Original Research Article

Prevalence of anxiety and depression among the primary caregivers of patients with schizophrenia who attended Psychiatry Outpatient Department at Rajah Muthiah Medical College and Hospital, Chidambaram

K. Arun Kumar[1], R. Gandhi Babu[2*], M. Asok Kumar[3]

[1]Final Year Postgraduate, [2]Professor, [3]Professor and Head,
Department of Psychiatry, Rajah Muthiah Medical College and Hospital, Annamalai University, Chidambaram, Tamil Nadu, India
[*]Corresponding author email: **gandhiram1966@gmail.com**

International Archives of Integrated Medicine, Vol. 6, Issue 11, November, 2019.

Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 22-09-2019 **Accepted on:** 29-10-2019
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: K. Arun Kumar, R. Gandhi Babu, M. Asok Kumar. Prevalence of anxiety and depression among the primary caregivers of patients with schizophrenia who attended Psychiatry Outpatient Department at Rajah Muthiah Medical College and Hospital, Chidambaram. IAIM, 2019; 6(11): 63-75.

Abstract

Background: Schizophrenia is one of the most devastating mental disorders that impair language, thinking, perception and sense of self. Recent estimates suggest that around 1% of the adult population that is around 21 million people is suffering from this disabling disease. In India, caregiving is mainly by family members because there are limited alternatives in institutional facilities and welfare supports for those with chronic illnesses such as mental disorders. Most Indian families prefer to care for ill persons at all stages of illness. But, the changing society places significant demands on the caregivers.

Aim of the study: To study the prevalence of anxiety and depression among caregivers of schizophrenia patients. To find the association between anxiety and depression of caregivers with the duration of illness, severity of illness (schizophrenia) and the years of association with the patients.

Materials and methods: The study was conducted among patients of schizophrenia and their

caregivers attending Psychiatry Outpatient Department Rajah Muthiah Medical College and Hospital, Annamalai University, A hundred patients with a diagnosis of schizophrenia and their primary caregivers had been consecutively selected from Psychiatry Outpatient department, Rajah Muthiah medical college, Annamalai university in the year 2018-2019. Then the Self innovated proforma was filled and details about the patients and their caregivers were obtained. HAM-D and HAM-A scales were administered for caregivers and scored for the level of psychiatry morbidity among them. BPRS scale was administered for patient and the severity of illness was assessed. The prevalence was then compared with different variables and associations if any was found.

Results: In 100 peoples, Ham- A anxiety score level was analyzed. Severe anxiety was seen in 8 persons, mild to moderate anxiety was in 9 caretakers. Mild severity was observed in 83 patients. Pearson Chi-Square=27.936**, p<0.001. Depression score was absent and less significant among 61 caretakers, mild depression was observed in 24 peoples, moderate depression in 7 caretakers, severe depression was observed in only 8 cases. Paranoid type is more which was around 64%, hebephrenic was 11 %, residual -7%, simple -7%, undifferentiated -7%, catatonia-4%. BPRS score was < 31 in 74 patients, 31-42 were 12 cases, > 43 in 14 patients. More than 10-20 years in people who were taking care of ill patients had severe anxiety when compared to 1-3 years, up to 1 year, 3-10 years. Pearson Chi-Square = 9.784, P = 0.134 which was statistically significant. Severe depression was seen in the illness of 10-20 years in (8) cases. Up to 1 Year, 1-3 Years, 3-10 Years, 10-20 Years had less incidence of severe depression. Few peoples had less depression, mild, and moderate depression. Pearson Chi-Square = 15.405, P = 0.080 which was statistically less significant.

Conclusion: Psychiatric disorders were prevalent amongst caregivers who are first- degree relatives of schizophrenic probands. BPRS Score of the patient gave the best diagnostic accuracy for screening psychiatric morbidity and increased the probability of finding a psychiatric disorder in caregivers. Therefore, routine screening of caregivers will aid early diagnosis of psychiatric disorders and enable timely psychological intervention.

Key words

Anxiety, Depression, Schizophrenia, BPRS Score.

Introduction

Schizophrenia is one of the most devastating mental disorders that impair language, thinking, perception and sense of self. Recent estimates suggest that around 1% of the adult population that is around 21 million people is suffering from this disabling disease [1]. Even though schizophrenia is a treatable condition, nearly half of the patients, unfortunately, have poor access to a specific treatment, in that 90% are from poor socio-economic backgrounds. Even with the patients who receive treatment with conventional antipsychotics, due to side effects, treatment adherence becomes very poor. Hence patients with schizophrenia have far-reaching consequences in all domains of life of the patients as well as family members. Hence schizophrenia heads the list of the mental disorders that impose the greatest burden on family members [2]. Caregiving is a health care activity that is often complex. Caregiving becomes a major part of health care that starts with a family as an informal activity. There is a growing awareness in this segment in all parts of the world i.e. economically rich, low and middle-income countries [3]. In India, caregiving is mainly by family members because there are limited alternatives in institutional facilities and welfare supports for those with chronic illnesses such as mental disorders [4]. Most Indian families prefer to care for ill persons at all stages of illness. But, the changing society places significant demands on the caregivers. Caregivers are also less healthy than non-caregivers and have more chronic illnesses such

as high blood pressure, heart disease, diabetes and arthritis than non-caregiving persons [5]. They may also suffer from poor immune function and exhaustion. They may neglect their own care and have high mortality rates than non-caregivers of the same age. Given these odds, caregivers need to take good care of themselves and to reduce their level of stress, depression, and anxiety [6]. Hence caregivers of persons with neurological illness experience high levels of psychological distress and depression and also increased rates of physical illnesses and personal, family, financial and social problems [7]. Various studies state that depression is 2 times higher among caregivers of persons with mental illness than the general population [8]. The burden of the depression in caregivers of persons with mental illness includes disturbance in their routine, social interaction, jobs, and leisure activities. It is also associated with increased physical morbidity and decreased quality of life among them. In addition, family problems, stigmatization and patient dependency on caregivers tend to increase the anxiety life of caregivers [9].

