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Caregiver factors and relapse in schizophrenia patients

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Abstract. Relapse in schizophrenia is widely recognized as the reappearance or worsening of psychotic symptoms. Prevention of relapse is a major challenge for patients and their families, and mental health professionals, and is one of the main goals in the management of schizophrenia. Due to the fact that families of schizophrenic patients are their primary caregivers, their involvement is critical in managing and preventing recurrence of symptoms (continuum of care). To identify caregivers and relapse in schizophrenic patients. The articles were obtained from the ScienceDirect, Pubmed, and Ovid databases. When dealing with patients, family care for schizophrenics is demonstrated via the use of parenting techniques and family expressed emotion. It is possible to gauge the patient's family's feelings for him or her by how they express themselves. Relapse was more common among schizophrenic patients who lived in families where expressed emotion was strong, compared to those who lived in families where expressed emotion was low. Factors that influence the relapse in patients with schizophrenia are the family's emotional expression. good socioeconomic factors, extended family support, community and psychoeducation play an important role in building the emotional stability of caregivers or caregivers of people with schizophrenia.
Keywords: Relapse, schizophrenia, caregiver

1 Introduction

Mental illness remains a major public health problem worldwide, including in Indonesia. A WHO study estimates that schizophrenia affects approximately 24 million people, or 0.32 percent of the global population [1]. The number of people with schizophrenia in Indonesia continues to increase every year. Schizophrenia (a serious mental health condition) has a prevalence of 1.7 per thousand people nationwide, according to the 2018 Basic Health Research [2]. Schizophrenia is a disease that affects a person's thoughts, feelings, and behavior. Schizophrenia doesn't directly cause death, but it has a detrimental effect on the lives of those who suffer from it. Approximately 7% to 8% of the population will suffer from schizophrenia at some point in their lives [3]. Many people are diagnosed and treated for schizophrenia, which is a mental illness.

Patients with schizophrenia are hospitalized more frequently than individuals with other serious mental illnesses. Schizophrenia has a significant impact on society and families, requiring high medical expenses, lost productive time, and legal problems, such as recent examples of people with schizophrenia being severely abused or harassed [4].

It is widely accepted that schizophrenia relapse is characterized by a recurrence or worsening of psychotic symptoms. Relapse is defined as an increase in positive or negative symptoms, hospitalization within the past six months, and more intensive treatment and/or a change in medication. Relapse occurs in 50% to 90% of patients with schizophrenia [5]. Substance abuse, co-morbid mental illness, co-existing medical and/or surgical disorders, stressful life events, and treatment regimens are the most common causes of schizophrenia relapse. Symptom escalation and avoidable relapses are largely due to non-adherence to antipsychotic therapy, which can also lead to rehospitalizations, significant economic costs, and poor outcomes.

One of the main goals in the treatment of schizophrenia is the prevention of relapse, which is a major concern for patients and their families as well as mental health professionals [6]. People in a

patient's life, such as family members, caregivers, and even their environment, can all play a role in triggering relapse in schizophrenia patients. Families, especially caregivers, play a crucial role in hospitalization, discharge preparation, and the continuum of care. Because families of schizophrenia patients are their primary caregivers, their role is crucial in managing and preventing recurrence of symptoms (the continuum of care) [7].

When it comes to providing effective home care for schizophrenia patients, the involvement of family caregivers is crucial. Caregiver knowledge and support variables, as well as stressful life events, have been linked to relapse in schizophrenia patients, according to various studies.[7]The high risk of relapse in patients with schizophrenia and the role of caregivers in the long-term management of patients with schizophrenia necessitate this report's focus on caregiver factors associated with relapse.

2 Methods

Research on caregiver factors and relapse in patients with schizophrenia is the focus of this review. PubMed, Science Direct, and Ovid were used for the literature search. Using a descriptive approach, the articles found in the literature review were described and explained.

3 Discussion

3.1. Schizophrenia

Definition

Schizophrenia is a serious mental illness characterized by hallucinations and delusions, as well as abnormal changes in behavior and thinking in sufferers [8]. Hearing voices or seeing things that aren't there can be symptoms of this disorder. They may assume that others can read their minds and use that information to manipulate their behavior or harm them in other ways. People with this disorder may become withdrawn or agitated as a result. As a result, they may be frightening and disturbing to others around them [3].

