensional structures. The first factor includes items 3, 4, 5, 6, 8 and 9 and explains 22.65% variance. Alpha=0.78. The second factor includes items 7, 10, 11 and 12 and explains 19.84% variance. Alpha=0.76. The third factor includes two items 1 and 2 and explains 16.53% variance. Alpha=0.61. Total variance explained by the three factors is 59.03%. Loading on the three factors ranged from 0.46 to 0.80. Item number 1, 2, 3, 4, 5, 7, 11 and 12 indicated a good factor loading ranging between 0.60 to 0.80. Four item numbers 6, 8, 9 and 10 indicate average factor loading which ranged from 0.46 to 0.59.

**Reliability**

The internal consistency was measured using Cronbach's alpha. The overall Cronbach's alpha for the entire sample in this study was 0.84. Alpha value for male students was 0.85 and that for the female students was 0.83 respectively.

Table 1 shows correlation between items and Cronbach's alpha if Item were to be deleted. The overall Cronbach's alpha was 0.84. Only item no 1 “Been able to concentrate on whatever you are doing?” showed the lowest correlation coefficient of 0.32. All the remaining items showed a correlation ranging from 0.45 to 0.59. Eliminating item No. 1 did not change the value of Cronbach's alpha substantially.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHQ1</td>
<td>Been able to concentrate on whatever you are doing?</td>
<td>.321</td>
<td>.838</td>
</tr>
<tr>
<td>GHQ2</td>
<td>Lost much sleep over worry?</td>
<td>.527</td>
<td>.823</td>
</tr>
<tr>
<td>GHQ3</td>
<td>Felt that you were playing a useful part in things?</td>
<td>.533</td>
<td>.823</td>
</tr>
<tr>
<td>GHQ4</td>
<td>Felt capable of making decisions about things?</td>
<td>.456</td>
<td>.829</td>
</tr>
<tr>
<td>GHQ5</td>
<td>Felt constantly under strain?</td>
<td>.549</td>
<td>.822</td>
</tr>
<tr>
<td>GHQ6</td>
<td>Felt that you could not overcome your difficulties?</td>
<td>.595</td>
<td>.818</td>
</tr>
<tr>
<td>GHQ7</td>
<td>Been able to enjoy your normal day-to-day activities?</td>
<td>.453</td>
<td>.829</td>
</tr>
<tr>
<td>GHQ8</td>
<td>Been able to face up your problems?</td>
<td>.472</td>
<td>.828</td>
</tr>
<tr>
<td>GHQ9</td>
<td>Been feeling unhappy and depressed?</td>
<td>.467</td>
<td>.828</td>
</tr>
<tr>
<td>GHQ10</td>
<td>Been losing confidence in yourself?</td>
<td>.501</td>
<td>.825</td>
</tr>
<tr>
<td>GHQ11</td>
<td>Been thinking of yourself as a worthy person?</td>
<td>.582</td>
<td>.819</td>
</tr>
<tr>
<td>GHQ12</td>
<td>Been feeling reasonably happy, all things considered?</td>
<td>.545</td>
<td>.822</td>
</tr>
</tbody>
</table>
Figure 1 shows the ROC curve, the total area under curve was 0.876, with standard error of 0.031. An area of 1 represents a perfect test; an area of .5 represents a worthless test.

Table 2 shows sensitivity and specificity at different cut off points. At cut off 12/13 the sensitivity is 64% and specificity 93%. At 15/16 the sensitivity and specificity is 78 % and 93% respectively, which represents optimal cut off.

Figure 2. Cut-off Point Graph

Table 2. The Sensitivity and Specificity of GHQ score at different cut off points

<table>
<thead>
<tr>
<th>GHQ Score</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/3</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>3/4</td>
<td>0.04</td>
<td>1.00</td>
</tr>
<tr>
<td>4/5</td>
<td>0.07</td>
<td>1.00</td>
</tr>
<tr>
<td>5/6</td>
<td>0.09</td>
<td>1.00</td>
</tr>
<tr>
<td>6/7</td>
<td>0.14</td>
<td>1.00</td>
</tr>
<tr>
<td>7/8</td>
<td>0.20</td>
<td>1.00</td>
</tr>
<tr>
<td>8/9</td>
<td>0.28</td>
<td>1.00</td>
</tr>
<tr>
<td>9/10</td>
<td>0.42</td>
<td>1.00</td>
</tr>
<tr>
<td>10/11</td>
<td>0.48</td>
<td>1.00</td>
</tr>
<tr>
<td>11/12</td>
<td>0.53</td>
<td>1.00</td>
</tr>
<tr>
<td>12/13</td>
<td>0.64</td>
<td>.933</td>
</tr>
<tr>
<td>13/14</td>
<td>0.70</td>
<td>.933</td>
</tr>
<tr>
<td>14/15</td>
<td>0.73</td>
<td>.933</td>
</tr>
<tr>
<td>15/16</td>
<td>0.78</td>
<td>.933</td>
</tr>
<tr>
<td>16/17</td>
<td>0.81</td>
<td>.800</td>
</tr>
<tr>
<td>17/18</td>
<td>0.82</td>
<td>.733</td>
</tr>
<tr>
<td>18/19</td>
<td>0.88</td>
<td>.733</td>
</tr>
<tr>
<td>19/20</td>
<td>0.93</td>
<td>.633</td>
</tr>
<tr>
<td>20/21</td>
<td>0.97</td>
<td>.267</td>
</tr>
<tr>
<td>21/22</td>
<td>0.97</td>
<td>.133</td>
</tr>
<tr>
<td>22/23</td>
<td>0.98</td>
<td>0.000</td>
</tr>
<tr>
<td>23/24</td>
<td>1.00</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Figure 2 shows ROC that the best cut off that maximizes (sensitivity + specificity) is 15/16.

Discussion

It is necessary for students to be in their good and balanced psychological health in order to excel in their pursuit and for a successful future by contributing positively towards human capital resources of the country. Stress among university students in Malaysia is high. In a study done by medical students in Malaysia it was found a total of 41.9% of the medical students were found to have emotional disorders. The GHQ-12 was used to assess the psychological wellbeing of university students. The GHQ-12 item questionnaire is the most extensively used screening instrument for common mental disorders, in addition to being a more general measure of psychiatric well-being. The aim of this investigation was to determine the sensitivity, specificity and reliability of the 12-item General Health Questionnaire (GHQ-12) among university students. Although the GHQ-12 has been validated in Malaysia, the authors felt the need to revalidate the scale in a different population and to determine the cut-off point.

Using Kaiser-Meyer Olkin test of sphericity it was found the GHQ-12 obtained from this sample was suitable to conduct factor analysis and sample size was appropriate using the Bartlett’s test of sphericity.

Different versions of the General Health Questionnaire (GHQ), including the GHQ-12 and GHQ-28 have been subjected to factor analysis in a variety of countries. In this study, exploratory Factor analysis of GHQ-12 revealed three dimensional structures. Factor I consisted of 6 items explained 22.65 % variance. Factor II consisted of 4 items explained 19.84 % variance. Factor III consisted of 2 items explained 16.53 % variance. Total variance explained by the three factors is 59.03 %. Majority of the loading was >0.50. Loading on the three factors ranged from 0.46 to 0.80. Item number 1, 2, 3, 4, 5, 7, 11 and 12 indicated a good factor loading ranging between 0.60 to 0.80. Four item numbers 6, 8, 9 and 10 indicate average factor loading which ranged from 0.46 to 0.59. The number of items loaded differed from one study to another. This study is similar to the study done by Sánchez-López who reported a three factor model with 54.19 % explained variance. This study is also consistent with studies done in Malaysia by Zulkefly & Baharudin which explained three factor structures with 51.9% variance.

The overall Cronbach's Alpha for the entire sample in this study was 0.84. In a similar study done by Yusoff et al. Cronbach’s alpha values for the GHQ-12 was of 0.85. Thus, this study matches with study done elsewhere in Malaysia. Study also matches with studies done in Iran, where Montazeri et al, found Cronbach's alpha coefficient =0.87. Alpha value for male students was 0.85 and that for the female students was 0.83 respectively.

The GHQ-12 showed a good level of agreement with DASS-21 which was used as “gold standard”. The total area under cure was 0.876 with a standard error of 0.031. Asymptotic 95% confidence interval, lower bound was 0.815 and upper bound was 0.936. Accuracy is measured by the area under the ROC curve. An area of 1 represents a perfect test; an area of .5 represents a worthless test. In this study, the area under the curve was 0.876 which is categorized as good.
The sensitivity and specificity varied from one score to another. At 12/13 it was observed that the sensitivity and specificity was 64 % and 93% respectively. At 15/16 had a sensitivity and specificity of 78 % and 93% respectively. In the study, since sensitivity tells us how good the test is to identify the correct students with psychological distress and specificity is the ability to identify students with no distress, a sensitivity value of 78% and specificity value of 93% reflects the ability of GHQ-12 to discriminate students with psychological distress and non-distress.

The cut-off point for GHQ-12 varies from one study to another. The finding of variation in the optimal threshold of the General Health Questionnaire (GHQ) across different settings has proved difficult to explain22. No convincing explanation has been forthcoming for the variation in best threshold to adopt for the GHQ in different settings10. According to Goldberg et al10, the GHQ threshold is partly determined by the prevalence of multiple diagnoses, with higher thresholds being associated by higher rates of both single and multiple diagnosis. The mean GHQ score for the whole population of respondents provides a rough guide to the best threshold10. It was observed in this study that there could be variation in the cut-off point using different methods. The cut-off point based on the mean value was 12, with sensitivity and specificity of 64 % and 93% respectively. The cut-off point based on the ROC was 15 had a sensitivity and specificity of 78 % and 93% respectively. Thus taking mean as the cut-off point may not be a good idea as suggested by Goldberg et al10.

In conclusion, this study shows that the GHQ-12 is a valid and reliable instrument to detect psychological distress among university students. The optimum cut-off point of the GHQ-12 score to detect psychological distress was 15/16. The GHQ-12 showed a good level of agreement with DASS-21 which was used as “gold standard”. The strength of this study is that it suggests, taking the mean as the cut-off point may not be the good option; it recommends ROC as a better option. The weakness of the study is it has make use of convenient sampling and this may restrict generalization.

Acknowledgement

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Prevalence of Depression in Adolescents Living in Residential Homes in Perak, Malaysia and Its Association with Socio-Demographic and Personal Factors

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²Hospital Bahagia Ulu Kinta, Perak, Malaysia  
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⁴Medicine and Occupational Health, ExxonMobil Exploration and Production Malaysia Inc., Menara ExxonMobil, Kuala Lumpur City Centre, Kuala Lumpur, Malaysia

Abstract

There have been concerns about the growing number of children living in residential homes in Malaysia. The objective of this study was to determine the presence of depression and its association with the socio-demographic, personal characteristics and coping skills of adolescents residing in fourteen residential homes in Kinta Valley, Perak. A total of 235 adolescents participated in the study. They completed a self-report questionnaire gathering socio-demographic and personal factors, the Adolescent Coping Scale (ACS) and were assessed for presence of depression using The Mini International Neuropsychiatric Interview for children and adolescents (MINI Kid). The prevalence of depression was found to be 9.8 %, with 43% of the participants had history of being abused. Emotional abuse (OR=25.95, CI=4.51-149.43) and maintaining contact with parents (OR=0.02, CI=0.003-0.10) were significant factors associated with being depressed. Depression is common among adolescents living in the residential homes. Detecting depression and understanding factors associated with depression allows appropriate management and intervention strategies.

Keywords: Adolescents, Residential Homes, Depression, Malaysia

Introduction

There is a growing number of adolescents needing out of home placement in Malaysia. These homes have been set-up as an alternative to more restrictive settings such as orphanages¹. These adolescents are placed in out of home placement for various...
reasons. Some are victims of abuse and neglect while others are placed in the residential homes due to loss or unavailability of their care giver as a result of disability, family dysfunction or poverty. Adolescents with risky behavior and beyond parental control including those involved in criminal activities are also placed in residential care. Many of these homes are run by wealthy personal, non-profitable charity or religious organizations and government agencies. The homes are set up to replicate homelike environment with continuous supervision of the children. Often a selected number of children are taken in and are then organized and supervised by live-in house-parents.

There are different views about placing children in residential homes. Being placed in a residential home is difficult for most children; however for many, placement in residential homes is inevitable. The children need to adapt to living without their parents, living with new and several care-givers and in a totally different living environment. They often experienced abandonment either directly or indirectly. Mental health problems are common among these adolescents, they are at increased risk for a variety of social, psychological, and behavioral problems. Many of these children have emotional difficulties which are not detected.

In Malaysia, there are ten residential homes for children and adolescents which were set up by the government. Many others are managed by non-governmental agencies, private religious groups as well as individuals. Despite being the law of the country, only some are registered with the Social Welfare Department.

The prevalence of depression among Malaysian adolescents varies from 10.3% to 24.2%. The prevalence of depression among adolescents living in residential homes is not known. Detecting depression and understanding associated factors will allow appropriate intervention to be taken to strengthen these adolescents’ resilience and ensure better mental health outcome for these vulnerable adolescents.

The aims of this study were to determine the prevalence of depression among adolescents residing in residential homes in Kinta Valley, Perak, Malaysia and to determine its association with personal, socio-demographic factors and coping skills.

Method

We conducted a cross-sectional study with universal and convenience sampling to recruit 235 adolescents from 14 homes in the Kinta Valley, Perak. The homes are run by individuals, non-governmental organizations and religious groups. Four homes are only for boys, while the rest are mixed. Adolescents aged 12 to 18 years old, who consented to participate in the study and had good command of the Malay language were included in the study. Adolescents with mental retardation were excluded.

The adolescents were asked to complete the socio-demographic/ personal questionnaire and the Adolescent Coping Scale (ACS). The Adolescent Coping Scale is a self-report inventory that assesses 18 distinct coping strategies. It has been translated and validated for the local population with good reliability. The adolescents were then interviewed by the second author, using the Mini International Neuropsychiatric Interview for children and adolescents (M.I.N.I Kid Version 6) to assess for presence of any Major Depressive Disorder (MDD). It is a structured clinical diagnostic...
interview to assess psychiatric disorders in children and adolescents between six and 17 years old based on DSM-IV and ICD-10\textsuperscript{13}. The children and adolescent version has not been translated to Malay.

The study was approved by the Ethical Committee University Kebangsaan Malaysia and the Social Welfare Department of Kinta Valley.

**Results**

Table 1 shows the adolescents were mainly males (71.5\%) and of Malay ethnic group (67.7\%). The average duration of stay was about 3 years. The prevalence of Major Depressive Disorder was found to be at 9.8\%.

In Table 1, 43\% of the participants had history of abuse; the commonest abuse was emotional abuse (26\%). In 31.5\% of the participants there was history of substance abuse.

The majority of the adolescents still had at least one parent, while 14\% had lost both parents. The level of contact was defined by visits made by their parents or relatives at anytime during their stay in residential care. Even a single visit was considered positive and taken as a visit in the study. Among the adolescents who have living parents, 14\% maintained certain level of contact with their parent/s (Table 1).

<table>
<thead>
<tr>
<th>Table 1. Personal characteristics of the 235 adolescents from 14 homes in the Kinta Valley, Perak</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variables</strong></td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Period of stay</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Ethnicity</td>
</tr>
<tr>
<td>Malay</td>
</tr>
<tr>
<td>Chinese</td>
</tr>
<tr>
<td>Indian</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Types of abuse prior to orphanage entry</td>
</tr>
<tr>
<td>Sexual abuse</td>
</tr>
<tr>
<td>Physical abuse</td>
</tr>
</tbody>
</table>
Emotional abuse
Neglect

Family support
Had been visited at least once
Had been visited by parents at least once
Never had any visitors

<table>
<thead>
<tr>
<th>Coping styles</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solving problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not used at all</td>
<td>0</td>
<td>(0)</td>
</tr>
<tr>
<td>Used very little</td>
<td>8</td>
<td>(3.4)</td>
</tr>
<tr>
<td>Used sometimes</td>
<td>84</td>
<td>(35.7)</td>
</tr>
<tr>
<td>Used frequently</td>
<td>136</td>
<td>(57.9)</td>
</tr>
<tr>
<td>Used a great deal</td>
<td>7</td>
<td>(3)</td>
</tr>
<tr>
<td>Reference to others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not used at all</td>
<td>4</td>
<td>(1.7)</td>
</tr>
<tr>
<td>Used very little</td>
<td>64</td>
<td>(27.2)</td>
</tr>
<tr>
<td>Used sometimes</td>
<td>124</td>
<td>(52.8)</td>
</tr>
<tr>
<td>Used frequently</td>
<td>39</td>
<td>(16.6)</td>
</tr>
<tr>
<td>Used a great deal</td>
<td>4</td>
<td>(1.7)</td>
</tr>
<tr>
<td>Non productive coping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not used at all</td>
<td>5</td>
<td>(2.1)</td>
</tr>
<tr>
<td>Used very little</td>
<td>108</td>
<td>(46)</td>
</tr>
<tr>
<td>Used sometimes</td>
<td>114</td>
<td>(48.5)</td>
</tr>
</tbody>
</table>

In the adolescents’ coping methods (Table 2), 57.9% of the adolescents stated that they cope by solving their problems though in varying frequencies, 3.4% use non productive coping strategies. Non-productive coping includes ignoring, self-blame, no coping, tension reduction activities (eg. screaming or drinking alcohol), keep to self and wishful thinking.
Looking at the association between the different variables and the presence of depression revealed past history of abuse and neglect, having visitors, maintaining contact with parents and using non-productive coping were significantly associated with being depressed (Table 3). However when the variables were further analyzed in a multivariate analysis, emotional abuse and maintaining contact with parents remained as significant factors associated with being depressed (Table 4).

