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Original Article

Depression, Anxiety, and Stress Among Caregivers of Patients with Schizophrenia

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ABSTRACT

Psychological distress in family caregivers of schizophrenia often remains unnoticed in outpatient services. **Objective:** To determine the frequency and severity of depression, anxiety, and stress among informal family caregivers of patients with schizophrenia, and to identify contributing factors. **Method:** A cross-sectional study was conducted at the outpatient psychiatry clinic of PIMH, Lahore, from May to December 2025. Consecutive informal primary caregivers aged 18–55 years (n=194) were interviewed. Depression Anxiety Stress Scale 21-item version scores were doubled; clinically significant depression, anxiety, and stress were defined as ≥14, ≥10, and ≥19. Chi-square tests and multivariable models were applied. **Results:** Caregiver mean age was 41.4 ± 9.6 years. Clinically significant depression, anxiety, and stress were present in 63.4%, 67.5%, and 66.0%. Depression was higher in male caregivers (72.2% vs 54.6%), unemployed caregivers (74.4% vs 54.6%), those with higher education (90.4%), and those with illness duration ≥5 years (75.6%) ($p<0.05$). Anxiety was higher in female caregivers (78.4%), higher education (82.7%), and illness duration ≥5 years (72.6%) ($p<0.05$). Stress was higher in males (77.3%), unemployed caregivers (77.9%), higher education (78.8%), and spouses or parents (77.1% and 75.0%) ($p<0.05$). In adjusted multivariate analyses, caregiver sex remained the most consistent predictor across depression, anxiety, and stress, while higher education independently predicted depression and stress; caregiver relationship to the patient independently associated with stress. **Conclusion:** Clinically significant distress was present in nearly two-thirds of caregivers, supporting routine screening within outpatient services and the provision of targeted, family-focused psychosocial support.

INTRODUCTION

Schizophrenia is a long-lasting and disabling mental illness characterized by persistent psychotic manifestations and impairment in functional capacity. It has significant implications for the long-term outcomes in occupational and social life [1]. It is a significant public health problem that affects more than twenty million people across the globe, and is significantly affecting the number of years living with disability in different situations. In middle and low-income environments, limited professional services shift a large portion of the burden for care to family members [2]. Informal caregivers are typically responsible for the adherence of treatment, assist with the daily activities of patients, and offer ongoing social and emotional assistance which is a crucial element of community-based management [3, 4]. The responsibilities of family caregivers usually extend beyond just managing appointments and medication. Many caregivers are responsible for managing disturbed behavior and sleep disturbance, as well as social withdrawal and frequent crises, while taking care of financial and household obligations. This constant responsibility can result in emotional exhaustion and a decrease in personal time as well as financial stress, and has been linked to anxiety, depression, and stress [5-7]. Evidence from a variety of

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cultural and social contexts suggests that anxiety and depression symptoms are prevalent among caregivers. Several studies have revealed that nearly half of caregivers have scores that exceed acceptable thresholds for screening [3,8]. Stress among caregivers is also linked to higher severity of symptoms, a longer period of disease, female caregiver gender, as well as inadequate social support and less resilience [6, 9]. Despite increasing attention to this topic, however, there have been few studies to examine anxiety, depression and stress in conjunction with caregivers of patients suffering from schizophrenia, especially in low-resource settings, where the primary care is largely dependent on family members [10].

Although the psychological burden of caring for a person with schizophrenia is increasingly acknowledged, several aspects remain insufficiently studied. Existing research has often focused on a single outcome, most commonly depressive symptoms, while anxiety and stress have received less consistent attention. This limit understanding of how these problems occur together in the same caregiver and how they may be related to clinical and social factors. Evidence from low-resource settings is also limited, even though families commonly provide most daily care where specialist mental health services are scarce. In such settings, caregivers may have little formal support, limited respite, and additional financial pressure. Therefore, the present study was conducted to determine the frequency of depression, anxiety, and stress among family caregivers of patients with schizophrenia. This study would help in determining the associated caregiver and patient-related factors, so that locally relevant support and counseling services can be planned more effectively. Therefore, the study aimed to determine the frequency and associated factors of depression, anxiety, and stress among family caregivers of patients with schizophrenia.

