



Assessing the quality of life of schizophrenia patients and their family caregivers in a Romanian sample: the role of clinical, sociocultural, and demographic factors

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Abstract

Background. Schizophrenia is a chronic mental health disorder significantly impacting the Quality of Life (QOL) of both patients and their family caregivers. In Romania, approximately 193,000 individuals are affected by schizophrenia, with most relying on non-professional family caregivers. These caregivers face substantial psychological, physical, financial, and social challenges, which remain understudied and often overlooked by health policymakers. This research employs a biopsychosocial framework to explore the interconnected clinical, cognitive, and sociocultural factors influencing the QOL of schizophrenia patients and their caregivers.

Objectives. This study aims to assess the QOL of schizophrenia patients and their family caregivers in a Romanian sample, focusing on key determinants such as social support, financial stressors, and caregiving burden, to provide insights for interventions and possibly policy development.

Methods. This cross-sectional study included 156 individuals: 52 schizophrenia patient-family caregiver pairs ($n = 104$) and a control group of 52 participants recruited from an occupational health clinic. The control group was matched with the patient-caregiver pairs on demographic characteristics, including age, gender, education, and socioeconomic status. Controls were selected to reflect similar socioeconomic and health-related challenges but excluded individuals with a history of mental health disorders. Schizophrenia diagnoses were established using ICD-10 criteria (F20.0–9). QOL was assessed using the Heinrichs-Carpenter Quality of Life Scale (QLS) exclusively for schizophrenia patients, while the WHOQOL-BREF was administered to all participants to ensure comparability. Additional assessments included the Beck Depression Inventory (BDI) for depressive symptoms, the Montreal Cognitive Assessment (MoCA) for cognitive functioning, the Eppendorf Schizophrenia Inventory (ESI) for caregiver psychopathology, and the Global Assessment of Functioning (GAF) scale to measure functional status.

Results. Caregivers exhibited elevated depressive symptoms, with a mean Beck Depression Inventory (BDI) score of 25 (≥ 20 indicates moderate depression), highlighting the significant psychological burden associated with caregiving. In contrast, the control group had a mean BDI score of 15, below the clinical threshold. Additionally, caregivers demonstrated reduced cognitive functioning, with a mean Montreal Cognitive Assessment (MoCA) score of 24, compared to 28 in the control group (< 26 suggests mild cognitive impairment). These findings underscore the biopsychosocial stressors faced by caregivers.

Conclusions. This study highlights the significant cognitive, psychological, and sociocultural burdens associated with schizophrenia for patients and caregivers, advancing understanding of these challenges in a Romanian context. By emphasizing the need for integrated, culturally sensitive care models, our findings offer actionable insights to inform national and international mental health policies and future research on caregiver support and QOL enhancement.

Keywords: schizophrenia, quality of life (QOL), family caregivers, cognitive impairment, stigma, economic hardships, open dialogue approach, Romania, mental health care, Eppendorf Schizophrenia Inventory (ESI)

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Introduction

Schizophrenia is a complex and chronic mental disorder affecting approximately 1% of the global population [1], with a similarly significant impact in Romania, where an estimated 193,000 individuals live with the disorder [2]. Characterized by a range of symptoms, including positive symptoms such as hallucinations and delusions, and negative symptoms like emotional blunting and anhedonia, schizophrenia significantly impairs cognitive and social functioning, leading to a markedly diminished quality of life (QOL) for those affected [3]. The global burden of schizophrenia is well-documented, but in Romania, these challenges are further compounded by a healthcare system with limited resources and high societal stigma, which uniquely affects both patients and their caregivers [4–6].

The biopsychosocial model, which posits that health outcomes are shaped by the dynamic interplay of biological, psychological, and social factors [7], provides a valuable framework for understanding the broad impact of schizophrenia on both patients and their caregivers. This integrative approach allows for a more comprehensive assessment of the multifaceted challenges faced by this population. In this study, the biopsychosocial model is specifically applied to explore how biological factors (e.g., patients' clinical symptoms and side effects of medication), psychological stressors (e.g., caregivers' cognitive impairments and emotional strain), and social factors (e.g., stigma, socioeconomic stress) collectively influence the QOL of non-professional family caregivers. This model underscores the importance of examining these interconnected factors within the specific socio-cultural context of Romania, where unique cultural beliefs, healthcare practices, and societal stigma surrounding mental health can profoundly influence both the experiences of schizophrenia patients and the caregiving dynamics within families [8–10].

The Neuroleptic Paradox presents a critical challenge in the management of schizophrenia. While advances in antipsychotic treatments have been effective in managing positive symptoms for many patients, these medications often fail to adequately address negative symptoms, cognitive impairments, and the broader social and economic challenges associated with the disorder [11,12]. The paradox lies in the fact that despite symptom reduction, patients frequently continue to experience poor QOL. This issue is exacerbated by the side effects of neuroleptic medications, including extrapyramidal symptoms (such as tremors, rigidity, and bradykinesia), metabolic syndrome (manifesting as weight gain, diabetes, and hyperlipidemia), and tardive dyskinesia (involuntary, repetitive movements), which further diminish patients' QOL [13,14]. Additionally, the pervasive stigma associated with schizophrenia continues to be a significant barrier to social integration and overall well-being [5,15].

In Romania, the difficulties faced by schizophrenia

patients are mirrored in the experiences of their family caregivers, who provide essential day-to-day support. These caregivers, often referred to as a “hidden workforce,” endure significant emotional, cognitive, and economic burdens, which substantially reduce their own QOL [16]. The well-being of caregivers directly impacts the quality of care they provide, which in turn influences patient outcomes and overall QOL [17,18]. Despite their crucial role, caregivers frequently receive little recognition or formal support, exacerbating their challenges and diminishing their capacity to provide effective care [6,14,17].

While numerous studies on QOL among schizophrenia patients and professional caregivers exist, they often overlook non-professional caregivers. This research was designed to address this gap by investigating the clinical, socio-cultural, cognitive, and functional determinants of QOL specifically among schizophrenia patients and their family caregivers in Romania. Adopting the biopsychosocial framework, the study examines the complex determinants of QOL for these family caregivers, including the socio-economic and psychological stressors unique to the Romanian caregiving environment [19]. A significant innovation in this research is the implementation of a Romanian version of the Eppendorf Schizophrenia Inventory (ESI), which allows for a nuanced assessment of the subjective experiences and thought disorders of both patients and caregivers [6,20]. This locally adapted tool captures culturally relevant aspects of mental health, addressing the unique needs and perceptions in Romania and providing valuable data to the field of global mental health. By focusing on these determinants, this study aims to inform the development of targeted interventions and support services that can enhance the well-being of individuals affected by schizophrenia in Romania and offer insights applicable to similar settings globally.