**Table 3.** Associations of major depression and socio-clinical and personal determinants of the 235 adolescents from 14 homes in the Kinta Valley, Perak

<table>
<thead>
<tr>
<th>Variable</th>
<th>Major Depression</th>
<th>O.R.</th>
<th>96% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>O.R.</td>
<td>96% CI</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 14</td>
<td>16(11.2)</td>
<td>127(88.8)</td>
<td>1.53</td>
<td>0.60-3.88</td>
</tr>
<tr>
<td>&gt;14</td>
<td>7(7.6)</td>
<td>85(92.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period of stay (months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;40</td>
<td>14(10.1)</td>
<td>125(89.9)</td>
<td>1.08</td>
<td>0.45-2.61</td>
</tr>
<tr>
<td>&gt;40</td>
<td>9(9.4)</td>
<td>87(90.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15(8.9)</td>
<td>153(91.1)</td>
<td>0.72</td>
<td>0.29-1.80</td>
</tr>
<tr>
<td>Female</td>
<td>8(11.9)</td>
<td>59(88.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>17(10.7)</td>
<td>142(89.3)</td>
<td>1.40</td>
<td>0.53-3.70</td>
</tr>
<tr>
<td>Non-Malay</td>
<td>6(7.9)</td>
<td>70(92.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9(37.5)</td>
<td>15(62.5)</td>
<td>8.44</td>
<td>3.14-22.68</td>
</tr>
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<td>No</td>
<td>14(6.6)</td>
<td>197(93.4)</td>
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<tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>20(32.8)</td>
<td>41(67.2)</td>
<td>27.8</td>
<td>7.88-98.07</td>
</tr>
<tr>
<td>No</td>
<td>3(1.7)</td>
<td>171(98.3)</td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>5(31.3)</td>
<td>11(68.8)</td>
<td>5.08</td>
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<td>201(91.8)</td>
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<tr>
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<td>Category</td>
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<td>p</td>
<td>95% C.I</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------</td>
<td>--------------</td>
<td>-----</td>
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<td>0.21</td>
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<td>&lt;0.01 *</td>
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<tr>
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<tr>
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<td>0.02</td>
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<td>No **</td>
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<tr>
<td>Non Productive Coping</td>
<td>Less Frequent Use</td>
<td>0.03</td>
<td>0.06</td>
<td>0.002-0.35</td>
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<td></td>
<td>Frequent Use</td>
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</table>

**Reference Category**

Adjusted O.R= Adjusted odds ratio
C.I=Confidence interval
*p<0.05(significant)
Discussion

This study found close to 10% of the adolescents living in the fourteen residential homes in the Kinta Valley to have Major Depressive Disorder. Slightly more than 40% of the adolescents have experienced some form of maltreatment in the past. Close to a quarter of the adolescents in the study reported past history of being emotionally abused, followed by physical abuse, neglect and less than 1% sexual abuse. History of being abused increases their likelihood of being depressed. For these adolescents, they were more likely to be depressed if they had been emotionally abused in the past while maintaining contact with parents was found to be a protective factor against being depressed.

Investigations using the Adolescent Coping Scale showed more than half of the adolescents use some form of coping styles frequently, with slightly less than half turning to others as a coping strategy. 48.5% of participants used non-productive coping styles sometimes and 31.5% of the adolescents have used substance in the past.

Psychiatric disorders such as depression are prevalent among children and adolescents residing in residential homes abroad but local findings are not available for comparison. A German study involving 689 children and adolescents in 20 residential homes reported 8.6% prevalence of depression and dysthymia, while another study found a much higher prevalence of depression, 74.5% in 259 adolescents.

These adolescent are at a vulnerable state and stage of their life; they have to further adapt to living in residential homes. Placing these vulnerable adolescents into residential homes has its own difficulties and not surprisingly there are groups that are skeptical about its effectiveness as these multiple risk factors have additional impact on the mental health of these adolescents. The intent of taking or placing these children into out-of-residential home care to protect them from harm, is not sufficient to guarantee their wellbeing. Poverty, broken homes, history of abuse and neglect, has been identified as risk factors leading to risk of mental health problems such as depression among children and adolescents in residential or foster care homes. Often these factors are not taken into consideration and dealt with accordingly, many adults feel that by providing these children with shelter, food and some form of education is adequate enough for their well-being. Detection of depression is important as it is common, can be chronic and is a major influence on the quality of life of all individual.

Adolescents living in residential homes suffer early losses such as death of or separation from parents, history of abuse, living in poverty and some are deprived of their basic needs. Children who face negative life-events at the early stage of their life are at a higher risk of mental health problem such as depression and behavior difficulties. Adolescents in this study came from varied background with associated early childhood adversities, including lost of their parents through death or separated from their parents due to other reasons e.g. poverty, parenting difficulties and other social problems. Slightly more than 40% of the adolescents in this study have experienced some form of maltreatment. The commonest abuse was being emotionally abused. Any form of childhood maltreatment places a child at a higher risk for poor physical and mental health.

The definition of child emotional maltreatment varies by context; basically it
reflects caregiver's failure to provide a developmentally appropriate and supportive environment for the child. It includes frequent acts of denigration, emotional deprivation, and exposure to inappropriate acts of sexual and aggressive content. Emotional maltreatment is difficult to document as it is not event specific. Additionally, it is difficult to identify direct links to causing impairment in the victims' functioning. Emotional abuse compared to other forms of abuse is more likely to contribute to hopelessness and low self-worth, creating a cognitive vulnerability towards depression. Children who are victims of one form of abuse are more likely to experience other forms of abuse on several occasions or continuously. Thus in children who have been sexually abused, they are often emotionally abused as well. Amar et.al. found lower prevalence of sexual abuse in Malaysia compared to other forms of abuse and compared to other forms of abuse in other countries. Statistics of the Department of Statistic Malaysia reported neglect as the most common form of child abuse in Malaysia. Any form of maltreatment of children by their parents or other caregivers causes serious and long-term consequences that affect the child's life into adulthood. Individuals who have been maltreated in their childhood has an increased risk of depression, drug use and dependence. In individuals with substance use problems, conduct disorder and later violent or criminal behaviors is a worrying consequence.

Coping styles are thought to be important determinants protecting adolescents from depression. The initial univariate analysis, found using non productive coping was significantly associated with depression. However, the significance was lost in the multivariate analysis. It is worrying that about 30% of the adolescents in the study had used illicit substance. Similar findings have been noted elsewhere and the high prevalence of substance use in adolescents in residential care have been attributed to the unstable family situation. There is a strong association between alcohol/substance use and depression and for children who have been abused, the pairing with substance use is linked with poorer outcomes. Substance use has been suggested to be a form of self-medication, a coping mechanism to manage the depressed mood. In contrast, this study did not find significant association between depression and substance abuse. This may be explained by the difference in time between diagnosis of depression and substance use. Depression was diagnosed during their stay in the centre while use of substance was in the past. The use of substance may possibly be minimized due to the cultural taboo leading to the non-significant association with depression.

Adolescents who maintained contact with their parent or parents, and relatives were significantly protected from depression. This was similarly seen in other studies including a Turkish study that found adolescents who lack family contact are more likely to have psychopathology. Adolescents who were visited by their parents are less likely to perceive poor maternal care although they are physically separated. The parental contact gives these adolescents a sense of continued emotional support albeit contact is made periodically. This was shown in this study; help protects them from depression.

Limitations
As this was a cross-sectional study, the results can only suggest associations. A case-control study is strongly recommended for a formal comparison of presence of psychiatric disorders in adolescent in other residential care. M.I.N.I. Kid which assessed
psychiatric disorders in children and adolescents was not validated for the local population. The residential homes located in the Kinta Valley may not represent other residential homes located throughout the country. The information was obtained mainly from the adolescents and their carers in the home. The study could be improved by including other information from parent/s and relatives who know these adolescents better.

Strengths
The study had an adequate number of participants for statistical analysis. The psychiatric diagnoses were made on the basis of the gold standard DSM-IV criteria using reliable tools.

It was not the scope of the research to investigate and determine who the abusers were or what associated risk were present in the child for the abuse to occur e.g. demographic variables, family relationships, parental characteristics and child characteristics. However, the results of the study including participants who were identified as having depression were informed to the relevant authorities.

Clinical Implications
The finding of this study is relevant to the running of residential homes in Malaysia. A substantial number of adolescents staying in residential homes experienced past adversity and depression is common. Depression and child abuse remains a major health problem and contributes significantly to long lasting impact on the mental health of children, thus prevention and intervention strategies are necessary. Many staffs of residential homes may not be aware of the past history, the impact of abuse and presence of depression in the children. The behavior and emotional difficulties of these adolescents may be misinterpreted and dealt with incorrectly.

Understanding the risk and protective factors associated with depression among adolescents in the residential homes will help more of these adolescents achieve successful outcomes. Staffs should also be trained to detect mental health problems among adolescents, be equipped with basic or necessary skills to handle emotional issues and know when to refer the adolescents. Maintaining contact with living parent/s are important factors associated with their functioning.

Acknowledgments
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References


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**Email:** wan@ppukm.ukm.edu.my
A Study of Quality of Life in Patients Suffering from Post Traumatic Stress Disorder in Comparison to Patients Suffering from Major Depressive Disorder

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³Department Of Psychiatry, Government Medical College, Srinagar, India
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Abstract

Introduction: There has been a growing interest in the knowledge about how post traumatic stress disorder affects functioning and the quality of life (QoL). This has been prompted by the concerns about the survivors of current wars and disasters, man-made and natural. Kashmir has witnessed both political conflict and natural disasters over the last three decades. Aims: This study was undertaken to compare the quality of life in patients suffering from posttraumatic stress disorder (PTSD), with those suffering from major depression (MDD). It was hypothesized that patients with PTSD have a lower quality of life, compared to those with MDD. Methods: 100 consecutive patients with the diagnosis of PTSD and a matched group of 100 patients with MDD as comparison group attending the outpatients, of Psychiatric Diseases Hospital Srinagar were recruited. All diagnoses were based on DSM IV TR diagnostic criteria. World Health Organization Quality Of Life - BREF (WHOQOL-BREF) questionnaire was used to compare the quality of life in both groups. The WHOQOL-BREF instrument comprises 26 items, which measure the following broad domains: physical health, psychological health, social relationships, and environment. Results: A comparison of mean scores on overall quality of life, general health and four domains of health between two groups revealed that the patients with PTSD scored consistently lower on physical, psychological, social and environmental parameters of health, than the MDD group with the difference being statistically significant. Conclusion: Our study shows a significantly lower quality of life, in different domains, in PTSD patients as compared to MDD. The lower QoL could be due to comorbidity, exposure to recurrent traumatic events and lack of rehabilitative provisions. Presence of comorbidity in the PTSD group was a potential limitation which needs to be
studied further. Further work is needed to explore this subject taking into account the potential confounding factors.

**Keywords:** PTSD, MDD, Co-Morbidity, Quality of Life, Trauma, Conflict

**Introduction**

Psychiatric disorders may not be fatal per se, but the impairment they cause to one’s life is enormous. The psychiatric disorders are a major public health concern, as people with these disorders experience significant disability with regards to functional limitations in personal, physical and societal realms. There has been an interest in knowing how PTSD affects functioning and quality of life (QoL), prompted in part by concerns about survivors of current wars and recent human caused and natural disasters. In the legal arena, functional impairment may be more important than diagnosis when determining monetary damages. ‘Functioning’ is a rather broad construct that is labeled in different ways (e.g., functioning, disability, illness intrusiveness, well being, interference, activities of daily living, QoL). Although distinctions do exist, these terms are often used interchangeably. Functioning measures range from crude face-valid single items to more comprehensive, psychometrically supported instruments.

The World Health Organization defines QoL as: "the individual's perception of his/her position in life in the context of the culture and value system in which he/she lives and in relation to his/her goals, expectations, standards and concerns." This definition reflects the multidimensional nature of QoL as the subjective evaluation is embedded in the individual's physical health, psychological state, level of independence, social relationships, personal beliefs and relationships to salient features of the environment.

The issue of comorbidity is especially relevant to the measurement and interpretation of functioning and QoL in PTSD. Despite high rates of comorbidity with other mental and physical disorders, many studies do not assess the role of PTSD independent from these other problems. Several studies of Vietnam veterans examining the impact of PTSD on QoL by a wide range of QoL measures, show that PTSD have negative influence on QoL in both females and males. Also QoL studies based on civilian populations have been shown to predict QoL impairment in patients diagnosed as suffering from PTSD. Also patients with post-traumatic stress disorder (PTSD) report a poorer subjective quality of life than patients with other anxiety disorders.

How PTSD symptoms after exposure to trauma influence QoL is less known, as well the impact of PTSD on QoL over time. As far as we know, not many studies have been undertaken comparing the QoL in patients with PTSD and major depression, bearing in mind the prevalence of depression and its comorbidity with PTSD. The present study aimed to compare the quality of life (QoL) in patients with diagnosis of PTSD and a matched group of patients with a diagnosis of MDD using WHOQOL-BREF scale.

**Methods**

This study was conducted in the Department of Psychiatry, Government Medical College...
Srinagar India. 100 consecutive patients with the diagnosis of Post Traumatic Stress Disorder (PTSD) presenting to the Outpatient department were included in the study from May 2005 onwards. A matched group of patients with Major Depressive disorder diagnosis attending the Outpatient department were recruited as comparison group.

All diagnoses were based on DSM IV diagnostic criteria. After screening a detailed semi-structured interview with all the relevant items from MINI Kid (Mini International Neuropsychiatric Interview) [based on DSM IV] was administered to all the cases included in the study. Finally, World Health Organization Quality Of Life - BREF (WHOQOL-BREF) questionnaire was administered. Scores on Overall quality of Life facet (Q1), General Health facet (Q2), and four domains of QoL (Dom1 through Dom4) for each patient was calculated following scoring instructions of WHOQOL-BREF scale. Each score, if not a whole number, was rounded off to the nearest one. Mean scores on Q1, Q2, Dom1, Dom2, Dom3 and Dom4 for PTSD and MDD patients was calculated, along with other statistical details, including range, standard deviation, standard error of mean etc. Mean scores for sub groups based on age, sex, education, occupation, socioeconomic status; marital status, residential status and duration of illness for each disease groups were separately calculated.

All the patients in the age range of 15 -64 years irrespective of their sex were included in the study, as WHO considers this age group economically productive. Patients with common comorbid psychiatric disorders like depression, anxiety disorders etc. were included in the PTSD patient group, and their comorbidities recorded. The patients in depressive group were included without any major co-morbidity. Patients with a history of psychotic disorder and comorbid medical disorders (including cerebral palsy, epilepsy, congenital genetic disorders, deafness and mutism) were excluded from the study.

World Health Organization Quality Of Life - BREF (WHOQOL-BREF)

The WHOQOL-Bref is a self-report scale that consists of 26 items. It is a multilingual, multicultural generic quality of life scale, developed across 15 field centers. The WHOQOL-Bref includes four domains related to QoL: physical health, psychological health, social relationships and environment. In addition, two items are examined separately, namely the perception of overall quality of life and perception of overall health. The WHOQOL-Bref has been demonstrated to have satisfactory discriminant validity, internal consistency and test-retest reliability. The items are rated on a 5-point Likert scale, reflecting intensity, capacity, frequency or evaluation. The items inquire "how much", "how completely", "how often", "how good" or "how satisfied", with possible answers ranging, from ‘very satisfied’ [5] to ‘not at all satisfied’ [1]. The range of scores in each domain is from 4 to 20, where a higher score indicates a better QoL. The four domain scores denote an individual’s perception of quality of life in each particular domain. Domain scores are scaled in a positive direction (i.e. higher scores denote higher quality of life). The mean score of items within each domain is used to calculate the domain score.

Analysis

Statistical difference between the mean scores in the subgroups in each disease population and between the two disease
populations was evaluated using test of means (Mann-Whitney test) or test of proportions (One way ANOVA), as appropriate. Statistical analysis was carried out using Minitab statistical software.

