SEASONAL VARIATION OF MAJOR DEPRESSIVE DISORDER

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Abstract
*   The main objective of this study was to document the relationship between the seasons and the occurrence of Major Depressive Disorder. With the changes of the climate, a study was conducted to investigate whether there were correlations between the weather and Depression. Data was collected from the patient files. The diagnosis of Major Depressive Disorder was established according to the DSM criteria for major Depression. The total number of cases of Major Depressive Disorder were recorded for one year and sorted into each season. There was also not enough information to say whether the depressive episode was due to the weather in isolation or there were other contributory factors, because the patient files were not complete enough to deduce whether patients with multiple relapses had them during a specific time of the year. It can be concluded that in this instance, weather did not play a significant role on depression, and the majority of cases occurred during spring and autumn.*

Key words: climate, major depressive disorder, patients

INTRODUCTION

The purpose of the study was to determine whether the seasonal pattern of major depressive disorder had changed as well as what the effects of weather changes had on depression. Seasonal Affective Disorder occurs during late fall and winter. The trend might be changing due to certain areas now having more hours of sunlight per day during winter and others receiving less. Depression has been closely linked to exposure to sunlight. This article will try to examine whether this trend has changed, and if so, how so. As well as what effects the weather has on mood (Collier J. el all, 2009, Klostranec J. et al., 2012). This study will try to investigate whether there is a global change as well whether there is a local change in Oradea, and whether the cases of depression are related to the weather or whether there is other reasons that motivate their occurrence.

Major Depressive syndrome, also known as Major Depressive disorder or clinical depression, is a psychiatric disorder categorized by a feeling of hopelessness, depressed mood, loss of interest in normal daily

activities and relationships for a period of more than five weeks. In addition, according to DSM-5 (a manual used to diagnose mental health disorders), the patient might experience other symptoms (Belmaker R., 2015, Brockington I., 2004). These are detailed in the following chapters. The disorder adversely affects the patient's family, work or school life. This results in low self-esteem, and loss of pleasure in normally enjoyable activities. Depression is associated with substantial co-morbidities, impairment, poor health and mortality. The disorder which can affect children, adolescents or adults may develop over a period of days, weeks or months. The episodes of depression may develop in clusters or singly separated by years of normality (Pampallona S., 2004).

Dysthymia is a mild or moderate depressive illness that lasts intermittently for 2 years or more and is characterized by tiredness and low mood, lack of pleasure, low self-esteem and a feeling of discouragement.

Seasonal affective disorder

Seasonal affective disorder is characterized by recurrent episodes of depressive illness occurring during the winter months in the northern hemisphere. Symptoms are similar to those found with atypical depressive illness, in that patients complaining of hypersomnia, increased appetite (with carbohydrate craving) and weight gain, with profound fatigue. Such patients have a higher prevalence of bipolar affective disorder, and some doctors are uncertain whether the condition is different from normal depressive illness, with the accentuation of mood that naturally occurs by season. However, there is evidence that seasonal depressive illness can be successfully treated with bright light therapy given in the early morning, which causes a phase advance in the circadian rhythm of melatonin. In contrast, the same treatment given in the early evening, with consequent phase delay of melatonin secretion, is less antidepressant. Selective serotonin reuptake inhibitors (SSRIs) are alternative treatments.

Puerperal affective disorders

Affective illnesses and distress are common in women soon after they have given birth. "Maternity blues" describe the brief episodes of emotional lability, irritability and tearfulness that occur in about 50% of women, 2–3 days postpartum and resolve spontaneously in a few days (Benazzi F., 2007).

In order to say whether the depression was caused by seasonal factors, files were examined for information pertaining to other factors that might have caused depression amongst the patients. Unfortunately not all the files contained information about what the cause of the depression was in each patient might be.

RESULTS AND DISSCUSIONS

The data shows that winter and spring had tied position for the most cases with MDD. Summer and spring had the most cases with divorced patients, and autumn and the most number of cases with relationship status being unspecified.

The majority of the patients were receiving a pension with a close second unemployed. Referring back to the age, there should be more patients receiving an income (employed) and less receiving a pension. Some patients as young as 44 years old were already receiving a pension. As the table indicates most of the patients were from rural areas. (table 1 and 2)

Table 1

Employment status

Season	Employed	Unemployed	Pensioner
Summer	1	4	5
Winter	2	4	4
Spring	2	4	4
Autumn	3	3	4

Table 2

Urbanicity

Season	Rural	Urban
Summer	8	2
Winter	7	3
Autumn	8	2
Spring	9	1

The four main reasons for admittance were sad disposition, insomnia, fatigue and depressed mood, irrespective of season. Very few patients presented with the feeling of worthlessness, apathy, lack of concentration, psychomotor agitation, delusion and lack of energy. (figure 1)

SAD DISPOSITION

INSOMNIA

FATIGUE

DEPRESSED MOOD

SUICIDAL THOUGHTS

ANOREXIA

LOW SELF-ESTEEM

RESTLESSNESS

IRRITABILITY

Fig.1. Reasons for admittance

As it is shown in table 3, long benzodiazepine was the most prescribed drug for all four months. Autumn was the only month where patients took a short acting benzodiazepine. Spring was the month that saw the most number of SSRIs being taken at home. Hypnotics were prescribed the most in the season of autumn as well. Overall the patients seen in summer were taking the least amount of medication before admittance.