The study is grounded in two primary hypotheses: first, it posits that clinical, socio-cultural, cognitive, and functional factors significantly predict QOL in patients with schizophrenia and their family caregivers in the Romanian context. Second, it hypothesizes that understanding the specific needs of family caregivers, particularly within the cultural and socio-economic framework of Romania, can provide valuable insights for developing interventions and health policies aimed at enhancing QOL for both patients and caregivers. Ultimately, this research seeks to contribute to a more holistic, patient-centered approach to schizophrenia care, advocating for reforms that address the unique challenges of the Romanian context while offering insights relevant to global mental health strategies.

Methods

Study design

This study utilized a cross-sectional design to investigate the predictors of QOL in schizophrenia patients and their primary family caregivers within the Romanian

context. Data was collected from 156 participants, including 52 patient-caregiver pairs and a demographically matched control group. Participants were recruited from different sites within the Cluj County Emergency Clinical Hospital, reflecting strategic choices made to ensure accessibility and relevance to the study’s objectives.

Participants

Sample and recruitment

The cohort of schizophrenia patients was recruited from the psychiatric department at the Cluj County Emergency Clinical Hospital. In contrast, the control cohort was recruited from the Occupational Health Clinic, also part of the Cluj County Emergency Clinical Hospital. Selecting the Occupational Health Clinic as the recruitment site for the control group was a strategic choice, ensuring a relevant comparison group under COVID-19 restrictions that limited broader access to participants. This site aligns with the study’s goal of evaluating QOL among individuals facing chronic health conditions, socio-economic challenges, and, in many cases, caregiving responsibilities, thereby offering a control population that reflects the diverse experiences associated with health-related challenges.

Importantly, the control group was a mixed sample, composed of individuals with chronic health conditions and varying levels of disability, as well as their close relatives, many of whom had assumed the role of non-professional family caregivers. The control group was matched with the schizophrenia patient-caregiver pairs on key demographic characteristics, including age, gender, and socio-economic status, to ensure comparability between the groups. This matching was particularly important given that the control group included individuals with various conditions such as musculoskeletal, pulmonary, ophthalmologic, and cardiac disorders that typically excluded them from working and required long-term medical care as well as support with daily living activities. While this mixed composition aimed to reflect the broader population of individuals facing health-related

challenges, the caregiving demands for chronic physical conditions may differ in both intensity and type from those associated with mental health disorders like schizophrenia. This heterogeneity introduces variability, which, although reflective of real-world caregiving experiences, should be considered when interpreting the findings.

Participants in the control group were approached during their regular clinical visits at the occupational health clinic by the interviewer, who provided detailed information about the study and scheduled further assessments for those who agreed to participate. Participants were selected through convenience sampling based on their availability and willingness to participate. Recruitment was performed by a single trained psychiatry resident doctor to ensure a consistent approach and minimize selection bias. This consistent recruitment method ensured a systematic and uniform approach across both patient and control groups.

Inclusion and exclusion criteria

Inclusion and exclusion criteria were predefined to ensure consistency across the study cohorts. The detailed inclusion and exclusion criteria for schizophrenia patients, family caregivers, and control subjects are summarized in tables I–III.

Data collection

Assessment tools

A comprehensive set of psychometric instruments was employed to assess QOL, cognitive function, and psychopathology across the three cohorts. Each tool was selected to capture specific dimensions relevant to schizophrenia, caregiving, and/or chronic health conditions, reflecting the diverse needs and experiences within Romania’s unique socio-cultural context. For instance, the WHOQOL-BREF and the Heinrichs-Carpenter Quality of Life Scale (QLS) were chosen for their ability to assess QOL in both clinical and non-clinical populations, capturing areas of life commonly impacted by chronic mental and physical health conditions.

Table I. Inclusion and exclusion criteria for patient cohort.

Inclusion criteria	Exclusion criteria
Adults ≥ 18 years of age	Presence of any form of “Intellectual Disability” (ICD-10: F70-F73, F79)
Diagnosis of “Schizophrenia” according to ICD-10: F20.0-9 for at least 3 months	Current or past severe alcohol or substance dependence (ICD-10: F10.0-2, F10.9), including abuse or habitual consumption of illicit drugs (Law no. 143/2000)
Stable clinical status, living with schizophrenia for at least 1 year	Presence of alcoholic psychosis (ICD-10: F10.3-9)
Consistently using antipsychotic medication for a minimum of 6 months	Severe psychiatric comorbidities, such as bipolar disorder, severe personality disorders, or untreated substance abuse disorders
Able to provide informed consent or, if applicable, consent from a legal guardian	Significant cognitive impairments, defined by scores below the threshold on a cognitive screening tool (e.g., MoCA)
	Current severe depressive episode as defined by ICD-10 criteria
	Refusal of informed consent or withdrawal from the study

Note: Patients with mild psychiatric comorbidities, such as mild depression or anxiety, were not excluded, as these are common in individuals with schizophrenia.

Table II. Inclusion and exclusion criteria for family caregivers.

Inclusion criteria	Exclusion criteria
Adults \geq 18 and \leq 70 years of age	Presence of any form of “Intellectual Disability” (ICD-10: F70-F73, F79)
Primary non-professional caregiver for the patient for at least 6 months	Current or past severe alcohol or substance dependence (ICD-10: F10.0-2, F10.9), including abuse or habitual consumption of illicit drugs (Law no. 143/2000)
No personal diagnostic history of a severe psychiatric condition	Severe psychiatric conditions, such as schizophrenia, major depressive disorder, or bipolar disorder
Able to provide informed consent	Severe physical health conditions that significantly impair caregiving capacity Significant cognitive impairments, defined by scores below the threshold on a cognitive screening tool (e.g., MoCA)
	Refusal of informed consent or withdrawal from the study

Note: Caregivers with mild depression or anxiety were not excluded, as these conditions are common among caregivers and might provide valuable insight into caregiving stress.

Table III. Inclusion and exclusion criteria for the control group.

