MSc Occupational Therapy

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Occupational Therapy Project 4

Module Co-ordinator

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Examining the Clinical Characteristics of Individuals with First Episode Psychosis with Sleep Satisfaction

Abstract

**Background:** Sleep is a complex yet vital process essential for energy, productivity and emotional balance. Sleep disruption has significant implications for an individual’s health, wellbeing and occupational performance. Sleep disruption is linked to many psychiatric conditions including First Episode Psychosis (FEP). Early recognition and subsequent treatment of FEP can reduce the social and occupational disruption with which it is associated.

**Objectives:** The research aimed to explore the relationship between the clinical characteristics of FEP and the occupation of sleep.

**Methods:** Secondary data analysis was carried out on anonymised information previously gathered by early intervention service, DETECT. No participants were recruited. Data originated from symptom measurement instruments administered as part of standard protocol. Mann Whitney U and Chi square testing were used to identify any correlations between clinical characteristics and sleep.

**Results:** Almost half (47%) of the FEP cohort reported dissatisfaction with sleep. There was no significant difference between those who were satisfied and those who were dissatisfied with sleep in terms of duration of untreated psychosis, depressive symptoms and positive symptoms. In contrast it was identified that sleep was associated with negative symptoms, anxiety and overall quality of life.

**Conclusion:** This study compliments previous findings that sleep disturbance affects an individual’s occupational performance. The impact of sleep on first episode psychosis is multidimensional affecting anxiety levels, negative symptom severity and quality of life. These findings are congruent with literature outside of occupational therapy but further studies examining the effect of sleep on FEP or other conditions would strengthen the evidence base.
**Introduction**

Sleep is a complex yet vital process essential for energy, productivity and emotional balance (Wulff et al. 2010). Acute sleep loss can have adverse ramifications on mood and concentration whereas chronic sleep loss is associated with myocardial infarction, type two diabetes and increased risk of mortality (Spiegel et al. 2005, Schwartz et al. 1998, Kojima et al. 2000). Sleep disruption has significant implications for an individual’s health, wellbeing and occupational performance (O'Donoghue and McKay 2012). Employing the International Classification of Functioning, Disability and Health (WHO 2010) research has identified that sleep debt can substantially affect individuals at differing levels, including body functions and participation in activity (Fung et al. 2013). Sleep disruption is linked to many psychiatric conditions including First Episode Psychosis (FEP)(Conus et al. 2010). Early recognition and subsequent treatment of FEP can reduce the occupational and social disruption with which it is associated (Crumlish et al. 2009). Despite this general awareness, sleep is a largely under researched area within occupational therapy literature (Green 2008).

This quantitative study aims to examine the relationship between sleep satisfaction and the clinical characteristics of individuals with FEP. Secondary data analysis will be conducted on anonymised information previously gathered by DETECT, Irelands only early intervention service for psychosis which operates in South County Dublin and Wicklow. Data originated from the administration of clinical instruments used by the team at DETECT as part of standard protocol. These instruments will be examined to ascertain if people were satisfied or dissatisfied with their sleep. Once grouped according to sleep satisfaction, the duration of untreated psychosis (DUP), clinical characteristics and Quality of Life of the cohort can be examined.

The aims of this study are to describe an FEP cohort and explore the relationship between sleep satisfaction and the clinical characteristics of FEP. It is hoped that this study will contribute to a greater understanding of the importance of sleep as an occupation and a developing area of research in occupational therapy.

(Throughout the article the acronym ‘FEP’ will be used for First Episode Psychosis and ‘DUP’ for Duration of Untreated Psychosis)
Literature Review

Adolf Meyer, psychiatrist and founding father of occupational therapy regarded sleep as a central tenet in achieving a healthy and balanced lifestyle (Green 2008). Meyer was the first theorist to classify human occupations, he stated that sleep along with work, play and rest were the ‘Big Four’ necessary for the maintenance of a healthy life rhythm (Meyer 1976, Nurit and Michal 2003, Green 2008). To this day the profession advocates for balance between self-care, work and leisure activities. These performance areas have received great attention both in research and within clinical practice (Persson et al. 2001, Nurit and Michal 2003). However given the prominence Meyers attributed to sleep as an occupation, a surprisingly small amount of occupational therapy literature has emerged in this area (Green 2008, Fung et al. 2013).

