A STUDY OF QUALITY OF SLEEP IN PEOPLE WITH MENTAL ILLNESS WITH SIGNIFICANT CLINICAL IMPROVEMENT

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ABSTRACT

BACKGROUND
Sleep disturbances have become a common co-morbid condition in psychiatric illnesses. Even after treating the immediate psychiatric symptoms, some individuals have difficulties in sleep and their quality of sleep is altered which further affects functional disability and quality of life of the patient.

Aims and Objectives- To study the quality of sleep in people with mental illness with significant clinical improvement.

MATERIALS AND METHODS
Clinical Global Impression- Global Improvement (CGI-I) Scale and Pittsburgh Sleep Quality Index (PSQI) scale were used for the study. Patients attending review outpatient department of Tertiary Care Hospital, Hyderabad were selected as subjects, many of them being psychotic spectrum, mood disorder and alcohol-dependent patients. Patients who scored < 4 on CGI-I scale were taken as subjects and PSQI was calculated. Out of 109 population size, 86 subjects meeting CGI-I score < 4 were taken and PSQI for each subject was calculated. PSQI total score indicates good sleep quality. PSQI total score > 5 indicates poor sleep quality. SPSS Software version 22 was used. Statistical analysis using Chi-square test, ANOVA was done, and Pearson co-relation test was done to find relation between sleep quality and medicine-induced sleep.

RESULTS
PSQI total was < 5 in 33 patients. PSQI total was > 5 in 53 patients. PSQI mean was calculated to be 7.65. Pearson Co-relation Coefficient (PCC) for sleep quality and medicine-induced sleep was found to be 0.179. Age is negatively co-related to medicine-induced sleep and positively co-related to CGI-I score.

CONCLUSION
Out of 109 patients, 86 patients scored < 4 on CGI-I scale, 33 patients were having good sleep quality and 53 patients were having poor sleep quality. PCC of 0.179 indicates positive co-relation between sleep quality and medicine-induced sleep. Further research is needed to study co-morbid sleep disturbances in psychiatric illnesses.

KEY WORDS
Quality of Sleep, Pittsburgh Sleep Quality Index, Clinical Global Impression- Global Improvement Scale, Psychiatric Patients.

90% of patients with syndromal or sub-syndromal depressive symptoms in BD. Insomnia is extremely common among those who suffer from alcohol dependence and/or abuse, where its prevalence is estimated to be 36-72%. It is believed that the sleep disturbance stems from a rebound of wakefulness occurring as the effects of alcohol, which has sleep promoting effects wear off. Several longitudinal studies suggest that those with insomnia are at increased risk for the development of subsequent alcohol use problems compared to those without disturbed sleep.

Aims and Objectives
Aims
To study the quality of sleep in people with mental illness with significant clinical improvement.

Objectives
- To differentiate people with mental illness into good quality sleepers and poor-quality sleepers.
- To find out the relation between quality of sleep and medicine-induced sleep.

MATERIALS AND METHODS
Study Design
Cross-sectional study.

Sampling Technique
Convenient sampling method.

Period of Study
2 months.

Place of Study
Tertiary Care Hospital, Hyderabad.

Source of Data
Patients attending Review Outpatient Department of Tertiary Care Hospital, HYD.

Tools
Pittsburgh Sleep Quality Index.

The PSQI is an effective instrument used to measure the quality and patterns of sleep. It differentiates “poor” from “good” sleep by measuring seven subscales: Subjective Sleep Quality, Sleep Latency, Sleep Duration, Habitual Sleep Efficiency, Sleep Disturbances, Use of Sleeping Medication and Daytime Dysfunction over the last month. The client self-rates each of these seven areas of sleep by answering nine questions. Scoring of answers is based on a zero to three scale, and a score of three reflects the negative extreme on the Likert Scale. A global sum of “5” or greater indicates a “poor” sleeper. The PSQI has internal consistency and a reliability coefficient (Cronbach’s alpha) of 0.83 for its seven components. Numerous studies using the PSQI have supported high validity and reliability.

Clinical Global Impression - Global Improvement Scale (CGI-I Scale)
The CGI global improvement measure (CGI-I) is rated from 1 (very much improved) to 7 (very much worse). CGI improvement scale (CGI-I) has been widely utilised as an efficacy measure in clinical drug trials in different mental disorders [e.g. depression, schizophrenia]. Its popularity is mainly based on its conciseness and easiness of administration. It is widely accepted and some studies presented evidence arguing that the CGI is a valid assessment instrument.

IBM SPSS software is used for statistical analysis version 22.

