

Depressive Disorders Among Caregivers of Schizophrenic Patients in Relation To Burden of Care and Perceived Stigma

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ABSTRACT

Introduction:	Schizophrenia is among the most burdensome and stigmatized illnesses worldwide. It is a challenging task for caregivers especially in the current era of de-institutionalization that can cause depressive disorders among caregivers.
Aim of the Study:	To evaluate Depressive Disorders among caregivers of schizophrenic patients and its relationship with burden of care and perceived stigma.
Subjects and Methods:	Sixty primary caregivers of patients with schizophrenia, and 30 healthy non-caregivers as a control group. Both groups were screened for depressive symptoms using the Center of Epidemiological Studies for Depression Scale. Diagnosis of Depressive Disorders was made according to DSM-IV-TR criteria. The Caregiver Strain Index and the Discrimination-Devaluation Scale were administered to the caregivers.
Results:	Depressive Disorders were higher among caregivers (18.33%) than control group (3.33%) with ($p < 0.05$). The most common Depressive Disorders among the caregivers group was adjustment disorder with mixed anxiety and depressed mood (6.67%). Depressive Disorders were correlated with burden of care and perceived stigma. Depressive symptoms were associated with increased number of hours per week for providing care, older age of the caregiver and duration of care giving.
Conclusion:	These results can be used to plan interventions to reduce caregiver stressors. Mental health services must be directed to caregivers as well as patients of schizophrenia.

Key words: Schizophrenia, Caregivers, Depression, Burden, Stigma.

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INTRODUCTION

Schizophrenia is a severe mental disorder, characterized by fundamental disturbances in thinking, perception and emotions. It is among the most burdensome illnesses worldwide. In addition to the direct burden, there is considerable burden on the relatives who care for the sufferers¹⁻⁹. The presence of someone with schizophrenia in the home, especially after deinstitutionalization, can result in burden affect the work and social life of family members or the caregivers^{2-8, 10-17}. Higher burden seemed to be associated with the caregiver's age and number of hours spent weekly on caring for the ill relative¹⁸. Caregiver burden in mental illness can either be objective or subjective. Objective burdens are defined as readily verifiable behavioral phenomena, e.g. negative patient symptoms; caregivers' lives disrupted in terms of domestic routine, social activities and leisure, social isolation, financial difficulties and employment difficulties. Subjective burdens comprise emotional strain on caregivers, e.g. fear, sadness, anger, guilt, loss, stigma and rejection¹⁹⁻²². Caregiving are often variable, constant and ongoing for long periods and the role of the caregiver is stressful. The physical,

mental and emotional toll of caregiving can be devastating and may lead to injury or illness of the caregiver^{3,23-26}.

In developing countries, despite the apparent downfall of traditional family structure, over 60% of patients with long-term schizophrenia live with at least one significant other¹, i.e. primary caregiver^{27,28}. Recent changes in family structures and rapid economic decline are threatening the support available to patients with chronic mental illness^{9,29}. Disregarding the level of development of a country; caregivers experience high levels of burden^{25,30}. Strain due to medical costs, missed work and patients' economic dependency are considerable and linked to both objective and subjective burden for family of severe mental illnesses adults³¹⁻³⁹ and reported across many cultures^{37,40-46}.

Around 25% of caregivers of schizophrenic patients, either living with or living apart of the patients, met General Health Questionnaire criterion for having a mental disorder⁴⁷.

Caregivers of the patients with psychiatric illnesses such as schizophrenia have significant high level of depression⁴⁸⁻⁵², even in the absence of a prior mood disorder^{16,17,50,53,54}. The commonest variables related to depression among caregivers were gender, socio-economic status, marital status, family size, education, relationship with the patient and the burden of care^{15,17,55,57}. Mental health services should aim to assist key caregivers of people with chronic schizophrenic disorder to manage their stress and related mental disorders^{47,48}. Early interventions by conducting routine assessments of the depression status of caregivers and their available social support, thereby preventing or minimizing depression in these caregivers^{16,52,55,57-66}.