Howell and Pierce (2000) offer the suggestion that Meyers emphasis on sleep may be overlooked due to western society’s perception of sleep as time wasted. Nurit and Michal (2003) build on this belief reasoning that work ethic is dominant in many modern societies whereas as ‘rest’ and ‘leisure’ carry more negative connotations. In addition to the western cultural values placed on sleep, many esteemed occupational therapy writers have excluded it from their definitions and categorisations of occupation. Kielhofner and Burke (1985) described occupational behaviour as activity engagement during wakefulness. Reed and Sanderson (1998) divided up the occupational domains into self-care, productivity and leisure. Persson et al (2001) although included sleep within their figure of ‘occupational repertoire’ stated that it is not an occupation as it cannot be influenced or directed. Therefore over the course of three decades sleep was not deemed an occupation by leading theorists.

In 2008 the American Association of Occupational Therapy’s (AOTA) revised framework document re-categorised ‘sleep and rest’ from an activity of daily living to an area of occupation. Despite this sleep has been largely neglected as an occupation. This is unjustified as poor sleep quality impacts daily functioning and if prolonged may cause occupational disruption (O'Donoghue and McKay 2012, Whiteford 2000). It is the principal restorative occupation, necessary for renewal, for occupational functioning and for human survival (Howell and Pierce 2000). Deprivation of sleep encompasses a broad spectrum of side effects including concentration difficulties and increased likelihood of irritability, anxiety and low mood (Martin 2003, Gradinger et al. 2011). The implications of poor sleep also include increased risk of new or recurrent psychiatric disorders (Gruber et al. 2011). A tentative link
between sleep disturbance and FEP has previously been identified (Conus et al. 2008, Jackson et al. 2003). A retrospective study of FEP revealed that sleep disruption was reported among patients even before onset of illness (Conus et al. 2010). Although this literature has highlighted an association between sleep disturbance and psychosis, it has not yet been investigated for a causal relationship. This study aims to explore the relationship between sleep satisfaction and FEP.

‘Psychotic disorders’ is a collective term for a group of serious illnesses which generally manifest during the sensitive developmental period of adolescence and emerging adulthood (McGorry et al. 2008). Psychosis is the generic term describing loss of contact with reality (McGorry et al. 2002). Characteristic symptoms are categorised into two domains, positive and negative. Positive symptoms include hallucinations, delusions, positive formal thought disorder and catatonic motor behaviour. Negative symptoms include avolition, alogia, affective blunting, anhedonia and impairment. Secondary features such as anxiety, sleep disturbance, social withdrawal and impaired role function may also manifest (Camargo et al. 2006). The incidence rate of psychosis is reported to be 2 per 1,000 with schizophrenia being the most prevalent diagnosis (Kelly et al. 2010).

There is an initial prodrome associated with FEP, it is the period before psychosis whereby deviation of an individual’s typical behaviour occurs via non-specific symptoms and growing functional impairment (McGorry et al. 2002). Its recognition is crucial for early diagnosis and management of symptoms (Clarke and O'Callaghan 2003). Individuals who develop psychosis may be untreated for a prolonged period of time, this is known as duration of untreated psychosis (DUP) (Marshall et al. 2005). Many studies have postulated that extended DUP results in poorer outcome, which is plausible given the profound impact psychosis may have on an individual’s life (Crumlish et al. 2009, Perkins et al. 2005). The experience may be devastating bringing with it loss of social roles and occupational participation (Baker and Procter 2014, Turner et al. 2007).