Materials and methods

The study was conducted among patients and their caregivers attending Psychiatry Outpatient Department Rajah Muthiah Medical College and Hospital, Annamalai University, A hundred patients with a diagnosis of schizophrenia and their primary caregivers will be consecutively selected from Psychiatry Outpatient department, Rajah Muthiah medical college, Annamalai University in the year 2018-2019. Then the Self innovated proforma was filled and details about the patients and their caregivers were obtained. HAM-D and HAM-A scales were administered for caregivers and scored for the level of psychiatry morbidity among them. BPRS scale was administered for the patient and the severity of illness was assessed. The prevalence was then compared with different variables and associations if any was found.

Inclusion criteria

Caregivers who were aged 18 years and above. Caregivers include key relatives of the patient (parents, spouse, sibling, off spring) who are staying at least for six months along with the patient.

Exclusion criteria

Caregivers with acute physical illness, known case of psychiatric illness or on any psychotropic medication. Caregivers not consenting for the study

Methodology

Caregivers of Patients with a diagnosis of schizophrenia attending Psychiatry Outpatient Department Rajah Muthiah Medical College, Annamalai University had been selected. The nature of the study and its objectives had been explained to the caregivers. Written informed consent had been obtained from the caregivers. The assessment had been conducted in a single session lasting for an hour. The assessment had been completed in a period of six months.

Protocol and different scales used in the study

- Self-innovated proforma to elicit the Socio-Demographic data of the caregiver and the years of association with the patient.
- Self-innovated proforma to elicit the patient's duration of illness, schizophrenia type, and severity of illness (schizophrenia)
- Hamilton Anxiety Rating Scale (HAM-A)
- Hamilton Rating Scale for Depression (HAM-D)
- Brief Psychiatric Rating Scale (BPRS)
- B.G. Prasad's Socio-Economic Rating Scale
- ICD – 10 criteria for Mental Disorders (WHO)

Diagnostic criteria

F32.0 Depressive episode (ICD 10 guidelines)

In typical depressive episodes of all three varieties (mild – F32.1, moderate F32.2, and

severe F32.2 and F32.3) the individual usually suffers from depressed mood, loss of interest and enjoyment, and reduced energy leading to increased fatiguability and diminished activity. Marked tiredness after only slight effort was common. Other common symptoms were

a. Reduced concentration and attention
b. Reduced self-esteem and self-confidence
c. Ideas of guilt and worthlessness
d. Bleak and pessimistic view of future
e. Ideas or acts of self-harm or suicide
f. Disturbed sleep
g. Diminished appetite

The lowered mood varies little from day to day, and is often unresponsive to circumstances, yet may show a characteristic diurnal variation as the day goes on. As with manic episodes, the clinical presentation shows marked individual variations, and atypical presentations are particularly common in adolescence. In some cases, anxiety, distress, and motor agitation may be more prominent at times than the depression, and the mood change may also be masked by added features such as irritability, excessive consumption of alcohol, histrionic behavior, and exacerbation of pre-existing phobic or obsessional symptoms, or by hypochondriacal preoccupations. For depressive episodes of all three grades of severity, a duration of at least 2 weeks is usually required for diagnosis, but shorter periods may be reasonable if symptoms are unusually severe and of rapid onset. Some of the above symptoms may be marked and develop characteristic features that are widely regarded as having special clinical significance. The most typical examples of these "somatic" symptoms are: loss of interest or pleasure in activities that are normally enjoyable; lack of emotional reactivity to normally pleasurable surroundings and events; waking in the morning 2 hours or more before the usual time; depression worse in the morning; objective evidence of definite psychomotor retardation or agitation (remarked on or reported by other people); marked loss of appetite; weight loss (often defined as 5% or more of body weight in the past month); marked loss of libido. Usually, this somatic syndrome is not regarded as present unless about four of these symptoms are definitely present.

F41 Anxiety disorders (ICD 10 guidelines)

Manifestations of anxiety are the major symptoms of these disorders and are not restricted to any particular environmental situation. Depressive and obsessional symptoms, and even some elements of phobic anxiety, may also be present, provided that they are clearly secondary or less severe.

F41.0 Panic disorder (episodic paroxysmal anxiety) (ICD 10 guidelines)

In this classification, a panic attack that occurs in an established phobic situation is regarded as an expression of the severity of the phobia, which should be given diagnostic precedence. Panic disorder should be the main diagnosis only in the absence of any of the phobias in F40. For a definite diagnosis, several severe attacks of autonomic anxiety should have occurred within a period of about 1 month:

a) in circumstances where there is no objective danger;
b) without being confined to known or predictable situations; and
c) with comparative freedom from anxiety symptoms between attacks (although anticipatory anxiety is common).

F41.1 Generalized anxiety disorder (ICD 10 guidelines)

The sufferer must have primary symptoms of anxiety most days for at least several weeks at a time, and usually for several months. These symptoms should usually involve elements of:

a) Apprehension (worries about future misfortunes, feeling "on edge", difficulty in concentrating, etc.);
b) Motor tension (restless fidgeting, tension headaches, trembling, inability to relax); and
c) Autonomic over activity (lightheadedness, sweating, tachycardia

or tachypnoea, epigastric discomfort, dizziness, dry mouth, etc.).

In children, frequent need for reassurance and recurrent somatic complaints may be prominent. The transient appearance (for a few days at a time) of other symptoms, particularly depression, does not rule out generalized anxiety disorder as a main diagnosis.

Statistical analysis

Pearson product-moment correlation analyses were performed between PCI subtests scores, KOS total scores and caregiver's sex, age, education level, and patient's illness duration. The morbid group consists of subjects with a CHQ score equal to 4 or higher. All analyses were performed using the SPSS computer package (SPSS Inc., Chicago, USA).Chi-square test used for the association of socio-economic variables with depression and anxiety.