**Results**

The characteristics of patients suffering from PTSD are tabulated as shown in Table 1. Patients with MDD were adequately matched with PTSD.

<table>
<thead>
<tr>
<th>Table 1. The characteristics of patients suffering from PTSD</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Characteristics</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male=42</td>
<td>100</td>
</tr>
<tr>
<td>Female=58</td>
<td></td>
</tr>
<tr>
<td>Age(Yrs)</td>
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<tr>
<td>15-30=41</td>
<td>100</td>
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<tr>
<td>31-45=40</td>
<td></td>
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<tr>
<td>≥46=19</td>
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<td>Residence</td>
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<tr>
<td>Rural=86</td>
<td>100</td>
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<tr>
<td>Urban=14</td>
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<td>Education</td>
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<td>Under Graduate=39</td>
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<td>Graduate=5</td>
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<td>Post Graduate=3</td>
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<td>Occupation</td>
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<td>Student=13</td>
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<tr>
<td>Housewife=51</td>
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<tr>
<td>Govt. Employee=7</td>
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<td>Self Employed=14</td>
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<td>Farmer=15</td>
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<td>Family Type</td>
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<td>Joint=59</td>
<td>100</td>
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<tr>
<td>Nuclear=32</td>
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<td>Middle Class=25</td>
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<tr>
<td>Lower Class=73</td>
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</tr>
<tr>
<td>Religion</td>
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<tr>
<td>Islam=97</td>
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<tr>
<td>Hinduism=3</td>
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<tr>
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<td>Unmarried=23</td>
<td>100</td>
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<tr>
<td>Married=56</td>
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<td>Widowed=21</td>
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<tr>
<td>Number of Traumatic Events</td>
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<td>One=77</td>
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<tr>
<td>Two=19</td>
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<td>&gt;2 =4</td>
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<tr>
<td>Type of Traumatic events</td>
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<td>Witnessed=16</td>
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<td>Experienced=73</td>
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<tr>
<td>Confronted=1</td>
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<td>Onset</td>
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<tr>
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<td>Acute=19</td>
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<tr>
<td>Chronic=81</td>
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</table>

MDD was the commonest co-morbidity (82%), followed by somatization (52%), panic (38%), conversion symptoms (15%), substance abuse (12%), GAD (10%). A minority of the patients had agoraphobia (8%), psychotic symptoms (6%) and OCD (3%). Further, 49% of the patients had experienced peri-traumatic dissociation.
Table 2. Comparing mean scores of functioning on various domains between PTSD and MDD patients

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th>Mean Q1</th>
<th>Mean Q2</th>
<th>Mean DOM1</th>
<th>Mean DOM2</th>
<th>Mean DOM3</th>
<th>Mean DOM4</th>
</tr>
</thead>
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<tr>
<td>PTSD</td>
<td>1.53</td>
<td>1.44</td>
<td>8.01</td>
<td>7.93</td>
<td>9.25</td>
<td>9.78</td>
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<td>MDD</td>
<td>2.44</td>
<td>2.35</td>
<td>11.11</td>
<td>9.25</td>
<td>11</td>
<td>12.34</td>
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<table>
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<tr>
<th>U test value</th>
<th>7169</th>
<th>7050</th>
<th>6475</th>
<th>8621</th>
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<th>7319</th>
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<td>p</td>
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<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

The table shows a significant difference between PTSD group and MDD group for the mean scores on Q1, Q2, DOM1, DOM2, DOM3 and DOM4.

Q1 : Score on Question related to perceived overall quality of life
Q2 : Score on Question related to perceived overall health
DOM. : Domain Score
U test value: Mann Whitney test value

Discussion

Most of the patients diagnosed with PTSD in our study had a comorbid psychiatric disorder. Majority (82%) had symptoms of major depression, followed by somatization (52%), peritraumatic dissociation (49%), panic disorder (38%), conversion disorder (15%) and other disorders. Multiple comorbidities were seen in many patients. This profile of comorbidity was similar to that revealed by Firdosi\textsuperscript{13}. Higher level of depressive disorder and dissociation in PTSD patients has also been reported in an earlier hospital based study by Margooob et al\textsuperscript{14}.

In our study, a comparison of the mean scores on overall quality of life facet (mean Q1), general health facet (mean Q2) and four domains of health between PTSD and MDD patients reveals that PTSD patients score consistently lower on physical, psychological, social and environmental parameters of health when compared to MDD patients, and this difference assumes a statistical significance. In a study on quality of life impairment (QoL) in patients with anxiety and mood disorders, it was found that although 37% of patients with PTSD had a current or lifetime history of a depressive disorder, depressive comorbidity was not a significant predictor of quality of life scores\textsuperscript{15}. In another study, it was shown that PTSD severity remained a significant predictor of self-reported mental health impairment even after controlling for depressive symptoms and other variables, suggesting that it is not simply comorbid depression that is accounting for the functional impairments in the mental health domain\textsuperscript{16}.

Not many studies have been carried out to directly compare quality of life impairment in major depression with that in PTSD. Wittchen et al in a study comparing impairment in an anxiety disorder (generalized anxiety disorder) with that in major depression reported that patients with generalized anxiety had poorer quality of life scores than MDD patients\textsuperscript{17}. Studies suggest
that people who have been exposed to trauma experience more adverse health outcomes in a number of domains: self-reported health, morbidity, mortality, and health care utilization\textsuperscript{18}. The same authors have proposed an integrative model that relates trauma to physical health through psychological, biological, behavioral, and attentional mechanisms, and that supports PTSD as the key mechanism for this link\textsuperscript{19}. Results from the North Carolina component of the Epidemiologic Catchment Area study indicated that symptoms of posttraumatic stress were associated with impairment along several domains of functioning: social, financial, physical, and psychological. Individuals with posttraumatic stress were found to have more socioeconomic disadvantages and impaired functioning\textsuperscript{20}.

In a study on patients with PTSD, major depression, alcohol use disorder and those with more than one or none of these diagnoses, PTSD showed significant adverse effects on psychological, physical, and social functioning. Major depression showed a similar pattern. In contrast, alcohol use disorders primarily affected role functioning\textsuperscript{21}. Similarly, in a study, using WHOQOL-Bref, on quality of life in victims of non-domestic violence over a period of 12 months Venke et al found that the presence of PTSD symptoms predicted lower QoL, both from an acute and prolonged perspective\textsuperscript{22}.

Rapaport et al, using Quality of Life Enjoyment and Satisfaction Questionnaire to determine quality of life impairment in depressive and anxiety disorders, found that proportion of patients with clinically severe impairment with MDD (63\%) were almost equal to those with PTSD (59\%)\textsuperscript{15}. Kessler et al in an update to the original NCS prevalence data reported that the more patients with PTSD (36.6\%) qualified as being “serious” (based on several criteria, including work disability, role impairment, and suicide attempts), than those with MDD (30.4\%). Higher severity was significantly associated with greater interference with normal activities and with more psychiatric comorbidities\textsuperscript{23}. In this respect, our observations stand validated, especially considering high rates of comorbidity in our PTSD sample. Studies evaluating the effect of comorbid psychiatric disorders on the impairment caused by PTSD, however, have given mixed results, with some denying any incremental role\textsuperscript{15-16} while others suggesting it. A study of suicidality in Vietnam veterans showed that veterans with a diagnosis of PTSD plus depression or dysthymia were more likely to report suicidal thinking and behaviours, including suicide attempts, than were veterans with only one of the diagnoses\textsuperscript{24}. PTSD is clearly associated with impairment, and adding other disorders to PTSD does not always produce incremental impairment. It is possible that this may be due to the fact that there is a stronger link between PTSD and impairment than there is between other disorders and impairment, as noted by North and colleagues (52\% for PTSD versus 27\% for other disorders)\textsuperscript{25} but the research on this question is indeterminate.

Although much research has focused on the effect of comorbidity among various psychiatric disorders, only recently has research begun to pay attention to the synergy between psychiatric disorders, particularly PTSD, and medical conditions and to how that interaction can affect health status or disability. In a large study based on data from the National Co-morbidity Survey, men and women with PTSD were more than twice as likely to experience a
nonpsychiatric condition as those without PTSD, even after controlling for age, socioeconomic status, and major depression\textsuperscript{26}. Research also shows that relative both to nonpsychiatric control subjects and to subjects with psychiatric disorders other than PTSD, individuals with PTSD showed elevated rates of role-functioning impairment due to physical morbidity\textsuperscript{27}. These facts assume relevance in the Kashmir Valley’s scenario, where chronic physical illnesses are common, with access to medical care being deficient or delayed.

Studies have also shown that PTSD patients spend ten times more time in the hospitals as compared to depression patients\textsuperscript{28}, contributing to higher functional impairment over depression patients. Other studies too have emphasized quality of life impairment in PTSD patients. Schonfeld et al found that single disorder PTSD had significant adverse effects on eight areas of functioning, with effects comparable to depression among other disorders\textsuperscript{29}. Another study found high levels of impairment, comparable to levels seen in severe and chronic depression, in outpatients with PTSD on several self-reported and clinician-rated scales measuring quality of life\textsuperscript{30}. A putative reason for lower quality of life scores in our PTSD sample could be higher rates of chronicity. 81% of our PTSD patients were running a chronic course. Norris et al, using Composite International Diagnostic Interview to measure functional impairment in a non-western population, found that functional impairment was the best single predictor of duration (more than one year vs. less than one year) of PTSD symptoms\textsuperscript{31}. A study on PTSD patients seeking treatment, from our hospital shows that mean duration of illness in chronic PTSD patients at presentation was 45 months\textsuperscript{14}. The chronic course of PTSD could be explained on the grounds of chronic conflict situation of more than 3 decades, exposing individuals to repeated traumas. These findings are consistent with studies that people exposed to chronic combat are more likely to develop chronic PTSD\textsuperscript{5,32-35}. Studies have also revealed that traumas due to deliberate human malice (versus natural/accidental trauma) may be stronger predictors of PTSD and reduce recovery from it\textsuperscript{36}.

A sizeable 23% of our PTSD patients had been exposed to more than one significant traumatic event. A community based study from valley put lifetime prevalence of exposure to traumatic event(s) at 58.69%\textsuperscript{37}. These figures along with the facts that the people of the Kashmir valley have been weathering a chronic combat like situation for about three decades, which has put their coping to stretch, have ensured a protracted and chronic course of their symptoms. This has been further aggravated by absence of a meaningful mental health care network, indifferent attitude of the authorities towards the unmet mental health needs of the psychiatric patients, stigma, ignorance about the illness and consequent delayed treatment seeking. During the past few years, natural disasters too have struck the Kashmir valley, leaving the survivors grief struck and marooned for the sake of a proper psychosocial rehabilitation. The symptoms of PTSD and the accompanying impaired function may be continuous or sporadic\textsuperscript{38}, and are often exacerbated by the presence of adversity or new life stressors. With the presence of continuous traumatic insults and stressors the patients with PTSD continue to be aggrieved, and will be so in the future, unless effective strategies are formulated and implemented to identify, treat and rehabilitate them.
Conclusion

This study shows significant functional impairment in patients suffering from Post Traumatic Stress Disorder compared to Major depressive disorder group in various domains of life. The need for service development and provision of appropriate support and treatment at timely manner would help to alleviate the suffering and long term negative consequences on quality of life. Further studies are required to explore link between trauma, PTSD and QoL and development of appropriate and effective measures to treat the same.

Limitations of our study

One of the limitations of our study was that the comorbidities were not considered in the depressive group while as PTSD group has significant comorbidities which may be influencing quality of life independently, and needs further investigation. Diagnostic instruments (MINI & WHOQOL) used in our study were based on western populations and may not give the true outcome in our sample from a very different cultural and geographical background.

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Depression and Coping Strategies Used by Postnatal Mothers During the Postpartum Period

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Abstract

The objective of this study is to evaluate the depression and coping strategies used by postnatal mothers during the postpartum period. This study used a cross-sectional design and was conducted at the University Malaya Medical Centre from November 2013 to January 2014. This study involved 150 respondents (postnatal mothers) and used instrumentation adopted from the Malay version of Edinburgh Postnatal Depression Scale (EPDS) and the Malay version of Brief COPE. The results showed 32 (21.3%) postnatal mothers have had severe depression. Emotional coping strategies were reported to be the most used by postnatal mothers (mean = 4.77 ± 0.70). There was a significant association between problem-focused coping strategies and race (p = 0.045) where it was mostly used by Malay participants (mean = 3.39 ± 0.46). There was a mild negative relation between EPDS and problem focus (r = -0.168, p = 0.04). On the other hand, there was a mild positive relation between depression level and avoidant emotion (r = 0.162, p = 0.047). The psychological support from nurses and family was needed to improve depression and coping strategies used so that it can improve health outcome among postnatal mothers.

Keywords: Depression, Coping Strategies, Postnatal Mothers, Postpartum Period

Introduction

Postpartum depression is characterized by changing mood, nervousness, irritability, depression, fear, and obsession phenomenon. This happens among new mothers because they face many life changes and adjustments such as new patterns, household tasks and routine. The changeover to motherhood is often followed by stress¹. Postpartum stress has consistently been linked to the mood and wellbeing of mothers². During the first few days after birth, mothers usually show postpartum blues symptom such as tiredness, worry, disordered sleeping and changing mood. However, during the six week of postpartum period, women are more worry with their
body image, health maintenance issues, and challenges of caring for a new infant.

This condition which may indicate suffering and maternal illness for the new mothers can have an adverse impact on the cognitive, emotional, social and behavioural development of infants. During postpartum period, mother faces problems of tiredness, physical exhaustion, sleep related problems, pain, sex related concerns, haemorrhoids, constipation, and breast problem such as breast engorgement.

Inability to adapt with new roles and the physical and emotional changes experienced by the new mothers may predispose them to easily become anxious and stress. A study by Webb, Bloch, Coyne, Chung, Bennett, Culhane found that 69% of women had experienced one physical health problem after giving birth. There is a growing incidence that the experience of childbirth can lead to the development of psychological trauma symptoms and post-traumatic stress disorder in some women. O'hara, Swain mentioned that 13% of women had experienced mood disorder during the first year after deliveries. In addition, low levels of optimism or unable to cope with stress were linked with unhealthy mental and physical health outcomes such as depression and increased frequency and intensity of somatic complaints.

Therefore, the study was aimed to;

1. To determine the level of depression among postnatal mothers.
2. To identify the types of coping strategies used by postnatal mothers.
3. To determine the association between level of depression and patient’s characteristics.
4. To determine the association between types of coping strategies and patient’s characteristics.
5. To determine the relationship between depression and type of coping strategies.

The researchers hope that this study will provide useful information toward quality care for patient and to identify and detect early sign and risk factor which might predispose to maternal depression that may lead to postnatal blues or postnatal psychosis. According to Joseph, a positive and supportive environment will increase staff morale, job satisfaction, job effectiveness and increase the quality of patient care. The immediate action by nurses may increase quality of life and maintain physical and emotional wellbeing among postnatal mothers.

Methods
Study Design
The study design is a quantitative descriptive cross sectional design. The study focused on a particular group, postnatal mothers in an outpatient clinic, to assess the level of depression and coping strategies used during the postpartum period.

Setting
The study was carried out in the Department of Obstetrics and Gynaecology of University Malaya Medical Centre (UMMC), Malaysia. The department provides consultation, diagnosis, treatment, counselling, prevention and rehabilitation to patient in inpatient and outpatient services. The total numbers of women who utilize the services of Outpatient Postnatal Clinic in UMMC are 200 postnatal mothers every month.
**Sampling**
A convenience sampling technique was used to choose the participants. The participant was defined as any postnatal mother who comes for postnatal check-up after four to six week deliveries.

Raosoft software (2004) was used to calculate the sample size and to estimate the power of 95% and the margin of error of 5% to detect the amount of error that can be tolerated. The minimal sample size was 132 respondents. Taking into account of 20% for non-respondent, the total numbers of respondents required for were 150 respondents.

Respondents should be able to understand Malay, ages were between 18 to 42 years old (fertility or productive age) and postnatal mothers who are 7 to 42 day after deliveries.

**Instruments**
Two scales were used in the study; the Malay version of Edinburgh Postnatal Depression Scale (EPDS) and the Malay version of Brief COPE were used to identify types of coping strategies among postnatal mothers.

**Edinburgh postnatal depression scale**
The Edinburgh Postnatal Depression Scale (EPDS) was used to assess the level of depression among postnatal mothers during the postpartum period. It is a 10-item self-administered questionnaire, in which women were asked to rate their feeling of depression during the last seven days, on a scale from 0 (never) to 3 (quite often).

A score of 0-9 indicates the presence of some symptoms of distress that may interfere in the mother’s day to day routine but she is able to function at home, 10-12 score indicates the presence of symptoms that may be discomforting and the mother’s condition needs to be monitored regularly, and 13 and above shows the need for further assessment and appropriate management as it indicates that depression is high.