In accordance with the recognition that early diagnosis and management of FEP may reduce the psychological and social disruption with which it is associated came the emergence of the early intervention paradigm (McGorry et al. 2008). The first early psychosis clinical service was established in Melbourne in 1992, there are currently hundreds of early intervention programs worldwide (McGorry et al. 2008). In line with this maturation of therapeutic approach and its positive implications, DETECT Ireland’s early intervention service for
psychosis was established. DETECT aim to bring about recovery during this critical period of psychosis.

Due to the associated symptoms, FEP severely impacts performance across all occupational domains negatively effecting quality of life. Despite a limited number of studies listing sleep disturbance as a precursor of FEP there is little empirical evidence regarding the actual contribution of sleep to psychosis onset (Conus et al. 2008, Conus et al. 2010, Ritsner et al. 2004). As sleep quality is fundamental to positive occupational engagement, poor sleep satisfaction may play a role in intensifying symptom severity of FEP. This present study aims to reveal associations between sleep satisfaction, symptom severity and quality of life in an FEP cohort.
Methods

Study Design

This was a retrospective cohort study. No participants were recruited for this study as it involved analysis of previously collected data. The data set originated from standard protocol procedure of individuals with initial presentation in DETECT.

Participants and Setting

The data base was created by recruiting all individuals with FEP consecutively referred to Cluain Mhuire or St. John of God hospital. Cluain Mhuire is a south Dublin catchment area providing a community based mental health service for a geographically defined urban region. St. John of God is an acute psychiatric setting which accepts nationwide referrals. First episode psychosis was defined as the first presentation of an individual to any psychiatric service who fulfilled the DSM-IV (SCID) criteria for any psychotic episode. Exclusion criteria included previous treatment with anti-psychotic medication for more than 30 days, failure to qualify for age criteria for adult mental health services (16 – 65 years), clients with psychosis attributed to a general medical condition and presence of learning difficulty which made written aspects of study unobtainable.

Ethics

The secondary data set used for this study was previously approved by the Hospitalier Order of St. John of God for Professor O’Callaghan’s 2008 study which evaluated the implementation of the DETECT service (Crumlish et al. 2009). Data was derived from patients who gave verbal informed consent, which is most appropriate in this clinical context as written consent may be interpreted as a lack of trust (CIHR 2010). Ethical approval for procurement of data for this study was approved by the provincial ethics committee of St. John of God (see appendix).

The data set was in electronic form and had been anonymised prior to analysis to protect identity. Data was stored on an encrypted hard drive within the DETECT main office, Avila House, Blackrock. All data analysis was carried out on site on password protected computers with HSE encryption. Storage and management of data was in accordance with the Health
Research Board’s guideline document whereby information is held in strict confidence and only shared with those who have been approved disclosure (HRB 2008).

Instruments

The following are the instruments used by the clinical team at DETECT within 72 hours of receipt of referral. Structured clinical interview for DSM IV (SCID), Scale for the Assessment of Positive Symptoms (SAPS), Scale for the Assessment of negative symptoms (SANS), Beiser scale, Calgary Depression Scale for Schizophrenia (CDSS), World Health Organisation Quality of Life BREF (WHO-QOL) and Somatic Cognitive Behavioural Anxiety Index (SCBAI).

SCID

A structured clinical interview for DSM-IV (SCID) was carried out on each participant when clinically stable, for diagnosis of psychopathology and attainment of demographic information. DSM-IV SCID is a gold standard instrument with widely established inter-rater reliability, predictive validity and construct validity (Miller et al. 2002, American Psychiatric 2000).

SAPS & SANS

Positive and negative symptoms were assessed using the SAPS and SANS. The SAPS and SANS are interviews which have standardised guidelines for clinicians to follow. Each one is composed of 6-point scales which include determining points to attain severity of symptoms. These are the gold standard tools for assessing symptoms of FEP and have robust psychometric properties associated with them (Andreasen 1982, Andreasen 1984, Andreasen et al. 1990, Andreasen et al. 2010).

CDSS

The CDSS consists of 9 items with a 4-point scale to examine depressive symptoms which do not overlap with the negative symptoms of schizophrenia. It is administered by clinician via structured interview. The interview and rating scale have strong inter-rater reliability and validity. The CDSS is best suited to studies in which depression is a variable of interest separate from positive and negative symptoms (Addington et al. 1992, Addington et al. 1996, Müller et al. 2005).