Table 3

Medication taken before admission

MEDICATION	SUMMER	AUTUMN	WINTER	SPRING
LONG BENZO	3	4	5	5
SHORT BENZO	0	2	0	0
SSRI	3	3	2	6
SNRI & NRI	1	2	4	0
TCA	1	0	0	0
NEUROTROPHIC	1	0	0	1
HYPNOTIC	3	5	2	2
MELATONERGIC	0	0	1	0
MOOD STABILISER	0	0	1	1

The most prescribed drug after admission (figure 2) was long acting Benzodiazepine, while Melatonin-ergic drugs were not prescribed at all. Overall more drugs were given after admission. SSRIs and Hypnotics were

prescribed in the same amount before and after admission. In all TCAs was the least prescribed drug.
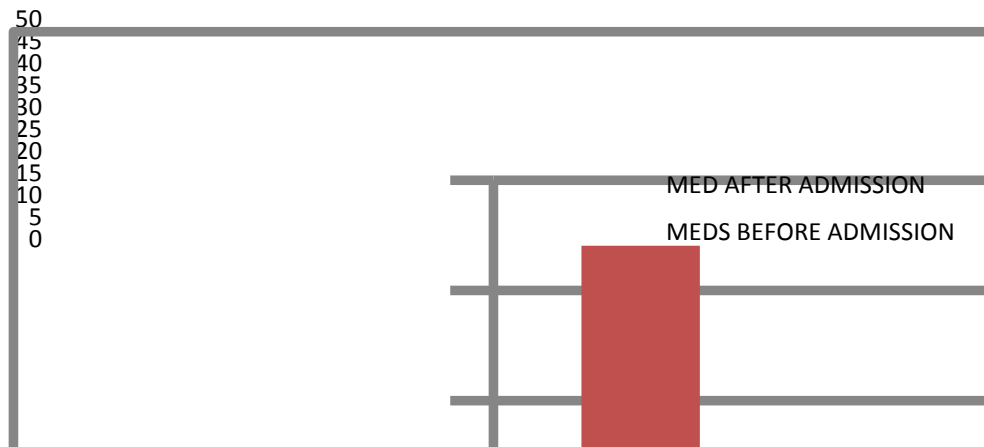

Fig.2. Medication taken after admission

CONSUMPTION OF ALCOHOL

Out of the 40 cases, only three reported to drinking alcohol. Of the three, two admitted to occasional use and one to the consummation of alcohol every day.

As the table 4 illustrates, the highest incidence of depression was during the month of May and the lowest during December.

Table 4

Total number of cases for one year

Month	No. of cases
January	15
February	7
March	16
April	10
May	18
June	4
July	10
August	7
September	12
October	11
November	12
December	3

The pie chart shows that the highest incidence of MDD was during spring. Autumn came second, while summer and winter were last (figure 3).
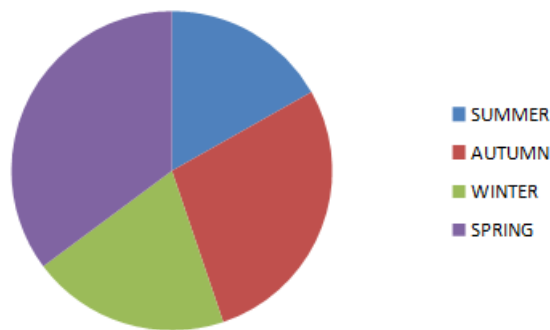
Fig.3. The incidence of MDD/season

This study did not find in accordance with the hypothesis that the incidence of depression is greatest in the winter months and that short days and cold weather lowered mood and energy, stated in a study conducted by Lingjaerde and Reichborn-Kjennerud. Although seasonal peaks reported in literature differ, they are usually reported during the winter.

It is important to highlight the limitations of this study as well. Firstly there could be some inaccuracy in the dates of onset as these were retrospectively collected. This could have hindered the efforts in finding a relationship between climate and depressive episodes.

The exact dates of subsequent depressive episodes were not documented so it could not be determined whether the episodes were due to a certain time of the year to cement the fact that there was a connection between climate and the depressive episodes. Unknown confounding factors might have altered admission rates (admission delays), and consequently the estimated onset rates. The sample group was also bias as all the patients were female.

Further research on this topic could be improved by incorporating information about the climate and weather in this geographical area. Parameters that should be collected include exposure to temperature, sunshine and rainfall.

CONCLUSION

We cannot say with conviction that seasonal depressive disorders are strictly related to weather and climate alone. There are multiple factors that can contribute to a depressive episode. It cannot be said with conviction that winter will predictably have the highest incidence of depression. Here in Oradea, the highest incidence of depression was in spring followed closely by autumn. Contrary to popular belief, weather conditions and sad mood or

depression do not seem to be associated. MDD is multi factorial and requires an integrated approach to the patient to assure the best outcome for the patient.

From the data recorded and analyzed we can conclude that the level of education across the board was no higher than high school level with only one out of the forty files examined having a university degree. As well as the majority of the patients were either unemployed or pensioners. With this information we can speculate that many of the patients had a poor standard of living and low socio-economic status, which in itself is a reason for depression.

There were other factors reported as "stressful" situations on some of the patients' lives, these patients we cannot say with conviction suffered a depressive episode due to weather or climate conditions, because one of the criteria for diagnosing seasonal depressive episodes is depression in the absence of other source of stimuli that might cause depression.

Most of the patients lived in rural areas, where life is arduous. Under relationship status, most of the patients were listed as married. This is a positive affirmation, as it is well documented that relationships, especially romantic ones decrease the incidence of depression and are positive for the patients. Unfortunately some patients did report that their spouse had been a frequent factor of their stress, and not every file gave information on the patients' domestic life and relationship.

In this study it was clear that there were four major symptoms (sad disposition, insomnia, fatigue and depressed mood) irrespective of season of admission almost all patients experienced these four symptoms.

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