The stigma attached to mental illness is an issue of great concern to patients and their families. Obviously, stigma can be a major obstacle to recovery and can limit opportunities of work and social functioning of patients and family members across the world^{62,67-69}. However, individuals with schizophrenia are not the only ones to be stigmatized. The stigma is also conferred upon relatives, close friends and all those who come into close contact with the mentally ill, including mental health professionals^{65,70-76}. Stigma was unaffected by patient background characteristics^{62,77-79} and that perceived stigma is associated with reports of depressive symptoms^{65,80,81}. Reducing isolation and stigmatization is very important for reducing depression among families of schizophrenic patients⁵¹. Stigma towards relatives must be taken into account when planning for intervention by mental health professionals⁶⁸.

The caregiver's burden seems to be independent of the patient's diagnosis, but other factors contribute to the perceived burden, many of which are on the caregiver's part¹⁸. Unless caregivers of patients with serious mental illness are resourceful, they may experience considerable burden, stigma, depressive thoughts and poor quality of life^{62,65,82,83}. The extended family provides care for these patients in the face of poor mental health facilities⁸⁴. As there is a lack of reliable cost information about the family burden of care specific to schizophrenia, there is an urgent need to develop reliable approaches that can generate data that can inform in policy making and organization of services⁸. All caregivers may benefit from psychoeducation and family interventions usually planned for those caring for relatives with schizophrenia¹⁸. Comprehensive multidisciplinary care of chronic schizophrenia patients is needed, care that supports the needs and improves the psychiatric symptoms of the patients, helps to decrease the caregiver burden level and facilitates family participation in treatment²². Helping families of schizophrenics to maintain and enhance a supportive social network may represent a useful means to reduce family burden in⁸⁵.

Although a sizable body of literature is focusing on caregivers of schizophrenia, studies that examine depressive disorders according to ICD-10 criteria, as far as we know, are few. Also, the continuing trend toward deinstitutionalization of schizophrenic patients will lead to more burden on the

caregivers. In an effort to maximize and prolong caregiving in the community, it becomes essential to understand the consequences of caregiving of patients with schizophrenia. There are little data known about caregivers of schizophrenic patients in Arab countries particularly KSA. The present study sought to collect qualitative as well as quantitative data from a sample of schizophrenic caregivers.

The present study was conducted on primary caregivers of patients with schizophrenia living in the community. The study aimed to assess:

Depressive disorders (DD) burden of care and perceived stigma among the primary caregivers of patients with schizophrenia.

Relationship between DD with burden of care and perceived stigma among the primary caregivers of patients with schizophrenia.

SUBJECTS AND METHODS

Participants were 60 primary caregivers, regularly accompanying patients diagnosed as having schizophrenia as per the DSM-IV-TR criteria⁸⁶, who attend the follow-up outpatient clinics of Buraydah Mental Health Hospital, Al-Qassim, KSA and 30 normal non-caregivers as control. Those who did not participate almost invariably cited geographical distance from the hospital.

The primary caregivers were recruited according to the following inclusion and exclusion criteria:

Inclusion criteria: A caregiver must be:

1. 18 years old or above.
2. Taking care of a patient who is 18 years old or above with the diagnosis of Schizophrenia as per the DSM-IV-TR criteria.
3. Taking care of a patient who is on medication and on regular follow up in outpatient department for the past 6 months.
4. Immediate family relative (Parent, spouse, sibling, brother or sister), non immediate family relative (Other relative) or non-relative.
5. Primary caregiver as defined by an adult relative living with a patient, in the same environment, for at least 12 months and was involved directly in giving care to the patient and most supportive either emotionally or financially, i.e. felt most responsible for the patient^{87,88}.

Exclusion criteria

The caregiver will be excluded from the study in the following situations:

1. If the patient has a diagnosis other than schizophrenia or a comorbid diagnosis.
2. If the patient was admitted to the inpatient departments during the past 6 months.
3. If the patient was not on medications.
4. If the caregiver is less than 18 years old.
5. If the caregiver is not living with the patient for at least 12 months.
6. If the caregiver is not involving directly in giving care.
7. If the caregiver has a history of psychiatric disorder before being a caregiver.

The normal non-caregivers were recruited from persons attending the hospital for other purposes than a patient care such as gun license. The normal non-caregivers must be 18 years old or above. They must have no history of psychiatric disorders or have taking care of a schizophrenic patient or other chronic serious illness either physical or mental illness.

Data collection: Over a period of 3 months, caregivers who satisfied the criteria were interviewed after obtaining their written informed consent. The data were recorded and further aspects were studied as described below.