WHO QOL- BREF
The WHO QOL-BREF was administered to assess quality of life. This 26 item assessment is a shorter version of the WHO QOL-100 and is utilised to minimise respondent burden. It is a cross culturally valid instrument with four contextual domains: physical, psychological, social and environmental. Strong inter-rater reliability and convergent validity reported (Nedjat et al. 2008, Skevington et al. 2004).

SCBAI

The SCBAI was utilised by the DETECT service as a measure of anxiety among the FEP population. It is a 36 item self-administered likert index which produces individual scores for the three differing dimensions of anxiety: somatic, behavioural and cognitive, which are then aggregated into a total score. This total score is utilised in the statistical analysis. (Lehrer and Woolfolk 1982).

Beiser Scale

The Beiser scale was developed as a checklist to aid clinicians in estimating psychotic illness onset from all possible sources. When onset is determined, the duration of untreated psychosis (DUP) may be measured by counting the number of months from psychosis manifestation to receipt of effective treatment (Beiser et al. 1993). Using the total DUP figure it can then be identified if there is a difference between those satisfied with sleep and those dissatisfied with sleep.

Sleep Satisfaction Measure

Question 16 of the WHO QOL-BREF was utilised as a measure of sleep satisfaction (WHO 1996). Using the likert scale, a score of 1 to 3 inclusive was considered sleep dissatisfaction and a score of 4 to 5 was considered sleep satisfaction, creating a binary grouping variable.

Statistical Analysis

The Statistical Package for the Social Sciences Version 18 (IBM SPSS Inc 2010©) was used for analysis. Frequencies of demographic characteristics were determined and descriptive statistics were used to summarise data set, including mean, median, variance and interquartile ranges. Normality was tested using histograms and confirmed via Shapiro Wilk W testing with p > 0.05 indicating normal distribution. In the case of scalar variables Mann Whitney U
testing was carried out to investigate if the clinical characteristics of FEP differed significantly between those who reported to be satisfied and those who reported to be dissatisfied with their sleep. Chi square testing for independence was utilised to explore the relationship between categorical variables allowing us to determine if there are any associations between sleep satisfaction and gender and employment status. Upon chi square testing at least 80% of cells must have expected frequencies of 5 or more, when violated Fishers Exact Probability Test was carried out to determine significance levels (Pallant 2010).
Results

Demographics

The characteristics of the group (n = 341) are shown in table 1. The mean age of the subjects is 33.67 with a standard deviation of 15.88. In line with the ethical stipulations the age of individuals in the cohort ranged from 16 – 64. There was a clear gender bias as 62% (n=211) of individuals were male and just 38% (n=130) female. With regard to employment status 39% (n=133) were involved in paid employment at the time of data collection. The majority of individuals were not in paid employment representing 61% (n=208) of the total population, however it is worth noting that this figure may include those still in full-time/part-time education but this information was not available to researcher. The cohort was composed of 13 differing diagnoses the two most common of which were schizophrenia and bipolar I disorder accounting for 20.1% (n= 69) and 8.5% (n= 29) of the total sample respectively.

Table 1. Demographic Characteristics of cohort

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean, Standard Deviation</th>
<th>33.67, ±15.88years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td></td>
<td>16 – 64years</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Working</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bipolar I Disorder</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Bipolar II Disorder</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Brief Psychotic Disorder</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Delusional Disorder</td>
<td>6.9</td>
<td></td>
</tr>
</tbody>
</table>
### Sleep Satisfaction

Over half of the cohort reported satisfaction with sleep in response to question sixteen of the WHO QOL-BREF representing 53% (n= 182) whereas 47% (n=159) reported dissatisfaction with sleep.