Positive, negative, and cognitive symptoms all fall under the umbrella of schizophrenia. Examples of psychotic behavior not typically seen in healthy individuals are known as positive symptoms. With positive symptoms, some people may feel "out of touch" with the world around them. Hallucinations, delusions, and disorganized behavior are among the positive signs of schizophrenia. Emotional and mental dysfunction can be detected by the presence of muted affect, apathy, alogia, anhedonia, and asociality, all of which are negative symptoms [9]. Cognitive impairment is characterized by deficits in working memory, episodic memory, attention, verbalization, and executive function. These cognitive deficits are strong predictors of relapse and a poor prognosis.

There are three phases in the course of schizophrenia: the prodromal phase, the active phase, and the residual phase. Initially, the patient experiences discomfort and feelings, causing frequent daydreaming and silence, which exhibits a set of symptoms in the prodromal phase, where there is a decline in the level of adjustment function from before. Then, the patient's condition worsens with the emergence of a set of symptoms, namely hallucinations and delusions typical of the schizophrenia diagnosis guidelines, which cause consistent and significant changes in the overall quality of several of the patient's life functions in the form of role function impairments, impairments in the use of leisure time, withdrawal from social life, and impairments in self-care with an onset of more than 1 month [9,10].

According to PPDGJ III, a definite diagnosis of schizophrenia is established if the following diagnostic criteria are met:[11]

Diagnostic Guidelines for Schizophrenia:

1. There must be at least one of the following symptoms that is very clear (and usually two or more symptoms if the symptoms are less sharp or less clear):[11]

a) - Thought echo: the contents of one's own thoughts that repeat or echo in one's head (not loudly), and the contents of repeated thoughts, even though the contents are the same, the quality is different; or
- Thought insertion or withdrawal: foreign thoughts from outside enter the mind (insertion) or the thoughts are taken out by something from outside the mind (withdrawal); and
- Thought broadcasting: the contents of his thoughts are broadcast out so that peopleother or generally known;

b) - Delusion of control: delusion that one is controlled by a certain external force; or
- Delusion of influence: delusion that one is influenced by a certain external force; or
- Delusion of passivity: delusion of being powerless and resigned to a certain external force; (about "himself"" = clearly refers to the movement of the body or limbs or to a specific thought, action, or sensation); and
- Delusional perception: an unusual sensory experience, which is meaningful, very unique to the individual, usually mystical or miraculous in nature;

c) Auditory hallucinations: Hallucinatory voices that make a running commentary on the patient's behavior, or- discuss the patient among themselves (among the various voices speaking), or- other types of hallucinatory voices that originate from any part of the body.

d) Other types of persistent delusions, which according to local culture are considered abnormal and impossible, for example regarding certain religious or political beliefs, or powers and abilities above ordinary humans (for example being able to control the weather, or communicating with aliens from another world).

2. Or at least two of the following symptoms must always be clearly present:[11]
   a) Persistent hallucinations of the five sensesanything, if accompanied by floating or half-formed delusions without clear affective content, or accompanied by persistent over-valued ideas, or if they occur every day for weeks/months continuously.
   b) A stream of thought that is broken or interpolated resulting in incoherence or irrelevant speech or neologisms
   c) Catatonic behavior such as excitement, certain body positions (posturing) or cerea flexibility, negativism, mutism, and stupor.
   d) Negative symptoms such as apathy, infrequent speech and unusual blunting of emotional responses, usually resulting in social withdrawal and reduced social performance, but it must be clear that these are not caused by depression or neuroleptic medication.
3. The typical symptoms mentioned above have lasted for a period of one month or more (does not apply to every prodromal nonpsychotic phase);
4. There must be a consistent and meaningful change in the overall quality of some aspects of personal behavior, manifested as loss of interest, aimless living, inaction, self-absorbed attitude, and social withdrawal.