**Brief Cope Carver**
The Brief COPE by Carver, Scheier, Weintraub was used to identify the strategies used by postnatal mother during postpartum period. It includes 28 items which measure 14 conceptually differentiable coping reactions. The Brief COPE four point Likert Scale which requires mothers to respond to variety of coping methods, provides response choices range from 1 (I usually don’t do this at all), 2 (I usually do this a little bit), 3 (I usually do this a medium amount) and 4 (I usually do this a lot).

The scales of the Brief COPE are divided into three coping strategies by summing items into the following categories: problem-focused coping (active coping, planning, instrumental support and religion scale), active emotional coping (venting, positive reframing, humour, acceptance and emotional support scales) and avoidant emotional coping (self-distraction, denial, behavioural disengagement, self-blame and substances used).

**Pilot study**
The Cronbach’s alpha for Edinburgh Depression Postnatal Scale and The English version of Brief COPE were 0.82 and 0.86 respectively. Face-to-face interview was conducted to ensure the questionnaires were understood.

**Data Collection**
A letter with information sheet outlining the study and questions was given personally to all postnatal mothers in the outpatient clinic. The study purposes and the voluntary of the
participation were explained to the respondents.

The questionnaires were distributed to the respondents and then collected back after 25-30 minutes to give the respondents ample time to complete the questionnaires. The researcher was around during that time to explain and respond to any queries. Eight weeks of data collection were needed to collect data from 150 respondents.

**Data Analysis**

Data were processed and analysed by using Statistical package for Social Sciences version 20.0 (SPSS 20.0 for window). Frequency and percentage were used to determine the level of depression and types of coping strategies. Crosstab chi-square test was used to identify the association between level of stress and patient’s characteristics. ANOVA and independent t-test were used to identify the association between types of coping strategies and patient’s characteristics. Pearson correlation was used to identify the relationship between the level of stress and coping strategies. A probability value of less than 0.05 was set to establish statistical significance in all tests.

**Ethical Considerations**

Ethical approval letter was obtained from Universiti Teknologi MARA and University Malaya Medical Centre. To ensure anonymity and confidentiality, all respondents were given an envelope containing a cover letter and information packages to explain the purpose and nature of the study. Explanation was given on how their anonymity will be assured and their confidentiality will be protected.

The respondents were informed of their right to be a respondent and the voluntary nature of their participations as they have the right to decline to participate in the study. Consent form was obtained from the participant prior to the study.

**Results**

**Patient’s Characteristics**

The mean age of the respondents was 31.4 years old, 56.7% were Malay and about 61.3% of the respondents obtained tertiary education. Majority of them were multipara (89.3%) and 98.7% gave birth to single baby. About 66.7% of respondents went through spontaneous vaginal delivery, and the majority of the respondents (66.7%) were helped by their husband (Table 1).

**Table 1. Patient’s characteristics (n=150)**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Mean±SD)</td>
<td>31.41±4.50</td>
<td></td>
</tr>
<tr>
<td>18-30 years</td>
<td>63</td>
<td>42.0</td>
</tr>
<tr>
<td>31-44 years</td>
<td>87</td>
<td>58.0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>85</td>
<td>56.7</td>
</tr>
<tr>
<td>Chinese</td>
<td>30</td>
<td>20.0</td>
</tr>
<tr>
<td>Indian</td>
<td>35</td>
<td>23.3</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Primary education 3 2.0
Secondary education 55 36.7
Tertiary education 92 61.3

Number of children
Primipara 16 10.7
Multipara 134 89.3

Person helping during confining
Husband 100 66.7
Parents 44 29.3
Parents-in-law 3 2.0
Others 3 2.0

**Level of depression among postnatal mothers**

Majority of the postnatal mothers (60%) have had mild depression and 21.3% had complained of severe depression (Table 2).

**Table 2.** Level of depression among postnatal mothers (n=150)

<table>
<thead>
<tr>
<th>Level of depression</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (0-9)</td>
<td>90 (60.0)</td>
</tr>
<tr>
<td>Moderate (10-12)</td>
<td>28 (18.7)</td>
</tr>
<tr>
<td>Severe (13-30)</td>
<td>32 (21.3)</td>
</tr>
</tbody>
</table>

**Type of coping strategies used by the postnatal mothers**

Based on the coping strategies presented to the postnatal mothers, emotional coping strategies were reported to be the most used by them (mean = 4.77) compared to problem focus strategies (mean = 3.29) (Table 3).

**Table 3.** Types of coping strategies used by postnatal mothers (n=150)

<table>
<thead>
<tr>
<th>Coping strategies</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-focused</td>
<td>3.29 ± 0.57</td>
</tr>
<tr>
<td>Emotion-focused</td>
<td>4.77 ± 0.70</td>
</tr>
</tbody>
</table>

**The association between level of depression and patient’s characteristics**

The results of Chi-square test did not show any significant association between levels of stress and patient’s characteristics among postnatal mothers.
The association between type of coping strategies and patient’s characteristics

Table 4 shows a significant association between problem-focused coping strategies and race (p=0.045) where it was mostly used by Malay participants (mean = 3.39). Other factors did not show any significant association with coping strategies.

Table 4. The association between type of coping strategies (Brief COPE) and patient’s characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Problem-focused</th>
<th>Active emotional</th>
<th>Avoidant emotional</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-30 years</td>
<td>3.31±0.55</td>
<td>2.92±0.50</td>
<td>1.87±0.29</td>
</tr>
<tr>
<td>31-44 years</td>
<td>3.27±0.60</td>
<td>2.87±0.54</td>
<td>1.88±0.35</td>
</tr>
<tr>
<td>p value</td>
<td>0.744</td>
<td>0.583</td>
<td>0.793</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>3.39±0.46</td>
<td>2.93±0.48</td>
<td>1.90±0.34</td>
</tr>
<tr>
<td>Chinese</td>
<td>3.21±0.44</td>
<td>2.97±0.40</td>
<td>1.89±0.31</td>
</tr>
<tr>
<td>Indian</td>
<td>3.11±0.83</td>
<td>2.75±0.68</td>
<td>1.82±0.29</td>
</tr>
<tr>
<td>p value</td>
<td><strong>0.045</strong></td>
<td>0.165</td>
<td>0.479</td>
</tr>
<tr>
<td><strong>Educational level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary education</td>
<td>3.29±0.62</td>
<td>2.60±0.56</td>
<td>2.00±0.82</td>
</tr>
<tr>
<td>Secondary education</td>
<td>3.15±0.64</td>
<td>2.82±0.58</td>
<td>1.91±0.32</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>3.37±0.52</td>
<td>2.95±0.52</td>
<td>1.85±0.30</td>
</tr>
<tr>
<td>p value</td>
<td>0.067</td>
<td>0.214</td>
<td>0.452</td>
</tr>
<tr>
<td><strong>Number of children</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primipara</td>
<td>3.10±0.74</td>
<td>2.82±0.58</td>
<td>1.80±0.34</td>
</tr>
<tr>
<td>Multipara</td>
<td>3.31±0.55</td>
<td>2.90±0.51</td>
<td>1.89±0.32</td>
</tr>
<tr>
<td>p value</td>
<td>0.171</td>
<td>0.539</td>
<td>0.309</td>
</tr>
<tr>
<td><strong>Person helping during confining</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband</td>
<td>3.29±0.62</td>
<td>2.90±0.54</td>
<td>1.90±0.32</td>
</tr>
<tr>
<td>Parents</td>
<td>3.30±0.48</td>
<td>2.94±0.49</td>
<td>1.83±0.32</td>
</tr>
<tr>
<td>Parents-in-law</td>
<td>3.50±0.22</td>
<td>2.70±0.10</td>
<td>1.67±0.12</td>
</tr>
<tr>
<td>Others</td>
<td>2.71±0.19</td>
<td>2.37±0.15</td>
<td>0.436±0.25</td>
</tr>
<tr>
<td>p value</td>
<td>0.323</td>
<td>0.287</td>
<td>0.210</td>
</tr>
</tbody>
</table>

The relationship between the level of depression and type of coping strategies

Based on Table 5, there was a mild negative relation between EPDS and problem focus (r=−0.168, p=0.04) whereas the depression level increases, the problem focus decreases. On the other hand, there was a mild positive relation between depression level and avoidant emotion (r= 0.162, p= 0.047) whereas the depression level increases, the
avoidant emotion increases as well. Meanwhile, there was no significant correlation between EPDS score and active emotion coping strategies.

**Table 5.** Relationship between levels of stress (EPDS score) with coping strategies (Brief COPE).

<table>
<thead>
<tr>
<th>Items</th>
<th>Problem-focused</th>
<th>Active emotion</th>
<th>Avoidant emotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPDS Score</td>
<td>-0.168 (0.040)</td>
<td>-0.148 (0.070)</td>
<td>0.162 (0.047)</td>
</tr>
</tbody>
</table>

**Discussion**

*Level of depression among postnatal mothers*

The study found that the majority of the postnatal mothers had experienced mild level of depression followed by severe depression during the postpartum period. Only a few of them had experienced moderate level of depression. O’hara, Swain mentioned that postnatal depression occurs in 10-20% of mothers by three months of postpartum. Hung, Chung identified three factors associated with postpartum stress, namely maternal role attainment, lack of social support and body changes. During this period, the mother faces a transition period towards motherhood, therefore they are experiencing a challenging time in their live. This is in line with Bina who stated that postnatal depression is a complex and challenging disorder and it has potentially devastating negative consequences for mothers, partner, mother-infant relationship and care for infant. Munk-Olsen, Laursen, Pedersen, Mors, Mortensen stated that considerable numbers of mothers had mentioned that the postpartum period is not a positive and happy period but it is a time of considerable mental pain and anguish. This situation may also contribute to fatigue and tiredness among the mothers. EdÉL-Gustafsson emphasized that a disturbed sleeping may result in sympathetic nervous response, predispose to infection, the degree of cognitive requirement, mood changes and somatic distress. According to Nyberg, Sternhufvud the implication of disturbed sleep for women in postnatal period are significant when faced with new responsibilities and needs to learn new skills and relationship and also coping with maternal and babies health concerns.

*Type of coping strategies used by the postnatal mothers*

The study found that an emotion-focused coping strategy was the most used among the postnatal mothers as compared to problem-focused coping strategies. Lazarus found that when the situation is perceived as more hopeless and uncontrollable, there will be a tendency to withdraw from problem-focused coping in favor of more emotion-focused coping strategies. Folkman stated that individuals have been reported to use problem-focused coping more when they perceive they can alter the stress situation, and use emotion-focused coping strategies when there are few modifiable personal factor to change the situation. Many studies are also consistent with these findings where patient reported more use of emotion-focused coping strategies than problem-focused coping strategies.
The association between type of coping strategies and patient’s characteristics

The study found that there was a significant association between problems focused coping and race. The Malay respondents can manage their problem and remain positive as compared to other races. Supported by previous studies, Muslim women in Malaysia are able to articulate fully their feeling in relation to depression\textsuperscript{25,26}. Muslim women in Malaysia express their feeling thought as feeling loneliness, tearfulness and emptiness as part of depression mood\textsuperscript{26}.

The relationship between depression and type of coping strategies

The study found that coping strategies of problem focus and avoidant emotion focus were found to be correlated with the level of depression experienced by the postnatal mothers. The results were similar with the study by Hardy, Power, Jaedicke\textsuperscript{27} and Kliewer, Lewis\textsuperscript{28} Postnatal mothers used coping strategies because they believe that they can manage a stressful situation and depressive symptoms.

Recommendation and conclusion

Based on the result from the study, individual care should be emphasized more to the nurses in giving care to the pregnancy mother. For example, the implementation of patient discharge plan that gives patient and spouse simple information about care during pregnancy and postnatal can help them to overcome the depressive symptoms. Promotion from the community centres where subsequent home visit by midwife that provides appropriate nursing guidance and training can increase the mother’s confident and competent in postnatal care. Other than that, the use of good coping strategies may reduce symptom of depression among the postnatal mothers.

Acknowledgement

Our team would like to express our gratitude to the Nursing Department and the Ethics Committee, Universiti Teknologi MARA as well as University Malaya Medical Centre.

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CASE REPORT

Cannabis as a Risk Factor for Persistent and Severe Depression: A Case Report

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Abstract

Evidence linking cannabis use and depression remains inconsistent. Variations of clinical features were observed in those with history of cannabis use presented with affective symptoms. We report a case of a 19-year-old male college student with a history of heavy cannabis use for at least seven months. A month after stopping cannabis, he presented with severe persistent depressive symptoms. He had no withdrawal symptoms prior to this. He had severe depressive symptoms with melancholic features and progressed to multiple and serious suicidal attempts. While the use of cannabis is implicated in neither the patient’s diagnosis nor management, its use has a significant role in influencing the clinical features and course of the illness. This case suggests that depression can start long after cessation of cannabis use with the history of cannabis remained as a significant risk factor.

Keywords: Cannabis, Depression, Suicidal Attempt

Introduction

Cannabis is one of the most widely used drug and very popular among young people. The users take it for its euphoric effect and the belief that it is fairly safe. There is consistent evidence that cannabis use is associated with psychosis but for affective disorders there is still little evidence.

Clinical features observed in those with history of cannabis use presented with affective symptoms vary. Apart from that, co-morbidity between cannabis use and depression is characteristically described in combination with other substances but uncommon with cannabis alone. Studies suggest the association is mainly between heavy use of cannabis and depression.

Our case suggests cannabis as a risk factor of a case of severe depression with onset after cessation of the drug.

Case Report

A 19-year-old male university student presented to our centre with a suicidal attempt and a two-month history of depressed mood. He has a history of smoking cannabis for 7 months after being introduced to the substance by his college friends. During this time, he initially smoked 2 to 3 sticks each time for once or twice a
week but the frequency increased to 2 to 3 sticks daily when he moved into a rented house where they were all cannabis smokers. He smoked cannabis to enjoy the euphoric effect and did not experience any psychotic or unpleasant symptoms. He did not abuse other illicit substances or alcohol. Out of his own conscience, he quite suddenly decided to stop the cannabis use. He had no withdrawal symptoms after he stopped taking cannabis “cold-turkey” and he was still able to function at this time.

However, about 3 weeks later, he started to develop the depressive symptoms. Beside feeling depressed, he had poor appetite, loss of weight, anhedonia, poor sleep and poor concentration. Subsequently, he no longer went out with his friends, neglected his duty as a Muslim (e.g. not performing daily prayers) and performed badly in his studies. There was ruminating thought and excessive guilt on his past use of cannabis. No other stressors were elicited. He also had early morning awakening, feeling of hopelessness and worthlessness that led him to attempt suicide.

He moved out from his rented place in the university and stayed with his father. His depressive symptoms continued to worsen. He neglected his hygiene, his verbal response became monosyllabic and he continued to have suicidal thoughts. He was diagnosed with Major Depressive Disorder with melancholic features. After being started on antidepressant and a benzodiazepine (up to fluvoxamine 100mg noxe and lorazepam 1mg noxe) by a psychiatrist at another hospital, he continued to have suicidal ideation and attempted suicide twice before he was brought by his family for admission to the psychiatric ward at our centre.

He has a genetic predisposition for depression where his maternal aunt suffers from depression. He is the eldest child in the family. His parents were divorced when he was 12 years old, nevertheless the history suggests a well-adjusted child with no history of childhood depression or neurosis. Pre-morbidly, he is an independent, cheerful, easy-going person with some perfectionist trait. Mental state examination on admission revealed a thin young man with uncombed hair, minimal eye contact and downcast gaze. He had no psychomotor retardation but appeared depressed with passive suicidal ideation. His judgment was impaired and he had poor insight of his illness. Physical examination and laboratory investigations including urine drug toxicology test were negatives.

**Discussion**

Withdrawal from cannabis have been established\(^3\) and shown to be similar to many other substances where it peaks at day 2-4 and lasted about 2 weeks\(^4\). The symptoms include irritability, mood changes, appetite disturbance, weight loss and difficulty sleeping. However, not everyone will suffer from withdrawal symptoms and this patient is one of them. He did not develop any depressive symptoms during his heavy use of cannabis or during the withdrawal period but instead the symptoms appear nearly a month after cessation. Studies of the cannabinoid system suggest that cannabis and its major psychoactive component delta-9-tetrahydrocannabinol may have a role in modulation of mood and anxiety\(^5\). This may suggest that when the patient suddenly stopped using cannabis, it caused a dysregulation of the cannabinoid systems and contributed in developing the depressive symptoms.
Despite the cannabis use, this patient already has risk factors that predispose him to the illness such as family history of depression and parental divorce. Another possible explanation is based on the “common liability model” which suggests that cannabis and depressive symptoms are associated by an underlying risk factor. A recent study suggests low self control as the predictive risk factor for cannabis use and depressive symptoms\(^6\), which may be implicated in this case. The severity of the symptoms with melancholia and multiple suicidal attempts which developed after cessation of cannabis suggest that cannabis may be a contributing factor. This is supported by studies that found higher rates of suicide among drug users with depression\(^7\).