**Table 2. Sleep Satisfaction of FEP cohort**

<table>
<thead>
<tr>
<th>Sleep Satisfaction Status</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>159</td>
<td>53.4</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>182</td>
<td>46.6</td>
</tr>
<tr>
<td>Total Sample</td>
<td>341</td>
<td>100</td>
</tr>
</tbody>
</table>

### Clinical Characteristics

**(i) Scalar Variables**

All scalar variables were tested for normality and found to be non-parametric. In order to investigate the relationship between scalar variables and sleep satisfaction/dissatisfaction Mann Whitney U testing was carried out. Statistical differences were identified (p = <0.05) between those satisfied with sleep and those dissatisfied with sleep in regard severity of negative symptoms, anxiety and quality of life. However analysis of positive symptoms,
depressive symptoms and DUP did not reveal any significant differences between the two sleep populations.

Table 3. Mann Whitney U testing of Scalar Variables

<table>
<thead>
<tr>
<th>Tool</th>
<th>Clinical Characteristic</th>
<th>Median</th>
<th>Mann Whitney U</th>
<th>Interquartile Range</th>
<th>Variance</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upr</td>
</tr>
<tr>
<td>Calgary</td>
<td>Depression</td>
<td>3.000</td>
<td>0.942</td>
<td>7.00</td>
<td>32.074</td>
<td>5.509</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lwr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.303</td>
</tr>
<tr>
<td>SAPS</td>
<td>Positive Symptoms</td>
<td>7.000</td>
<td>0.248</td>
<td>5.00</td>
<td>11.306</td>
<td>7.369</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.654</td>
</tr>
<tr>
<td>SANS</td>
<td>Negative Symptoms</td>
<td>4.000</td>
<td>0.018</td>
<td>7.00</td>
<td>19.666</td>
<td>5.282</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.337</td>
</tr>
<tr>
<td>SCBAI</td>
<td>Anxiety</td>
<td>94.000</td>
<td>0.001</td>
<td>94.50</td>
<td>4085.495</td>
<td>102.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>94.83</td>
</tr>
<tr>
<td>WHO</td>
<td>Quality of Life</td>
<td>12.000</td>
<td>0.000</td>
<td>6.00</td>
<td>21.279</td>
<td>13.025</td>
</tr>
<tr>
<td>QoL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.042</td>
</tr>
<tr>
<td>DUP</td>
<td>Duration of untreated illness</td>
<td>6.000</td>
<td>0.655</td>
<td>32.75</td>
<td>2528.779</td>
<td>33.288</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22.559</td>
</tr>
<tr>
<td>SCID</td>
<td>Age</td>
<td>31.000</td>
<td>0.603</td>
<td>17.50</td>
<td>133.469</td>
<td>34.997</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32.341</td>
</tr>
</tbody>
</table>

(ii) Categorical Variables

Independent chi square testing was employed to determine if there was any statistical significance between categorical variables and sleep satisfaction. Using a Fishers exact test it was determined that there was no significant difference in sleep satisfaction between those who were unemployed and those working $\chi^2(1, n = 333) = 5.74, p = 0.17, \phi = -0.138.$
Gender was compared statistically between the satisfied and dissatisfied population, no significant differences were noted $\chi^2 (1, n = 293) = .478$, $p = .49$, $\phi = -.048$.

**Figure 1. Sleep Satisfaction and Employment Status**

**Figure 2. Sleep Satisfaction and Gender**
Discussion

The implications of sleep disruption permeate all facets of occupational performance, disrupting daily activities, productivity, social functioning and psychological as well as physical well being (Green 2008, Wulff et al. 2010). In general the findings of this study are consistent with the above statement. The main findings can be summarised as three key points. Firstly more than half of the FEP cohort examined reported dissatisfaction with sleep. Secondly there was no significant difference between those who were satisfied and those who were dissatisfied with sleep in terms of positive symptoms, depressive symptoms and duration of untreated psychosis. In contrast our third key finding was a significant difference between the two sleep populations with regard to negative symptoms, anxiety and overall quality of life.