- In addition to:
  - Hallucinations and/or delusions must be prominent;
  a. Hallucinatory voices that threaten the patient or give orders, or auditory hallucinations without verbal form in the form of whistling, humming, or laughing sounds.
  b. Hallucinations of smell or taste, or of a sexual nature, or other bodily sensations; visual hallucinations may be present but are rarely prominent;
  c. Delusions can be of almost any type, but delusions of control, influence, or passivity, and various beliefs of persecution, are the most typical;
- Affective disturbances, volitional and speech disturbances, and catatonic symptoms are relatively subtle/not prominent.

3.1.1. Epidemiology and Etiology

The lifetime prevalence of schizophrenia is generally estimated to be around 1% worldwide [12]. Schizophrenia is a serious mental condition that affects approximately 24 million people, or one in every 300, worldwide, primarily those aged 15 to 35, according to the World Health Organization

(WHO). Although the incidence is low, the chronic nature of the disease means it has a high prevalence.[1]

Many hypotheses have been proposed to explain the pathophysiology and etiology of schizophrenia; however, no one knows for certain. Schizophrenia is thought to be influenced by a variety of factors, including genetics, neurotransmitter abnormalities, brain morphology and function, immune system problems, and pregnancy [12].

The most common hypothesis is the hyperdopaminergic state hypothesis in the brain. This hypothesis suggests that five dopamine pathways in the brain play a role in schizophrenia, both in influencing the symptoms and in its treatment [9].

When psychotic symptoms in schizophrenia patients are suppressed using pharmacological dopamine D2 receptor blockade, the neuromodulatory effect is enhanced. Dopamine D2 receptor blockade is common in the treatment of schizophrenia. To reduce psychotic symptoms, a drug must have the ability to block D2 receptors. Several bodily activities are mediated by dopamine brain circuits.

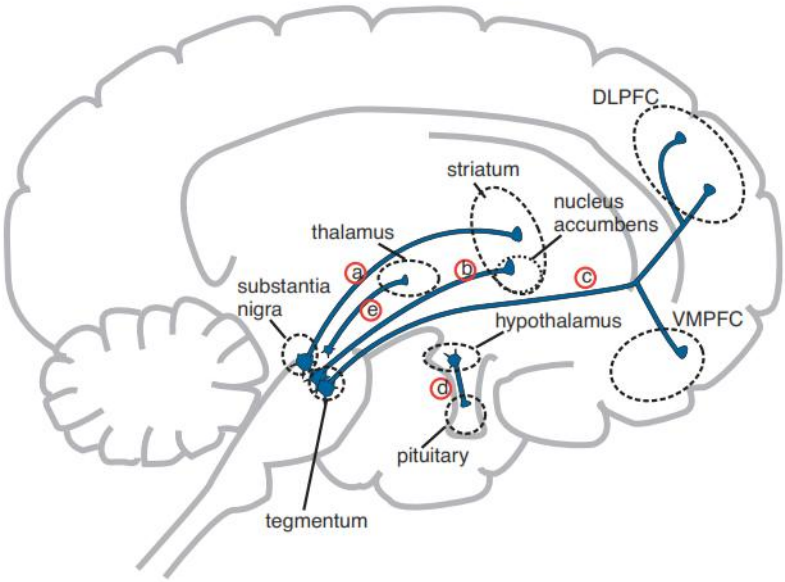

Figure 1. Dopamine pathways in the brain

There are five dopamine pathways in the brain, as depicted in Figure 1. In the extrapyramidal nervous system, the nigrostriatal dopamine pathway, which runs from the substantia nigra to the basal ganglia, controls motor function and movement. A portion of the brain's limbic system, the nucleus accumbens, is thought to play a role in a variety of activities, including pleasure, the euphoria of drug abuse, and psychotic delusions and hallucinations. C) The mesocortical dopamine pathway, related to the mesolimbic dopamine pathway, originates in the ventral tegmental area of the midbrain and travels to parts of the prefrontal cortex, where it may play a role in regulating the cognitive and affective symptoms of schizophrenia. Prolactin secretion is regulated by the tuberoinfundibular dopamine pathway, which runs from the brain to the anterior pituitary gland. There are various locations where the fifth dopamine pathway emerges, including the periaqueductal gray, ventral midbrain, hypothalamic nuclei, and lateral parabrachial nuclei, and then projects to the thalamus. Its purpose is currently unknown to the general public.[9]