Inclusion Criteria
- Age: 18 - 60 years.
- Gender: Male and Female.
- Patients scoring < 4 on CGI-I scale.

Exclusion Criteria
- Patients with organic illnesses.
- Patients with primary insomnia.

Procedure
109 participants attending Review Outpatient Department of Institute of Mental Health, Hyderabad were included in the study. Patients mainly included were those belonging to psychotic spectrum disorders, mood disorders, mental retardation and alcoholism. CGI-I (Clinical Global Impression scale was used to select patients and those who have scored <4 were taken as subjects. A total of 86 patients have scored <4 on CGI-I scale. Pittsburgh Sleep Quality Index (PSQI) scale was used to assess the quality of sleep in the patients who have scored < 4 on CGI-I scale. PSQI score for each of the participant was obtained and differentiated into poor sleep quality and good sleep quality patients.

Statistical Analysis
PSQI mean was obtained using IBM SPSS software for Statistical analysis version 22. Socio-demographic data of the patients was obtained using frequencies, descriptive statistics. Chi-square test was done to verify differences between the categorical variables. Means for scales were calculated. ANOVA test was done to find out variance between continuous variables. Pearson co-relation test was done to see the co-relations between different parameters.

P-value was set at significance of < 0.05.

RESULTS
Our study revealed many important findings. Table 1 shows the frequency and percentage of males and females in our study. Table 2 shows the Chi-square test for the socio-demographic data of the patients comparing the variable sex with marital status, occupation, socio-economic status, education and domicile status of the patients. Chi-square was statistically insignificant for the diagnosis groups. Table 3 shows the Means and Standard deviations of Age, PSQI, CGI-I and Medicine-induced sleep for both females and males. Table 4 shows the Means and Standard Deviations of Age, PSQI, CGI-I and Medicine-induced sleep for Schizophrenia, BPAD (Bipolar Affective Disorder), Alcohol related disorders, Mental Retardation, Depression, Schizoaffective disorder and Psychosis NOS. It was found out that only Age is a significant parameter and F-values obtained indicate that there is no much variance in the PSQI, Age, CGI-I and medicine-induced sleep of study participants.

sleep values which is shown in Table 5. Figure 1 shows Mean plot for Age distribution among various Diagnosis groups. Table 6 shows the co-relations between Age, PSQI, CGI-I, medicine-induced sleep. Pearson’s co-relation test was done. Age is negatively co-related to medicine-induced sleep, which implies that higher the age lower is the need for medications to induce sleep. PSQI score is positively co-related to CGI-I score, which indicates that better the improvement in the clinical symptoms the better the quality of sleep.

Positive co-relation was also found in between PSQI and medicine-induced sleep, but the test is statistically insignificant probably due to small sample size.

Out of 109 participants, 86 patients have met CGI-I rating score < 4. Out of 86 patients, Global PSQI score was <= 5 in 33 patients and Global PSQI score was > 5 in 53 patients indicating good quality of sleep in 33 patients and poor quality of sleep in 53 patients as shown in Table 7.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>46</td>
</tr>
<tr>
<td>Females</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 1. Frequency and Percentage of Males and Females

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>Chi-Square Value</th>
<th>P-value</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>24</td>
<td>28</td>
<td>7.470</td>
<td>0.024</td>
<td>52</td>
</tr>
<tr>
<td>Unmarried</td>
<td>20</td>
<td>7</td>
<td>4.141</td>
<td>0.042</td>
<td>38</td>
</tr>
<tr>
<td>Divorced/Separated</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Literate</td>
<td>25</td>
<td>13</td>
<td></td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Illiterate</td>
<td>21</td>
<td>27</td>
<td></td>
<td></td>
<td>48</td>
</tr>
</tbody>
</table>

Table 2. Socio-Demographic Data of Patients

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Age</th>
<th>PSQI*</th>
<th>CGI-I**</th>
<th>Medicine-Induced Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia</td>
<td>Mean</td>
<td>36.40</td>
<td>7.37</td>
<td>1.80</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>BPAD*</td>
<td>Mean</td>
<td>34.19</td>
<td>8.00</td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>46</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>Alcohol Related</td>
<td>Mean</td>
<td>41.62</td>
<td>6.38</td>
<td>1.77</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 3. Means and Standard Deviations of Age, PSQI, CGI-I and Medicine-Induced Sleep for Males and Females