Management of this patient required hospitalization due to his high risk of suicide. Antidepressant was given but a psychotherapy approach may be useful for this patient as his psychosocial issues must be addressed and assessment of his coping skills may prove to be beneficial in his journey to recovery.

**Conclusion**

While the use of cannabis is implicated in neither the patient’s diagnosis nor management, its use has a significant role in influencing the clinical features and course of the illness as illustrated by this case. The association with depression and suicidal ideation has been shown with heavy regular use of cannabis, but this case suggests that depression can start long after cessation of cannabis use with the history of cannabis use remained as a significant risk factor.

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CASE REPORT

Can a Depressed Patient Give Consent for Tubal Ligation?

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Abstract

Notion of competence to consent to treatment was originally required to address mainly cognitively impaired or psychotic individuals. According to mental health bill, every person with a mental illness shall be deemed to have capacity to make decisions regarding his mental care or treatment if such person has ability to understand the information relevant to mental health care or treatment, retain the information, use or weigh the information as a part of process of making treatment decision and communicate his decision by any means including talking, using sign language or any other means. We present to you a case of a young woman who had depression and was refused tubal ligation as she was not considered compos mentis to give consent for the same. This case highlights the need to liaison with the medical fraternity and creates awareness about different aspects of mental health for better management of the psychiatric patients.

Keywords: Consent, Depression, Mental Health Bill

Introduction

Depression imposes considerable emotional and financial burdens on families and the society. A depressed patient can refuse psychiatric treatment which should be respected on the basis of widely accepted principle of respect for autonomy. However when the treating doctor other than the psychiatrist refuses treatment to the patient on the basis of depression the question of competence arises. The notion of competence to consent to treatment was originally required to address mainly cognitively impaired or psychotic individuals but today there is a focus on the decision-making capacity required for autonomous treatment choice in the mentally ill patient. The understanding ability is a pre-requisite for a patient’s consent or refusal to be ‘informed’. To assess understanding it is necessary to ensure that information has been given to the patient in a manner clear enough to be understood. We present you a case who had depression due to underlying domestic violence and was refused tubal ligation as she was not considered compos mentis.

Case

A 25 year old woman sought psychiatric referral for symptoms of sadness, headache, giddiness and unresponsive spells. Her history revealed that with loss of her father at 10 years of age, patient was married at 12
and in the 13 years of marriage she suffered harassment for dowry, severe physical and emotional insults of 5 pregnancies, husband’s extramarital affair, lack of support from her in-laws, domestic violence (DV) in the form of verbal and physical abuse and economic deprivation. Patient also had a miscarriage 6 months ago, when she was pregnant for the 6th time with additional complications of severe blood loss and a hemoglobin of 6gm % for which she required blood transfusions. Patient had not recovered from this bodily insult when she repeatedly faced allegations from her in-laws that she had purposefully had a miscarriage as she did not want to give them a male child. Since 3 months, patient complained of sadness of mood, crying spells, lethargy, disturbed sleep, ideas of hopelessness, helplessness, and worthlessness along with repeated unresponsive spells. It was in this condition that patient was admitted in the psychiatry ward.

She was started on oral escitalopram (10 mg) and haematinics. Patient was examined for bruises and counseled. During one of the sessions patient confided that she wanted a tubal ligation. She also informed that her husband and in-laws had thwarted all earlier attempts from her side for any form of contraception. The patient’s in-laws and husband were then counseled but despite written consent, the gynecologist refused to do tubal ligation as she felt that a depressed patient’s consent was not valid. She instead advised vasectomy to the patient’s husband which he refused. Several talks later the patient’s tubal ligation was done after 2 weeks. During this time some of her depressive features also improved and after an inpatient stay of 1 month with assured support from health care professionals, her mother and in-laws, patient went home physically and emotionally better.

Discussion

This patient had experienced several life events from the tender age of 10. The loss of a father figure, mother who was trying to support the family, child marriage to a person 10 years older, insecure environment at her in-laws house with constant verbal, sexual, emotional, economic and physical abuse, repeated unplanned pregnancies, no contraceptives used by her husband and demand from the in-laws for a male child definitely had a tremendous impact on her mind resulting in depression.

As the patient wanted TL, we were most surprised when the gynaecologist refused surgery as she felt that consent for surgery in depression was invalid. A literature search revealed that the notion of competence to consent to treatment was originally required to address mainly cognitively impaired or psychotic individuals in whom there is poor insight. The standard notion of competence to consent for treatment includes four components- ability to express choice, ability to understand information, ability to appreciate the personal relevance of this information and ability to reason logically in decision making. Rudnick has reviewed about depressed patients having the competence to refuse psychiatric treatment and has said that the question of the competence of depressed patients to consent to or refuse treatment for their depression has not been sufficiently addressed to date. However he has not mentioned about competence of depressed patients towards their medical treatment.

According to mental health care bill of India 2013, “mental illness” means substantial disorder of thinking, mood, perception, orientation, memory to recognize reality or ability to meet ordinary demands of life, mental conditions associated with abuse of...
alcohol or drugs but does not include mental retardation which is condition of arrested or incomplete development of mind. According to the bill, every person with a mental illness has the capacity to make decisions regarding the mental care or treatment if such person has ability to understand the information relevant to mental health care or treatment, retain the information, use or weigh the information as a part of process of making treatment decision and communicate his decision by any means including talking, using sign language or any other means.

The patient clearly understood the information about benefits and consequences of the procedure of tubal ligation. She had insight into her mental illness for which she wanted treatment and also was aware that one of the causes for the deterioration in her physical health were her multiple pregnancies, for which she wanted tubal ligation. She had every right to think about her own health and consider TL. The refusal to do TL was happening in an urban tertiary care centre where the awareness among the medical fraternity about mental illnesses is supposed to be better than the doctors doing rural practice. It took several meetings with the gynecologist to create awareness about the mental health bill, competence of the patient and right to consent after which the patient finally got operated after 15 days.

Since she was suffering from depression, her decision of undergoing tubal ligation was challenged without judging her emotional insight. Some researchers have found that psychiatric inpatients have a good understanding but poor appreciation and reasoning in relation to decision making capacity for their treatment, which is contrary to our finding.

This case highlights the need to liaison with the medical fraternity and creates awareness about different aspects of mental health by case conferences, continuing medical education programs. Then only we can hope for better doctor patient communication and doctor patient relationship and implementation of health as a human right to yield better outcomes.

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CASE REPORT

Religion and Spirituality as Intervention for Post Traumatic Stress Disorder Following Motor Vehicle Accidents

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Abstract

This case series reports four patients who used religion and spirituality to relieve symptoms of post traumatic stress disorder (PTSD) following motor vehicle accidents. Their symptoms subsided after a few weeks and the recovery is sustained after one month. This demonstrates that in a country where psychological help is still scarce and religion is central to its culture, intervention based on spirituality and religion can be used as an alternative early intervention to relieve symptoms of PTSD and hence protects them from developing the condition.

Keywords: PTSD, Religion and Spirituality, Motor Vehicle Accidents

Introduction

Post traumatic stress disorder or PTSD was first described during the First World War1. At the time, it was known as “shell shock”, to describe the strange physical and mental effects soldiers experienced following exposure to shell explosions. The condition has since been diagnosed following exposure to other traumatic experiences, hence the name change2. The consequence of PTSD is not something to be taken lightly. Sufferers experience high levels of physical, social and occupational disability, which comes at a high economic cost3. In a study involving the Lebanon War veterans, soldiers who received treatment at the frontline for trauma reported less psychiatric symptoms and better social functioning 20 years on than those who did not4. Drugs and alcohol use is also common in people with PTSD, to block the memories of trauma and cope with the distress5. Those with PTSD are also more likely to succumb to physical illnesses such as diabetes mellitus, hypertension, hypercholesterolaemia and stomach ulcers years after the event6.

Motor Vehicle Accidents (MVA) are a common occurrence in Malaysia. In 2010, there were almost 6,500 fatalities on Malaysian roads and it is estimated that by the year 2015, the number will rise to about 9,0007. Approximately 10-15% of those involved in an MVA will go on to develop PTSD8. Fortunately, despite the high numbers of MVAs in the country, PTSD is not a common consequence. Why? Interviews with some of these patients revealed a recurring theme, the use of...
religion and spirituality to cope with the symptoms. In a country such as Malaysia, where psychological interventions are hard to come by and stigma about mental illness is still strong, religion and spirituality can be a more acceptable alternative. We describe four such patients who used this approach to alleviate PTSD symptoms.

Case Presentation

Case 1

A 60-year-old Malay Muslim pensioner was riding his motorcycle when he was struck by a taxi. He sustained fracture of the left clavicle and cuts on his left knee. On presentation to the emergency department he scored 43 on the Post Traumatic Checklist (PCL), only one score shy of being positive for PTSD.

The patient admitted that the days following the accident were difficult, but the tables were turned when he was able to accept the event as fated by God, and if it is God’s will, it must be good for him. Subsequently, his views on the event became more positive. He also believes it had made him a better person by increasing his faith and obedience to God. After one month, his PCL score reduced to 36.

Case 2

A 54-year-old Malay Muslim housewife was riding a motorcycle behind her husband when they met with an accident. She sustained minor injuries. At presentation to the emergency department he scored 43 on the Post Traumatic Checklist (PCL), only one score shy of being positive for PTSD.

She talked at length about the Islamic concept of “redha” or accepting God’s will and believing in it. She felt that helped her go through the initial distress having symptoms of PTSD. She also consulted an “ustaz” who taught her some prayers that she used to deal with her symptoms.

Case 3

A 44-year-old female Chinese Buddhist telephone operator presented with minor cuts following an accident involving a car and a motorcycle. Interestingly, she had low PCL scores both at presentation and one month later. Both scores were not significantly different.

The patient disclosed that she has always been a religious person. When she experiences stress, she copes by praying, watching religious television shows, going to temple and giving money to charity. She would also talk to other people who had similar experiences or go out with her friends.

Case 4

A 76-year-old Chinese Christian housewife was walking by the roadside when she was hit by a passing motorcycle, fracturing her right femur. At presentation, her PCL score was 47, which reduced to 20 after a month.

The patient claimed she experienced a lot of the PTSD symptoms initially, but felt better after 2 weeks. She found strength through prayers, going to church and accepting what has happened. In her own words; “surrender to God, knowing that God must have a reason for the accident to happen”. She received good support from her family and friends from church.

Outcome and Follow-Up

All of the above cases had reductions of symptoms after a month. They were able to
move on and have since able to continue with their lives.

Discussion

Despite the large number of MVAs around the world, it is only in the last decade or so that the psychological consequence is recognized. Three out of the four cases illustrated above met the criteria for PTSD at presentation, which was further confirmed through the PTSD Checklist (PCL). The symptoms persisted almost daily for at least two weeks after their accidents, with the associated physical and social limitations. Reports of similar cases have been published confirming that exposure to MVAs may lead to PTSD. What is interesting is that although psychological symptoms following a traumatic event are predictable, they are not an inevitable consequence. In one of the cases, the victim had minimal symptoms at presentation as well as after one month. Furthermore, the patient admitted to being religious even prior to the accident. There is evidence to support that involvement in religious activities results in better mental health. It is possible to conclude that, in this case, the patient’s religiosity helped protect her from developing PTSD.

On the other hand, many who were not religious in the first place turn to religion when faced with stressful situations. They find that religion provides strength and comfort through accepting God’s will and discovering the ‘silver lining’ behind every unfavourable event. This practice is already widely used in the world of psychology, although more familiarly known as positive reappraisals. All the cases described above made reference to this. In particular the gentleman who believes such experience increased his faith.

Patients generally believe that spirituality is important and spiritual support is beneficial. It is found that Asians are more ready to integrate spirituality and religious practice into the treatment of their mental illness, mainly due to the lack of resources in mental health care, financial issues, reduced mobility and the stigma surrounding mental illness. This rings true in Malaysia. By disregarding patients’ needs for spiritual support, health care professionals are potentially ignoring a key aspect in patients’ coping and support system which may in turn play a vital role in their well being.

The main limitation in this study is the small number of cases. The experience of four cases may hardly be generalizable to other patients. Also the duration of follow-up may not be long enough to determine true remission of symptoms. Nevertheless, these cases illustrated the use of religion and spirituality to effectively relieve symptoms of PTSD. This is a possible but unexplored alternative for an overburdened mental health service. However, further research is needed before it can be used in mainstream psychiatric practice, as an adjunct to the current established interventions.

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CASE REPORT

Auditory Hallucination in an Obsessive Compulsive Disorder Adolescent

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Abstract

Although comorbidity of obsessive compulsive disorder (OCD) with schizophrenia is well-established, the occurrence of psychotic symptoms especially hallucinations with OCD still requires further studies. We report a case of a child with OCD who experienced auditory hallucination with the recurrence of his OCD symptoms and the management involved. We discussed the possible differentials when auditory hallucinations occur in the context of OCD.

Keywords: Obsessive Compulsive Disorder, Auditory Hallucination, Psychosis, Schizophrenia

Introduction

Obsessive compulsive disorder (OCD) is a complex and distressing disorder. It has a lifetime prevalence of 2.3% and about a quarter of males with OCD developed before age of ten\(^1\). OCD or OC symptoms in psychotic disorders like Schizophrenia has been well established, with a prevalence rate as high as 15\(^%\)\(^2\). Interestingly, psychotic features such as hallucinations are also being reported to occur in patients with OCD\(^3\), but with poorer understanding.

This case study describes a child who was diagnosed with OCD and later developed auditory hallucinations when his OCD symptoms recurred.

Case study

Mr A was first diagnosed to have OCD at the age of nine years old, during which he presented with obsessions of contamination and doubts, and compulsion of washing and checking. The episode was triggered after he was bullied by his schoolmates to pick up stool with his bare hands. He had repeated thoughts of ‘things being dirty’ resulting in repeated washing of his hands and feet. He avoided touching and being touched for fear of contamination. There was also repetitive checking behaviour such as checking the car locks. The symptoms distressed him and his family members. There was also impairment in his academic and social functioning.
He was treated with escitalopram which was gradually titrated to 10mg daily. He was also taught relaxation and breathing technique, and exposure and response prevention therapy. He responded well to treatment and medication was stopped after two years of complete remission.

Two years after stopping the medication, he had a relapse. The episode was triggered by a break up with his girlfriend. At the same time, he was also very stressful with his academic work. The clinical presentation was different compared to the first episode. During the initial period, he had obsessions of contamination and compulsion of washing, but were later replaced with obsessional thoughts and images of self aggression and aggression towards others. He had images of hurting himself and his ex-girlfriend. He also had auditory hallucination which was second person and commanding in nature. The voices were congruent with his obsessional theme of aggression. The symptoms distressed him to the extent of affecting his academic performance. There were no depressive symptoms and other psychotic symptoms.

There was strong family history of mental illness. His paternal grandaunt and maternal uncle had history of untreated mental illness. His eldest sister was a perfectionist and had history of depression during adolescent period. Both parents had obsessional traits. They were perfectionist, highly ambitious, and had high expectations in academic achievements of the children. They were also particular about cleanliness and tidiness. The obsessional traits were reflected in their parenting and modeled by the children. He also had poor coping and poor stress management.

MRI was done to rule out organicity, which showed no abnormality. Combined treatment of medication and psychological intervention were started. Antidepressant was restarted and a low dose of antipsychotic added. Cognitive Behaviour Therapy was introduced to help him with the obsessional thoughts as well as the cognitive errors. He was also taught stress management and efficient coping skills. A family session was also conducted.

He improved with treatment but took relatively longer time to respond. The OCD symptoms and auditory hallucination disappeared after starting treatment. Psychological intervention focused on stress management and coping skills as he struggled to manage his stressors which were mainly academic and relationship issues.

Discussion

OCD was once grouped under anxiety disorders but the new DSM 5 recognizes it as a group on its own; “Obsessive-Compulsive and Related Disorders” and it can be diagnosed with a specifier of absent or delusional beliefs, thereby still retaining the patient in OCD rather than a psychotic disorder. Hallucinations in OCD had been reported but require further research.

Differentiating one’s own thoughts and true auditory hallucination can be challenging especially in children or adolescent. Pseudohallucination is one possible explanation for ‘hearing voices’ in an adolescent who was distressed with the OCD symptoms. However, this patient was able to delineate the perceptual disturbance he had, as opposed to his own thoughts. Although there was no external stimulus to the hallucination, there was internal stimulus, where he had images of aggression along with the voices. According to Vera et.al, children with OCD often had inner
voice ordering ritualization. Furthermore, the perceptual disturbance accompanied the obsessions, and not compulsion as described by Miguel\textsuperscript{6} in his discussion of “sensory phenomena”, where sensations or urges may precede or accompany repetitive behaviours in OCD patients. In this case, the voices he heard were homicidal and suicidal in nature thus prompting immediate intervention of antipsychotic that was beneficial for him.