METHODS

This cross-sectional study was performed at the outpatient psychiatry clinic of the Punjab Institute of Mental Health, Lahore (IRB: 30988/PIMH, dated: 4th November 2023), from May 2025 to December 2025. The study population included informal family caregivers of patients with schizophrenia who were attending outpatient services. For this study, a caregiver was defined as an unpaid family member or relative who was involved in the patient's daily care, including medication supervision, assistance in outpatient visits, financial and practical help, crisis handling, and emotional support. Patients aged 18–55 years who had been the main caregiver for at least three months for a patient diagnosed with schizophrenia, based on medical records, and was able to understand the questionnaire language were included in this study. Before enrollment, potential participants were pre-assessed for exclusion criteria. Caregivers were excluded if they had a severe psychiatric disorder or acute medical illness that could impair participation, were paid professional caregivers, or were caring for a patient whose primary diagnosis was not schizophrenia. A consecutive sampling strategy was used. The sample size was calculated using an anticipated stress prevalence of 6.6% based on the only available published estimate at the time of protocol development this yielded a minimum of 194 participants. Although the observed prevalence was substantially higher, the achieved sample still provides adequate precision (margin of error ±3.4% for the observed proportion of 66.0%). [11]. Data were collected on caregiver characteristics (age, sex, education, marital status, employment, socioeconomic status, relationship to the patient, and caregiving duration) and patient variables (age, sex, illness duration, treatment duration), as well as depression, anxiety, and stress scores measured by the DASS-21. Depression, anxiety, and stress were considered present when the respective DASS-21 subscale score, multiplied by two, met or exceeded 14 for depression, 10 for anxiety, and 19 for stress [11]. Severity categories for each domain—normal, mild, moderate, severe and extremely severe—were based on the validated cut-offs: for depression 0-9, 10-13, 14-20, 21-27 and ≥28; for anxiety 0-7, 8-9, 10-14, 15-19 and ≥20; and for stress 0-14, 15-18, 19-25, 26-33 and ≥34 [12]. The Urdu DASS-21 has demonstrated high internal consistency (Cronbach's alpha ≈0.93) and acceptable subscale reliability with confirmatory factor analysis supporting a three-factor structure, underscoring its suitability for research use in Pakistani populations [13]. This score was administered by the consultant psychiatrist during an in-person interview of caregiver. Statistical analysis was performed using SPSS version 26.0. Mean and standard deviations was used to present numerical data, and counts and percentages used to report nominal and ordinal data. Primary outcomes reported in the form of Mean ± SD depression, anxiety, and stress scores and the proportion of caregivers in each severity category. Univariate analysis was applied to examine the associations between caregiver and patient characteristics and the presence of depression, anxiety, and stress using chi-square tests followed by multivariable analysis using linear regression with statistical significance set at $p<0.05$.

RESULTS

This study evaluated 194 caregivers of patients with schizophrenia. The mean age of caregiver was 41.4 ± 9.6 years. Regarding age distribution, 44 caregivers (22.7%) were aged 18 to 35 years, 77 (39.7%) were aged 6 to 45 years, and 73 (37.6%) were aged 46 to 55 years. Based on caregiver

