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RESEARCH ARTICLE

Expressed Emotions Among Caregivers of Schizophrenia Patients in Southern Ethiopia: Associations with Caregiver and Patient Characteristics

Yohanes Sime[1], **Mubarek Mohammed**[1], **and Anteneh Gashaw**[2*]

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Abstract

Background: Expressed Emotion (EE) measures family caregivers' attitudes and behaviors toward mentally ill family members. This concept is crucial in mental health research, as it assesses criticism, unfriendliness, or support from immediate family. This study addresses a significant gap by evaluating caregivers of schizophrenia patients in Ethiopia. The findings aim to assist policymakers and healthcare professionals in enhancing mental health support in the region.

Objective: To determine the magnitude of Expressed Emotions among caregivers of patients with schizophrenia and its association with caregivers' and patients' characteristics in Southern Ethiopia, 2022.

Method and Materials: A cross-sectional study design was employed, involving 202 caregivers providing care to patients with schizophrenia at the psychiatry clinic of Dilla University Referral Hospital. Data collection utilized mobile software Epi.INFO version 7 through interviewer administration, supplemented by relevant chart reviews. Caregivers' EE levels were evaluated using two domains: Critical Comment (CC) and Emotional Over-Involvement (EOI), using validated tools. A systematic random sampling technique was employed to select participants. Data were analyzed using SPSS version 22, with bivariate analysis conducted for potential EE predictors (P-value < 0.2). Variables meeting this criterion were further analyzed using multivariable logistic regression, with a P-value < 0.05 considered statistically significant.

Results: High expressed emotion was observed in 50.5% (43.1-57.4) of respondents. Factors significantly associated with high expressed emotion included caring for patients with schizophrenia for 6-8 years (AOR=3.5; 95% CI: 2.1-6.3), being a female caregiver (AOR=1.2; 95% CI: 1.15-4.1), experiencing moderate to severe caregiver overload (AOR=2.0; 95% CI: 1.81-5.4), and a total duration of illness of 6-10 years (AOR=1.6; 95% CI: 1.42-3.9).

Conclusion: The present study reported a high level of EE among nearly half of the family members. Factors such as being a female caregiver, caring for a patient for 6-8 years, experiencing moderate to severe overload, and a total illness duration of 6-10 years were significantly associated with elevated EE. This underscores the need for psychosocial nursing care for all family members of schizophrenia patients, which can help them effectively cope with the stress of managing a mentally ill family member at home.

Keywords: Caregivers, Expressed emotion, Patients with schizophrenia, Dilla, Ethiopia

"A preprint has previously been published [1]"

*Correspondence: antenehgashaw77@gmail.com
[2]Department of Midwifery, College of Medicine & Health Sciences, Dilla University, Dilla, Ethiopia.
Full list of author information is available at the end of the article

1 Introduction

Expression Emotion (EE) refers to attitudes, moods, or behaviors based on family caregivers' emotional reactions toward ill family members. It comprises three components: Critical Comments (CC), which reflect negative assessments of the patient's behavior; Hostility (H), which indicates a negative view of the patient as a person; and Emotional Over-Involvement (EOI), characterized by feelings of desperation, self-sacrifice, and excessive protection of the patient. Since CC and H share similarities, EE is primarily based on CC and EOI [3, 4].

It manifests in traits of Low Expressed Emotion (LEE) or High Expressed Emotion (HEE) [4, 5]. Family caregivers exhibiting LEE are typically characterized by their tolerance, non-intrusiveness, and sensitivity to the needs of the patient. In contrast, HEE is marked by patterns of critical comments (CC), hostility, or emotional over-involvement (EOI). These behaviors may include rejection, irritability, ignorance, blaming, overprotection, self-sacrifice, or excessive intrusiveness. Such reactions from HEE family caregivers can create a negative emotional environment, leading to increased stress for individuals with schizophrenia and potentially triggering a relapse [4, 5].

Schizophrenia is a severe and chronic mental illness characterized by significant disruptions in thinking, perception, mood, and social behavior, which affect an individual's ability to function in daily life [5-7]. Since 1990, families have assumed a central role as caregivers for those with severe mental disorders, playing a crucial part in early intervention and treatment [3, 7]. This involvement, combined with pharmacological and psychosocial approaches, is essential for achieving a positive prognosis. However, the dual nature of the family environment can either support or impede the course of the illness [3].