Inclusion criteria	Exclusion criteria
Adults \geq 18 years of age	Presence of any form of “Intellectual Disability” (ICD-10: F70-F73, F79)
Individuals with severe chronic health conditions (e.g., musculoskeletal, pulmonary, ophthalmologic, cardiac) that either require long-term medical care or prevent them from working, along with close relatives living in the same household who may take on caregiving responsibilities.	Current or past severe alcohol or substance dependence (ICD-10: F10.0-2, F10.9), including abuse or habitual consumption of illicit drugs (Law no. 143/2000)
No diagnostic history of “psychiatric conditions,” neither personal nor familial	Chronic dependence on alcohol or other substances (ICD-10: F10.2)
Level of education comparable to study subjects	Caregiver role for any individual with a mental health disorder, including schizophrenia
Able to provide informed consent	Refusal of informed consent or withdrawal from the study

Note: The control group included individuals with severe chronic health conditions (e.g., musculoskeletal, pulmonary, ophthalmologic, or cardiac conditions) that typically exclude them from working. Many of these individuals required varying levels of care and support from a family relative, similar to the caregiving responsibilities seen in the schizophrenia patient cohort. However, none of the individuals in the control group or their relatives were diagnosed with schizophrenia or any other severe mental health disorder.

The Eppendorf Schizophrenia Inventory (ESI), adapted to Romanian for this study, was included to assess the subjective experiences and thought disturbances in control subjects and caregivers of schizophrenia patients, providing insights into the psychological and emotional complexities of caregiving. The Calgary Depression Scale for Schizophrenia (CDSS) and the Brief Assessment of Cognition in Schizophrenia (BACS) were specifically selected to measure depressive symptoms and cognitive impairments in schizophrenia patients, while the Beck Depression Inventory (BDI) and Montreal Cognitive Assessment (MoCA) provided corresponding measures for caregivers and control subjects, including those patients at the Occupational Health Clinic who require long-term care due to chronic physical conditions. This tailored selection aimed to capture the multifaceted challenges experienced by each group, enabling a holistic understanding of QOL and mental health outcomes across the study population. Table IV summarizes the assessment tools and measures used to evaluate quality of life, depressive symptoms, cognitive function and psychopathology across schizophrenia patients, family caregivers, and control subjects. Each tool’s

primary purpose and assessment area are also indicated.

Data collection procedure

Data collection was conducted over a four-month period from October 2020 to January 2021, using a multi-stage process that included structured clinical interviews and standardized psychometric assessments. To ensure consistency and minimize bias, all interviews were conducted by a single trained interviewer, helping to maintain uniformity in the administration of assessments and ensuring data reliability and validity. Given the challenges posed by the pandemic, the study design was adapted to include a mixed sample cohort for the control group, comprising both patients and family relatives. This adaptation was essential to prioritize participant safety while preserving the integrity of the data collection process.

Data analysis

Statistical techniques

Data analysis was performed using IBM SPSS Statistics®. Analyses included correlation tests to examine relationships between QOL and various clinical, socio-cultural, cognitive, and functional factors.

Table IV. Assessment tools and measures for schizophrenia patients, family caregivers, and control subjects.

Subjects	Assessment Area	Assessment Tools	Details
Schizophrenia Patients	QOL	QLS, WHOQOL-BREF	Evaluates quality of life in schizophrenia patients.
	Depressive Symptoms	CDSS	Evaluates schizophrenia-related depressive symptoms.
	Cognitive Function	BACS	Evaluates cognitive function in schizophrenia patients.
	Psychopathology	PANSS	Evaluates positive and negative symptomatology in schizophrenia.
Family Caregivers and Control Subjects	Quality of Life (QOL)	WHOQOL-BREF	Evaluates quality of life in caregivers and control subjects.
	Depressive Symptoms	BDI	Evaluates depression levels in caregivers and controls.
	Neurocognitive Function	MoCA	Evaluates neurocognitive functioning.
	Psychopathology	ESI (Romanian version)	Evaluates psychopathology, focusing on cognitive dysfunctions, perceptual distortions, and thought disturbances.

Note: Abbreviations used: BACS: Brief Assessment of Cognition in Schizophrenia; BDI: Beck Depression Inventory; CDSS: Calgary Depression Scale for Schizophrenia; ESI: Eppendorf Schizophrenia Inventory; MoCA: Montreal Cognitive Assessment; PANSS: Positive and Negative Syndrome Scale; QLS: Heinrichs-Carpenter Quality of Life Scale; QOL: Quality of Life; WHOQOL-BREF: World Health Organization Quality of Life - Brief Version.

Independent t-tests and one-way ANOVA were conducted to compare key outcomes, such as QOL, GAF, and MoCA scores, among the patient, caregiver, and control groups, highlighting significant differences across cohorts. Statistical significance was assessed for all tests.

Ethical considerations

The study was conducted in full compliance with the ethical standards outlined in the Declaration of Helsinki [21]. Ethical approval was obtained from the ethics committee of the Iuliu Hațieganu University of Medicine and Pharmacy prior to the initiation of the study. All participants provided written informed consent, and confidentiality was rigorously maintained, with GDPR compliance ensured according to GDPR EU 2016/679. Participants were informed of their right to withdraw from the study at any time without any consequences. Measures were also taken to minimize any psychological distress that could arise from participation, including regular monitoring of participants’ mental states throughout the study and providing immediate access to psychiatric support services if any signs of exacerbated psychopathology were observed.

Results

Sociodemographic characteristics

The study sample consisted of 156 participants, including 52 individuals with schizophrenia, 52 non-professional family caregivers, and 52 matched control subjects. The control cohort included individuals with various chronic health conditions and their relatives. The demographic analysis revealed variations in age and gender distribution across the groups (Figure 1). The mean age of schizophrenia patients was 48 years, caregivers had a mean age of 50 years, and the control group had a mean age of 46 years. Gender distribution showed a predominance of females in the caregiver group (Figure 2).

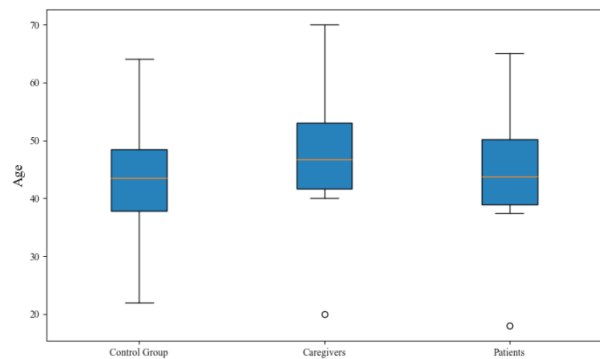


Figure 1. Mean age distribution of participants in the study. Age distribution of schizophrenia patients, family caregivers, and control group participants.