Assessment tools:

1. Demographic variables: were assessed through a written questionnaire including date of birth, sex, relationship to the patient, number of years of education completed, marital status, number of months of caregiving and number of hours per week providing care.
2. The Center for Epidemiological Studies-Depression Scale (CES-D):

Depressive symptoms were assessed using the shortened version of the Center for Epidemiological Studies Depression (CES-D) scale. The original scale was designed to measure the current level of depressive symptoms in the general population⁸⁹ (Cronbach's $\alpha = 0.90$). Whereas a formal diagnosis for depression requires a clinical examination, the self-reported CES-D emphasizes subjective and affective elements of depressive symptoms⁹⁰. The shortened version of the CES-D used included 10 out of the 20 original items. The response categories are "none or almost none of the time," "some of the time," "most of the time," and "all or almost all of the time," coded 0 through 3, respectively. An overall score was obtained by adding the 10 items, producing a scale that ranges from 0 (least depressed) to 30 (most depressed)^{91,92}. Score is the sum of the 10 item weights. If more than 2 items are missing, do not score the scale. A score of 10 or greater is considered depressed⁹³.

3. Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (SCID-I; DSM-IV): All persons who got high score on CES-D were assessed using the mood module of the SCID-I⁸⁶.
4. Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revised (DSM IV TR): The DSM-IV-TR criteria for schizophrenia was applied to patients to

confirm the diagnosis and the DSM-IV-TR criteria for depressive disorders (DD) was applied for diagnosis among primary caregivers and control group⁸⁶.

5. The Caregiver Strain Index (CSI): It is a brief, easily administered tool that can be used to quickly to identify families with potential caregiving concerns. It is a 13-question tool that measures strain related to care provision. There is at least one item for each of the following major domains: Employment, Financial, Physical, Social and Time. Positive responses to seven or more items on the index indicate a greater level of strain and a need for more in-depth assessment to facilitate appropriate intervention. This instrument is appropriate and can be used to assess individuals of any age who have assumed the role of caregiver for an adult⁹⁴. Internal consistency reliability is high ($\alpha=0.86$) and construct validity is supported by correlations with the physical and emotional health of the caregiver and with subjective views of the caregiving situation⁹⁵. Various domains were identified that should be addressed in a comprehensive assessment of the caregiving process⁹⁶. The patient's cognitive status and problematic behaviors should be assessed, as well as the caregiver's perception of role overload or deprivation in key relationships, goals or activities. Family conflict, work role-caregiving conflict and caregiver social support are also important variables in the overall caregiving experience.

6. Discrimination- Devaluation Scale (DDS):

Discrimination-Devaluation Scale (DDS), is a combination of the Patient Devaluation and Stigma Scale (PDSS), (8 items) and Family Devaluation and Stigma Scale (FDSS), (7 items)⁹⁷. DDS is a 15-item measure rating caregivers' views about most people's acceptance of mental illness. A 15-item Likert scale (rating of statements such as 'Most people look down on families that have a member who is mentally ill'). All statements were rated on a 4-point scale with anchors ranging from "agree strongly" to "disagree strongly". A sum of the 15 items yields a total stigma score ranging from (0 – 60); the PDSS score from (0 – 32) and the FDSS score from (0 – 28), with higher scores indicating greater stigma, (Cronbach's $\alpha = 0.80$)⁶².

Study Procedure:

Every primary caregiver, regularly accompanying patients diagnosed as having schizophrenia as per the DSM-IV-TR criteria and on regular follow up in outpatient clinics of Buraydah Mental Health Hospital, Al-Qassim, KSA for the past 6 months and on medication and 30 normal non-caregivers as control, were asked to give written consent to participate in the study. The primary caregivers were selected according to the inclusion and exclusion criteria. The primary caregiver group and the control group were screened for depressive symptoms using the CES-D. Persons from both groups who had high score in the CES-D were interviewed by the mood module of the SCID-I and DD were diagnosed according to the DSM-IV-TR criteria for mood

disorders. The Caregiver Strain Index and The Devaluation of Consumer Families Scale were applied to the caregivers to assess the burden of care and the perceived stigma.