Globally, schizophrenia ranks among the top 25 causes of disability, with caregivers' expressed emotions identified as a key factor contributing to adverse effects and a higher relapse rate in individuals with high expressed emotion [3, 7]. In developing nations, where individuals with schizophrenia often reside with immediate family members, family support is vital for treatment adherence [3, 8]. Family engagement is recognized as a significant influencer in the onset and progression of mental illnesses, including schizophrenia [8].

While family involvement can lead to better outcomes, it also poses risks of negatively affecting the illness trajectory, highlighting the complex interplay between family dynamics and mental health outcomes [3, 8]. Therefore, assessing levels of expressed emotion in this context is significant, as it can provide valuable insights to enhance mental health services. The findings may serve as critical input for refining existing services and contribute essential information for policymakers in shaping mental health policies.

Findings from previous studies highlight various factors contributing to high expressed emotion in caregivers of individuals with schizophrenia, including illness severity, patient age, number of previous episodes, gender, degree of kinship, daily time spent together, caregiving burden, and duration of care [3, 5, 9]. Caregivers' attitudes, often shaped by insufficient knowledge about schizophrenia and its treatments, significantly contribute to this phenomenon and can serve as potential negative prognostic factors [6]. The consequences of high expressed emotion, which frequently lead to relapse, underscore the need for psychosocial interventions alongside pharmacotherapy to improve outcomes and facilitate the successful integration of individuals with mental illness into society [10, 11].

International studies examining predictors of high expressed emotion (EE) in caregivers of individuals with schizophrenia reveal a range of influencing factors. In Brazil, patient age, family burden, and daily time spent together emerged as predictors, with higher patient age associated with a reduced risk of high EE [3]. In Thailand, significant contributors included illness severity, caregiver mental health, burden, family functioning, and stigma [5]. Indian studies linked EE to patient age, illness duration, family income, marital status, type of family, unemploy-

ment, and urban residence [6]. A longitudinal study in Pakistan highlighted varying rates of high EE among different kinships, with mothers frequently rated as high-EE caregivers [12]. In Nigeria, female gender and a higher number of previous episodes were associated with high expressed emotion [13]. In Ethiopia, high expressed emotion among caregivers was linked to the duration of care, absence of chronic medical or physical conditions, and the number of illness episodes in patients [9]. These findings collectively underscore the diverse and complex factors influencing expressed emotion in schizophrenia caregiving across global contexts.

In Ethiopia, despite the substantial number of individuals diagnosed with schizophrenia receiving care at Dilla University Referral Hospital (DURH), research on expressed emotion is notably scarce. Until the completion of this study, there has been limited exploration of the emotional dynamics within the caregiver-patient relationship, particularly in the specific context of DURH. This highlights a significant gap in our understanding of how expressed emotion manifests among caregivers of individuals with schizophrenia in this region.

2 Methods

2.1 Study area and period

From August 15 to November 15, 2022, this study was conducted at Dilla University Referral Hospital (DURH) in Dilla Town, Southern Ethiopia. Established in 1977 E.C. (Ethiopian Calendar) / 1985 G.C. (Gregorian Calendar), the hospital was originally known as Dilla Hospital until it was renamed DURH on June 11, 2001 E.C. It is located approximately 90 kilometers from Hawassa and 360 kilometers from Addis Ababa, serving a catchment population of around 2 million people with therapeutic and rehabilitation services.

At its inception, DURH employed around 154 staff members, including 104 health professionals and additional support staff. The hospital currently has five wards: Medical, Surgical, Obstetrics and Gynecology, Pediatrics, and Psychiatry. It provides care for nearly 3 million individuals, 95% of whom belong to the Gedeo ethnic group. The psychiatry unit offers both outpatient and inpatient services, averaging about 100 cases per month.

2.2 Study design

At DURH, a quantitative cross-sectional study design was employed to examine the frequency and contributing factors of expressed emotion among caregivers of patients with schizophrenia.

2.3 Study population

2.4 Source population

All caregivers who are giving care for patients with schizophrenia at DURH.

2.5 Study population

Caregivers of patients with schizophrenia at DURH and who were sampled for the current study.