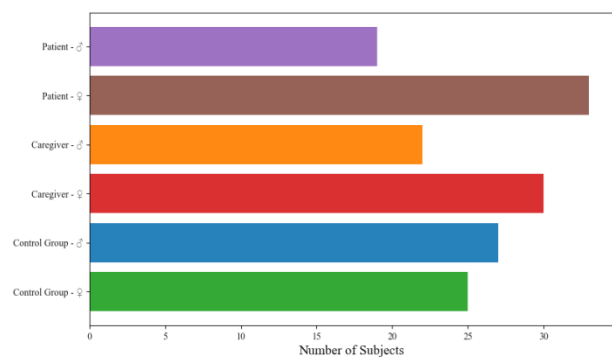


Figure 2. Gender distribution among study groups. Gender distribution across schizophrenia patients, family caregivers, and control group participants.

Global Assessment of Functioning

The Global Assessment of Functioning (GAF) scores were measured across the three cohorts: schizophrenia patients, non-professional family caregivers, and the control group. A one-way ANOVA revealed significant differences in GAF scores among the groups ($F(2, 153) = 12.45, p < 0.001$). Caregivers had a mean GAF score of 68.22, while the control group had a mean score of 76.33. Schizophrenia patients exhibited significantly lower functioning with a mean GAF score of 42.56 ($p < 0.001$) (Figure 3).

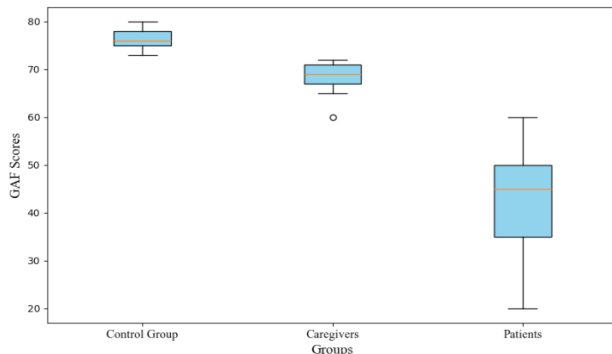


Figure 3. Distribution of mean GAF scores among schizophrenia patients, family caregivers, and control group participants.

Quality of Life (QOL) Assessment

Quality of life (QOL) was assessed across four domains—physical health, psychological health, social relationships, and environment—using the WHOQOL-BREF scale. Caregivers reported lower scores across multiple domains compared to the control group. Specifically, caregivers scored an average of 55 in physical health, while the control group scored 65 ($t(102) = -4.0, p < 0.001$). In psychological health, caregivers averaged 58 versus 65 in the control group ($t(102) = -3.4, p < 0.001$). Caregivers also scored 62 in social relationships, compared to 70 in the control group ($t(102) = -3.5, p < 0.001$). Finally, caregivers scored 68 in the environment domain, while the control group scored 75 ($t(102) = -3.0, p < 0.001$) (Figure 4).

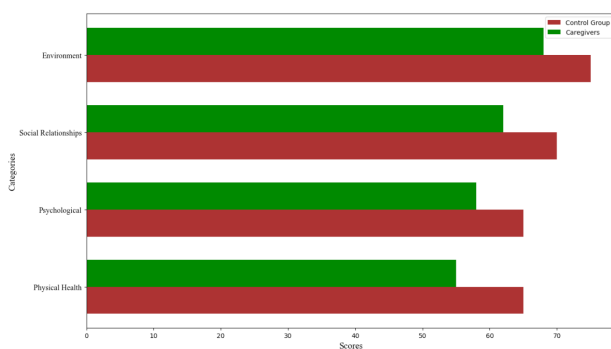


Figure 4. WHOQOL-BREF domain scores: comparison of caregivers and control group. Domain scores (physical health, psychological health, social relationships, and environment) for caregivers and control group participants.

Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI) scores were compared between caregivers and the control group. Caregivers had a mean BDI score of 25, with a median of 22 and a mode of 25. The control group had a mean BDI score of 15, with a median of 15 and a mode of 12. An independent t-test indicated a statistically significant difference in BDI scores between caregivers and the control group ($t(102) = 14.0, p < 0.001$) (Figure 5).

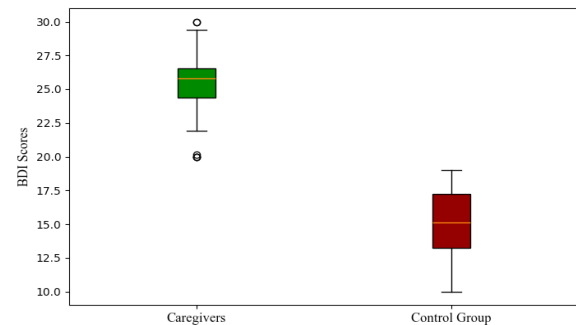


Figure 5. Beck Depression Inventory (BDI) scores: psychological distress in caregivers and control group.

Neuropsychological and psychometric findings

The neuropsychological assessment revealed that caregivers had a mean score of 24 on the Montreal Cognitive Assessment (MoCA), compared to a mean score of 28 for the control group. An independent t-test indicated that this difference in MoCA scores between caregivers and the control group was statistically significant ($t(102) = -9.60, p < 0.001$).

The Eppendorf Schizophrenia Inventory (ESI) results indicated the following mean scores for caregivers and the control group: caregivers had a mean score of 9 on the Ideas of Reference (IR) subscale, while the control group had a mean score of 5; on the Auditory Uncertainty (AU) subscale, caregivers scored a mean of 7 compared to 4 in the control group; and caregivers scored a mean of 8 on the Deviant Perception (DP) subscale, while the control group had a mean score of 5 (Figure 6).

Sociodemographic impact on caregivers

The socio-economic status of participants indicated that caregivers had an unemployment rate of 34.5%, compared to 19.8% in the control group (Figure 7). The mean annual household income for caregivers was 25,200 RON, while the control group reported a mean income of 40,500 RON. Employment rates among caregivers were lower, with 54.7% employed either part-time or full-time, compared to 79.6% in the control group. Additionally, 34.8% of caregivers were married, in contrast to 54.3% of the control group (Figure 8).