Results

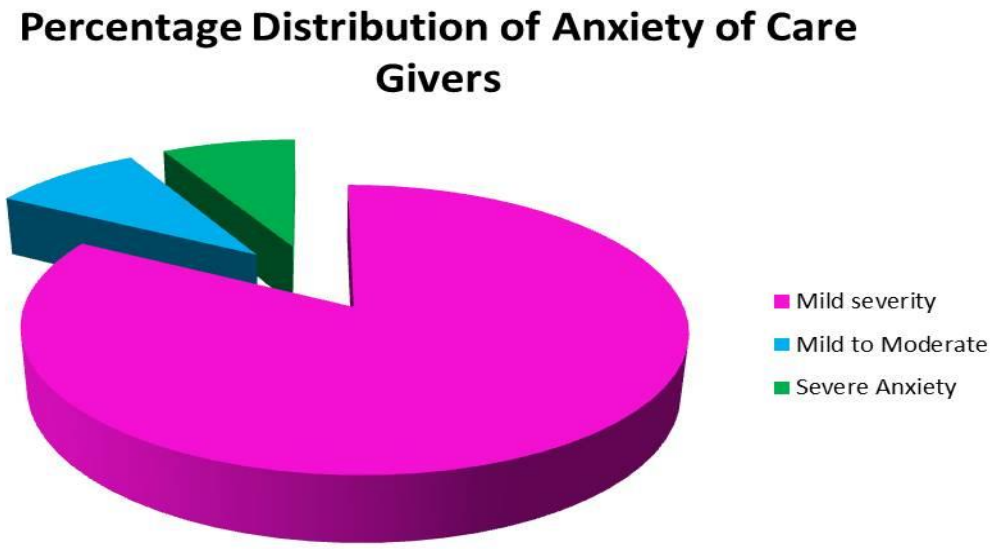
100 caregivers were included in the study. The majority of the peoples were the age above 50 years. 41-50 years were 23 members, 31-40 years were 25 members, 21-30 years were 9 members. Up to 20 years were 5 members. Females were more when compared to males. 78 were females and 22 were males among 100 cases. The urban population people were only 13 persons. The rural population was 87 cases. In caretaker, 93% were married, 7 were unmarried. Among 100 cases, uneducated was-27%, degree holders were-7%, high school were -14% middle school was -15%, lower middle class were - 46%, middle class were – 34, lower socioeconomic status were -17, upper-middle-class were – 3.

In 100 peoples, Ham- A anxiety score level was analyzed. Severe anxiety was seen in 8 persons, mild to moderate anxiety was in 9 caretakers. Mild severity was observed in 83 patients. Pearson Chi-Square = 27.936**, p<0.001 (**Graph – 1**).

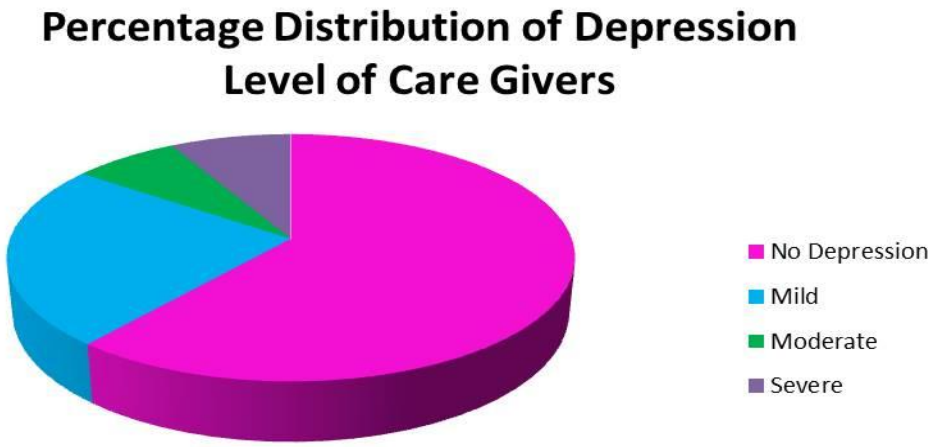
Depression score was absent and less significant among 61 caretakers, mild depression was observed in 24 peoples, moderate depression in 7 caretakers, severe depression was observed in only 8 cases (**Graph – 2**).

Among 100 Patients paranoid type was more which was around 64%, hebephrenic was 11 %, residual - 7%, simple - 7%, undifferentiated - 7%, catatonic - 4%. Most of the caretakers were closely associated with schizophrenia (**Graph – 3**).

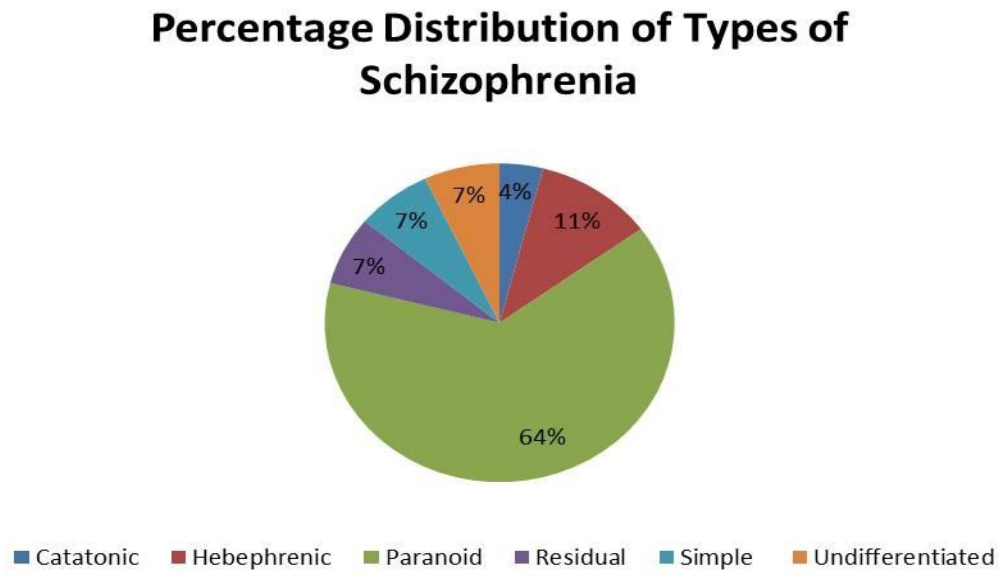
Graph – 1: HAM-A Anxiety score level.