3.1.2. Management of Schizophrenia

According to the American Psychiatric Association, schizophrenia can be treated in a variety of ways. Treatment can be divided into three stages: acute, stabilization, and stable, or maintenance, depending on the patient's stage. Due to defiant behavior and a decrease in symptoms during the acute phase, patients are often hospitalized. Treating relapses or recurrences of symptoms is the

primary goal of treatment during the stabilization and stable phases. Families and loved ones of schizophrenia patients play a vital role in their care.[13]

Antipsychotics are a class of medications commonly used in the treatment of schizophrenia. The two types of antipsychotics are known as "typical" and "atypical," respectively. The most commonly prescribed antipsychotics are first-generation antipsychotics. Compared with other antipsychotics, these antipsychotics are better at treating positive symptoms in schizophrenia patients. They are known as atypical antipsychotics because they were developed in the 1990s. Their mechanism of action is by blocking dopamine receptors that are too low. Schizophrenia is best treated with atypical antipsychotics. In people with schizophrenia, atypical antipsychotics are successful in treating both positive and negative symptoms of the disorder.[14]

Table 1. Minimum effective dose of antipsychotics in a day [15]

Drug Name	Early Episode	Multi Episode
First Generation		
Chlorpromazine	200 mg	300 mg
Haloperidol	2 mg	4 mg
Sulpiride	400 mg	800 mg
Trifluoperazine	10 mg	15 mg
Second Generation		
Amisulpride	300 mg	400 mg
Aripriapzole	10 mg	10 mg
Asenapine	10 mg	10 mg
Brexipiprazole	2 mg	2 mg
Cariprazine	1,5 mg	1,5 mg
hoperidone	4 mg	8 mg
Lurasidone	40 mg	40 mg
Olanzapine	5 mg	7.5 mg
Quatiapine	150 mg	4 mg
Risperidone	2 mg	4 mg
Sertindole	tidak di berikan	12 mg
Ziprasidone	40 mg	80 mg

Table 1 shows the minimum doses of antipsychotics that are likely to be effective in first- or multi-episode schizophrenia. Most patients will respond to the recommended doses, although others may require higher doses. Given the variation in individual response, all doses should be considered [15].

Non-pharmacological therapies for schizophrenia include psychosocial approaches and electroconvulsive therapy (ECT). Complementing medication with non-pharmacological therapies is an effective way to help patients with schizophrenia improve their quality of life and promote recovery. Patients benefit greatly from this combination of treatments. Psychosocial treatments aim to help patients improve their social and occupational skills by providing emotional support [16].

3.1.3. Relapse in Schizophrenia

A schizophrenic patient who has been discharged from a psychiatric hospital but returns to symptoms before being released is known as a relapser. If a relapse occurs, the patient and their family must be readmitted to an inpatient psychiatric hospital (rehospitalization) for treatment under authorized supervision [13].

In the course of schizophrenia spectrum disorders, relapse is a common phenomenon, even while patients are on medication. For example, relapse rates for people with schizophrenia range from 50 to 92% globally and are estimated at 3.5% per month in those treated with depot antipsychotic medications. The first two to five years are considered the primary determinants of long-term functional and clinical prognosis associated with schizophrenia. Relapse rates in psychotic disorders are 31% after one year and 43% after two years of treatment. In other studies, relapse rates in the first years after schizophrenia onset are estimated at 34–37%, while the lifetime risk of relapse is as high as 70%, regardless of pharmacological treatment. In a systematic review and meta-analysis of longitudinal studies in patients with first-episode psychosis, the prevalence of positive symptom relapse was 28% at 1 year of follow-up, 43% at 1.5 to 2 years, and 54% at 1–3 years of follow-up. Consequently, with increasing number of relapses, the risk of chronicity of the disorder with severe functional impairment appears to be higher [9,17,18]