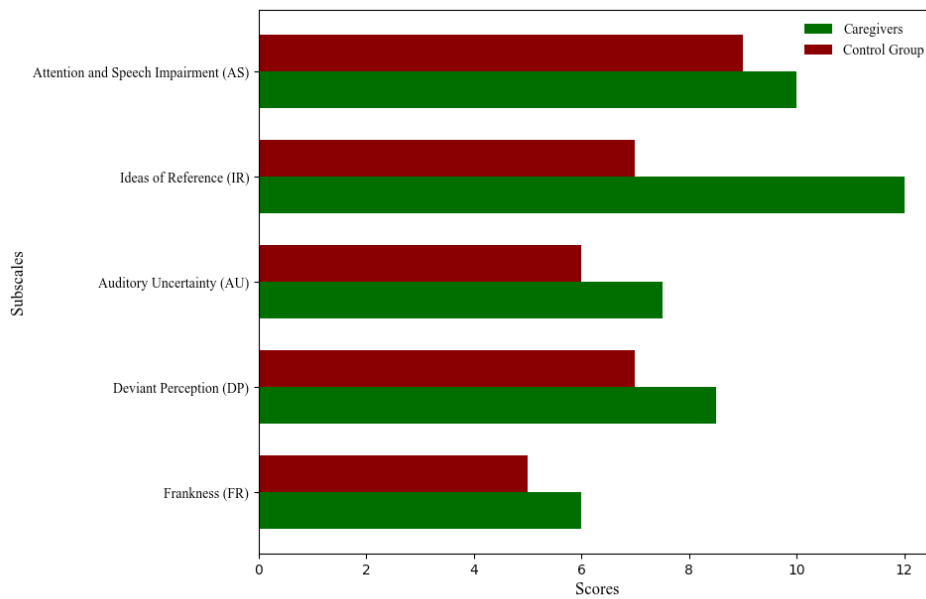


Figure 6. ESI subscale scores: comparative psychopathology in caregivers and control group.

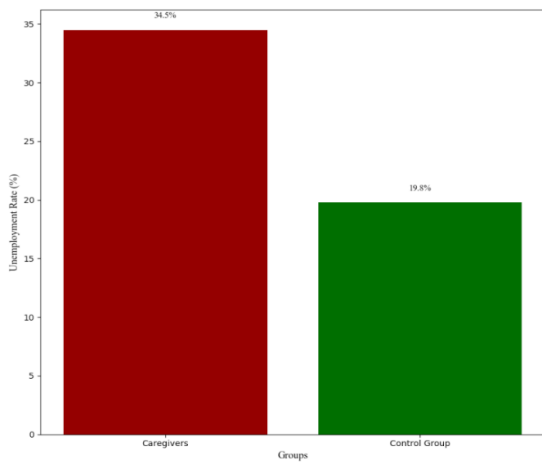


Figure 7. Unemployment rates among caregivers and control group participants.

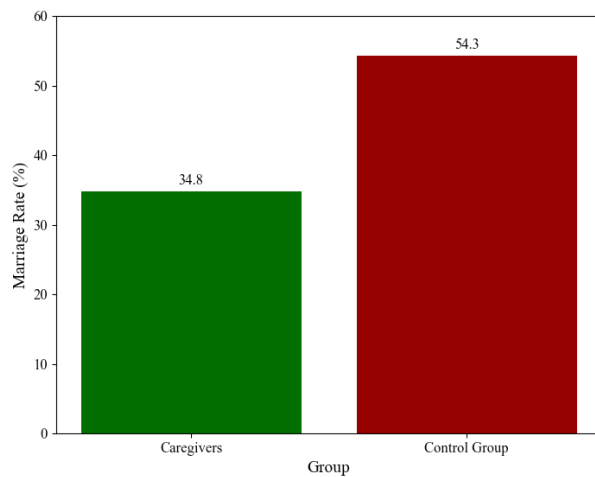


Figure 8. Marriage rates among caregiver and control group participants.

Alcohol consumption among caregivers

The study examined alcohol consumption patterns among caregivers. Results indicated that 47% of caregivers reported regular alcohol consumption, 38% reported occasional consumption, and 15% reported abstinence from alcohol (Figure 9).

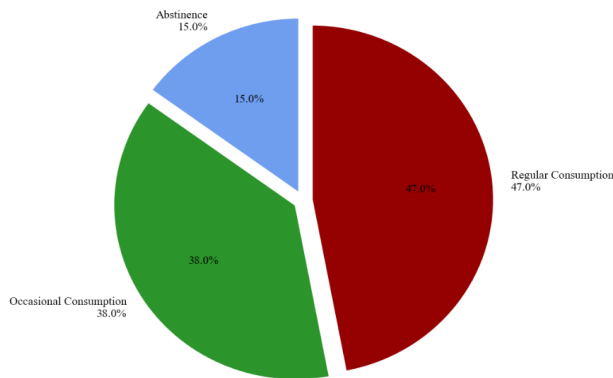


Figure 9. Alcohol consumption patterns in caregivers.

Discussion

Overview of key findings

This study aimed to evaluate the QOL, mental health status, neuropsychological functioning, and socio-economic conditions of non-professional family caregivers of schizophrenia patients in a Romanian cohort. The findings reveal significant disparities between the caregivers and a matched control group, underscoring the substantial burden caregivers face daily. These findings align with global literature, reinforcing the notion that caregivers of individuals with chronic mental illnesses face profound challenges [22–24]. Although this study provides valuable insights into the caregiving burdens faced by family members of individuals with schizophrenia, it is important to acknowledge the heterogeneity of caregiving roles within the control group. The control group was composed of individuals with severe chronic health conditions and their relatives who assumed caregiving responsibilities. While this mixed composition aimed to reflect real-world caregiving scenarios, the caregiving demands for physical health conditions differ in both intensity and type from those associated with schizophrenia. This variability may have influenced the findings, as caregivers for chronic physical conditions may experience different psychological and emotional burdens compared to those caring for individuals with severe mental health conditions. Additionally, this mixed sample may limit the comparability of findings and confound the interpretation of the results, as the diverse nature of caregiving roles can introduce interfering variables that affect the conclusions drawn from this study. Future research should address this limitation by conducting formal subgroup analyses to

distinguish between the different types of caregiving roles and their specific impacts on QOL and mental health.