Fontenelle\textsuperscript{3} shared a case of a patient with a diagnosis of Schizophrenia and retrospectively found out to have obsessive compulsive disorder during adolescent with auditory hallucinations and treatment was changed accordingly. OCD has been suggested as prodromal symptoms in schizophrenia\textsuperscript{7}. Similarly, OCD and schizophrenia commonly co-occur. Studies also show that Schizophrenia patient with OCD who respond poorly to antipsychotic may benefit from adjunctive treatment of anti-OCD\textsuperscript{8,9}.

Schizophrenia and OCD possibly lies in a continuum where they could have overlapping psychotic symptoms like hallucinations. One useful differentiating factor is the impaired reality testing that occurs in Schizophrenia as compared to those with OCD. As Insel and Akiskal postulated, a neurotic obsession shift to psychosis when insight is impaired\textsuperscript{10}. In this case, his reality testing remains intact. A review by Bottas et al\textsuperscript{7} suggests OCD and schizophrenia to share some similarities in terms of neurotransmitters, neuroanatomy and neurocircuitary. However, these findings are still inconclusive and still require further research.

As a clinician, being aware of the possibility of psychotic symptoms in OCD would help the clinician to manage the patient better. Whether the patient would develop schizophrenia or have a wax and wane psychotic symptoms with his OCD is something that remains unanswered at the present time.

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Prevalence of Depression in Cancer Patients: A Review on the Comparison Between Different Regions

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Abstract

Introduction: Depression is the most common psychological sequelae in cancer patients. It is challenging to diagnose depression in cancer patients. Furthermore, the presentation is influenced by the patients’ cultural background. Objectives: This literature review aims to determine the prevalence of depression in cancer patients across regions of different cultural background. Methods: A literature search was undertaken by using Pubmed electronic database. Studies were included in this review if they (a) examined the prevalence of depression in cancer patients and (b) published in English peer-review journal between 2000 and 2009. Results: A total of 59 studies from 21 countries were reviewed and summarised. The prevalence of depression in cancer patients ranged from 3% to 72%. Studies from Asia reported the lowest prevalence (3-39%) and Europe reported the highest prevalence (7-72%). Conclusion: Cultural influence may play a role in the prevalent difference of depression in cancer patients. Somatization and stigmatization are suggested as the possible reasons of lower prevalence of depression in Asia region. The biopsychiatric model of mental illness and western psychologization explain the higher prevalence in Western region. Future research on the cross-cultural variability in the presentation of depression in cancer patients is recommended.

Keywords: Prevalence, Depression, Cancer, Cultural Influence

Introduction

Depression is a syndrome but not a disease. It manifests in a spectrum ranges from normal sadness to a variety of mood disturbances and clinical presentations. It is challenging to differentiate or separate clinical depression from “normal” emotional distress in cancer patients. The two core symptoms of depression as stated in Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM IV) are depressed mood and a marked loss of interest or pleasure in most or all activities. A patient must experience at least one of the two symptoms for a minimal period of two weeks, together with four other depressive symptoms stated in the manual. Unfortunately, the somatic symptoms such as fatigue, loss of appetite or weight, sleep...
difficulties, poor memory and concentration may mirror the physiological symptoms caused by cancer or its treatment. It raises the barrier in studying depression in cancer patients.\textsuperscript{1,2,3,5,6}

Despite the difficulties in evaluating depression in patients confronted by cancer, many studies looking into the prevalence of depression in cancer were conducted in the past decades. The prevalence reported varies significantly because of the varying diagnostic criteria, measurements or rating scales used and differences in the study populations.\textsuperscript{3,5,6,7}

There are a few frequently cited prevalent studies on this topic. One of them is by Derogaties et al (1983). The study involved 215 patients who were newly admitted to 3 collaborating centers. DSM III diagnostic criteria were used and 47\% of the patients were having psychiatric diagnosis. 13\% of the 47\% had major depression. In other words, it was about 6.1\% met the criteria for Major Depression.\textsuperscript{8}

The result is similar to the finding of a study by Kathol el al. Four sets of criteria were used in the study. 808 patients were screened using Hamilton Rating scale and/or Beck Depression Inventory. 19\% of the patients reported symptoms of depression. Out of the 19\%, about one third met the criteria for Major Depressive Disorder according to one or more of the four diagnostic criteria (DSM III (38\%), DSM III R (30\%), the Research Diagnostic Criteria (25\%) and the Edincott criteria (36\%)). It was about 6.3\% of the total patients studied met the criteria for Major Depression.\textsuperscript{9}

Based on a review article by Mc Daniel et al, the prevalence for Major Depression found to be ranged from 4.8\% to 9.2\%. The result was based on studies using standardized diagnostic interviews on cancer outpatients. The figures were higher for the cancer in patients which is 8\% for Major Depression and 15\% to 36\% for all depressive disorders.\textsuperscript{6}

This prevalent range is comparable with the report by Massie and Holland. Massie and Holland found that at least 25\% of the hospitalized cancer patients were likely to meet criteria for Major Depression or Adjustment Disorder with Depressed Mood.\textsuperscript{10} According to Massie on the literature search between 1965 and 2002, the prevalence of Major Depression ranged from 0 to 38\% and depressive spectrum syndrome ranged from 0\% to 58\%. It varies significantly because of the differences in depression definition, illness severity or categories, cancer treatment and patients’ characteristics in the studies.\textsuperscript{11}

Despite of the large amount of studies on the topic, there is limited attention on the cultural influence in the prevalence of depression in cancer patients. As mentioned by Bailey et al, cultural values influence the manner in which a person perceives his mental health.\textsuperscript{12} Their form of expression is often linked to their cultural belief. Hence, the prevalence variation in different region or culture required additional attention. This current literature review aims to summarize the current knowledge of studies on depression in cancer patients by emphasizing on the prevalent difference in regions of different culture. This will enhance the understanding of cultural influence in the psychological expression in cancer patients.

\textbf{Methods}

\textbf{Search strategies}

A literature search using Pubmed was conducted. Search terms such as
“prevalence”, “cancer” and “depression” were used. All abstracts were retrieved and read. Papers which contain relevant material were extracted and review in full.

**Inclusion criteria**

Studies were included in this review if they (a) examined and reported the prevalence of depression in cancer patients (specific or all types of cancer) (b) were published in English peer-review journal and (c) were published between the year 2000 and 2009.

Quality assessment of each article was not conducted in this review, although it is a common process in most systematic reviews. This is to prevent excluding poor quality research from certain regions and limit the loss of meaningful and insightful information as suggested by previous review. Inclusion of studies from all regions is crucial in this review, in view of the aim to examine the prevalent difference of depression in cancer patients due to cultural influence. Review articles were included in this review as far as the study population was confined to the region of the study.

Studies that fulfilled the inclusion criteria were categorized according to the region of origin where the studies were done were Asia (20.3%, n=12), Middle East (5.1%, n=3), Europe (35.6%, n=21), North America (30.5%, n=18) and Australia (8.5%, n=5) (Table 2).

In regard to the countries of origin, these studies were undertaken in China (5.1%, n=3), Japan (10.1%, n=6), Korea (1.7%, n=1), India (1.7%, n=1), Pakistan (1.7%, n=1), Iran (3.4%, n=2), Jordan (1.7%, n=1), UK (8.5%, n=5), Denmark (3.4%, n=2), Germany (1.7%, n=1), Netherlands (3.4%, n=2), Turkey (3.4%, n=2), Scotland (3.4%, n=2), Finland (1.7%, n=1), Norway (1.7%, n=1), Slovenia (1.7%, n=1), Ireland (1.7%, n=1), Italy (3.4%, n=2), USA (25.4%, n=15), Canada (5.1%, n=3) and Australia (8.5%, n=5). In total, these studies involved 21 countries. 2 reviews articles were included in the current review. One of them was from Japan and another from Denmark (Table 2).

Several measurement tools and structured interviews were used to determine depression in cancer patients. The most commonly used self rated questionnaire was Hospital Anxiety and Depression Scale (HADS) (39.0%, n=23), followed by Beck Depression Inventory (BDI) (15.3%, n=9) and Center for Epidemiologic Studies Depression Scale (CES-D) (10.2%, n=6). The other self rated questionnaires used were Zung Depression Rating Scale (1.7%, n=1), Mood Evaluation Questionnaire (MEQ) (1.7%, n=1), Beck Youth Inventory II (BYII) (1.7%, n=1), Hamilton Depression Rating Scale (HAMD) (3.4%, n=2), Edmonton Symptom Assessment Scale (ESAS ) (1.7%, n=1), Patient Health Questionnaire (PHQ) (6.8%, n=4) and Montgomery-Asberg Depression Rating Scale (MADRS) (1.7%, n=1). Brief Case-Find for Depression (BCD) which is a clinician administered instrument was used in a study (1.7%, n=1). The most frequently
used structured interview was Structured Clinical Interview according to Diagnostic and Statistical Manual (SCID-DSM) (42.4%, n=25). The other structured interviews and diagnostic criteria used were Composite International Diagnostic Interview (CIDI) (1.7%, n=1), Research Diagnostic Criteria using the Schedule for Affective Disorders and Schizophrenia (RDC-SADS) (1.7%, n=1) and Edincott criteria (1.7%, n=1).

Table 1. Prevalence of depression in cancer patients according to region

<table>
<thead>
<tr>
<th>Region</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Asia</td>
<td>3-39%</td>
</tr>
<tr>
<td>2. Middle East</td>
<td>0-57%</td>
</tr>
<tr>
<td>3. Europe</td>
<td>7-72%</td>
</tr>
<tr>
<td>4. North America</td>
<td>6-51%</td>
</tr>
<tr>
<td>5. Australia</td>
<td>4-43%</td>
</tr>
</tbody>
</table>
Table 2. Prevalence Studies Using Various Depression Diagnostic Criteria and Measurement Tools

<table>
<thead>
<tr>
<th>Reference</th>
<th>N</th>
<th>City/Country</th>
<th>Patients</th>
<th>Cancer site</th>
<th>% depressed</th>
<th>Method</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Chen, 2009</td>
<td>1400</td>
<td>Shanghai, China</td>
<td>Women with stage 0-IV cancer</td>
<td>Breast</td>
<td>26% - mild to severe depression. 13% - clinical depression</td>
<td>CES-D</td>
<td>Low income, marital status and comorbidity were predictors of depression</td>
</tr>
<tr>
<td>2. So, 2009</td>
<td>215</td>
<td>Hong Kong, China</td>
<td>Female patient on chemotherapy or radiotherapy</td>
<td>Breast</td>
<td>36% - anxiety or depressive disorder</td>
<td>HADS</td>
<td>There was clustering of depression, anxiety and fatigue.</td>
</tr>
<tr>
<td>3. Akeshi, 2009</td>
<td>5431</td>
<td>Nagoya, Japan</td>
<td>Patients referred for psychiatric consultation</td>
<td>All</td>
<td>12.8%</td>
<td>DSM IV</td>
<td>Alternative criteria for diagnosing depression was suggested</td>
</tr>
<tr>
<td>4. Kim, 2008</td>
<td>1933</td>
<td>Gyeoggi, Korea</td>
<td>Cancer survivor</td>
<td>Breast</td>
<td>24.9% - moderate to severe depression</td>
<td>BDI</td>
<td>Fatigue and depression influenced by sociodemographic, comorbidity and symptoms characteristics</td>
</tr>
<tr>
<td>5. Mishra, 2006</td>
<td>38</td>
<td>Orissa, India</td>
<td>Patients on anticancer treatment</td>
<td>All</td>
<td>39% - major depression 23.7% - minor depression</td>
<td>Questionnaire (DSM IV)</td>
<td>Previous psychiatric disorders as predictor</td>
</tr>
<tr>
<td>6. Iqbal, 2004</td>
<td>365</td>
<td>Lahore, Pakistan</td>
<td>Newly diagnosed patients</td>
<td>All</td>
<td>17.8%</td>
<td>SCID-DSM IV</td>
<td>Age, gender, education, home atmosphere, family support associated with mental disorders</td>
</tr>
<tr>
<td>7. Yan, 2004</td>
<td>146</td>
<td>Shanghai, China</td>
<td>Newly diagnosed patients</td>
<td>GIT</td>
<td>28%</td>
<td>BDI-13 (Chinese version)</td>
<td>Depression, distress and social support had impact on QoL</td>
</tr>
<tr>
<td>8. Akechi, 2004</td>
<td>209</td>
<td>Chiba, Japan</td>
<td>Terminally ill patients</td>
<td>All</td>
<td>6.7-11.8%</td>
<td>HADS</td>
<td>Low performance status, concern as burden to others</td>
</tr>
<tr>
<td></td>
<td>Study Reference</td>
<td>Sample Size</td>
<td>Location</td>
<td>Setting</td>
<td>Primary Diagnosis</td>
<td>Mental Health Measure</td>
<td>Associated Risk Factors</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>9.</td>
<td>Akechi, 2001&lt;sup&gt;23&lt;/sup&gt;</td>
<td>129</td>
<td>Chiba, Japan</td>
<td>Newly diagnosed NSCLC patients</td>
<td>SCID-DSM III</td>
<td>Younger age and pain were associated with psychiatric disorders</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Akechi, 2001&lt;sup&gt;24&lt;/sup&gt;</td>
<td>1721</td>
<td>Chiba, Japan</td>
<td>Database of National Cancer Centre All</td>
<td>-</td>
<td>Psychiatric disorders in Japan is similar with Western countries</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Kugaya, 2000&lt;sup&gt;25&lt;/sup&gt;</td>
<td>107</td>
<td>Chiba, Japan</td>
<td>Newly diagnosed and hospitalized Head &amp; Neck patients</td>
<td>SCID-DSM IIIR, HADS</td>
<td>HADS is a useful screening tool</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Uchitomi, 2000&lt;sup&gt;26&lt;/sup&gt;</td>
<td>233</td>
<td>Chiba, Japan</td>
<td>Patient underwent surgery NSCLC</td>
<td>SCID-DSM III</td>
<td>Pain, performance status, social support and satisfaction with confidant before surgery are associated with depression</td>
<td></td>
</tr>
</tbody>
</table>

**Middle East**

<table>
<thead>
<tr>
<th></th>
<th>Study Reference</th>
<th>Sample Size</th>
<th>Location</th>
<th>Setting</th>
<th>Primary Diagnosis</th>
<th>Mental Health Measure</th>
<th>Associated Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.</td>
<td>Mhaidat, 2009&lt;sup&gt;27&lt;/sup&gt;</td>
<td>208</td>
<td>Irbid, Jordan</td>
<td>Inpatients and outpatients All</td>
<td>HADS</td>
<td>Knowledge of having cancer and stage of disease associated with depression</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Tavoli, 2007&lt;sup&gt;28&lt;/sup&gt;</td>
<td>142</td>
<td>Tehran, Iran</td>
<td>Patients attending cancer institute GIT</td>
<td>HADS</td>
<td>Knowledge of cancer diagnosis is risk factor of depression</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Montazeri, 2001&lt;sup&gt;29&lt;/sup&gt;</td>
<td>56</td>
<td>Tehran, Iran</td>
<td>Cancer support group members Breast</td>
<td>HADS</td>
<td>Support group reduce depression</td>
<td></td>
</tr>
</tbody>
</table>

**Europe**

<table>
<thead>
<tr>
<th></th>
<th>Study Reference</th>
<th>Sample Size</th>
<th>Location</th>
<th>Setting</th>
<th>Primary Diagnosis</th>
<th>Mental Health Measure</th>
<th>Associated Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>Slovacek, 2009&lt;sup&gt;30&lt;/sup&gt;</td>
<td>64</td>
<td>Hardec Kralove, Czech</td>
<td>Female palliative care patients All</td>
<td>Zung depression rating scale</td>
<td>Lung, endometrial, gallbladder and melanoma cancer are moderately severe, depression</td>
<td></td>
</tr>
</tbody>
</table>