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sex distribution there were equal number of male and female with 1:1 ratio 97 (50.0%). 165 (85.1%) were married, while 29 (14.9%) were unmarried, divorced, or widowed. In terms of educational status, 74 (38.1%) caregivers had primary education or below, 68 (35.1%) had secondary education followed by 52 (26.8%) had higher secondary education or above. Employment status showed that 108 caregivers (55.7%) were employed and 86 (44.3%) were unemployed. Most caregivers were spouses, reported in 70 cases (36.1%), followed by parents in 64 (33.0%), siblings in 42 (21.6%), and other relatives in 18 (9.3%). Caregiving duration was 3 to 12 months in 38 participants (19.6%), 1 to 5 years in 101 (52.1%), and more than 5 years in 55 (28.4%). Among the patients, the mean age was 29.1 ± 8.8 years. More than half, 107 (55.2%), were younger than 30 years, 50 (25.8%) were aged 30 to 40 years, and 37 (19.1%) were older than 40 years. Patient sex distribution showed 105 males (54.1%) and 89 females (45.9%). The duration of illness was less than 5 years in 59 patients (30.4%) and 5 years or more in 135 (69.6%). The mean Depression Anxiety Stress Scale-21 scores were 17.8 ± 10.0 for depression, 13.8 ± 7.3 for anxiety, and 22.0 ± 10.8 for stress. Based on the predefined cutoffs, clinically significant depression was present in 123 caregivers (63.4%), clinically significant anxiety in 131 (67.5%), and clinically significant stress in 128 (66.0%). Clinically significant depression was associated with caregiver sex (higher in males; p=0.011), employment status (higher in unemployed; p=0.004), education level (highest among higher secondary and above; p<0.001), and longer patient illness duration (≥5 years; p<0.001), while patient age, patient sex, caregiver marital status, relationship to patient, and caregiving duration were not associated (all p>0.05) and caregiver age showed a borderline pattern (p=0.069) (Table 1).

Table 1: Factors Associated with Clinically Significant Depression Among Caregivers

Variables	Depression Present, n (%)	Depression Absent, n (%)	χ^2	p-value
Patient Age Category				
<30 years	69 (64.5%)	38 (35.5%)	0.338	0.845
30-40 years	30 (60.0%)	20 (40.0%)		
>40 years	24 (64.9%)	13 (35.1%)		
Caregiver Age Category				
18-35 years	32 (72.7%)	12 (27.3%)	5.347	0.069
36-45 years	52 (67.5%)	25 (32.5%)		
46-55 years	39 (53.4%)	34 (46.6%)		
Patient Sex				
Male	69 (65.7%)	36 (34.3%)	0.527	0.468
Female	54 (60.7%)	35 (39.3%)		
Caregiver Sex				
Male	70 (72.2%)	27 (27.8%)	6.420	0.011
Female	53 (54.6%)	44 (45.4%)		
Caregiver Education Level				
Primary or below	38 (51.4%)	36 (48.6%)	22.604	<0.001
Secondary	38 (55.9%)	30 (44.1%)		
Higher secondary and above	47 (90.4%)	5 (9.6%)		
Caregiver Marital Status				
Married	104 (63.0%)	61 (37.0%)	0.066	0.798
Unmarried/Divorced /Widowed	19 (65.5%)	10 (34.5%)		
Caregiver Employment Status				
Employed	59 (54.6%)	49 (45.4%)	8.080	0.004
Unemployed	64 (74.4%)	22 (25.6%)		
Caregiver Relationship To Patient				
Spouse	45 (64.3%)	25 (35.7%)	2.115	0.549
Parent (Mother/Father)	38 (59.4%)	26 (40.6%)		
Sibling	30 (71.4%)	12 (28.6%)		
Other Relatives	10 (55.6%)	8 (44.4%)		
Duration of Caregiving				
3-12 months	23 (60.5%)	15 (39.5%)	1.079	0.583
1-5 years	62 (61.4%)	39 (38.6%)		
>5 years	38 (69.1%)	17 (30.9%)		
Duration of Illness				
<5 years	21 (35.6%)	38 (64.4%)	28.257	<0.001
≥5 years	102 (75.6%)	33 (24.4%)		

Clinically significant anxiety was higher in female caregivers (p=0.001), varied by education (p=0.013), and was more frequent with illness duration ≥5 years (p=0.023); patient sex was borderline (p=0.061), while all other caregiver and patient variables were non-significant (p>0.05) (Table 2).

Table 2: Factors Associated with Clinically Significant Anxiety Among Caregivers

Variables	Anxiety Present, n (%)	Anxiety Absent, n (%)	χ^2	p-value
Patient Age Category				
<30 years	76 (71.0%)	31 (29.0%)	2.795	0.247
30-40 years	29 (58.0%)	21 (42.0%)		
>40 years	26 (70.3%)	11 (29.7%)		
Caregiver Age Category				
18-35 years	31 (70.5%)	13 (29.5%)	0.277	0.871
36-45 years	52 (67.5%)	25 (32.5%)		
46-55 years	48 (65.8%)	25 (34.2%)		
Patient Sex				
Male	77 (73.3%)	28 (26.7%)	3.520	0.061
Female	54 (60.7%)	35 (39.3%)		
Caregiver Sex				
Male	55 (56.7%)	42 (43.3%)	10.366	0.001
Female	76 (78.4%)	21 (21.6%)		
Caregiver Education Level				
Primary or below	49 (66.2%)	25 (33.8%)	8.722	0.013
Secondary	39 (57.4%)	29 (42.6%)		
Higher secondary and above	43 (82.7%)	9 (17.3%)		