2.6 Eligibility criteria

2.7 Inclusion criteria

Caregivers who were giving care for patients with schizophrenia and age 18 and above were included in the study. Caregivers who pass most of his/her time with the patient were included in the current study which means the primary caregivers.

2.8 Exclusion criteria

Caregivers who were not competent to give information due to difficulty of communication and critically ill during data collection period were excluded from the study.

2.9 Sample size calculation

The required sample size for the study was calculated using a single population proportion formula, based on an estimated prevalence of expressed emotion of 43.6% from a study conducted at Jimma University Medical Center's psychiatry outpatient unit in southwestern Ethiopia. A 5% margin of error, a 95% confidence interval, and a 10% non-response rate were also considered.

$n = \frac{Z^2 * P(1-P)}{d^2}$

$n = \frac{Z^2 * P(1-P)}{d^2} = \frac{1.96^2 * 0.436(1-0.436)}{0.05^2} = 377.86$
$n \approx 378$

By considering 10% non-response rate the final sample size is $n = 415.8 \approx 416$.

Since, the total population is <10,000 (358) using a correction formula: $n = \frac{n}{1+\frac{n}{N}} = \frac{416}{1+\frac{416}{392}} = 201.82 \approx 202$ is corrected sample size (nc) of the study.

2.10 Sampling technique

A systematic random sampling technique was used to select the study population. The skipping interval (K) for data collection was determined by dividing the anticipated number of cases during the data collection period (extracted from the average case count reported in the Hospital Health Management Information System, or HMIS) by the actual sample size. Specifically, this involved dividing 392 (the expected cases) by 202 (the actual sample size), resulting in a skipping interval of 1.94. Rounding this value, a skipping interval of 2 was established. This means that every second case was systematically chosen during the data collection process. The selected primary caregiver was then interviewed, and patient care was reviewed for other variables.

2.11 Study variable

Dependent variable: Expressed Emotion
Independent variables included caregiver burden (measured by the Zarit Burden Interview), caregiver socio-demographic factors (age, gender, ethnicity, educational status, occupation, average household monthly income, residence, relationship with the patient, family size, distance from the hospital in kilometers, duration of caregiving, daily time spent together, and known comorbid physical illnesses), as well as the socio-demographic factors of patients (age, gender, marital status, educational status, occupation) and clinical factors (first onset of illness, number of episodes, hospital admissions, duration of untreated psychosis, total duration of illness, and comorbid diagnoses).

The Family Questionnaire (FQ) was used to evaluate the level of expressed emotion (EE) and its components: Critical Comments (CC) and Emotional Over-Involvement (EOI). Developed and validated by Wiedemann, Rayki, Feinstein, and Hahlweg in 2002, the FQ contains 20 items divided into two domains: CC (10 items: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20) and EOI (10 items: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19), each with a maximum score of 40 points. The items reflect various situations that family members encounter while coping with daily problems related to the patient. Respondents indicated how frequently they dealt with these situations, with possible responses ranging from "never or very rarely" to "very frequently" (scoring from one to four for each item). A higher score indicates a greater number of critical comments and increased emotional over-involvement among family members. The cut-off values for the FQ, as determined by the original authors, are CC = 23 and EOI = 29.

The Zarit Burden Interview (ZBI), a valid and reliable instrument for assessing caregiver burden, consists of 22 items with scores ranging from zero to four. The overall score ranges from zero to 88, with higher scores indicating a greater perception of overload. In this study, the ZBI score was computed as a numerical variable.

2.12 Operational definition

Expressed emotion (EE) is gauged through two components: CC and EOI. Each component comprises 20 questions, divided equally. These questions are structured as Likert scale items, ranging from a score of one to four. Consequently, the total score for each component is 40.

To identify EE levels, family members scoring below 23 in the CC domain and below 29 in the EOI domain are categorized as having low EE. Conversely, those with either high CC or high EOI scores are considered to have high EE [2, 15].

Caregiver burden is assessed based on the Zarit Burden Interview (ZBI) total score, and the classifications are as follws:No overload: Indi-

viduals with a ZBI total score lower than 21 are considered to have no overload, indicating a relatively low level of caregiver burden. **Mild to Moderate Overload:** Caregivers scoring between 22 and 40 on the ZBI total score are categorized as experiencing mild to moderate overload, indicating a moderate level of caregiver burden. **Moderate to Severe Overload:** Those with a ZBI total score ranging from 41 to 60 are identified as facing moderate to severe overload, reflecting a higher level of caregiver burden. **Intense Overload:** Caregivers who score higher than 61 on the ZBI total score are classified as experiencing intense overload, indicating a significant and severe level of caregiver burden. **Caregivers:** Individuals who spend the most time with a patient with schizophrenia and are familiar with all their needs.