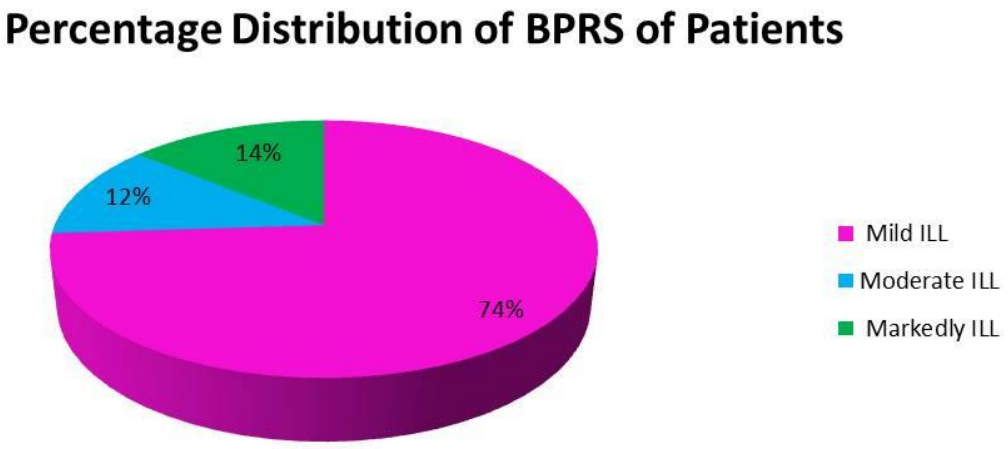
Graph – 2: HAMD score among caretakers.



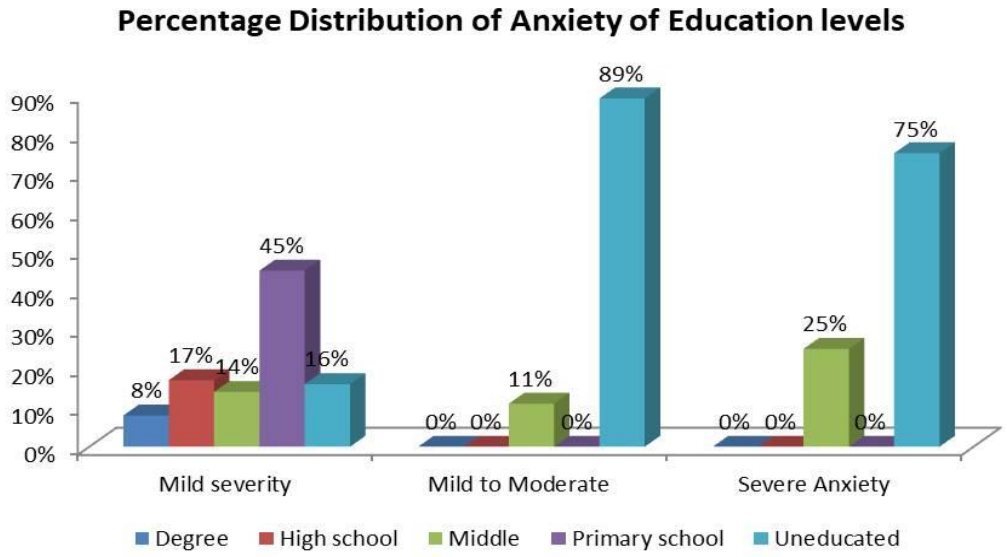
Graph – 3: Percentage of schizophrenia.



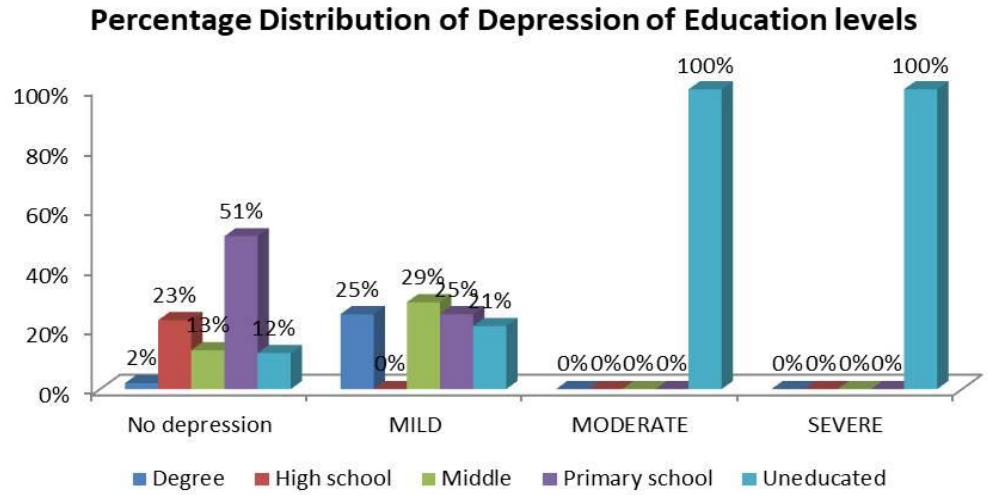
Graph – 4: BPRS score among cases.