Statistical analysis:

Demographic characteristics of the caregivers and the control group were compared using chi-square tests for categorical data and t tests for continuous data. Chi-square with Yates's correction, Fisher's exact, Spearman's rank order correlation and Bonferroni correction were applied where appropriate. The Statistical Package for the Social Sciences⁹⁸, was used to conduct analyses.

RESULTS

There was no difference regarding sociodemographic characteristics of both caregivers and control groups (Table 1). Male gender and married persons predominate female gender and non-married persons in both groups with higher significance difference among the caregivers group ($p < 0.01$). Higher education (63.33%) and non-employed persons (66.67%) were significantly higher than low education (36.67%) and employed persons (33.33%) among the caregivers group ($p < 0.05$). Most of the caregivers group was an immediate family relative (93.33%) with ($p < 0.01$).

Table 1: Demographic Characteristics of Caregivers and Control Groups.

Characteristics	Caregivers Group (n= 60)	Control Group (n= 30)
Sex (n and %)		
Male	45 (75.00)**	21 (70.00)*
Female	15 (25.00)	9 (30.00)
Age (Mean $\pm$ SD, years)	39.2 $\pm$ 12.2	36.4 $\pm$ 9.5
Marital Status (n and %)		
Married	43 (71.67)**	23 (76.67)*
Not Married	17 (28.33)	7 (23.33)
Education (n and %)		
< 12 years education	38 (63.33)*	19 (63.33)
> 12 years education	22 (36.67)	11 (36.67)
Occupation (n and %)		
Employed	20 (33.33)	15 (50.00)
Non employed	40 (66.67)*	15 (50.00)
Socioeconomic Status (n and %)		
Low	31 (51.67)	16 (53.33)
Moderate	25 (41.67)	11 (36.67)
High	4 (6.67)	3 (10.00)
Relationship To The Patient		
Immediate Family Relative	56 (93.33)**	NA
Non Immediate Family Relative	3 (5.00)	NA
Non Relative	1 (1.67)	NA

* Means p value < 0.05 , ** means p value < 0.01 , NA means Not Applicable.

Caregivers group had higher score regarding the CES-D 10 scale (7.68 $\pm$ 5.2) than the control group (2.63 $\pm$ 2.9) with ($p < 0.01$) (Table 2). Also, DD according to DSM-IV-TR criteria were higher in caregivers group (18.33%) than control group (3.33%) with ($p < 0.05$). The burden of care score was (6.72 $\pm$ 2.7) among the caregivers group according to the CSI. Caregivers group had a high level of stigma and discrimination; 12.38 $\pm$ 7.62 for

PDSS and 8.28 $\pm$ 6.46 for FDSS with total score of 21.00 $\pm$ 14.36 in DDS. Most of the primary caregivers were living in the same home with the patient (86.67%), with the mean duration of care giving in months (45.18 $\pm$ 24.07) and number of hours per week for providing care (29.75 $\pm$ 8.99).

Table 2: Clinical Characteristics of Caregivers and Control Groups.

Characteristics	Caregivers Group (n= 60)	Control Group (n= 30)
The CES-D 10 Score (Mean$\pm$SD)	7.68 $\pm$ 5.2**	2.63 $\pm$ 2.9
Depressive Disorders (n and %)	11 (18.33)*	1 (3.33)
The CSI Score (Mean $\pm$ SD)	6.72 $\pm$ 2.7	NA
The DDS Score (Mean $\pm$ SD)	21.00 $\pm$ 14.36	NA
The PDSS Score (Mean $\pm$ SD)	12.38 $\pm$ 7.62	NA
The FDSS Score (Mean $\pm$ SD)	8.28 $\pm$ 6.46	NA
Living In The Same Home (n and %)	52 (86.67)	NA
Duration of Care Giving In Months (Mean $\pm$ SD)	45.18 $\pm$ 24.07	NA
Number of Hours/Week for providing Care (Mean $\pm$ SD)	29.75 $\pm$ 8.99	NA

* Means p value < 0.05 , ** means p value < 0.01 , NA means Not Applicable.
CES-D 10= Center for Epidemiologic Studies Short Depression Scale. CSI= Care Strain Index.
DDS= Discrimination-Devaluation Scale, PDSS= Patient Devaluation and Stigma Scale (PDSS) and
FDSS= Family Devaluation and Stigma Scale.