There are several internal factors from the schizophrenia patient themselves that can influence relapse, including:

a. Age
   Most schizophrenia patients have an onset at a productive age, namely around 15-55 years of age [10]. Families and communities of schizophrenia patients are burdened by high medical costs and the inability of individuals to work during their prime working years. Schizophrenia patients are a burden on society because their productivity decreases, ultimately resulting in a significant financial burden for both the sufferer and their family.
b. Genetics
   The prevalence of schizophrenia is also influenced by genetic factors. Half-siblings have a prevalence of 0.9-1.8 percent; full siblings have a prevalence of 7-15 percent; children with one parent with schizophrenia have a prevalence of 10 percent; and children with both parents with schizophrenia have a prevalence of 40 percent [12].
c. Gender
   Schizophrenia is equally common in men and women. The onset and progression of the disease differ between the sexes. In men, onset occurs between the ages of 18 and 25, and in women, between the ages of 25 and 35 [10,19]
d. Education
   Education is a social tool because it is a key factor in a person's quality of life. To improve the quality of life for individuals and nations, education is a vital strategic tool. Patients with schizophrenia are significantly less likely than the general population to succeed in higher education, the workforce, or marriage. They are also more likely to have lower levels of education. As a result, patients are less able to focus on educational materials and have difficulty learning new topics [20]
e. Work
   Patients and their families face psychological and objective difficulties as a result of the stigma of schizophrenia. People with schizophrenia face challenges in obtaining appropriate treatment, finding employment, and so on. People with psychosis are affected by stigma and prejudice in the workplace, according to the findings. Employees' well-being is affected in various ways, from their ability to find work to their interpersonal relationships with coworkers and managers [21]

There are several external factors from the schizophrenia patient themselves that can influence relapse, including:

a. Family Support
   A patient's mental health is influenced by their family. Families can provide support in the form of medication, monitoring medication intake, regularly accompanying the patient to mental health services, and other essential life needs such as education, employment, and general health. A patient's ability to recover is directly correlated with the level of support they receive from friends and family [22]
b. The Role of Health Workers
   The relapse rate of patients and families with schizophrenia can be affected by the failure of healthcare providers to educate them. Medications for schizophrenia patients are also included in this section. Medication education, including information about the types, effects, and use

of medications, as well as discussions about individual medications with a doctor, has been shown in one study to improve adherence [23]

c. Treatment Compliance
Adherence is a process that is heavily influenced by the patient's environment, healthcare professionals, and the care provided by the healthcare system. Adherence is influenced by various factors, including the availability of healthcare professionals, the complexity of the treatment, the ease of use of the system, and the cost of care [24]

Long-term or chronic illnesses are associated with low adherence rates due to factors such as disease duration, long-term illness, or chronicity. Patients' willingness to stick to treatment plans decreases over time. Several studies have shown that individuals with higher disease severity are more likely to adhere to prescribed medication [25].

3.2. Caregiver

3.2.1. Definition and Concept of Caregiver

Caregiver is someone who devotes his time and energy to the welfare of others (patients) [26]. Examples include children, the elderly, or patients with chronic illnesses or disabilities. A caregiver can be a healthcare professional, a family member, a friend, a social worker, or a member of the clergy. Caregivers can provide care at home, in a hospital, or other healthcare setting.

Informal caregivers and formal caregivers are two common types of caregivers. An informal caregiver is someone (such as a family member, friend, or neighbor) who offers unpaid care to another person on a temporary or permanent basis, whether they live with or separately from the person being cared for. Formal caregiving is a planned and structured form of care. Caregivers are employed professionals (e.g., nurses, doctors, therapists) who receive payment for the services they provide. These caregivers are primarily professionals, such as nurses, doctors, and other healthcare workers trained to provide health care. Due to the nature of formal caregiving, they may provide services that informal caregivers cannot. Depending on the severity and specialty of the illness, formal caregivers are in high demand alongside informal caregivers for home care services. Formal caregiving is usually a last resort for families facing insurmountable challenges in providing care for their relatives with mental illness. However, it is not affordable. Only families with the financial resources can take this route [27].