Neuropsychological findings: MoCA and Eppendorf Schizophrenia Inventory scores

The neuropsychological assessment included the Montreal Cognitive Assessment (MoCA) and the Eppendorf Schizophrenia Inventory (ESI), providing insight into the cognitive and psychological functioning of the caregivers. While elevated scores on the ESI's Ideas of Reference (IR) subscale among caregivers suggest heightened cognitive biases, it is unclear whether these biases are pre-existing or arise as a direct result of the caregiving role. Without baseline data or a comparative analysis of similar family caregiving groups not associated with schizophrenia, it remains challenging to determine if these cognitive biases are specific to schizophrenia caregiving or a general response to chronic caregiving stress. These findings nevertheless support the relevance of the biopsychosocial model by illustrating how psychological factors (such as cognitive biases) interact with chronic social stressors to impact caregiver mental health.

The ESI is a self-report questionnaire designed to assess schizophrenia-like experiences in individuals. It includes various subscales that measure various aspects of schizophrenic symptomatology, such as ideas of reference, auditory hallucinations, and thought disturbances. This tool is particularly useful for identifying subclinical symptoms and cognitive biases that may be present in individuals who are at risk of developing schizophrenia or related psychiatric conditions [25,26]. Notably, the Eppendorf Schizophrenia Inventory results indicated that caregivers scored significantly higher on the Ideas of Reference (IR) subscale, which measures the tendency to interpret neutral events as having personal significance, often with a delusional aspect [20]. Although this finding is concerning as it may indicate cognitive biases that heighten psychological distress, caution is warranted as we lack pre-caregiving baseline data to confirm if these biases developed specifically due to the caregiving role [27].

These elevated IR scores may reflect a broader phenomenon where relatives of individuals with schizophrenia are more vulnerable to cognitive biases and psychiatric conditions [6,28], possibly exacerbated by the emotionally taxing nature of caregiving [29]. Alternatively, this tendency could be an expression of general caregiver stress unrelated to the specific experience of schizophrenia caregiving. Research has shown that first-degree relatives of individuals with schizophrenia may have a unique vulnerability profile, potentially predisposing them to cognitive distortions and increasing their risk for developing psychiatric disorders [30,31]. This vulnerability could be due to a combination of genetic predisposition and the chronic stress associated with caregiving, which might trigger or exacerbate these cognitive biases [32].

The MoCA results revealed that caregivers scored lower on measures of executive function, attention, and memory compared to the control group, indicating subtle cognitive impairments that may be associated with the chronic stress of caregiving [33]. While these scores did not fall into the range of clinical concern, they do suggest that the cognitive load of caregiving might impact neuropsychological functioning, which aligns with previous research showing that chronic stress can affect cognitive performance [34,35]. These cognitive impairments are particularly relevant when considering the overall mental health of caregivers, as they may contribute to the elevated levels of depressive symptoms discussed in the next section. These findings further illustrate the relevance of the biopsychosocial model in understanding the complexities of caregiving. The interaction of cognitive impairments with emotional and social stressors reflects how biological, psychological, and social factors converge to influence caregivers' overall QOL. Addressing these interconnected elements is crucial for developing comprehensive support strategies that account for the multifaceted nature of caregiving in schizophrenia.

Open dialogue as a framework for care

The Open Dialogue approach, originally developed in Finland in the late 1980s, emphasizes the importance of dialogical communication between caregivers, patients, and mental health professionals [36]. This model prioritizes collaborative decision-making and recognizes the diverse needs of all participants involved in the caregiving process. Within the context of the biopsychosocial model, Open Dialogue's focus on inclusive social support aligns well with the observed needs of caregivers in this study. The model's emphasis on collaborative and non-hierarchical decision-making can address social factors contributing to caregiver stress by fostering a supportive community. Implementing Open Dialogue within Romania could help caregivers feel more empowered and supported, potentially reducing some of the psychological burdens observed in this study. Key principles of Open Dialogue include the involvement of patients and their social networks in treatment discussions, fostering a non-hierarchical relationship that promotes shared decision-making [37].

Research indicates that Open Dialogue can lead to better outcomes, including reduced hospitalization rates and lower reliance on medication among patients, which underscores its potential applicability in the Romanian context [38,39]. Moreover, studies have shown that caregivers involved in the Open Dialogue process report feeling more supported and equipped to manage caregiving challenges, enhancing their overall well-being [40]. This framework not only aligns with our findings, suggesting that tailored interventions can enhance caregiver coping strategies, but also provides a mechanism for addressing the emotional distress observed among caregivers in our

study. Research indicates that Open Dialogue can lead to better outcomes, including reduced hospitalization and lower reliance on medication, which underscores its potential applicability in the Romanian context [41,42]. Furthermore, the ethical dimensions of Open Dialogue—such as justice, dignity, and compassion—promote a mental healthcare approach that is trauma-informed and respects individual rights [43]. This focus on human rights and personalized care may be especially relevant for caregivers facing significant psychological burdens, suggesting that the integration of Open Dialogue principles could enhance support systems for this population [44].

Mental health status and depressive symptoms

The analysis of the Beck Depression Inventory (BDI) scores reveals that caregivers exhibit markedly higher levels of depressive symptoms compared to the control group, with a mean BDI score of 25, significantly surpassing the control group's mean of 15. It is important to note that while the BDI is a widely used screening tool for depression, it does not constitute a clinical diagnosis. Instead, it highlights potential areas of concern that may warrant further clinical evaluation [45,46]. Our findings underscore the profound psychological burden on caregivers, aligning with the chronic stress theory, which posits that prolonged caregiving stress can lead to significant mental health disturbances, including depression [47–49]. The psychological toll observed in this study reflects the global understanding of caregiver stress, where continuous emotional, physical, and financial demands exacerbate mental health issues [50].

It is essential to note that the heightened depression levels among caregivers are not unique to Romania but are part of a broader, global phenomenon [51]. Studies from various countries, including Germany and the UK, confirm that caregivers consistently report higher levels of psychological distress compared to non-caregivers, suggesting a universal need for targeted mental health interventions [50]. The implementation of cognitive-behavioral therapy (CBT), mindfulness-based stress reduction (MBSR), and stress management programs could be beneficial in mitigating these psychological impacts. These low-cost approaches should show a high return on investment, offering substantial benefits relative to the resources required [52,53].