PSQI*: Pittsburgh Sleep Quality Index, CGI-I**: Clinical Global Impression- Improvement, N: Frequency
I here is no much variance in the PSQI, Age, CGI indicates that higher the age of the individual more the global improvement in symptoms which further implies that older people have good prognosis and younger age groups have bad prognosis. Statistically insignificant p-value was obtained between Age and PSQI score in this study when compared to a study done by Brabins et al 1993(14) and Taylor et al 2005,15 in which older adults had a decreased quality of sleep. With positive co-relation between PSQI score and CGI-I score, it explains that with clinical improvement in psychiatric symptoms, the quality of sleep also improves. This study also showed statistical insignificance between sleep quality and medicine-induced sleep. Sleep quality is good in patients who are using medications, either benzodiazepines or anti-psychotics, but are not dependent on them for sleep. This study also showed that Quality of Sleep is the same independent on the economic status, education and docrine status of the patient. ANOVA test done indicates that there is no much variance in the PSQI, Age, CGI-I and medicine-induced sleep values. Pearson co-relation test revealed that higher the age of the individual, lower the need for medications to induce sleep. Positive co-relation between age and CGI-score indicates that higher the age of the individual more the global improvement in symptoms which further implies that older people have good prognosis and younger age groups have bad prognosis. Statistically insignificant p-value was obtained between Age and PSQI score in this study when compared to a study done by Brabins et al 1993(14) and Taylor et al 2005,15 in which older adults had a decreased quality of sleep. With positive co-relation between PSQI score and CGI-I score, it explains that with clinical improvement in psychiatric symptoms, the quality of sleep also improves. This study also showed statistical insignificance between sleep quality and medicine-induced sleep. Sleep quality is good in patients who are using medications, either benzodiazepines or anti-psychotics, but are not dependent on them for sleep. This study also showed that Quality of Sleep is the same independent on the diagnosis of the patient, i.e. quality of sleep is equally affected

**Table 4. Table showing Means and Standard Deviations of Age, PSQI, CGI-I and Medicine-Induced Sleep for Various Diagnoses**

<table>
<thead>
<tr>
<th>Diagnostic Group</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>36.80</td>
<td>12.677</td>
</tr>
<tr>
<td>Mental Retardation</td>
<td>44.33</td>
<td>15.144</td>
</tr>
<tr>
<td>Schizo-affective Disorder</td>
<td>22.50</td>
<td>7.07</td>
</tr>
<tr>
<td>Psychosis NOS</td>
<td>26.00</td>
<td>5.657</td>
</tr>
<tr>
<td>Total</td>
<td>36.26</td>
<td>10.144</td>
</tr>
</tbody>
</table>

**Table 5. ANOVA (Analysis of Variance) amongst different Diagnostic Groups**

**Table 6. Correlations between Age, PSQI, CGI-I, Medicine-Induced Sleep**

**Table 7. Frequency and Percentages of PSQI Scores of Males and Females**

**DISCUSSION**

This study differentiated good sleepers and poor sleepers. PSQI score was <5 in 33 subjects and >5 in 53 subjects. PSQI score was <5 in 22 males and >5 in 22 males. PSQI score was <5 in 11 females and >5 in 31 females. Quality of sleep was equally good and poor in males, i.e. 50% were having good quality sleep and 50% were having poor quality sleep. Whereas in females 26.2% were good quality sleepers and 73.8% were poor quality sleepers. A study conducted by Michael Ritsner et al 2004, also differentiated between good sleepers and poor sleepers and also compared the quality of sleep with quality of life,(13) which was not done in our study. In this study it was found out that diagnosis is independent of marital status, occupation, socio-economic status, education and domicile status of the patient. ANOVA test done indicates that there is no much variance in the PSQI, Age, CGI-I and medicine-induced sleep values. Pearson co-relation test revealed that higher the age of the individual, lower the need for medications to induce sleep. Positive co-relation between age and CGI-score indicates that higher the age of the individual more the global improvement in symptoms which further implies that older people have good prognosis and younger age groups have bad prognosis. Statistically insignificant p-value was obtained between Age and PSQI score in this study when compared to a study done by Brabins et al 1993(14) and Taylor et al 2005,15 in which older adults had a decreased quality of sleep. With positive co-relation between PSQI score and CGI-I score, it explains that with clinical improvement in psychiatric symptoms, the quality of sleep also improves. This study also showed statistical insignificance between sleep quality and medicine-induced sleep. Sleep quality is good in patients who are using medications, either benzodiazepines or anti-psychotics, but are not dependent on them for sleep. This study also showed that Quality of Sleep is the same independent on the diagnosis of the patient, i.e. quality of sleep is equally affected
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