In patients with mental health disorders, caregivers have specific responsibilities. Caregivers for these patients are mostly family members. For the most part, family caregivers tend to take care of the patient's daily needs, monitor the patient's mental state, look for early signs of illness, and help the patient obtain necessary healthcare. In addition to providing emotional support and supervising therapy, family caregivers can also suffer from behavioral disorders and be victims of patient abuse or violence [28].

3.2.2. Characteristics of Caregivers in Schizophrenia Patients

The characteristics of caregivers for patients with schizophrenia vary across studies and countries, although in most cases, caregivers are relatives of individuals with schizophrenia. Table 2 presents the caregiver characteristics reported in the reviewed studies. Consistently across countries, the majority of caregivers are female. Caregivers are often parents (and often mothers) of the care recipient, although spouses (12.8%–35%) and siblings (18%–30%) also commonly serve as caregivers. Most care recipients are male (54.1%–74.3%). Parenthood is associated with a significantly higher care burden. Caregivers spend significant time providing direct care, which includes assisting with activities of daily living, such as coordinating and attending medical appointments, administering medications, and assisting with shopping, cooking, cleaning, and personal care [29].

Table 2. Characteristics of Caregivers of Schizophrenia Patients Summarized from Various Studies [29]

General caregiver characteristics	Proportion of caregivers (range)
Gender	
Woman	42.3–87.7%
Relationship with patients	
Mother	28.6–64.4%
Father	10.7–16.5%
Parent	19–78.3%
Partner	12.8–100%
Child	6.9–14.3%
Siblings	18.0–30%
Friends/others	11%
Employment status	
Doesn't work	19–93.3%
Work	26.6–83.1%
Marital status	
Marry	61.6–89.1%
Family system	
nuclear family	72.5–82.1%
Big family	14.3–52.8%
Educational status	
Secondary education (SMA) or higher	11–44.4%
College education or higher	59–70%
No additional support	
Single caregiver	90.4%
Only pay for treatment	51%
Types of communities	
Rural	54.7–62.5%

Several caregiver factors have been linked to increased burden for caregivers of individuals with schizophrenia. A representative sample of caregivers recruited from a community mental health center in Turkey found that caregivers experiencing the greatest burden were women, mothers of patients, literate, and married. Longer duration of caregiving was also positively correlated with physical and mental burden [30]. A hospital-based study in China found that caregivers with lower education levels, psychiatric morbidity, and those with high emotional expression were more likely to experience burden than those without these factors [31]. A US study found a similar relationship between emotional factors and caregiver burden. Most caregivers providing care for a spouse or relative with schizophrenia live in nuclear, rather than extended, family systems; therefore, the network of relatives who can share in caregiving activities may be more limited than for caregivers in extended family systems [32]. Furthermore, another study found that half of caregivers were fully responsible for the costs associated with schizophrenia treatment [33]

3.3. Family Caregiver(Family Caregiver) and Schizophrenia

The role of family caregivers caring for people with serious mental illness has expanded substantially globally. For most people with serious mental illness, particularly schizophrenia, family members play a crucial role in managing symptoms, functional difficulties, and treatment options. Although family members have unique perspectives on schizophrenia, they often face the following challenges:

a) lack of information and understanding about the multifaceted nature of schizophrenia;
b) lack of skills to effectively cope with acute and chronic symptoms of the disorder;
c) difficulty expressing positive and negative affect towards patients;
d) a tendency to feel stigmatized and isolated from usual sources of social and emotional support;
e) relatives often experience many challenges; and
f) high levels of depressive symptoms.

Family members of patients with schizophrenia often face uncertainty about the course of the illness, a lack of reciprocity in their relationships with the patient, and anxiety about unexpected symptoms. Relatives or families are also expected to cover the costs of care (both direct and indirect) in addition to coping with the patient's lost potential and the termination of employment or reduced job prospects. It is no wonder that caring relatives often experience grief and must contend with stigma and social isolation, leading to feelings of shame or guilt. Thus, the illness places significant emotional, financial, and real-world demands on those close to the sufferer, typically parents or partners. Furthermore, research has shown that caregiving often leads to mental morbidity, neglect of personal health, and a higher risk of death. Caregivers also experience gradual burnout while caring for their loved ones. Parents, partners, and siblings are often unable to address their own individual or family developmental needs because the focus is often on caring for the relative with schizophrenia. Numerous studies worldwide have evaluated various aspects of caregiving and caregivers, such as burden, coping, quality of life, social support, expressed emotions, psychological morbidity, and so on. Until recently, caregiving was perceived as a negative phenomenon; However, it is increasingly recognized that caregiving is not only associated with negative consequences, but that caregivers also experience subjective benefits and satisfaction [34].