Alcohol consumption patterns in caregivers

Our study also examined alcohol consumption patterns among caregivers. The results showed that 47% of caregivers reported regular alcohol consumption, while 38% indicated occasional consumption. Only 15% of caregivers reported abstinence from alcohol. These figures highlight the varying levels of alcohol use within this group. This finding can be understood within the biopsychosocial model, which highlights how social and economic pressures

contribute to increased alcohol use as a dysfunctional coping mechanism for managing the significant stress and emotional burden associated with caregiving [54,55]. This pattern of behavior is concerning because reliance on alcohol as a coping strategy can exacerbate mental health issues, leading to a cycle of increased stress, depression, and further alcohol use. Addressing these coping mechanisms through targeted interventions, such as stress management and substance use counseling, could be crucial in improving the overall well-being of caregivers [56,57].

Quality of Life (QOL) in family caregivers

The study indicates that caregivers have a significantly lower QOL across all domains measured by the WHOQOL-BREF, with the most substantial discrepancies observed in the psychological and social relationships domains. These findings highlight the severe emotional and social toll caregiving takes on these individuals. The lower scores in the psychological domain suggest high levels of stress, anxiety, and potential depression, reflecting the heavy emotional burden of caregiving. In the social domain, the findings indicate substantial social isolation, as caregivers often have reduced opportunities for social interaction due to the demanding nature of their roles. These results underscore the urgent need for targeted interventions that address both the psychological and social challenges faced by caregivers, to improve their overall well-being and prevent further deterioration in their QOL. These findings are connected to the response shift theory, which suggests that caregivers might adapt to their challenging circumstances by altering their internal standards and values over time [6]. This adaptive response can complicate the accurate assessment of “true quality of life” because caregivers may recalibrate their internal standards, perceiving their diminished QOL as the “new normal”. Consequently, they may report higher QOL scores than what would be objectively measured, thereby obscuring the actual severity of their distress and the adverse impact of caregiving on their overall well-being. This shift in self-perception can introduce bias into QOL measurements, making it challenging to capture the genuine extent of the caregivers’ psychological and social burdens [58,59].

The deterioration in QOL among non-professional family caregivers of schizophrenia patients is a well-documented issue worldwide [60–62]. Cross-cultural studies indicate that while the intensity of the burden may vary due to socio-economic and healthcare system differences, the decline in QOL is a common thread across both developed and developing countries [63,64]. Romanian caregivers, much like those in other nations, face significant social isolation and reduced personal well-being, reinforcing the need for comprehensive care models that address both the psychological and social needs of family caregivers [65,66].

Socio-economic conditions of family caregivers

The study also explored the socio-economic status of participants, revealing that caregivers had higher unemployment rates and lower marriage rates compared to the control group. The unemployment rate among caregivers was 34.5%, while the control group had an unemployment rate of 19.8%. The mean annual household income for caregivers was 25,200 RON (approx. \$5,400), compared to 40,500 RON (approx. \$8,700) for the control group. Employment rates were lower among caregivers, with 54.7% being employed either part-time or full-time, compared to 79.6% in the control group. Additionally, 34.8% of caregivers were married, in contrast to 54.3% in the control group. These socio-economic challenges contribute to the heightened stress and depression observed among caregivers, as financial strain and social isolation are significant stressors that can exacerbate the psychological burden of caregiving [67–69].

These socio-economic challenges are not isolated to Romania. Similar patterns have been observed in several other countries, where caregivers often face financial difficulties and social isolation due to their caregiving roles. In countries like the United States, the United Kingdom, and India, caregivers also struggle with reduced income, increased unemployment, and social withdrawal as they balance their caregiving responsibilities with other aspects of life [70–72]. In particular, the economic burden on caregivers in lower-resource settings exacerbates their stress and diminishes their QOL [73]. This underscores the need for policies that offer financial support, employment assistance, and social engagement opportunities for caregivers [74,75].

Limitations of the study

This study has several limitations, including a relatively small sample size of 156 participants, which may impact the generalizability of the findings [76]. A limited sample size reduces statistical power, challenging the detection of significant effects and impacting the robustness of conclusions. Additionally, the cross-sectional design provides only a snapshot of participants’ conditions, limiting insights into changes over time and precluding causal inferences, which could have been better explored through a longitudinal approach.

The control group, although matched on demographic characteristics such as age, gender, education, and socio-economic status, was selected from an occupational health clinic, introducing potential selection bias. Moreover, the control group included individuals with diverse chronic physical conditions (e.g., musculoskeletal, cardiac disorders) and their relatives, many of whom assumed caregiving responsibilities. This mixed composition was intended to reflect broader caregiving dynamics but introduces a notable source of variability in the findings. Specifically, caregiving for chronic physical conditions

may present different psychological and emotional demands compared to caregiving for schizophrenia, where factors such as stigma, social isolation, and high emotional distress are typically more pronounced.

The heterogeneity in caregiving roles between chronic physical conditions and schizophrenia may confound the interpretation of quality of life (QOL) and mental health outcomes. Caregivers of schizophrenia patients often experience unique stressors, including managing cognitive and behavioral symptoms, which differ significantly from the more predictable demands associated with physical health caregiving. This variability in caregiving experiences could obscure the specific psychological and emotional burdens tied to schizophrenia caregiving. Future studies should aim to conduct formal subgroup analyses to distinguish the unique impacts of different caregiving roles on QOL and mental health, thereby enhancing the precision of findings relevant to mental health caregiving specifically.

Additionally, high rates of unemployment and financial strain among caregivers in this study may independently exacerbate stress and depression, potentially confounding the observed mental health and QOL outcomes. These socio-economic factors are significant external stressors that were not fully controlled for in the study design, which may influence the interpretation of results regarding mental health and QOL.

While validated assessment tools such as the WHOQOL-BREF and the Beck Depression Inventory (BDI) were used, the reliance on self-reported measures introduces potential response bias, particularly in areas sensitive to cultural perceptions of mental health. Such bias may affect the accuracy of reported mental health and QOL outcomes. COVID-19 constraints required using a single interviewer, which, while ensuring consistency, may have introduced interviewer bias impacting data consistency across participants.

The cultural specificity of the sample may further restrict the generalizability of findings to other cultural contexts. Caution is advised when applying these results beyond the Romanian context. To address these limitations, future research should consider larger, more diverse samples, longitudinal designs, and cross-cultural comparisons, which could enhance understanding of caregiving impacts over time and support broader applicability of findings across cultural settings.