<sup>23</sup> Akechi, 2001; <sup>24</sup> Akechi, 2001; <sup>25</sup> Kugaya, 2000; <sup>26</sup> Uchitomi, 2000; <sup>27</sup> Mhaidat, 2009; <sup>28</sup> Tavoli, 2007; <sup>29</sup> Montazeri, 2001; <sup>30</sup> Slovacek, 2009.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Republic</th>
<th>26.5% - mild</th>
<th>(Czech version)</th>
<th>depressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.</td>
<td>Singer, 2009&lt;sup&gt;31&lt;/sup&gt;</td>
<td>London, UK</td>
<td>Inpatients</td>
<td>All</td>
<td>11.6% (9.6% - MDD, 2% - dysthymia) HADS, DSM-IV</td>
</tr>
<tr>
<td>18.</td>
<td>Dalton, 2009&lt;sup&gt;32&lt;/sup&gt;</td>
<td>Copenhagen, Denmark</td>
<td>Danish Registry</td>
<td>Cancer All</td>
<td>0.75% admitted for depression Danish Psychiatric Centre Registry</td>
</tr>
<tr>
<td>19.</td>
<td>Snoj, 2009&lt;sup&gt;33&lt;/sup&gt;</td>
<td>Ljubljana, Slovenia</td>
<td>Female outpatients</td>
<td>All</td>
<td>70% - breast cancer, 69% - other cancers -</td>
</tr>
<tr>
<td>20.</td>
<td>Christensen, 2009&lt;sup&gt;34&lt;/sup&gt;</td>
<td>Aarhus, Denmark</td>
<td>Female on therapy for early stage invasive cancer</td>
<td>Breast</td>
<td>13.7% BDI</td>
</tr>
<tr>
<td>21.</td>
<td>Wedding, 2008&lt;sup&gt;35&lt;/sup&gt;</td>
<td>Jena, Germany</td>
<td>Hospitalized patients</td>
<td>All</td>
<td>9.1% - major depression, 16.6% - mild to moderate depression BDI</td>
</tr>
<tr>
<td>22.</td>
<td>Ozalp, 2008&lt;sup&gt;36&lt;/sup&gt;</td>
<td>Ankara, Turkey</td>
<td>Inpatients</td>
<td>Breast</td>
<td>8.3% HADS, SCID</td>
</tr>
<tr>
<td>23.</td>
<td>Walker, 2007&lt;sup&gt;37&lt;/sup&gt;</td>
<td>Edinburgh, Scotland</td>
<td>Outpatients</td>
<td>All</td>
<td>8.3% HADS, SCID</td>
</tr>
<tr>
<td>24.</td>
<td>Korfage, 2006&lt;sup&gt;38&lt;/sup&gt;</td>
<td>Rotterdam, Netherlands</td>
<td>Diagnosed in 4 hospitals</td>
<td>Prostate</td>
<td>9-27% CES-D, STAI-state</td>
</tr>
<tr>
<td>25.</td>
<td>Mainio, 2005&lt;sup&gt;39&lt;/sup&gt;</td>
<td>Oulu, Finland</td>
<td>Patients treated surgically</td>
<td>Brain</td>
<td>35% BDI</td>
</tr>
<tr>
<td>26.</td>
<td>Thorsen, 2005&lt;sup&gt;40&lt;/sup&gt;</td>
<td>Oslo, Norway</td>
<td>Cancer survivors</td>
<td>Testis</td>
<td>9% HADS</td>
</tr>
<tr>
<td>No.</td>
<td>Author, Year</td>
<td>N</td>
<td>Location</td>
<td>Setting</td>
<td>Rate</td>
</tr>
<tr>
<td>-----</td>
<td>--------------</td>
<td>-----</td>
<td>----------</td>
<td>------------------</td>
<td>------</td>
</tr>
<tr>
<td>27.</td>
<td>Burgess, 2005</td>
<td>222</td>
<td>London, UK</td>
<td>Early cancer patients, Breast cancer</td>
<td>50% - 1st year, 25%-2nd to 4th year, 15%-5th year</td>
</tr>
<tr>
<td>28.</td>
<td>Grassi, 2004</td>
<td>277</td>
<td>Ferrara, Italy</td>
<td>Outpatients</td>
<td>All</td>
</tr>
<tr>
<td>19.</td>
<td>Llyoyd-William, 2004</td>
<td>74</td>
<td>Liverpool, UK</td>
<td>Advanced cancer patients</td>
<td>All</td>
</tr>
<tr>
<td>30.</td>
<td>Voogt, 2005</td>
<td>105</td>
<td>Rotterdam, Netherlands</td>
<td>Advanced cancer patients</td>
<td>All</td>
</tr>
<tr>
<td>31.</td>
<td>Atesci, 2004</td>
<td>117</td>
<td>Denizli, Turkey</td>
<td>Patients had undergone chemotherapy</td>
<td>All</td>
</tr>
<tr>
<td>32.</td>
<td>Sharpe, 2004</td>
<td>5613</td>
<td>Edinburg, Scotland</td>
<td>Outpatients</td>
<td>All</td>
</tr>
<tr>
<td>34.</td>
<td>Roopharinesingh, 2003</td>
<td>29</td>
<td>Dublin, Ireland</td>
<td>Patients pursue fertility preservation</td>
<td>All</td>
</tr>
<tr>
<td>35.</td>
<td>Ciaramella, 2001</td>
<td>100</td>
<td>Florence, Italy</td>
<td>Outpatients in a pain therapy and palliative care unit</td>
<td>All</td>
</tr>
<tr>
<td>36.</td>
<td>Hopwood, 2000</td>
<td>987</td>
<td>Manchester, UK</td>
<td>Palliative treatment patients</td>
<td>Lung</td>
</tr>
<tr>
<td><strong>North America</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>Kersun, 2009</td>
<td>41</td>
<td>Philadelphia, USA</td>
<td>Adolescent outpatients on cancer therapy</td>
<td>All</td>
</tr>
<tr>
<td>38.</td>
<td>Brintzenhofe Szoc, 2009</td>
<td>8265</td>
<td>New York, USA</td>
<td>Outpatients presented to tertiary centre</td>
<td>All</td>
</tr>
<tr>
<td>39.</td>
<td>Pirl, 2009</td>
<td>243</td>
<td>Boston, USA</td>
<td>Adult from National Comorbidity Survey Replication</td>
<td>All</td>
</tr>
<tr>
<td>40.</td>
<td>Dirksen, 2009</td>
<td>51</td>
<td>Phoenix, USA</td>
<td>Adult outpatients</td>
<td>Prostate</td>
</tr>
<tr>
<td>41.</td>
<td>Lydiatt, 2009</td>
<td>-</td>
<td>Omaha, USA</td>
<td>Review article</td>
<td>Head &amp; Neck</td>
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<tr>
<td>42.</td>
<td>Steinberg, 2009</td>
<td>98</td>
<td>Montreal, USA</td>
<td>Newly diagnosed</td>
<td>Lung</td>
</tr>
<tr>
<td>Study (Year)</td>
<td>Location</td>
<td>Sample Description</td>
<td>Symptom Measure</td>
<td>Findings</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
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<td>----------------</td>
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<td></td>
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<tr>
<td>Rabkin, 2009</td>
<td>New York, USA</td>
<td>Terminal cancer patients</td>
<td>PHQ</td>
<td>Canada patients depression, 13.2%-both depression and nervousness correlated with distress score</td>
<td></td>
</tr>
<tr>
<td>Neron, 2007</td>
<td>Montreal, Canada</td>
<td>Newly diagnosed unresectable cancer patients</td>
<td>HADS, MADRS</td>
<td>New York, USA depression symptoms, 7%-MDD Spirtual belief associated with positive mood, hope and better QoL</td>
<td></td>
</tr>
<tr>
<td>Steel, 2007</td>
<td>Pittsburg, USA</td>
<td>Hepatobiliary cancer (HBC) patients</td>
<td>CES-D</td>
<td>Montreal, Canada architectural questionnaire in identifying depression</td>
<td></td>
</tr>
<tr>
<td>Ell, 2007</td>
<td>Los Angeles, USA</td>
<td>Patients attending oncology clinic</td>
<td>PHQ-9</td>
<td>Pittsburg, USA High prevalence of depression and impact on survivor</td>
<td></td>
</tr>
<tr>
<td>Kadan-Lottick, 2005</td>
<td>New Haven, USA</td>
<td>Advanced cancer patients</td>
<td>SCID-DSM IV</td>
<td>2007</td>
<td>Semi-structured interview is more effective than self-administered questionnaire in identifying depression</td>
</tr>
<tr>
<td>Ell, 2005</td>
<td>Los Angeles, USA</td>
<td>Outpatients Breast &amp; Gynae-cological</td>
<td>PHQ-9</td>
<td>Los Angeles, USA Intervention aimed at multiple areas of care are more effective</td>
<td></td>
</tr>
<tr>
<td>Kissane, 2004</td>
<td>New York, USA</td>
<td>Breast</td>
<td>Structured interview and self report measure</td>
<td>Female patients Breast &amp; Gynae-cological Fatigue, history of depression and cognitive attitude associated with depression</td>
<td></td>
</tr>
<tr>
<td>Katz, 2004</td>
<td>Ontario, Canada</td>
<td>Ambulatory patients Head &amp; Neck</td>
<td>RDC - SADS, BDI</td>
<td>Ontario, Canada 5 instruments are accurate in screening for depression</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Author</td>
<td>Year</td>
<td>Location</td>
<td>Group Type</td>
<td>Disease Type</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------</td>
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<td>--------------</td>
<td>-----------------------</td>
<td>--------------</td>
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<tr>
<td>51</td>
<td>Litofsky, 2004</td>
<td>51</td>
<td>Worcester, USA</td>
<td>Patients underwent surgery</td>
<td>Glioma</td>
</tr>
<tr>
<td>52</td>
<td>Pirl, 2002</td>
<td>65</td>
<td>Boston, USA</td>
<td>Male patients receiving ADT</td>
<td>Prostate</td>
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<tr>
<td>53</td>
<td>Breitbart, 2000</td>
<td>67</td>
<td>New York, USA</td>
<td>Hospitalized terminally ill patients</td>
<td>All</td>
</tr>
<tr>
<td>54</td>
<td>Bodurka-Bevers, 2000</td>
<td>68</td>
<td>Texas, USA</td>
<td>Outpatients</td>
<td>Ovary</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Australia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Boyes, 2009</td>
<td>69</td>
<td>New South Wales, Australia</td>
<td>Adult patients</td>
<td>ALL</td>
</tr>
<tr>
<td>56</td>
<td>Love, 2004</td>
<td>70</td>
<td>Victoria, Australia</td>
<td>Female patients with metastasis</td>
<td>Breast</td>
</tr>
<tr>
<td>57</td>
<td>Jefford, 2004</td>
<td>71</td>
<td>Victoria, Australia</td>
<td>Medical oncology/palliative care patients</td>
<td>All</td>
</tr>
<tr>
<td>58</td>
<td>Osborne, 2003</td>
<td>72</td>
<td>Melbourne, Australia</td>
<td>Female patients</td>
<td>Breast</td>
</tr>
<tr>
<td>59</td>
<td>Pascoe, 2000</td>
<td>73</td>
<td>Sydney, Australia</td>
<td>Oncology outpatients</td>
<td>All</td>
</tr>
</tbody>
</table>
CES-D = Center for Epidemiologic Studies Depression Scale, HADS = Hospital Anxiety and Depression Scale, DSM = Diagnostic and Statistical Manual, BDI = Beck Depression Inventory, SCID = Structured Clinical Interview according DSM, QoL = Quality of Life, STAI = State-Trait Anxiety Inventory, MEQ = Mood Evaluation Questionnaire, HAMD = Hamilton Depression Rating Scale, BYII = Beck Youth Inventory II, CIDI = Composite International Diagnostic Interview, ESAS = Edmonton Symptom Assessment Scale, PHQ = Patient Health Questionnaire, MADRS = Montgomery-Asberg Depression Rating Scale, RDC-SADS = Research Diagnostic Criteria using the Schedule for Affective Disorders and Schizophrenia, BDI-SF = BDI – Short Form, BCD = Brief Case-Find for Depression
The prevalence of depression in cancer patients reported in these studies was summarized in Table 1. In general, the prevalence reported in the studies from Asia region was relatively lower (3-39%). Result from Europe region was relatively higher (7-72%). The lowest prevalence was reported in a study from Japan (3-5%) and the highest was from Czech Republic (71.8%).

Discussion

Comparison of the findings between regions based on the result is impossible due to methodological variation in the included studies. The methodological differences were the varying of study population, type of cancer, differences in the diagnostic criteria for depression and measurement tools used in the studies. In general, the prevalence of depression in Asian countries was slightly lower than the Western region. The difference in the prevalence of depression was also observed in general population based on the result from Cross-National Collaboration Group. The Cross-National Collaboration Group conducted an epidemiological community studies in ten countries. The lifetime prevalence of depression varied widely, with the lowest of 1.5% in Taiwan and the highest of 19% in Beirut. Cultural role is an important factor to be considered in the understanding of this finding. As mentioned by Spinetta, psychology determined by cultural background can make a difference in an individual when confronted by the diagnosis of disease.

According to Betancourt JR, culture is defined as a pattern of learned beliefs, values and behavior that are shared within a group. It encompassed language, communication styles, practices, customs and views on roles and relationships. In contrast, Kleinman defined culture as a process by which someone acquires emotional and moral meaning for the ordinary activities. “The cultural processes include embodiment of meaning in habitus and physiological reaction, the understanding of particular situations, the development of interpersonal relationship, religious practice and the cultivation of collective and individual identity.” Culture found to confound the detection and management of depressed patients from many regions.

Cancer is still not well understood by many people in Asian region. It is remained as one of the most feared illness in most of the countries. The cancer related fear was reflected by the findings in the studies from Middle East where knowledge of cancer caused more impact on the patients and is highly associated with depression. Atesici also found that the awareness of cancer diagnosis is related to the presence of psychiatric disorders among cancer patients.

Cultural factor always play a role in shaping the manner of person in perceiving mental health. Their form of expression is often linked to cultural belief. Asian patients are less likely to express their emotional distress to their physician. They focus more on the somatic symptoms, instead of revealing their feeling of depression. According to Makeba, communication is more indirect in Eastern culture. Jung divides person into two types: the extraverts and the introverts. The extraverted attitude is characterized by outgoing, sociable, confident, interested in surrounding and keen to share his feelings with others. The introverted type, in contrast, is shy, unsociable, lacks of confidence in relation to people and things, over-concientious,
pessimistic and always keep to himself. The latter is prevailing in the east. Somatic symptoms are commonly used as indications of emotional distress for patients from Eastern culture. Another explanations regarding the act of somatizing depression in Asian patients is due to the belief that someone only go to the doctor unless they have something physical to mention. From the psycho-analytic point of view, somatization is a process whereby anxiety arises from intrapsychic conflict is suppressed and reaches consciousness only through physical expression. This mind-body dualism definition was rejected by other writers who argues that psychological symptoms will be elicited following a thorough evaluation although somatic emphasis is apparent at the initial assessment. Lastly, somatization was also defined as a strategy of symptom presentation. It represents a specific response style where somatic symptoms are emphasized and psychological symptoms are concealed.

As commented by Philip Rack, a depressed Indian or Pakistani will usually complain of pain or weakness. One must ask the correct question then only may be able to elicit the depressive symptoms. Bhugra found that women from North India are more likely to present with “sinking” heart and Weiss reported that depressed outpatients in Bangalore typically presented with somatic symptoms initially. Gada et al found that Indian depressed patient somatized more often than the western depressed patients. In his study, 100 depressed patients from Western India were compared with the British depressed patients. Somatic symptoms, hypochondriasis, anxiety and agitation were presenting more frequently among the Indian patients than the British patients. It was attributed to the cultural shaping of the expression of depression. In India, the symptom expression is governed by the perceived stigma attached to psychiatric problems. Although depression is distressing but it affects the perceived social status of the sufferer. In contrast, somatic symptoms are more socially acceptable. As a result, Indian depressed patient usually complaint of somatic symptoms. A study conducted in South India where 80 psychiatric outpatients were assessed on their psychiatric symptoms and stigma score. It was found that the stigma score were positively related to depressive symptom. Raguram et al concluded that the tendency to report distress in psychological and somatic terms is influenced by various social and cultural factors. It is clearly mentioned by Raguram et al that somatization is a communication act that is woven into the fabric of Indian culture.

Somatization in Chinese was first studied by Kleinman. Subsequently, several studies compared the presentation between Chinese and Western depressed patients were published. Parker et al studied two groups of depressed outpatients. One was Malaysian Chinese and one of Australian Caucasian. The patients were asked to nominate their most distressing symptoms. The Chinese were distinctly more likely to nominate somatic symptoms (60%) compared to the Australian subjects (13%). Stigmatizing mental illness among Chinese was emphasized by Kleinman. He discovered that Chinese patients refused to talk about their past feelings even that depression was getting better. Besides, Chinese is generally not strong in expressing their emotion. It was confirmed by the report by several previous studies. Cheung et al suggested that the fear of stigma attached to mental illness lead to the suppression of their emotional expression among Chinese.
patients. Chinese culture places high value on the harmonious relation with others. As a result, Chinese are extremely cautious in expressing their negative emotion with the worry of disturbing the harmonious equilibrium of interpersonal transactions. Many Asian cultures including Chinese insist on the fundamental relatedness of individual to each others. Instead of expressing the emotion, Chinese suppress their deep feeling with the thinking that it will naturally fade away over time. This negative avoidance coping style was observed in the study conducted by Ho et al. In the study, 139 Chinese female cancer survivors were examined with Courtauld Emotional Control Scale (CECS). It was suggested that cancer survivors with higher emotional control tended to have higher stress, anxiety, depressive levels and lead to adopt negative coping with cancer. Chinese believe that this is the proper way to 'control' the emotional expression.