Applying the DSM-IV-TR criteria for persons who had score 10 or greater in the CES-D Scale showed that DD were higher among caregivers (18.33%) than control group (3.33%) with ($p < 0.05$) (Table 3). The most common DD among the caregivers group are adjustment disorder with mixed anxiety and depressed mood (6.67%) then adjustment disorder with depressed mood (5.00%), followed by Dysthymic disorder (3.33%) and lastly the major depressive disorder; single episode and recurrent (1.67%) for both disorders. Five percent of caregivers, who had score 10 or greater in the CES-D Scale, have adjustment disorder with anxiety.

Table 3: DSM-IV-TR Depressive Disorders Among Caregivers and Control Groups.

Depressive Disorders (n and %)	Caregivers Group (n= 60)	Control Group (n= 30)
296.x Major Depressive Disorder (MDD)	2 (3.33)	0 (0.00)
296.2 MDD; Single Episode	1 (1.67)	0 (0.00)
296.3 MDD; Recurrent	1 (1.67)	0 (0.00)
300.4 Dysthymic Disorder (DD)	2 (3.33)	1 (0.00)
309.x Adjustment Disorder (AD)	10 (16.67)	0 (0.00)
309.0 AD with Depressed Mood	3 (5.00)	0 (0.00)
309.28 AD with Mixed Anxiety and Depressed Mood	4 (6.67)	0 (0.00)
309.24 AD with Anxiety	3 (5.00)	0 (0.00)
Total Depressive Disorders	11 (18.33)*	1 (3.33)

* Means p value < 0.05 .

Table 4 shows that depressive symptoms were high significant among caregivers than control regarding feeling of fears (65.00% vs. 6.67%), depressed mood (55.00% vs. 6.67%) and unhappiness (48.33% vs. 3.33%), with ($p < 0.01$). Restless sleep (78.33% vs. 20.00%), decrease interest (35.00% vs. 10.00%), difficulty in cognition (20.00% vs. 3.33%), hopelessness (18.33% vs. 0.00%) and feeling of loneliness (15.00% vs.

0.00%), with ($p < 0.05$). There were no significant difference regarding fatigue and psychomotor retardation. Caregivers group had higher score in total symptomatology of depression with mean score (7.68 ± 5.2 vs. 2.63 ± 2.9 ; $p < 0.01$). About 23.33% of the caregivers group versus 3.33% of the control group were considered positive for the CES-D 10 scale as they got 10 or greater score with ($p < 0.05$).

Table 4: Depressive Symptoms Among Caregivers According To The CES-D 10.

Depressive Symptoms (n and %)	Caregivers Group (n= 60)	Control Group (n= 30)
Decrease Interest	21 (35.00)*	3 (10.00)
Difficulty in Cognition	12 (20.00)*	0 (3.33)
Depressed Mood	33 (55.00)**	0 (6.67)
Fatigue	7 (11.67)	0 (3.33)
Hopelessness	11 (18.33)*	0 (0.00)
Feeling of Fears	39 (65.00)**	0 (6.67)
Restless Sleep	47 (78.33)*	6 (20.00)
Unhappiness	29 (48.33)**	0 (3.33)
Feeling of Loneliness	9 (15.00)*	0 (0.00)
Psychomotor Retardation	2 (3.33)	0 (0.00)
The CES-D 10 Score (Mean $\pm$ SD)	$7.68 \pm 5.2^{**}$	2.63 ± 2.9
The CES-D 10 Results (n and %)	14 (23.33)*	1 (3.33)

* Means p value < 0.05 , ** means p value < 0.01 .
CES-D 10= Center for Epidemiologic Studies Short Depression Scale.

Comparing caregivers with DSM-IV-TR criteria for depression and caregivers without DSM-IV-TR criteria for depression regarding their burden of care showed that all depressed caregivers had burden of care (100.00 vs. 32.65% with $p < 0.01$) (Table 5),. Depressed caregivers had higher scores in the CSI Scale (10.09 ± 1.7 vs. 5.96 ± 2.3 with $p < 0.01$). Physical burden was the most significant common burden among the depressed caregivers vs. Non-depressed caregivers (100.00% vs. 30.61% with $p < 0.01$), followed by social burden (100.00% vs. 91.84% with $p < 0.05$) and time burden (100.00% vs. 85.29% with $p < 0.05$). The least burden was the financial burden (18.18% vs. 2.04% with $p < 0.05$) but the employment burden was not significant between both groups.