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Caregiver Marital Status				
Married	111 (67.3%)	54 (32.7%)	0.032	0.858
Unmarried/Divorced /Widowed	20 (69.0%)	9 (31.0%)		
Caregiver Employment Status				
Employed	71 (65.7%)	37 (34.3%)	0.354	0.552
Unemployed	60 (69.8%)	26 (30.2%)		
Caregiver Relationship To Patient				
Spouse	44 (62.9%)	26 (37.1%)	1.443	0.695
Parent (Mother/Father)	46 (71.9%)	18 (28.1%)		
Sibling	28 (66.7%)	14 (33.3%)		
Other Relatives	13 (72.2%)	5 (27.8%)		
Duration of Caregiving				
3-12 months	24 (63.2%)	14 (36.8%)	3.270	0.195
1-5 years	74 (73.3%)	27 (26.7%)		
>5 years	33 (60.0%)	22 (40.0%)		
Duration of Illness				
<5 years	33 (55.9%)	26 (44.1%)	5.197	0.023
≥5 years	98 (72.6%)	37 (27.4%)		
Female	53 (54.6%)	44 (45.4%)		
Caregiver Education Level				
Primary or below	41 (55.4%)	33 (44.6%)	7.606	0.022
Secondary	46 (67.6%)	22 (32.4%)		
Higher secondary and above	41 (78.8%)	11 (21.2%)		
Caregiver Marital Status				
Married	113 (68.5%)	52 (31.5%)	3.087	0.079
Unmarried/Divorced /Widowed	15 (51.7%)	14 (48.3%)		
Caregiver Employment Status				
Employed	61 (56.5%)	47 (43.5%)	9.791	0.002
Unemployed	67 (77.9%)	19 (22.1%)		
Caregiver Relationship To Patient				
Spouse	54 (77.1%)	16 (22.9%)	25.020	<0.001
Parent (Mother/Father)	48 (75.0%)	16 (25.0%)		
Sibling	22 (52.4%)	20 (47.6%)		
Other Relatives	4 (22.2%)	14 (77.8%)		
Duration of Caregiving				
3-12 months	23 (60.5%)	15 (39.5%)	0.746	0.689
1-5 years	67 (66.3%)	34 (33.7%)		
>5 years	38 (69.1%)	17 (30.9%)		
Duration of Illness				
<5 years	35 (59.3%)	24 (40.7%)	1.674	0.196
≥5 years	93 (68.9%)	42 (31.1%)		

Clinically significant stress was associated with caregiver sex (p=0.001), employment status (p=0.002), education (p=0.022), and caregiver relationship to the patient (p<0.001), with a borderline pattern for marital status (p=0.079), while patient age and sex, caregiver age, caregiving duration, and illness duration were not associated (all p>0.05) (Table 3).

Table 3: Factors Associated with Clinically Significant Stress Among Caregivers

Variables	Stress Present, n (%)	Stress Absent, n (%)	χ^2	p-value
Patient Age Category				
<30 years	74 (69.2%)	33 (30.8%)	1.270	0.530
30-40 years	32 (64.0%)	18 (36.0%)		
>40 years	22 (59.5%)	15 (40.5%)		
Caregiver Age Category				
18-35 years	26 (59.1%)	18 (40.9%)	1.252	0.535
36-45 years	53 (68.8%)	24 (31.2%)		
46-55 years	49 (67.1%)	24 (32.9%)		
Patient Sex				
Male	69 (65.7%)	36 (34.3%)	0.007	0.933
Female	59 (66.3%)	30 (33.7%)		
Caregiver Sex				
Male	75 (77.3%)	22 (22.7%)	11.115	0.001