Demographics

The median age of our cohort is 34 which is higher than that reported in many studies of FEP. In general FEP is associated with the life stage of emerging adulthood (Roy et al. 2013, Norman et al. 2004). As the cohort was partially derived from a defined geographic catchment area perhaps it is not as representative as if it had been derived from a larger population.

Findings relating to gender are consistent with current literature as almost two thirds of the sample are male, a trend typical of samples of first episode populations (Browne et al. 2000, Norman et al. 2004). This gender disparity is particularly typical of schizophrenia which is congruent with the findings of this study given that schizophrenia was the most common condition (Bejerholm 2010).

Only 53% of the sampled population reported satisfaction with sleep. This figure is considerably low, with British and Swedish sleep quality studies reporting that 73% and 68% respectively of a general population were satisfied with sleep (Groeger et al. 2004).

The unemployment rate identified in this study is substantially higher than that of the general Irish population. Although this figure does not take into account education or non-labour force work, the 39% rate of employment within this FEP population is considerably lower than that of Ireland (50.28%) and South County Dublin (58.2%) (CSO 2013). One possible reason for this rate may be that individuals are delaying return to work as a result of health
professionals and family members reinforcing the belief that stresses associated with such a return may trigger relapse during this early recovery period (Gioia 2006, Rinaldi et al. 2010). Similar employment rates within an FEP cohort were found in a study by Roy et al., furthermore qualitative data revealed that those most dissatisfied with unemployment reported being under occupied or bored (Roy et al. 2013). Taking this into account the 61% of the cohort who are not currently working may be at risk of occupational disruption (Whiteford 2000). It is also interesting to note that more of the individuals who are dissatisfied with sleep are in employment that those who are unemployed. One may query if this is due to FEP symptoms reducing ability to cope with the stresses of being at work and as a result have a more disturbed sleep. This would fit in with Gioia's (2006) suggestion that stresses can trigger relapses in those who are recovering.

**Duration of Untreated Psychosis, Depression and Positive Symptoms**

Findings demonstrate that there are no significant differences between the two sleep populations with regard to DUP, depression severity and positive symptoms.

Previous studies have consistently identified prolonged DUP as an indication of greater symptom severity, hence functional impairment at first presentation of psychosis (Marshall et al. 2005, Perkins et al. 2005, Chang et al. 2012). Therefore the finding that DUP was relatively similar between the two sleep populations was unexpected. The way in which the raw data was treated for this particular variable may have affected the results as will be discussed in the limitations section. There were no differences in depressive symptoms between the two sleep populations, implying that sleep disruption is not linked to depression in FEP. As worsening of mood is one of the most prominent and consistent behavioural manifestations of sleep disruption even among general populations this finding was also unexpected (Scott et al. 2006, Kahn-Greene et al. 2007). There is an existing body of research which acknowledges the association between sleep disturbance and depression in FEP, as our findings are incongruent the psychometric properties of the CDSS must be considered (Wulff et al. 2012, Conus et al. 2010, Gruber et al. 2011). The CDSS is currently the gold standard tool for assessing depression in schizophrenia and offers robust psychometric properties (Müller et al. 2005). However evidence for its use with a first episode population of differing diagnoses is not as abundant and as our sample represented a homogenisation of conditions perhaps a more
sensitive assessment tool could have been utilised such as the recently developed Psychotic Depression Assessment Scale (PDAS) (Østergaard et al. 2014). Similarly the link between positive symptoms and FEP is well established in the literature and the SAPS is also the gold standard measure utilised in clinical settings yet, we did not find any difference of importance between the two sleep populations (Crumlish et al. 2009). As a result we must consider all limitations which may have affected results.

**Anxiety, Negative Symptoms and Quality of Life**

Sleep disturbances are common in most forms of psychopathology (Wulff et al. 2010). In line with this, our study findings indicate that there is a relationship between sleep satisfaction and the following clinical characteristics: anxiety, negative symptoms and quality of life in FEP.