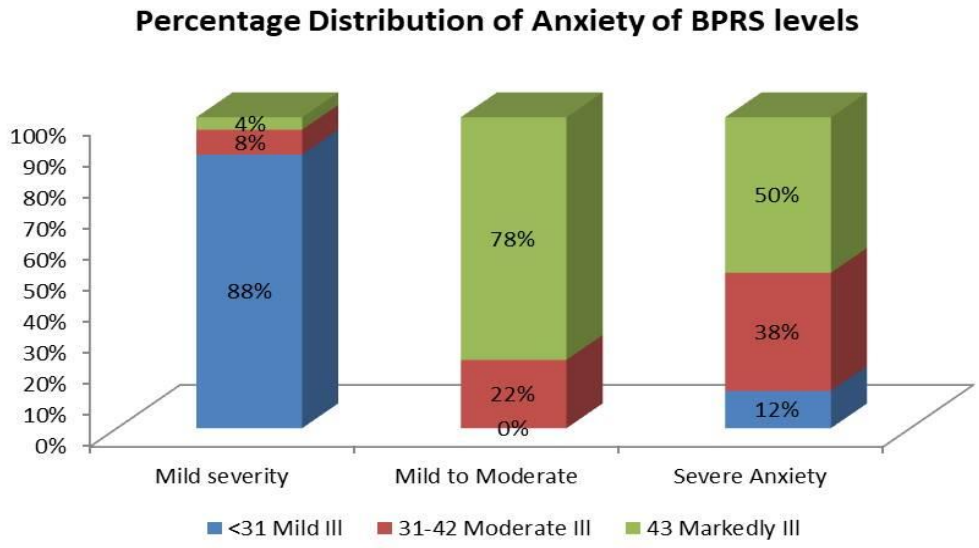
Graph – 5: Education VS HAMA score.



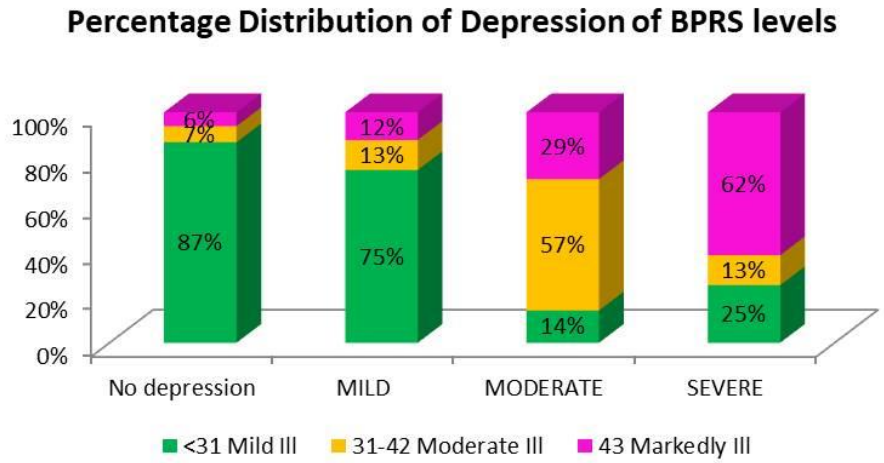
Graph – 6: Education VS Depression score.



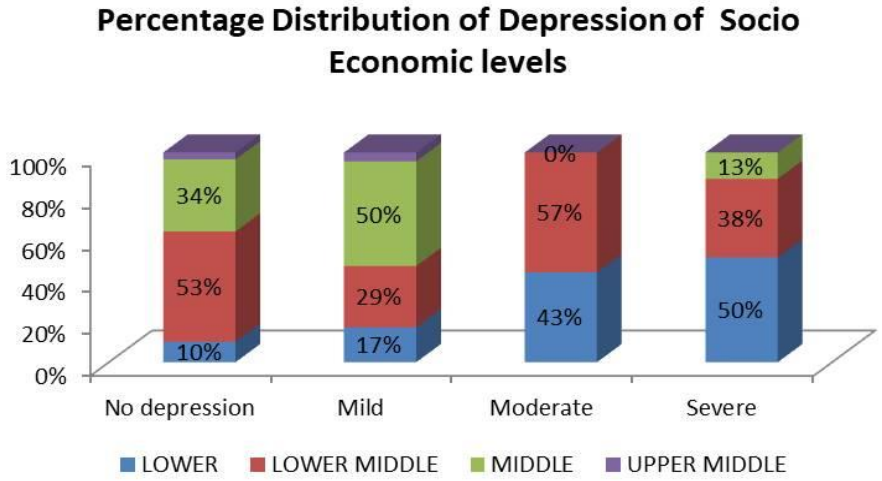
Graph – 7: Correlation of BPRS and HAMA score.



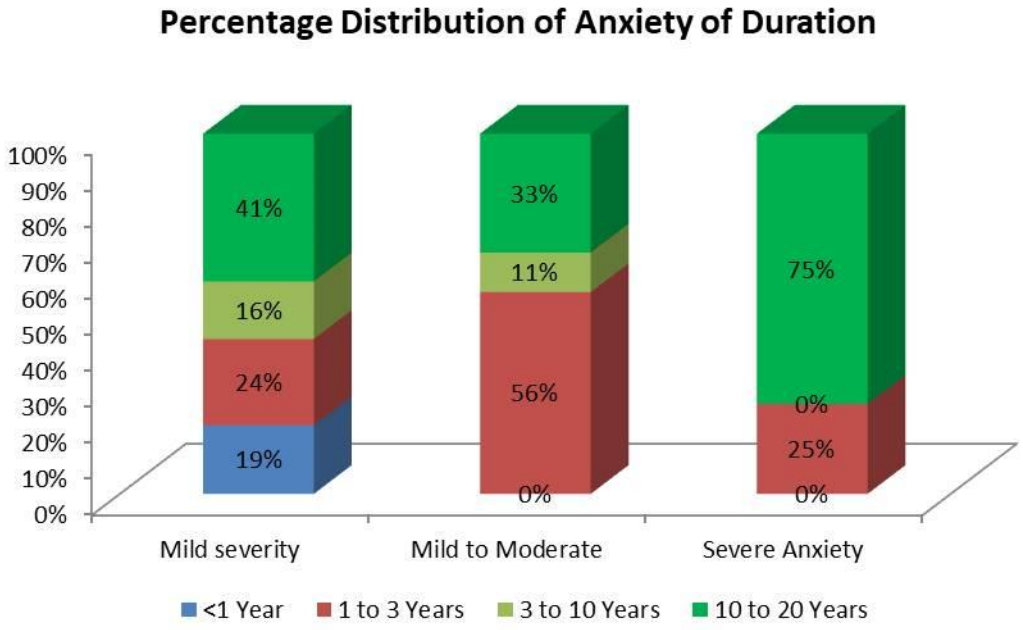
Graph – 8: BPRS score VS HAMD score.