2.13 Data collection tool/instrument

A structured questionnaire, developed after reviewing related literature, was used to collect data on caregivers' and patients' socio-demographic variables. The patients' clinical variables and most recent psychiatric diagnoses were obtained from their medical records.

2.14 Data collection procedure

Data was collected using a mobile software program called Online Epi Info, supplemented by face-to-face interviews conducted by an interviewer. Medical chart reviews were utilized to determine the patient's diagnosis and any concomitant disorders. The questionnaire was designed with a closed-ended structure, developed and modified after reviewing relevant literature, and organized to achieve specific objectives. Two trained data collectors, who had recently completed their training, carried out the data collection process.

2.15 Data quality management

When developing the data collection tools, significant emphasis was placed on ensuring data quality. The surveys were created in English, translated into Amharic, and then translated-back into English to maintain consistency. Before exporting data to SPSS, Epi Info version 7 evaluated and verified the collected data for completeness. Respondents were informed that they were not required to provide their names.

2.16 Data processing, analysis & presentation

Epi Info version 7 was used to validate and clean the coded data before exporting it for analysis in the Statistical Package for Social Sciences (SPSS) version 22.0. The prevalence of expressed emotion (EE) and the socio-demographic and clinical characteristics of caregivers and patients were described using frequencies, means, standard deviations, and pie charts. Bivariate analysis was conducted to determine the relationships between each independent factor and the dependent variable. Multivariate analysis was then performed on factors identified as significantly associated with EE during the bivariate analysis (with a p-value of less than 0.25). In the multivariate analysis, a p-value of 0.05 was considered statistically significant.

3 Result

3.1 Socio-demographic characteristics of caregivers

A total of 202 caregivers of patients with schizophrenia participated in the study, achieving a response rate of 100%. All sampled individuals were interviewed, and no one declined to take part. Among the participants, 120 (59.4%) were male, and the majority, 132 (65.3%), were married. The mean age of participants was 35 years (SD $\pm$ 17.4), and 58 (28.7%) were parents. Nearly one-fifth (21.3%) of respondents attended primary education. Regarding occupation, 27 (13.4%) were farmers. More than half of the respondents, 105 (52.0%), lived in urban areas, while 91 (45.0%) lived within 8 km of the hospital. Additionally, 156 (77.2%) caregivers reported a monthly income greater than 2000 ETB (Table 1).

Table 1 Socio-demographic characteristics of caregiver of patient with schizophrenia at DURH psychiatry clinic, Southern Ethiopia 2022 (n=202)

Variable	Category	Frequency (n)	Percent (%)
Age	18-27	51	25.2
	28-37	71	35.1
	38-47	72	35.6
	>47	8	4.1
Sex	Male	120	59.4
	Female	82	40.6
Marital status	Single	48	23.8
	Married	132	65.3
	Divorced	13	6.4
	Widowed	9	4.5
Educational status	Primary education	43	21.3
	Secondary education	34	16.8
	Higher education & above	125	61.9
Occupation	Student	54	26.7
	House wife	16	7.9
	Farmer	27	13.4
	Merchant	39	19.3
	Gov't employee	28	13.9
	Private employee	22	10.9
	Unemployed	16	7.9
Average house hold monthly income in ETB	201-1000	15	7.4
	1001-2000	31	15.3
	>2000	156	77.2
Place of residence	Rural	97	48
	Urban	105	52
Relation to the patient	Parent	58	28.7
	Child	32	15.8
	Siblings	26	12.9
	Aunt/Uncle	14	6.9
	Spouse	51	25.2
	Others*	21	10.4
Distance from the hospital in KM	≤8Km	91	45
	9-23KM	61	30.2
	24-50KM	27	13.4
	>50KM	23	11.4

*Others, Half siblings and far relatives

3.2 Socio-demographic characteristics of patients

The mean age of the patients was 40 years, with more than half (168, 83.2%) aged 25 and older. Nearly half of the patients (106, 52.5%) were male. About one-third (76, 37.6%) of the patients were single, while nearly half (103, 51.0%) were married. Sixty patients (29.7%) had attended higher education or above, and 27 (13.4%) were unemployed. Approximately 18.8% of the patients were homemakers. Almost 72.3% had a history of hospital admissions, and 34.7% had experienced 1-2 episodes of illness. Around 30.2% had a duration of illness exceeding 10 years, and 80.5% had no comorbidities (see Table 2).