Table 5: Burden of Care Among Caregivers In Relation to DSM-IV-TR Depression.

Type of Burden	Caregivers Group with Depression (n= 11)	Caregivers Group without Depression (n= 49)
Employment Burden (n and %)	6 (54.55)	36 (77.55)
Financial Burden (n and %)	2 (18.18)*	1 (2.04)
Physical Burden (n and %)	11 (100.00)**	15 (30.61)
Social Burden (n and %)	11 (100.00)*	45 (91.84)
Time Burden (n and %)	11 (100.00)*	42 (85.29)
The CSI Score (Mean $\pm$ SD)	$10.09 \pm 1.7^{**}$	5.96 ± 2.3
The CSI Results (n and %)	11 (100.00)**	16 (32.65)

* Means p value < 0.05 , ** means p value < 0.01 and CSI= Care Strain Index.

Comparing depressed caregivers and non-depressed caregivers regarding stigma and discrimination due to mental illness (Table 6), all depressed caregivers perceived stigma (100.00% vs. 36.47% with $p < 0.05$) and their scores in DDS

were (40.82 ± 13.59 vs. 16.55 ± 10.24 with $p < 0.01$). Depressed caregivers had significantly higher scores in both PDSS and FDSS (22.36 ± 7.16 vs. 10.14 ± 5.72 with $p < 0.01$ and 16.64 ± 5.54 vs. 6.41 ± 5.02 with $p < 0.01$), respectively.

Table 6: Stigma Among Caregivers In Relation to DSM-IV-TR Depression.

Stigma Subscales	Caregivers Group with Depression (n= 11)	Caregivers Group without Depression (n= 49)
The PDSS Score (Mean $\pm$ SD)	$22.36 \pm 7.16^{**}$	10.14 ± 5.72
The FDSS Score (Mean $\pm$ SD)	$16.64 \pm 5.54^{**}$	6.41 ± 5.02
The DDS Score (Mean $\pm$ SD)	$40.82 \pm 13.59^{**}$	16.55 ± 10.24
The DDS Results (n and %)	11 (100.00)*	36 (73.47)

* Means p value < 0.05 , ** means p value < 0.01 , DDS= Discrimination-Devaluation Scale, PDSS= Patient Devaluation and Stigma Scale and FDSS= Family Devaluation and Stigma Scale.

Regarding factors associated with depressive symptoms among caregivers using Spearman correlation coefficient for measuring the rank of order for factors (Table 7), depressive symptoms were associated with increased number of hours per week for providing care (0.255), older age of the caregiver (0.324) and duration of care giving in months (0.461), then scores in CSI (0.604), PDSS (0.630), DDS (0.669) and FDSS (0.695).

Table 7: Factors Correlated with Depressive Symptoms Among The Caregivers.

Rank of Order for Factors	CES-D 10 Score Correlation Coefficient
1- Number of Hours/Week for providing Care	0.255
2- Age	0.324
3- Duration of Care Giving In Months	0.461
4- CSI Score	0.604
5- PDSS Score	0.630
6- DDS Score	0.669
7- FDSS Score	0.695

CES-D 10= Center for Epidemiologic Studies Short Depression Scale. CSI= Care Strain Index.
DDS= Discrimination-Devaluation Scale, PDSS= Patient Devaluation and Stigma Scale (PDSS) and
FDSS= Family Devaluation and Stigma Scale.

DISCUSSION

Regarding sociodemographic characteristics of the studied groups, male gender and married persons predominate female gender and non-married persons with higher significance difference among the caregivers. These findings are due to cultural factors as in Saudi Arabia, the male and married person is the responsible person either outside the home or inside the family. The females in KSA, especially in Qassim area, cannot drive or dealing with foreigner males in any

situation so the cultural factors limits their roles in caring of the family members. The highly educated and non-employed persons were significantly higher than low education and employed persons among the caregivers. Higher educated person is the person who is the most knowledgeable regarding the schizophrenia and the importance of caring it. Also, high rate of the non-employed persons among caregivers can be explained as a result of caregiving and associated stigma; they do not search for work, they do not find work or they may lose their work. Most of the caregivers in our study were immediate family relatives as a primary supportive group for those patients who are not insighted.