Implications for practice: mental health interventions and the open dialogue model

Our findings suggest an urgent need for targeted mental health interventions for caregivers. Integrating stress management, CBT, and MBSR into routine care could significantly reduce the psychological burden on caregivers [77,78]. Additionally, addressing the socio-economic challenges faced by caregivers through comprehensive

support systems, including financial assistance and employment support, is crucial [79].

Furthermore, recognizing the diversity of caregiving roles—such as those caring for individuals with physical health conditions versus those caring for individuals with mental health conditions like schizophrenia—is essential. Tailoring interventions to meet the specific needs of these diverse caregiving populations will enhance their effectiveness and align with the biopsychosocial model's emphasis on individualized care.

To effectively address these needs, interventions should be designed within the framework of the biopsychosocial model, ensuring that they encompass not only psychological support but also address social and economic factors that contribute to caregiver stress. The biopsychosocial model integrates three key dimensions: biological factors, such as genetic predispositions and health conditions; psychological factors, including emotional well-being and cognitive processes; and social factors, which encompass the support systems and socio-economic conditions affecting caregivers. This holistic approach can enhance the effectiveness of interventions and support services.

Healthcare systems should adopt inclusive care models that recognize and support the vital role of caregivers in the treatment of schizophrenia patients. One promising and cost-efficient model is the Open Dialogue Approach, which emphasizes collaborative decision-making and the involvement of patients and their families in all treatment discussions [80,81]. This approach has been shown to improve outcomes for patients while also reducing the need for hospitalization, making it both an effective and cost-efficient model for mental health care [37,82,83]. The alignment of this model with our findings reinforces the necessity for tailored interventions that address the unique challenges faced by caregivers.

Future research directions

Future research should focus on longitudinal studies to track changes in caregivers' mental health, QOL, and socio-economic status over time. Cross-cultural studies could help identify universal challenges and those specific to certain cultural contexts, providing insights for culturally appropriate support programs. Additionally, intervention studies should test the effectiveness of various therapeutic approaches in improving caregiver outcomes, ensuring that support programs are both effective and culturally sensitive.

Obtaining baseline data for caregivers prior to assuming caregiving responsibilities, particularly in assessments like the Eppendorf Schizophrenia Inventory (ESI), would be invaluable in clarifying whether cognitive biases observed in caregivers of schizophrenia patients are pre-existing or emerge due to the caregiving experience. Future studies could incorporate baseline ESI data from family members prior to their engagement in caregiving,

as well as comparative data from non-schizophrenia caregiving groups, to isolate caregiving-specific cognitive impacts.

Future research should explore how specific Romanian cultural attitudes toward mental illness may shape caregivers' experiences and self-reported QOL. Collecting additional qualitative data could provide a richer, more nuanced understanding of these influences, helping to capture the full scope of cultural impacts on caregiver stress, stigma, and coping strategies. Such qualitative data could be used to develop culturally tailored interventions that address caregivers' unique social and emotional needs in Romania and similar settings.

It will also be important to control for the severity of chronic physical conditions in caregiving populations. By accounting for condition severity, future studies will be able to better isolate the specific effects of caregiving for mental health conditions like schizophrenia compared to physical health conditions, providing a clearer understanding of the distinct burdens faced by different caregiving groups. Moreover, future studies should explore how the biopsychosocial model can be applied to better understand the interactions between different factors affecting caregivers. This could involve investigating how biological, psychological, and social stressors influence each other and impact overall well-being in diverse caregiving contexts.

Conclusion

The findings of this study underscore the profound impact of caregiving on non-professional family caregivers of individuals with schizophrenia within the Romanian context. Caregivers face significant challenges across various domains—mental health, neuropsychological functioning, QOL, and socio-economic status—that are both pervasive and multifaceted.

The elevated scores on the Eppendorf Schizophrenia Inventory, particularly on the Ideas of Reference subscale, suggest a troubling trend of cognitive biases among caregivers. These results, coupled with lower scores on the Montreal Cognitive Assessment, indicate that the cognitive demands of caregiving are substantial and may lead to specific neuropsychological consequences, such as impairments in executive function and memory. These cognitive biases and potential impairments underscore the need for early intervention to prevent long-term cognitive decline among caregivers.

The psychological burden is further evidenced by significantly higher Beck Depression Inventory scores among caregivers, highlighting the urgent need for accessible and effective mental health support. The exploration of alcohol consumption patterns reveals that a significant portion of caregivers may be engaging in maladaptive coping mechanisms, which could exacerbate their mental health challenges and further diminish their

overall well-being.

The lower QOL scores across all domains, particularly in psychological and social relationships, reinforce the severity of the caregiving burden. The socio-economic disparities, including higher unemployment rates, lower household incomes, and reduced marriage rates among caregivers, contribute to this burden, exacerbating stress and reducing their capacity to provide care.

These findings align with global research, indicating that the challenges faced by caregivers of schizophrenia patients are not unique to Romania but are reflective of a broader, international phenomenon. However, the cultural specificity of this study provides unique insights into the particular challenges faced by Romanian caregivers, highlighting the importance of culturally sensitive interventions.

The implications of this study are clear: There is an urgent need for comprehensive support systems that address the psychological, social, and economic challenges faced by caregivers. Mental health interventions, such as cognitive-behavioral therapy, mindfulness-based stress reduction, and substance use counseling, should be integrated into routine care for caregivers.

Additionally, adopting inclusive care models, such as the Open Dialogue Approach, could improve outcomes for both caregivers and patients. This model emphasizes collaborative, family-centered care, fostering an environment where all participants—including caregivers—are actively involved in treatment discussions. Such a tailored, collaborative framework can effectively address the specific challenges faced by caregivers of schizophrenia patients. Open Dialogue has the potential to enhance caregiver support and improve mental health outcomes, including reduced hospitalizations, by focusing on dialogical communication and shared decision-making.

Future research should focus on longitudinal studies to track changes over time and on cross-cultural comparisons to identify universal and culture-specific challenges. This will help develop a more comprehensive understanding of the caregiving burden and inform the creation of effective, culturally sensitive interventions.

This study contributes to the growing body of literature on the caregiver burden, offering valuable insights that can inform policy, practice, and future research. The findings highlight the critical need for targeted interventions that address the full spectrum of challenges faced by caregivers, ultimately improving their QOL and the care they provide to individuals with schizophrenia.

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