In multivariable analysis, clinically significant depression remained independently associated with younger caregiver age (β=−0.166, p=0.021), male caregiver sex (β=−0.150, p=0.029), and higher education (β=0.291, p<0.001), with modest explanatory power (R^2=0.151; adjusted R^2=0.119). Clinically significant anxiety was independently predicted only by caregiver sex, indicating higher anxiety among females (β=0.267, p<0.001), while education showed a borderline association (p=0.059) (R^2=0.104; adjusted R^2=0.065). Clinically significant stress remained independently associated with caregiver sex (β=−0.248, p<0.001), higher education (β=0.189, p=0.005), and relationship to the patient (β=−0.375, p<0.001) (R^2=0.228; adjusted R^2=0.194). Patient age and sex were not independently associated with any domain after adjustment, and caregiver marital status and caregiving duration did not remain independent predictors (all p>0.05) (Table 4).

Table 4: Multivariable Regression Analysis of Factors Associated with Clinically Significant Depression, Anxiety, and Stress Among Caregivers

Predictors	Depression β	p-value	Anxiety β	p-value	Stress β	p-value
Caregiver age category (years)	-0.166	0.021	-0.028	0.717	0.009	0.901
Caregiver sex	-0.150	0.029	0.267	<0.001	-0.248	<0.001
Caregiver education level	0.291	<0.001	0.134	0.059	0.189	0.005
Patient age category (years)	-0.033	0.642	-0.060	0.416	-0.053	0.433
Patient sex	-0.009	0.892	-0.132	0.063	0.022	0.742

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Caregiver relationship to patient	-0.049	0.472	0.059	0.453	-0.375	<0.001
Duration of caregiving (category)	0.108	0.115	-0.038	0.587	0.113	0.086
Caregiver marital status	–	–	0.021	0.797	0.029	0.703

DISCUSSION

The findings of this study showed a high level of psychological distress among family caregivers of patients with schizophrenia managed in outpatient care. Depression, anxiety, and stress were frequently reported on the Depression Anxiety Stress Scale, and many caregivers had symptoms in the severe to extremely severe range. The frequency of depression in this study was 63.4%, which was almost the same as earlier Pakistani evidence, where depressive symptoms were reported in 63% of caregivers of patients with schizophrenia [14]. The same work also found greater depressive symptoms in caregivers of patients with schizophrenia than in caregivers of patients with bipolar disorder. Results from an Indian study are also comparable, as severe or more severe depression was reported in nearly half of caregivers [14]. Anxiety prevalence of 67.5% and stress prevalence of 66.0% were comparable to estimates around 71% for both domains in Pakistan, and high symptom severity was reported from India [15]. In contrast, a community-based study by Khatimah *et al.* reported depression, anxiety, and stress in only 14.2%, 25.5%, and 6.6% of caregivers, comparatively very low compared to this current study [11]. Longer illness duration has been linked to higher anxiety [16]. In the present study, clinically significant anxiety was more frequent among caregivers of patients with illness duration ≥5 years than among those with illness duration, however, this association did not remain significant after multivariable adjustment, suggesting that illness duration may reflect other related factors rather than acting as an independent predictor. In the present study, caregiver age was not significantly associated with anxiety or stress, and only a borderline association was observed with depression, where younger caregivers appeared more affected. This finding was inconsistent with previous studies reporting greater caregiver burden among older caregivers, which may be explained by longer caregiving duration, reduced physical reserve, and sustained responsibility in chronic illness [9]. Adaptation may attenuate burden over time, although sustained care can ultimately generate exhaustion [11]. In this study, age was not clearly associated with caregiver distress. This suggests that psychological stress was present across all age groups rather than being limited to older caregivers only. Male caregivers had a higher frequency of depression than female caregivers, 72.2% versus 54.6%, and stress followed the same pattern, 77.3% versus 54.6%. But anxiety was more commonly present among female caregivers. This pattern differs from previous studies in which female caregivers generally reported higher emotional distress, including depression, anxiety, and stress. Female excess has been reported for depression, stress, and anxiety, probably reflecting considerable emotional labor and care. In contrast, several studies report non-significant sex effects, indicating that socioeconomic context, caregiving roles, and measurement choice may attenuate differences [17]. Male-associated symptoms may reflect financial responsibility, service navigation, and crisis management. Education was related to depression and stress, and showed a near-significant relation with anxiety. This differs from studies suggesting that higher education reduces caregiver burden by improving understanding of the illness and access to support [9]. One possible explanation is that education can work in two ways. It may improve practical handling of the illness, but it may also make the caregiver more conscious of the patient's long-term prognosis, stigma, repeated relapses, and the effect of caregiving on personal and occupational life [18]. Unemployment was also related to higher depression and stress before adjustment. This agrees with earlier work showing that financial difficulty, low income, and loss of employment add considerably to the strain of caring for a patient with schizophrenia [19]. Rahmani *et al.* reported a similar concern, as 29.3% of caregivers had left their jobs because of caregiving responsibilities [10]. Relationship to the patient showed the strongest association with stress and remained significant after adjustment. This finding is consistent with previous reports showing that spouses and close family members often experience greater burden than other relatives, probably because of stronger emotional involvement, changes in household roles, and fewer opportunities for relief from caregiving [20]. Among patient-related variables, illness duration was related to depression and anxiety before adjustment, but the strength of this association decreased after controlling for other factors. This indicates that illness duration may partly represent severity, relapse frequency, or accumulated caregiving demands. Earlier evidence has reported that recurrent episodes and caregiving burden are associated with distress, even when Depression Anxiety Stress Scale scores are mild [21]. Prolonged daily caregiving was also associated with higher stress, possibly because of repeated supervision needs, reduced social participation, and gradual physical strain [22]. Spousal caregivers had the highest level of burden, possibly because they were more directly affected by marital strain, household responsibilities, limited family support, and