The primary purpose of this study was to detect the prevalence of DD among primary caregivers of patients with schizophrenia living in the community. The second purpose of the study was to describe the association between DD and other variables; the burden of care, perceived stigma and quality of life as consequences of caregiving for schizophrenic patients. The method of subject selection in this study limits the sample of primary caregivers who have a long-term relationship with the patients. Thus, those caregivers are the most persons who have burden and perceive stigma regarding their caregiving and the most susceptible persons to be affected either psychologically or physically. Among the caregiver characteristics, higher levels of burden, perceived stigma and poor quality of life were associated with depressive symptoms. Previous research on caregivers of persons with schizophrenia, as far as we know, has been minimal and has primarily focused on how the caregiver is affected by the patient clinical profile⁵⁷.

Regarding symptoms of depression among caregivers of schizophrenia, 23.33% of the caregivers group versus 3.33% of the control group were considered positive for the CES-D 10 scale as they got 10 or greater score, with mean score in total symptomatology of depression 7.68 ± 5.2 vs. 2.63 ± 2.9 . The results confirmed that caregivers have symptoms of depression significantly higher than the control group. These findings are consistent with most of the recent researches^{15-17,48-50,52-54,57}. We found high significance difference among the caregivers than the control regarding feeling of fears, depressed mood, unhappiness, restless sleep, decreased interest, difficulty in cognition, hopelessness and feeling of loneliness. There were no significant difference regarding fatigue and psychomotor retardation. These finding can help the psychiatric team in assessment and detection of depressive disorders among caregivers. So, psychiatric team are in a pivotal position to provide early interventions by conducting routine assessments of the depression status of caregivers and their available social support, thereby preventing or minimizing depression in these caregivers⁵².

The results confirmed that caregivers have DD significantly higher than control group. About 18.33% of the primary caregivers vs. 3.33% of the control group were confirmed to have depressive disorders according to DSM-IV-TR criteria. These findings are consistent with most of the recent researches^{15-17,48-50,52-54,57}. High prevalence of DD among

caregivers of schizophrenics can be explained primarily due to many burdens; financial burden, role burden, physical burden, time burden and emotional burden. A result consistent with many previous studies^{15,52,54,57}. Also, stigma attached to schizophrenia plays an important part in the high prevalence of DD among caregivers. This result is consistent with some studies^{65,80,81}.

We found that DD were higher among caregivers than control group. The most common DD among the caregivers group are adjustment disorder with mixed anxiety and depressed mood then adjustment disorder with depressed mood and followed by Dysthymic disorder. These findings can be explained that most of the caregivers, who have DD, have non major DD in which psychosocial stressors play an important part in their etiology and we claim that burden due to care and perceived stigma towards the caregivers have an essential role in their etiology and maintenance. Results are consistent with most studies done on the same group of population^{15, 30, 52, 54, 57, 65, 80, 81}. So, reducing stress, isolation and stigmatization is very important for reducing depression among caregivers of schizophrenic patients^{48,51} and must be taken into account when planning for intervention by mental health professionals⁶⁸. Better liaison is required between psychological/ medical professionals and caregivers to see whether they are psychologically helping caregivers of schizophrenic patients to know about their severity of depression and to treat it¹⁶. Lastly, the major DD; single episode and recurrent was 1.67% for both disorders. A result that is not higher than major DD in general population and may be due to genetic or other biological factors but burden and stigma may affect its severity or course. Major DD among the caregivers may also affects the ability of the caregiver to care of the patient and leads to deterioration of the patient condition.

Comparing the caregivers with DSM-IV-TR criteria for depression and caregivers without depression regarding their burden of care, we found that all depressed caregivers had burden of care and had higher scores in the CSI Scale than the caregivers without depression. We are in agreement with all previous studies that concluded that depression among caregivers of schizophrenics is due to burden of care^{15-17,49-54,57}. So, we confirmed that burden of caregiving for schizophrenic leads to depressive disorders. We are in agreement of previous studies that concluded that supporting someone with schizophrenia is a difficult and life long effort that can be very stressful as reported across many culture^{14,16,37,40-46}. Our study found that physical burden was the most significant common burden among the depressed caregivers vs. non-depressed caregivers. This result is consistent with most of the previous studies that emphasized the objective burden on the caregivers due to caregiving and role burden^{2,8,10-12,15,17}. We found that social burden and time burden are significantly higher among the depressed caregivers than the non-depressed caregivers. A result that is in agreement with some studies^{16,19,21,25}. The least burden associated with depression was the financial burden. This finding is inconsistent with other studies that magnified the