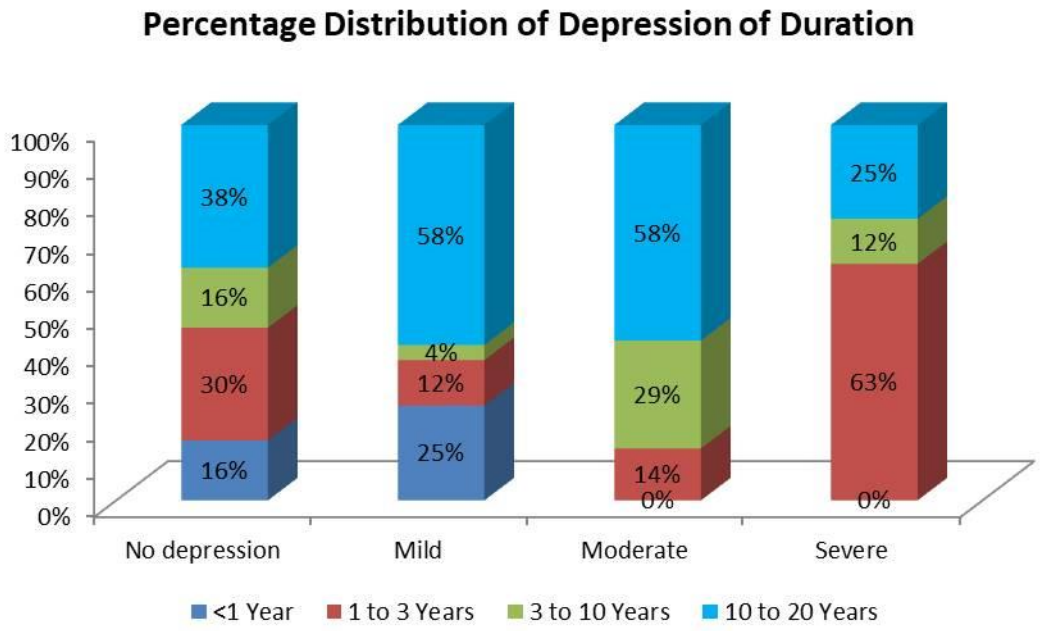
Graph – 9: Socioeconomic status VS HAMD score.



Graph – 10: Duration of illness VS HAMA score.



Graph – 11: Correlation of duration of illness VS HAM D score.



BPRS score was < 31 in 74 patients, 31-42 were 12 cases, > 43 in 14 patients (**Graph – 4**).

7 had mild severity of anxiety, mild to moderate and severity was not observed in any of them. The high school completed persons 14 had mild severity of anxiety, mild to moderate and severity was not observed in any of them. Middle school level 12 had mild to severity, 1 had mild to moderate, 2 of them had severe anxiety. Primary school level persons had 37 had mild severity of anxiety, none of them had mild to moderate or severe anxiety. In uneducated people 13 had mild severity, 8 had mild to moderate, 8 had severe anxiety. In comparison with the level of education, Uneducated, Primary school had a number of anxiety scores. Pearson Chi-Square=36.066** p<0.001 which was found to be statistically more significant (**Graph – 5**).

14 showed Based on education HAM D Score was calculated. In degree completed 1 had no depression, 6 had mild depression, none had moderate or severe depression. In high school level persons 14 had no depression, none had mild or moderate, severe depression. In Graph: 6 middle school 8 had no depression. In primary school level, 31 had no depression, 6 had mild depression, 7 had moderate depression, 8 had severe depression. Pearson Chi-Square = 74.241**, p<0.001 severe depression was observed in Primary school and in Uneducated level people. Pearson Chi-Square = 36.066**, p<0.001 which was found to be statistically more significant (**Graph – 6**).

Correlating with BPRS and HAMA score mild severity in 73 people, mild to moderate was not seen, sever anxiety seen in 1 person. In 31-42, mild severity seen in 7 persons, mild to moderate in 2 cases, 3 had severe anxiety. In > 43, 3 had mild severity, 9 had mild to moderate, 8 had severe anxiety. Pearson Chi-Square=58.880** P<0.001. Severe anxiety was observed in 8 people, who had BPRS of > 43 (**Graph – 7**).

Graph - 8 showed BPRS <31, 53 peoples had no depression, 18 had mild depression, 1 had moderate depression, 2 had severe depression. In 31-42, 4 peoples had no depression, 3 had mild depression, 4 had moderate depression, 1 had severe depression. In >43, 4 cases had no depression, 3 had mild depression, 2 had moderate depression, 5 had severe depression. Severe depression was seen in BPRS Score > 43

had more numbers. Pearson Chi-Square = 37.696**, P<0.001 it was more significant.

HAMD Score was more in lower and lower-middle-class who had severe depression Pearson Chi-Square = 17.920*, P=0.036 (**Graph – 9**).