This study identified a significant difference in anxiety levels between those who were satisfied with sleep and those who were dissatisfied with sleep. There is currently no direct evidence of an association between anxiety and sleep disturbances within FEP literature however, a tangible link between sleep disturbances and anxiety levels has previously been alluded to in general (Neckelmann et al. 2007, Eller et al. 2006). Although the specific nature of the relationship between sleep and anxiety cannot be differentiated within this study, recent literature offers possible explanations. Firstly anxiety is a leading cause of insomnia and therefore may fundamentally contribute to sleep dissatisfaction (Ramsawh et al. 2009). As well as this, daytime dysfunction as a result of sleep dissatisfaction may serve as a trigger for anxiety generating a vicious self perpetuating cycle. A net effect of such cycle may be impaired ability to perform daily occupations thereby reducing occupational engagement (Bejerholm and Eklund 2007). This diminishing engagement in meaningful occupation may lead to occupational alienation (Townsend and Polatajko 2007).

Occupational engagement is also affected by negative symptoms as they are inherently related to functioning (Bejerholm and Eklund 2007). In this study a significant difference in negative symptoms was found between the two sleep populations. As before the nature of the relationship between sleep and negative symptoms cannot be determined however, sleep disruption has previously been linked to negative symptoms in physiological studies (Tandon...
et al. 1992, Poulin et al. 2003). The concept that sleep may impact negative symptom severity is supported by this study and warrants further investigation as negative symptoms affect occupational engagement which in turn affects quality of life (Bejerholm and Eklund 2007).

It is not surprising then that this study also identified a significant difference between the two sleep populations in regards quality of life. Over the past two decades the concept of quality of life has increasingly gained recognition as a valuable outcome measure in FEP (Renwick et al. 2012). These findings support the concept that the occupation of sleep contributes to the subjective appraisal of quality of life of individuals with FEP (Baker and Procter 2014). Although this correlation has not previously been explicitly acknowledged in relation to FEP, sleep satisfaction has been identified as an important factor associated with quality of life for members of the general population (Renwick et al. 2012). Also, a greater incidence of poor sleep quality and concurrent poor quality of life has been reported in individuals with schizophrenia compared to members of the general population (Ritsner et al. 2004). Ritsner et al (2004) reported that the lower the level of sleep dissatisfaction, the lower the level of perceived quality of life in a cohort of individuals with schizophrenia.

**Conclusion**

**Implications For Occupational Therapy**

The findings of this study suggest that sleep is playing a role in symptom severity in FEP. Sleep via its impact on anxiety, negative symptoms and quality of life impacts function hence engagement in daily occupations (Bejerholm and Eklund 2007). These findings mirror the sentiments of previous studies which noted that both sleep poverty and excessive sleep influence an individuals ability to initiate or sustain participation in occupations (O'Donoghue and McKay 2012, Baker and Procter 2014). Wilcock postulates that our engagement in occupations directly impacts health, well-being and survival, yet sleep receives little attention in occupational therapy literature (Wilcock 2007).

In 2008 an Australian workshop initiated to address sleep disturbance in children reported that support from occupational therapists was crucial in developing positive sleep patterns (O’Connell and Vannan 2008). More recently a study on sensory processing stated that
occupational therapists should be involved in intervention programs for individuals with sleep disturbance (Engel-Yeger and Shochat 2012). Similarly McKay and O’Donoghue (2012) suggest a role for occupational therapy in empowering people to manage a sleep disorder. Collectively these findings although sparse convey that sleep does indeed fall within the scope of clinical practice.