Table 2 Socio-demographic characteristics and clinical factors of patients with schizophrenia at DURH psychiatry clinic, Southern Ethiopia 2022 (n=202)

Variable	Category	Frequency (n)	Percent (%)
Age	15-24	34	16.8
	25-34	91	45
	35-44	52	25.7
	>44	25	12.4
Sex	Male	106	52.5
	Female	96	47.5
Marital status	Single	76	37.6
	Married	103	51
	Divorced	16	7.9
	Widowed	7	3.5
Educational status	Not able to read & write	23	11.4
	Only able to read & write	21	10.4
	Primary education	44	21.8
	Secondary education	54	26.7
	Higher education & above	60	29.7
Occupation	Student	43	21.3
	House wife	38	18.8
	Farmer	12	5.9
	Merchant	35	17.3
	Gov't employee	17	8.4
	Private employee	17	8.4
	Unemployed	27	13.4
	Retired	7	3.5
First onset of illness	≤ 18yrs	33	16.3
	19-23yrs	86	42.6
	24-30yrs	63	31.2
	>30yrs	20	9.9
Number of episode	1-2episode	70	34.7
	3-4episode	80	39.6
	>4episode	52	25.7
Hospital admission	Yes	146	72.3
	No	56	27.7
Number of admission	None	56	27.7
	1 admission	29	14.4
	2 admission	10	5
	3 admission	40	19.8
	4 admission	67	33.2
Total duration of illness	≤ 2yrs	39	19.3
	3-5yrs	42	20.8
	6-10yrs	60	29.7
	>10yrs	61	30.2
Comorbid diagnosis	Yes, specify if yes*	30	14.9
	No	172	85.1

*Specify if yes, neuropsychiatric, substance use and medical disorder

3.3 Clinical characteristics of patients

Out of the total patients, 30 (14.9%) had comorbid neuropsychiatric, substance use, and medical disorders. The mean duration of illness was 9.53 years (SD ± 4.35), and the mean age at first onset of illness was 23.28 years (SD ± 10.45). Additionally, 70 patients (34.7%) had experienced 1-2 episodes. Among the patients, 56 (27.7%) had no history of hospitalization, while 67 (33.2%) of those with a hospitalization history had been admitted four times (see Table 2).

3.4 Status of expressed emotions among caregivers of patient with schizophrenia

Of the total study participants, 71 (35.1%) reported high critical comments (CC) and 94 (46.5%) reported high emotional over involvement (EOI). (See Table 3).

Table 3 Status of components of expressed emotion at DURH psychiatry clinic, Southern Ethiopia 2022 (n=202)

Variable	Category	Frequency (n)	Percent (%)
Critical comments	High critical comments	71	35.1
	Low critical comments	131	64.9
Emotional over involvement	High emotional over involvement	94	46.5
	Low emotional over involvement	108	53.5
Total EE	High EE	102	50.5
	Low EE	100	49.5

Overall, the status of expressed emotion among caregivers, measured by either high Critical Comments (CC) or high Emotional Over-Involvement (EOI), indicated that 102 caregivers (50.5%, 95% CI: 43.1-57.4) exhibited higher levels of expressed emotion (see Table 3).

3.5 Factors associated with expressed emotions among caregivers of patients with schizophrenia

The results of the simple binary logistic regression analysis indicated that age, sex, residence, caregiving duration, and caregiver burden, as well as caregiver sex, marital status, first onset of illness, and total duration of illness of patients, were significantly associated with expressed emotion.

3.6 Multivariate analysis

As shown in the table below, caregiver age, caregiver sex, caregiver residence, caregiving duration, patient sex, patient marital status, first onset of illness, total duration of illness, and caregiver burden were included in the final model. In the multivariate analysis, only caregiver sex, caregiving duration, total duration of illness, and caregiver burden were retained as associated factors for expressed emotion (see Table 4).