financial burden as a key burden leads to other burdens^{14,16}. This disagreement may be due to that in Saudi Arabia, the government supports the schizophrenics and their families in many financial aspects and covers all management costs. We found that the employment burden was not significant between both groups. A result that is not in agreement with many studies that magnified unemployment as a burden for caregivers^{33,34,36,37,39}. This may be due to the family structure and dynamics in Saudi Arabia and due to some cultural factors that make unemployment is not a significant burden as the government supports the unemployed persons and also the citizens of low income.

Our finding that greater perceptions of stigma towards caregivers were associated with significantly higher levels of depressive symptoms suggests that in addition to posing a barrier to the recovery of people with schizophrenia, stigma erodes the morale of the caregivers who help care for them^{57,65}. The finding that social support and avoidance coping together largely explained the association between stigma and depression offers an explanation for the depressive symptoms commonly reported and was explained by^{57,65}. Because social support is a well-established buffer against recurrence of depression, withdrawal from potential supporters as an adaptation to stigmatization illustrates the double jeopardy confronting caregivers of patients with mental illness. We are in agreement with other studies like, who found that stigma was significantly related to caregivers' depressive symptoms independently of other variables but because our study uses cross-sectional data we cannot make causal inferences. However, recurrence of depression has been linked to psychosocial stressors such as caregiving strain⁶⁵ and contending with social rejection and attendant feelings of shame and embarrassment constitutes a major caregiving strain^{57,65,82}. Results suggest that caregivers' perceptions of stigma may negatively affect their mental health by reducing their coping effectiveness^{57,65}.

Our results regarding factors that are associated with depressive symptoms are consistent with most of the previous studies. Depressive symptoms were associated with increased number of hours per week for providing care, older age of the caregiver, duration of care giving in months¹⁸. These results can be explained in the light of increased burden of care either objective or subjective and their effect on the person who care for a chronic and serious mental disorder. Association of poor quality of life (SF 36 score) with depressive symptoms among the caregivers is in agreement with many studies^{30,65,78}. This result can be explained in the light of the proved relationship between stress and depression with the low quality of life. Depressive symptoms are associated with high scores in burden of care (CSI score) of the caregivers. This finding is consistent with all studies done in this topic^{15-17,49-54,57}. This result may be due to many burden on the caregivers; role burden, time burden, emotional burden, financial burden and social burden. Depressive symptoms are associated with stigma towards the patient and his family (PDSS, DDS and FDSS scores). These finding is consistent with many studies^{51,65,68,80,81}. It emphasizes the results of other studies that concluded that

stigma erodes the morale of the caregivers who help care for them and leads to depression^{57,65}. So, dealing with current problem of caregivers DD, we have to deal with all factors associated with depression; caregiving needs, burden of care and stigma towards the patient and his caregivers. Dealing with these factors and depression among the caregivers will improve the caregivers' conditions which has greater effects on the clinical profile of schizophrenic patients.

There are important clinical implications that can be drawn from the findings of the present study. Clinicians should be aware of the high rates of DD in caregivers of people with Schizophrenia. In the era of community mental health, it would help develop community-specific programs to target caregivers for psychosocial intervention which would teach them to focus on the positive feelings they experience in association with the caregiving role⁹⁹. This could diminish the burden of illness felt by them and prevent role overload. The current study has a number of limitations. First, the analyses are cross-sectional. Second, despite the small sample size in our study, the differences in psychological morbidity between caregivers and controls were still evident. The findings can serve as a reference for mental health professionals as they develop mental health care program for patients and also for caregivers.

CONCLUSION

Caregivers for schizophrenic patients reported high levels of depressive symptoms; the majority of these caregivers who have depressive symptoms met the established DSM-IV-TR criteria for clinical DD. The strongest and most consistent predictors of DD were caregiver burden, perceived stigma due to mental disorder and poor quality of life. Depressive symptoms were associated with increased number of hours per week for providing care, older age of the caregiver and duration of care giving. These results can be used to plan interventions to reduce caregiver stressors. Mental health services must be directed to the caregivers as well as the patients of schizophrenia.

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