Acknowledging such findings the AOTA recategorised sleep as an area of occupation in 2008 and released a report entitled ‘Occupational Therapy’s Role in Sleep’ in 2012 (AOTA 2012). AOTA state that occupational therapists possess the knowledge base to address the functional ramifications of sleep insufficiency/disorders on occupational performance. Fellow international governing bodies have so far neglected to recognise sleep as explicitly. A recent World Federation of Occupational Therapists (WFOT) position statement defines ADL’s as ‘everyday activities that bring meaning and purpose to life to achieve and maintain health’ (WFOT 2012, p.1). The Association of Occupational Therapists of Ireland (AOTI) state that occupational therapists must ‘apply the therapeutic use of occupation to positively influence health and well being’ (AOTI 2008, p.8). Due to restful and adequate sleep providing the basis for optimal engagement in daily life both statements could be interpreted as indirectly incorporating sleep. Sleep is embedded into a recently published position paper around chronic pain, however this current study and those aforementioned contend that sleep is worthy of its own position statement (CAOT 2012). Perhaps it is timely for professional bodies such as WFOT to produce such a position statement and kindle international dialogue to affirm the relevance of sleep as an occupation. If sleep received greater prominence within framework documents published by such bodies to guide professional development it may foster a better capacity within our profession to deal with occupational performance issues resultant of sleep.

**Limitations**
The statistical tests carried out were constricted to identification of correlations and did not allow for exploration of cause-effect relationships. Therefore the extent of analysis is confined to whether or not there are differences in sleep satisfaction levels, but the implications of this could not be explored further (Pallant 2010). Regression analysis was not undertaken however, it may have given a clearer understanding of the relationship between sleep and positive symptoms. This approach could be utilised in future research to examine if sleep dissatisfaction is a predictor of symptom severity in FEP.
No differences were reported between those satisfied with sleep and those dissatisfied in terms of DUP. Within the sample (n = 341) there was very large variance, use of an appropriate clustering algorithm may have allowed for more sensitive analysis of data (Pallant 2010).

Question 16 of the WHO QOL-BREF questionnaire was used as the measure of sleep satisfaction (World Health 1996). For the purpose of this study the five possible responses were aggregated into a binary variable of satisfaction and dissatisfaction, thereby inferring assumption. Exclusive use of a unidimensional measure although adequate did not allow for a thorough investigation of all facets of sleep.

**Future Directions**
As sleep difficulties are so multifaceted, a clinical tool specifically developed to measure sleep quality would be beneficial in assessing this cohort. If further studies were to be carried out a more comprehensive measure such as the Pittsburgh Sleep Quality Index (PSQI) could be employed as it examines the following constructs of sleep: subjective sleep quality, sleep latency, sleep duration, sleep disturbance, utilisation of sedatives and effect on daytime functioning (Bush et al. 2012).

This study have given an insight into the status of sleep in occupational therapy literature and publications of governing bodies. A scoping review of occupational therapy interventions in relation to sleep would compliment and build on these findings and make for an interesting future research topic.

**Summary**
Sleep disturbance affects an individuals occupational performance and over all quality of life. This study identified a high level of dissatisfaction with sleep within an FEP cohort. It also found that the impact of sleep on first episode psychosis is multidimensional affecting anxiety levels, negative symptom severity and quality of life. These findings are congruent with literature outside of occupational therapy but further studies examining the effect of sleep on FEP or other conditions would strengthen the evidence base. Yerxa et al 1990, p.13 espoused that ‘medicine is concerned with preserving life, occupational therapy is concerned with quality of life preserved’. Yet considering that sleep affects one of the corner stone constructs of the profession it has a limited profile within occupational therapy literature. The
recent recognition of sleep as an occupation by the AOTA is a positive step forward which will hopefully set an example for national and international governing bodies of the profession such as AOTI and WFOT to follow. To describe sleep with an occupational science lens it affects performance and is a significant element of time use making it a deserving and important topic for future research.

**Acknowledgements**

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References


some implications for public health and medical research, available:


Appendix

Letter of Ethical Approval

Ms. Edel Dwyer,

6th December, 2013

Dear Edel,

Re: Research Proposal: “ID 560” Examining the Clinical characteristics of people with First Episode Psychosis with sleep satisfaction.

Thank you for the above research proposal submitted to the Hospitaller Ministries Ethics Committee and amendments.

The Hospitaller Ministries Ethics Committee has pleasure in formally approving the above research proposal. We would like to take this opportunity to wish you well with the study and look forward to receiving a copy of your findings.

Kind regards

Yours sincerely

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Jane McEvoy
Chair
Provincial Ethics Committee