More than 10-20 years in people who were taking care of ill patients had severe anxiety when compared to 1-3 years, up to 1 year, 3-10 years Pearson Chi-Square = 9.784, P=0.134 which was statistically significant (**Graph – 10**).

Severe depression was seen in the illness of 10-20 years (8) cases. Up to 1 Year, 1-3 Years, 3-10 Years, 10-20 Years had less incidence of severe depression. Few peoples had less depression, mild, and moderate depression. Pearson Chi-Square = 15.405, P = 0.080 which was statistically less significant (**Graph – 11**).

Discussion

Schizophrenia, literally meaning, the split mind is considered to be one of the most disabling psychiatric illnesses, which usually runs a chronic course. With the recent advances in psychiatric treatment and the introduction of the biopsychosocial model, there has been a trend towards community and outpatient management [10]. Active involvement of family members and the role of informal caregivers is getting more important than ever before. The management of schizophrenia entails a huge financial burden. The involvement of the families can result in better rehabilitation and would help reduce the burden on caregivers [11]. The World Health Organization (WHO) mental health planning guidelines advise that "The coping capacity and skills of families should be assessed regularly, and measures are taken to ensure that families benefit from the necessary support, education and the provision of resource" However it is up to the public health system of each country to help identify and provide resources for such individuals. It was in this context this study was carried out to have some baseline data on the suffering of these caregivers in our settings [12]. This data might help in providing resources and support to caregivers of patients of schizophrenia and establish health care facilities and early identification of these sufferers. Fadden G, et al. supported my study into consideration with age group which was similar in their study. The majority of the peoples were the age above 50 years. 41-50 years were 23 members, 31-40 years were 25 members, 21-30 years were 9 members. Up to 20 years were 5 members were found in this study [13].

In our study, nearly 39% of caregivers have depressive disorders. This agrees with previous studies, which have reported significant levels of depression among caregivers of people with schizophrenia. In Nigeria, the lifetime and 12-month prevalence of major depressive episode is 3.1% and 1.1% in normal adults. The prevalence in this study population is far above that of normal adults [14]. A possible explanation could lie in the causal relationship between stressful life events and depression. Stressful life events, such as caring for a chronically ill family member, could predispose to depressive disorders. Symptoms of this disorder may go unnoticed as caregivers may attribute them to normal reactions to a stressful event; thus, a delay in seeking timely psychological intervention. In this study, none of the caregivers diagnosed with any psychiatric morbidity was willing to seek further evaluation and treatment. Their reasons for refusal were not explored in this study [15]. Causative factors that may play a role in the development of psychiatric disorders among this population are both biological (genetic predisposition) and environmental (burden of care). We found that being a parent was significantly associated with the occurrence of psychiatric morbidity in the caregivers. First-degree relatives of schizophrenic probands are biologically/genetically similar to their corresponding schizophrenic probands. Thus, they are more vulnerable compared to the general population to developing psychiatric disorders [16]. This vulnerability may account for the reported prevalence of psychiatric disorders among them. In addition, environmental factors

in the form of chronic stressors may also play a causative role. Negative caregiving experiences have been considered a chronic stressor which impacts negatively on the mental health of caregivers. Psychiatric disorders among caregivers have a negative impact on the wellbeing of the care recipient and the caregivers. Caregivers may neglect their health needs to the detriment of their health and that of the care recipients. The quality of care rendered may be suboptimal resulting in increased hospitalization, increased cost of care and poor illness outcomes in the care recipients [17]. Gautam S, et.al stated in their findings that all age group caregivers have high rating in anxiety score which is statistically significant. In our study 100 peoples, Ham- A anxiety score level was analyzed. Severe anxiety was seen in 8 persons, mild to moderate anxiety was in 9 caretakers. Mild severity was observed in 83 patients. Pearson Chi-Square=27.936** $p<0.001$. The literature is sparse with information on psychotic disorders in caregivers of persons with schizophrenia. This may be due to the lack of routine screening for these disorders in caregivers. Also, caregivers with psychotic disorders may be severely impaired and therefore unable to render caregiving services. Similar to other studies, we found an occurrence of anxiety disorders among caregivers [18]. Causative factors that may play a role in the development of psychiatric disorders among this population are both biological (genetic predisposition) and environmental (burden of care). We found that being a parent was significantly associated with the occurrence of psychiatric morbidity in the caregivers. First-degree relatives of schizophrenic probands are biologically/genetically similar to their corresponding schizophrenic probands [19].

Hatfield AB et al. reported that psychoeducation provides caregivers with coping skills and that the enhancement of caregivers' well-being needs to be considered in family intervention programs. Psychoeducation has been documented as reducing relapse and readmission rates, improving drug compliance, knowledge of the mental illness, and enhancing the mental and physical health status of caregivers. Therefore, it is possible to improve the quality of life of caregivers. However, few clinicians commit the necessary resources for providing effective psychoeducation services for their patients. There are numerous obstacles to the adoption of a psychoeducational program. In Taiwan, the national health insurance payment policy and agency bureaucracy present the most prominent challenge for providing psychoeducation. Mental health professionals are reluctant to provide psychoeducation because of the lack of incentive for clinicians. This may be ameliorated in the future by including family psychoeducation in medical practice guidelines. Psychoeducation may alter the caregivers' illness perception and patients' outcomes, and hence change the help-seeking behaviors of the caregivers. The results of this study revealed that the psychodynamic attribution was significantly associated with the psychiatric morbidity of the caregivers. Coping strategies and the illness perception were significant predictors of well- being in caregivers of relatives with schizophrenia [20].