Middle Easterner also tends to somatize their depression. It is also related to the stigma attached to mental illness. They resist in seeking help from psychiatrist. Mental illness is commonly attributed to evil spirit, head trauma, emotional trauma, sudden fright and hereditary. They are more common in seeking help for “nerves” and consult neurologist for their suppressed emotional expression. Somatic complaint is used as a metaphor as a means of expression. For instance it is mentioned by Philip Rack that in Muslim culture, the heart provides ‘an idiom of expressing emotion’. The symptoms were described as “my heart is sinking or fluttering”, “my heart burn” etc. Hamdi conducted a study in Dubai in an attempt to apply the clinical construct of endogenous depression derived from Western studies to depressed Arab patients. He discovered that somatic metaphors were commonly used to express distress. The Islamic culture also influences the subjects in response to inquiries about guilt, suicide and libido. Hamdi recommended that the variation in the depressive symptom frequencies and mode of expression needed to be taken into consideration for defining it in term appropriate to the Arab culture. In another study, Sulaiman et al also reported that natives of Dubai were more likely than Westerners to associate depression with somatic symptoms.

Similar to other culture in the Eastern region, physical symptoms are more acceptable among the Japanese. They may voice their somatic sensation that accompanying depression more often than the Westerner. A study to explore cancer patients’ concern about emotional disclosure to their physician was conducted by Okuyama et al. It was found that high percentage of the patients had hesitation in disclosing emotion to their physicians. Japanese was presumed to have group-enhancement cultural frame. This type of cultural frame value and enhance the group over the personal self. They value self criticism for the goal of social harmony. Western culture was presumed to have self-enhancement cultural frame where they socialize their member to focus on personal strengths and competencies. A study was conducted by Arnault et al comparing the Japanese and American women looking into the association between negative self description and depression symptomology. It found that positive self description was more valued in American culture with self-enhancement cultural frame. The tendency among Japanese in inhibiting their affect expression was also confirmed by the result from other studies.

In this review, somatization and stigmatization were mostly used to explain the lower psychological depressive manifestation among cancer patients from...
the Eastern culture. The higher prevalence of depression in Western region might be attributed to the conceptual model of depression embedded in the Western culture. Biopsychiatric model of depression is more commonly accepted in the Western societies \(^{80,106}\). They view depression as a disease and more willing to seek professional treatment. In contrast, “situational” model of depression is more accepted in the Eastern region. In this traditional culture, depression is conceptualized as social problems or as emotional reactions to the situations \(^{80,107}\). Karasz A conducted a study compared the conceptual models of depression between South Asian immigrants and European American in New York City. The result showed that South Asian emphasized more on social and moral terms. The European American subjects interpreted depression more in the terms of biological explanations. Majority of the South Asian felt that the treatment strategies for depressive symptoms involved either solving the problems or avoiding “thinking”\(^{80}\).

In addition to the Eastern somatization, Western psychologization is another important cultural influence needed to be taken into consideration\(^{109,110}\). Ryder et al, used three assessment modalities: spontaneous problem report, structured clinical interview and symptoms questionnaire to examine symptoms presentation in Chinese and Euro-Canadian. Euro-Canadian subjects found to report more psychological symptoms on all three assessment methods. The authors concluded that Western psychologization was stronger, more consistent and culturally specific than Chinese somatization\(^{109}\). The observed cross-cultural variability for somatization was related to cultural difference in internally versus externally orientated thinking. Chinese was presumed to have externally oriented thinking and tend to not value inner emotional experience. Although they can experience and express their emotion but they do not focus on them. In contrast, Western culture emphasis on the personal experience and focus on interpersonal communication of emotion\(^{109}\).

**Conclusion**

In conclusion, depression is common in cancer patients. Although the prevalence varied, it is recognizable across all regions. In general, the prevalence is lower in the Eastern region. Cultural difference in shaping the belief of mental illness is a crucial factor to be considered when studying depression in cancer patients. Somatization and stigmatization influence the pattern of manifestation of depressive symptoms among cancer patients. Western psychologization lead to the focus in psychological expression among the Western depressed patients. The different conceptual model of mental illness cultivated in the Western and Eastern culture is another important factor influences the willingness to express their emotion or seeking professional treatment. Future research looking into cross-cultural variability in the presentation of depression in cancer patients is recommended.

**Limitation**

Several limitations concerning this literature review need to be addressed. Firstly, all studies included in this review were published in English peer-review journals. This limited the generalisability of the result. Secondly, the literature search is based on single electronic database (Pubmed). Indeed, a reasonable amount of relevant studies were missed. Thirdly, the quality of individual studies was not examined in this literature
review. The findings of some studies might be questionable. Lastly, there was no data synthesis in this review. This was attributed to the variation of methodological strategies used in the included studies.

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Trauma and Traumatic Stress: The Long-term Effects of Childhood Traumatic Stress

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Abstract

Trauma and trauma related stress is an age old phenomenon. Much research has come up regarding the characterization and effects of trauma. Recently focus has been on the long-term effects of trauma. Both retrospective and prospective research is being carried out to study the trauma-effect relationship. Along with all others, children have also been receiving the blows of psychological trauma. Growing brain of children has been shown to reveal the effects of trauma late in the adulthood. Much research regarding the long-term effects of childhood trauma has pooled in the past three decades. Disorders varying from personality issues to Post-traumatic stress disorders have been known to develop in the adulthood of these trauma-torn children. Studies need to be undertaken to understand the factors leading to development of such sequale. Further the protective practices need to be identified and promoted.

Keywords: Trauma, Children, Depression, Effects

Introduction

Trauma is an inevitable part of human existence, especially in a conflict situation. This fact assumes even greater importance in the light of the fact that trauma could play a key role in the genesis of various psychiatric problems\(^1\).

Trauma and Traumatic stress

Trauma is a word of Greek origin meaning ‘wound’\(^2\). Trauma" has both a medical and a psychiatric definition. Medically, "trauma" refers to a serious or critical bodily injury, wound, or shock. This definition is often associated with trauma medicine practiced in emergency rooms and represents a popular view of the term. Psychologically, "trauma" has assumed a different meaning and refers to an experience that is emotionally painful, distressful, or shocking, which often results in lasting mental and physical effects. Psychiatric trauma, or emotional harm, is essentially a normal response to an extreme event. It involves the
creation of emotional memories about the distressful event that are stored in structures deep within the brain. In general, it is believed that the more direct the exposure to the traumatic event, the higher the risk for emotional harm\(^3\). Traumatic stress encompasses exposure to events or the witnessing of events that are extreme and/or life threatening\(^4\).

Traumatic exposure may be brief in duration (e.g., an automobile accident) or involve prolonged, repeated exposure (e.g., sexual abuse). The former type has been referred to as “Type I” trauma and the latter form, as “Type II” trauma\(^5,6\).

It has been known that pathological stress response syndromes can result from exposure to war, sexual assault and other types of trauma\(^7\). Evidence for posttraumatic reactions date back as far as the Sixth century B.C.; early documentation typically involved the reactions of soldiers in combat\(^8\). Beginning in the 17\(^{th}\) century, anecdotal evidence of trauma exposure and subsequent responses were more frequently reported. In 1666, Samuel Pepys wrote about individual's responses to the Great Fire of London\(^9\). It had been reported that the author Charles Dickens suffered from numerous traumatic symptoms after witnessing a tragic rail accident outside of London\(^10\).

Traumatic stress responses have been labeled in numerous ways over the years. Diagnostic terms applied to symptoms have included Soldier's Heart, Battle Fatigue, War Neurosis, Da Costa's Syndrome, Tunnel Disease, Railway Spine Disorder, Shell Shock, Gross Stress Reaction, Adjustment Reaction of Adult Life, Transient Situational Disturbance, Traumatic Neurosis, Post-Vietnam Syndrome, Rape Trauma Syndrome, Child Abuse Syndrome, and Battered Wife Syndrome\(^11,12\). Initially DSM III adopted the definition of traumatic event as "stressor that would be markedly distressing to almost anyone"\(^13\). Later on DSM IV added a further dimension by introducing the stressor criterion “the person experienced, witnessed or was confronted with an event that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others” and “the person’s response involved intense fear, helplessness or horror”\(^14\). Study on the subject has been further strengthened and clearly delineated in DSM 5 where in a separate chapter on Trauma and Stressor Related Disorders has been included\(^15\).

**Prevalence of trauma**

In the context of current turmoil prevalent worldwide, no age group is immune from exposure to trauma, and its consequences\(^16\). Epidemiological studies carried out in U.S.A. estimate that between 36-81% of general population experience a traumatic event at some times in their lives\(^7,17,18\). Other studies estimate a lifetime prevalence of traumatic exposure of 40-80% in adults\(^17,19,20\). In Australia, Rosenman found that 57% of general population sample of adults (18 years and older) reported a positive life history of experiencing one or more traumas\(^21\). The National Co morbidity Survey in America estimated the lifetime exposure to any trauma among men and women at 60.7% and 51.2% respectively\(^7\). Other studies estimate a lifetime prevalence of traumatic exposure of 40-80% in adults\(^17,19,20\). In Australia, Rosenman found that 57% of general population sample of adults (18 years and older) reported a positive life history of experiencing one or more traumas\(^21\). The National Co morbidity Survey in America estimated the lifetime exposure to any trauma among men and women at 60.7% and 51.2% respectively\(^7\). Similarly, the Australian National Mental Health Survey reported the lifetime exposure to trauma among men and women at 64.6% and 49.5% respectively\(^22\). Only few epidemiological studies on trauma in general populations have emerged from poor and economically developing countries, although some recent research has began to improve our understanding of trauma in poor, war torn countries\(^23,25\).
Although over the last three decades, Asia, along with Africa, has had the fastest increase in the incidence of traumatic events/natural disasters. Earthquakes and tsunamis cause the greatest mortality, with the 2004 Indian Ocean Tsunami accounting for around 250,000 deaths, whilst the 2005 earthquake in Pakistan killed 86,000 people and left millions homeless. India alone reported 18 major internationally recognized natural disasters in 2007 not to talk of numerous regional disasters which escaped world attention26,27.

The total lifetime prevalence for any traumatic experience in the community in Kashmir (India) is 58.69% as reported in 20061. Data reveals that in the prevailing conflict situation over the past twenty years in Kashmir, there has been a phenomenal increase in psychiatric morbidity, including stress related disorder28. The effects of trauma in terms of psychopathology are well understood in the case of adults, while as in the case of children they have only recently begun to be understood16.

**Childhood trauma and its effects**

Since children form 40 percent of the total population in developing countries, and 25 percent of population in developed countries. The recognition of psychiatric problems in children by adults is important, as it is they who determine whether and where consultation and treatment will be sought29. Historically childhood studies of trauma expanded from clinical case reports to systematic comparisons using a ‘dose of exposure’ design with inclusions of contemporaneous, comparison and control groups30,31. Although there has been continuous controversy about the impact of disasters on victims including children and some investigators denied that serious psychological effects occurred. However this denial was based on inadequate extremely narrow research conducted by clinicians and has called for more systematic, clinically relevant investigations32-35.

Nowadays nearly every researcher agrees that early childhood traumas lie at the root of most long-term depression and anxiety, and many emotional and psychological illnesses36. But among mental health professionals, and even some childhood development specialists, there is sometimes a lack of understanding over exactly what constitutes childhood trauma. A seminal American Academy of Paediatrics (AAP) report 1995 defines childhood abuse as "a repeated pattern of damaging interactions between parent(s) [or, presumably, other significant adults] and child that becomes typical of the relationship." In addition to physical, sexual and verbal abuse, this can include anything that causes the child to feel worthless, unlovable, insecure, and even endangered, or as if his only value lies in meeting someone else's needs. Examples cited in the report include "belittling, degrading or ridiculing a child; making him or her feel unsafe [including threat of abandonment]; failing to express affection, caring and love; neglecting mental health, medical or educational needs." The AAP also includes parental divorce in the list of potentially harmful events which can traumatize a child37.

Approximately, 20 percent of individuals exposed to a significant traumatic event will develop psychiatric morbidity and children may be at an even higher risk38-40. And it is clear that the developing brain is exquisitely sensitive to and can be permanently altered by adverse experiences during childhood41.

The initial response of children to a traumatic event is as per the age and
environmental factors. The course after a traumatic event can range from ‘Little or No Reaction’, ‘a simple grief’, ‘Traumatic Bereavement’, ‘Acute Emotional and Behavioural Effects’ to a complex psychological morbidity to recovery or decompensation. The following general principles have been drawn from research in developmental psychopathology:

- The impact of life experiences is different for different people;
- People exposed to negative experiences demonstrate resilience;
- Only the cumulative effects of multiple risks overcome resilience;
- Individuals vary in their sensitivity to their environment; and
- This sensitivity depends on their personality traits.

As is known, these traumatic events can have a profound and lasting impact on the emotional, cognitive, behavioural and physiological functioning of an individual. One study suggests that specific disorders are linked to interpersonal trauma and potentially traumatic events that occur in childhood rather than later in life. Further childhood trauma may confer risk for adult psychopathology by altering emotional and physiological responses to subsequent stressors.

Pertinent to mention psycho-physiologic changes that confer risks for mood and anxiety disorders were seen nearly 2 decades after the participants experienced trauma and even later. Severe traumas can even alter the very chemistry and physiology of the brain itself as revealed by small hippocampal size in trauma survivors than those without traumatic experiences. The neurobiological impact of trauma is under active research.

The association between retrospectively reported childhood adverse experiences and psychiatric morbidity in adulthood is documented in several surveys of community and clinical samples. For example, Research studies in recent years have confirmed that PTSD and its inherent co-morbidity occurs not only in adult victims of traumatic life events but in children across the age spectrum. Slow trauma in the form of adverse parental rearing styles (including lack of care and overprotection) have been associated with the risk for anxiety disorders. Some theorists have hypothesized that certain forms of childhood abuse may contribute specific vulnerability to different types of psychopathology. Researchers have investigated forms of childhood abuse in panic disorder and social anxiety disorder in the adult life.

The long-term effects of major childhood trauma and abuse on an individual’s psyche, social skills, and physical health can be debilitating in adulthood. Individuals with a history of trauma, particularly abuse or neglect, have a higher likelihood of developing one or more disorders such as Borderline Personality Disorder, Paranoid Personality Disorder, Schizoid Personality Disorder, Antisocial Personality Disorder, and Obsessive-Compulsive Personality Disorder just to name a few. Adverse early life experiences, especially traumatic events can have a profound and lasting impact on the emotional, cognitive, behavioural and physiological functions of an individual for the whole of his life. Millions of children are exposed to traumatic experiences even in developed countries like USA which increases the risk of developing PTSD in event of a traumatic experience in adult life each year. Extensive research of the long-term outcomes of premature infants has
shown significant risk for emotional, behavioural, and psychological problems\textsuperscript{57}.

A few studies have focused on the role of the various forms of childhood adversity in adult morbidity. Specifically, childhood emotional abuse, more so than physical or sexual abuse, has been associated with major psychiatric diagnosis\textsuperscript{52}. Rates of childhood adversity, and subsequent psychiatric morbidity in adulthood, may vary across different environments. It has been suggested that if environmental factors such as violence, crime and poverty are major mental health determinants, then it is plausible that in those settings (i.e. Low-income countries) with high levels of these environmental factors, the mental health of individuals may be compromised. Specific forms of childhood trauma as well as other possible risk factors such as gender, historical context/culture and biological vulnerability should be considered when assessing risk for assessing psychiatric morbidity in adulthood\textsuperscript{58}.

An association between emotional abuse and neglect in childhood and adult panic disorder has also been suggested\textsuperscript{59,60}. Various childhood traumas were found to be significantly associated with suicidal behaviour among adult male cocaine dependent patients\textsuperscript{61}. Margoob et al during the longitudinal follow up of snow storm children survivors found that 34\% suffered from disorders including PTSD, MDD, conversion and panic disorder as in agreement with other reported studies from other parts of the world\textsuperscript{52}.

**Conclusion**

Trauma prevalence is quite significant and we are prone to face traumatic stress. Trauma whether man-made or natural, is faced by mankind through the length and breadth of the universe. Post-traumatic stress may represent one of the most severe and incapacitating forms of human stress known\textsuperscript{63}. With increasing focus on trauma and trauma-related disorders, much about post trauma sequelae has come to limelight, although a lot still needs to be revealed.

Childhood trauma has been shown to affect the physical, psychological and emotional well being. A long-term effect of childhood traumas is linked to development of depression, anxiety disorders, and personality disorders beyond PTSD. Recognition of trauma-related stress is the first step in a child’s road to a healthier life. Medical and mental health professionals are in an ideal position to offer information, support, and/or the appropriate referrals to victims of traumatic stress. Treatment with a clinician knowledgeable and experienced in working with anxiety and trauma-related difficulties can be a crucial factor in helping victims learn to cope and live life more fully.

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