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social expectations regarding caregiving [23]. Patient condition and caregiver mental health may also influence each other. Worsening psychotic symptoms can increase caregiver burden and distress, while distressed caregivers may find it harder to provide consistent support, which may affect patient stability. Previous evidence has also shown that caregiver quality of life decreases as psychotic symptom severity increases [24]. The sample-size calculation relied on a prevalence estimate from a single previous study, which proved to be an outlier; future studies should use more representative local prevalence data or a conservative 50% estimate to ensure adequate power across all outcomes. The strengths of the study include consecutive enrollment of caregivers in an outpatient setting, use of the locally validated Depression Anxiety Stress Scale-21, and multivariable analysis of confounding variables. However, the cross-sectional design did not allow for, and the screening tool could not replace, a clinical diagnostic interview.

The findings may also have been affected by unmeasured patient-related factors such as the patient's symptom severity, treatment adherence, and family functioning. Caregiver screening should be incorporated into routine psychiatric outpatient care, with referral and support focused on higher-risk groups. the inclusion of only caregivers aged 18–55 years limits the generalisability of our findings. In the Pakistani context, a substantial proportion of caregivers for patients with chronic schizophrenia are elderly parents who are older than 55 years. By excluding this group, we may have underestimated the psychological burden in the most vulnerable caregiver population and our results may not be representative of all family caregivers. Future studies should include caregivers of all ages to capture the full spectrum of caregiving stress and to inform age-specific support interventions Further prospective studies should evaluate psychoeducation, coping guidance, and support programmed for spousal and parental caregivers.

CONCLUSIONS

Informal family caregivers of adults with schizophrenia attending outpatient services showed a high frequency of psychological distress. Depression, anxiety, and stress frequently overlapped, indicating that caregiver mental health requires attention as part of routine psychiatric care. Higher symptom burden was associated with caregiver sex, education, and employment status, whereas longer illness duration and close family caregiving roles were related to increased strain. Incorporating caregiver screening into outpatient psychiatric follow-up may help in early detection of distress and timely provision of psychoeducation, coping advice, and social support.

Authors' Contribution

Conceptualization: AS
Methodology: FS, IN
Formal analysis: NM, SS, AS, IN
Writing and Drafting: FS, NM, AS, IN
Review and Editing: FS, NM, SS, AS, AS, IN

All authors approved the final manuscript and take responsibility for the integrity of the work

Conflict of Interest

All the authors declare no conflict of interest.

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