Table 4 Factors associated in bivariate & multivariate regression at DURH psychiatry clinic, Southern Ethiopia 2022 (n=202)

Variable	n(%)	Expressed emotion		COR (95%CI)	AOR (95%CI)	P-value (<0.05)
		High n(%)	Low n(%)			
Caregiver Sex						
Male	120(59.4)	50(41.7)	70(58.3)	1	1	
Female	82(40.6)	52(63.4)	30(36.6)	1.4(1.2-8.7)	1.2(1.15-4.1)	0.002**
Duration of CG						
≤ 2 years	65(32.2)	36(55.4)	29(44.6)	1	1	
3-5 years	50(24.8)	30(60)	20(40)	0.8(0.3-1.7)	2.1(0.8-6.6)	0.401
6-8 years	48(23.8)	23(47.9)	25(52.1)	2.4(1.1-5.6)	3.5(2.1-6.3)	0.005**
>8 years	39(19.3)	13(33.3)	26(66.7)	1.3(0.6-2.8)	1.5(0.3-5.7)	0.412
Duration of illness						
≤ 2 years	39(19.3)	14(35.9)	25(64.1)	1	1	
3-5 years	42(20.8)	28(66.7)	14(33.3)	0.3(0.1-0.7)*	0.2(0.01-1.4)	0.1
6-10 years	60(29.7)	36(60)	24(40)	3.4(1.2-3.8)	1.6(1.42-3.9)	0.008**
>10 years	61(30.2)	24(39.3)	37(60.7)	0.9(0.3-1.9)	0.03(0.0-1.9)	0.096
Caregiver burden						
No overload	20(9.9)	15(75)	5(25)	1	1	
Mild to moderate	143(70.8)	68(47.5)	75(52.5)	2.8(0.8-9.4)	0.07(0.01-1.2)	0.088
Moderate to severe	37(18.3)	19(51.4)	18(48.6)	3.3(1.1-9.5)	2.0(1.81-5.4)	0.01**
Intense overload	2(1.0)	0(0)	2(100)	4.8(0.000)	0.03(0.01-1.9)	0.096

NB: *=p-value<0.25 significantly associated in bivariate analysis; **= p-value<0.05 significantly associated in multivariate analysis 1= reference value

4 Discussion

This study encompassed a total of 202 caregivers of individuals with schizophrenia. The observed proportion of expressed emotion (EE) in this study was 50.5%, closely aligning with findings from similar studies in Hong Kong (50.9%), Thailand (53.77%), Pakistan (48.51%), Kano, Nigeria (52%), and Lagos, Nigeria (50%) [2, 5, 11, 17-19].

The proportion of expressed emotion observed here is comparatively lower than in cross-sectional studies conducted in the UK and Brazil, which reported rates of around 60% and 68%, respectively [4, 20]. This variance may be attributed to differences in sample sizes, as those studies included approximately 20 participants in the UK and 89 in Brazil. Additionally, variations in geographical location, cultural differences, and distinctions in healthcare setups may also influence these discrepancies.

The current finding of expressed emotion is higher than the results from studies conducted in Jimma, Ethiopia (43.6%) and India (21%) [9, 21]. This disparity could stem from the use of different assessment tools, variations in sample sizes, and international cultural differences.

The findings indicate that female caregivers are 1.2 times more likely to exhibit high expressed emotion compared to male caregivers, consistent with results from a cross-sectional study conducted at Lagos University Teaching Hospital, Department of Psychiatry, Nigeria [19]. This trend may be attributed to women's tendency to be more empathetic and to assume a larger share of caregiving responsibilities, potentially contributing to higher levels of expressed emotion. Implementing gender-sensitive approaches in mental health support programs could lead to more effective and tailored interventions for caregivers of individuals with schizophrenia.

The study reveals that individuals providing care for 6-8 years are 3.5 times more likely to experience high expressed emotion compared to those caring for less than 2 years. This aligns with findings from a similar study in Jimma, Ethiopia [9].

Prolonged caregiving may increase the dependence of individuals with schizophrenia on their caregivers for daily tasks, leading caregivers to perceive their lives as consistently disrupted by ongoing responsibilities. Incorporating periodic assessments of caregiver well-being and offering tailored interventions based on caregiving duration could enhance overall mental health support for caregivers.