In Heru A, et al. Depression score was absent and less significant among 61 caretakers, mild depression was observed in 24 peoples, moderate depression in 7 caretakers, severe depression was observed in only 8 cases. The same results have been found in our study. Caregivers who attribute schizophrenia to psychodynamic causes may prefer family support over specialist support and delay psychiatric help-seeking. Caregivers who believe in psychodynamic causes may be more reluctant to encourage patients to take medication regularly, thus, the symptoms of the patients would persist and remain untreated. Caregivers' cognitive appraisal of illness causes may also affect their expressed emotions (EE). It is known that changes in EE are associated with changes in circumstances and burden. The EE and burden of care are dependent on relatives' appraisal of the patient's condition. Individuals with high scores on the psychodynamic scale may: (i) be more sensitive to minor changes in

interpersonal interactions; (ii) be more likely to over-react to the patients' abnormal behaviors; or (iii) have high EE. Therefore, psychoeducation may be the key to providing the caregivers with the necessary skills and so their well-being may be improved. The quality of life of caregivers with biological attribution did not show significant improvement. This result is not consistent with our previous study [17] on schizophrenics participating in a rehabilitation program. The inconsistency should be further explored. The longer the illness duration, the less likely that caregivers will attribute the illness to a supernatural cause [21]. This result agrees with that of Hosseini SH et al. who showed that the degree of reluctance to understanding the nature of mental illness will lessen with illness duration [22, 23].

Conclusion

Depression among primary caregivers was associated with providing care for an increased number of hours per day; low perceived social support and the patient's psychiatric symptoms. Therefore, while caring for patients, screening primary caregivers of patients with mental illness and treating them accordingly, is crucial to decrease the incidence of depression. Special focus should be given to primary caregivers spending long hours for providing care, those with low perceived social support; and female primary caregivers. Psychiatric disorders were prevalent amongst caregivers who are first-degree relatives of schizophrenic probands. BPRS Score of the patient gave the best diagnostic accuracy for screening psychiatric morbidity and increased the probability of finding a psychiatric disorder in caregivers. Therefore, routine screening of caregivers will aid early diagnosis of psychiatric disorders and enable timely psychological intervention.

References

1. Amenson CS, Liberman RP. Dissemination of educational classes for families of adults with schizophrenia. Psychiatr. Serv., 2001; 52: 589–592.
2. Angermeyer MC, Matschinger H, Holzinger A. Burden of relatives of chronic psychiatric patients. Psychiat Prax, 1997; 24: 215-220.
3. Atagün MI, Balaban ÖD, Atagü Z, Elagöz M, Özpolat AY. Caring load in chronic diseases. Current Approaches to Psychiatry, 2011; 3: 513-552.
4. Bademli K, Duman ZÇ. Caregivers of Schizophrenia Patients. Psikiyatride Guncel Yaklasimlar-Current Approaches in Psychiatry, 2013; 5: 461-478.
5. Banu SF. Stress & burden of the Caregivers of Chronic Mental Adult Patients [M. Phil Thesis]. Dhaka University; 2001.
6. Blanchard J, Browne, Horan W, Sherwood AR. Substance use disorder in schizophrenia: Review integration and a proposed model. Clin Psychol Review. 2000; 20: 207-234.
7. Boye B, Bentsen H, Ulstein I, et al. Relatives' distress and patients' symptoms and behaviors: a prospective study of patients with schizophrenia and their relatives. Acta. Psychiatr. Scand., 2001; 104: 42–50.
8. British Medical Association. Taking care of the carers. London: BMA, 1995.
9. Cheng TA, Williams P. The design and development of a screening questionnaire (CHQ) for use in community studies of mental disorders in Taiwan. Psychol. Med., 1986; 16: 415–422.
10. Chouinard G, Ross-Chouinard A, Lea A. Extrapyrami- dal rating scale. Can. J. Neurol. Sci., 1980; 7: 233.
11. Chowdhury MKP. Effect on Caregivers of Mentally Ill Patients [M. Phil Thesis]. Dhaka University; 2003.
12. Dyck DG, Short R, Vitaliano PP. Predictors of burden and infectious illness in schizophrenia caregivers. Psy-chosen. Med., 1999; 61: 411–419.

13. Fadden G, Bebbington P, Kuipers L. The burden of care: the impact of functional psychiatric illness on the patient's family. Br. J. Psychiatry, 1987; 150: 285–292.
14. Feldmann R, Hornung WP, Prein B, Buchkremer G, Arolt V. Timing of psychoeducational psychotherapeutic interventions in schizophrenic patients. Eur. Arch. Psy-chemistry Clin. Neurosci., 2002; 252: 115–119.
15. Fergusson DM, Horwood LJ. Vulnerability to life events exposure. Psychol. Med., 1987; 17: 739–749.
16. Ferrans CE, Powers MJ. Quality of life index: development and psychometric properties. Ans – Adv. Nursing Sci., 1985; 8: 15–24.
17. Firoz AHM, Karim ME, Alam MF, Rahman AHM, Zaman MM. Prevalence, Medical Care, Awareness and Attitude towards Mental Illness in Bangladesh. Bang J Psychiat., 2006; 20(1).
18. Gautam S, Nijhawan M. Burden on families of schizophrenic and chronic lung disease patients. Ind J Psychiatry, 1984; 26(2): 156-159.
19. Guy W. Early Clinical Drug Evaluation Unit Assessment Manual for Psychopharmacology, Revised Edition. Department of Health, Education and Welfare, Washing- ton, DC, 1976.
20. Hatfield AB, Lefley HP. Families of the Mentally III: Coping and Adaptation. New York, NY: Guilford Press, 1987.
21. Heru A, Ryan C. Depressive Symptoms and family functioning in the Caregivers of recently Hospitalized Patients with Chronic/ Recurrent Mood disorders. Int J Psychol Rehab., 2002; 7: 53-60.
22. Hosseini SH, Sheykhmounesi F, Shahmohammadi SS. Evaluation of mental health status in caregivers of patients with chronic psychiatric disorders. Pak J Biol Science, 2010; 13: 325-329.
23. Jenkins J, Schumacher J. Family burden of schizophrenia and depressive illness. Br J Psychiatry, 1999; 147: 31-38.