The current study also indicates that patients with a total illness duration of 6-10 years are 1.6 times more likely to experience high expressed emotion compared to those with an illness duration of ≤ 2 years. This is consistent with findings from studies in India and the USA, where caregivers of individuals with longer illness durations are more inclined to exhibit high expressed emotion [6, 22]. This inclination may be due to increased exhaustion on the part of the caregiver as the illness progresses, leading caregivers to seek more attention and express their emotions due to heightened burden. Encouraging open communication between caregivers and healthcare professionals may further address the emotional needs of both caregivers and patients.

In addition to the identified factors significantly contributing to expressed emotion (EE), this study reveals that caregivers facing moderate to severe overload are 2.0 times more likely to experience high expressed emotion compared to those without overload. A study in Brazil similarly found that the risk of experiencing high EE levels rises with increasing Zarit Burden Interview (ZBI) scores [3]. As caregiver burden intensifies, there may be an elevated risk of neglect or lapses in caregiving due to increased strain. Therefore, fostering a supportive network for caregivers is recommended.

A notable limitation of this study was the lack of measurements for two crucial aspects: the intensity of patients' symptoms and their functional status. The study did not incorporate specific assessments to gauge the severity or intensity of symptoms exhibited by the patients, nor was there a measurement of the patients' functional status, which includes their ability to perform daily activities.

This limitation implies that the study might not have captured the full spectrum of patients' experiences, as symptom intensity and functional status can greatly influence overall well-being and quality of life. Without these measurements, understanding of the nuanced impact of the variables under investigation may be incomplete.

To address this limitation and enhance the robustness of future research, it is recommended that subsequent studies incorporate validated instruments or methodologies to assess both symptom intensity and functional status among the patient population. This would contribute to a more comprehensive understanding of the factors being studied.

5 Conclusion

The present study reported a high level of expressed emotion (EE) among nearly half of the family members, with caregiver sex, caregiving duration, total duration of illness, and caregiver burden identified as associated factors. In light of these results, healthcare professionals should prioritize routine psychosocial assessments for caregivers, incorporating screening tools for expressed emotion and caregiver burden during follow-up visits. Providing tailored psychosocial support services, psychoeducation, and stress management interventions can help mitigate the adverse effects of high EE.

List of Abbreviation and Acronyms

AOR	Adjusted Odds Ratio
CC	Critical Comment
CCs	Critical Comments
CFI	Camberwell Family Interview
DURH	Dila University Referral Hospital
EE	Expressed Emotion
EOI	Emotional Over-Involvement
FQ	Family Questionnaire
H	Hostility
HEE	High Expressed Emotion
LEE	Low Expressed Emotion
LEES	Level of Expressed Emotion Scale
PLWS	People Living with Schizophrenia
SMI	Severe Mental Illness
TEES	Thi Expressed Emotion Scale
ZBI	Zarit Burden Interview

Declarations

Ethical approval and consent to participate

The proposal was reviewed and approved by the Institutional Review Board (IRB) of Dilla University College of Health Sciences and Medicine. An ethical approval letter from the board was submitted to all relevant parties, and permission was obtained from all departments. After informing participants (caregivers) about the purpose and objectives of the study, both oral and written assent and informed consent were secured before data collection commenced. To ensure the anonymity of respondents, they were informed that they could withdraw from the study at any time. To maintain confidentiality, participants were assured that they could choose to withhold their names. All necessary methods were conducted in accordance with institutional guidelines and the Declaration of Helsinki.

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available to preserve participant anonymity. However, they are available from the corresponding author upon reasonable request (Anteneh Gashaw, antenehgashaw77@gmail.com).

Competing interests

All authors assert that they have no competing interests

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Authors' contributions

YS designed the study, participated in data collection, analysis, and interpretation of the results, and drafted the paper, contributing to all versions of the manuscript. AG and MM assisted in the study design and proposal development, monitored data collection, aided in the analysis, and revised subsequent drafts of the paper. All authors read and approved of the final manuscript.

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Authors' Information

[1]Department of Psychiatry, College of Health Sciences and Medicine, Dilla University, P.O.Box 419, Dilla, Ethiopia;
[2]Department of Midwifery, College of Medicine & Health Sciences, Dilla University, P.O.Box 419, Dilla, Ethiopia.

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