Positive caregiving experiences are subjective events, and therefore no standard formal definition exists. Various authors have understood positive caregiving in terms of caregiver gain, satisfaction, and caregiving experience. Many researchers have assessed positive caregiving experiences in the domains of duty/obligation, companionship, fulfillment, appreciation, quality of life, enjoyment, meaning, etc., caregiver appreciation, caregiving enhancement, finding or making meaning through caregiving, and caregiver appraisal. Hunt has extensively reviewed both negative and positive aspects of caregiving. Kramer conceptualized caregiver gain after a critical review of the literature on positive aspects of caregiving, describing it as "the extent to which the caregiving role is valued as enhancing and enriching the individual's life space." This may include any positive outcomes to the caregiver resulting from the caregiving experience. Kramer proposed a model of caregiver adaptation in which "role gain appraisal" is an intervention process in which background and contextual variables act to influence well-being. He suggested that caregiving gain may be related to resources such as coping and social support available to caregivers. Kramer also attempted to conceptualize gain as both an event-specific and a role-related construct. Event-specific gain encompasses responses to specific caregiving tasks, and role-specific gain relates to more general appraisals of the caregiving role. Other authors have defined caregiver benefits as “the caregiver's perceived personal growth and enhanced interpersonal relationships.” [34]

The benefits or advantages of caregiving described in the literature include feeling more useful, feeling needed, learning new skills, gaining meaning in one's own life, gaining a sense of fulfillment from fulfilling obligations, and enjoyment derived from the caregiving itself or from the companionship of the caregiver. Caregiver satisfaction is one of the most commonly used terms for the positive aspects of caregiving. Initially, caregiver satisfaction was defined as "benefits that occur to the caregiver through his or her own efforts." Later, the same group of authors described caregiver satisfaction as "subjectively perceived benefits from desirable aspects or positive affective returns from caregiving" or "results from caregiving experiences that give a positive sense of life." Caregiver satisfaction has been shown to be related to positive affect and burden. Tarlow et al. defined positive aspects of caregiving as the rewards and satisfaction derived from the caregiving relationship. Other studies have identified satisfaction with caregiving as feeling fulfilled, important, and responsible, and finding a sense of companionship and meaning in the relationship.[27,34]

Caregiver esteem is another aspect of positive caregiving that has attracted research attention, and it is assumed that it is related to the extent to which caregiving tasks enhance caregiver self-esteem. Some studies have also defined positive aspects of caregiving as improved relationships, feelings of appreciation, enjoyment, and prevention of further deterioration. Other positive aspects that have been studied include positive caregiving experiences, which have two components: positive personal outcomes and positive relationship aspects with the patient.[35]

3.4. The Influence of Caregivers on Relapse in Schizophrenia Patients

3.4.1. Roles and Duties of Caregivers for Schizophrenia Patients

Schizophrenia symptoms manifest differently in each person. Some people with schizophrenia are able to manage their symptoms and treatment, while others may require the assistance of family members or caregivers. Below is a list of people who are in a position to help or care for someone diagnosed with schizophrenia. It's important to note that everyone with a mental illness can benefit from support, even if they are managing their own treatment.[36,37]

1) A caregiver must equip themselves with knowledge related to schizophrenia.
   Knowing what is and isn't a symptom of schizophrenia will help a caregiver determine whether the person they are caring for is struggling with the illness. A simple internet search can yield reviews and articles on the differences between negative and positive symptoms of schizophrenia. Caregivers can also clarify the information they receive with the patient's doctor. Educating yourself is the first step in understanding what a person with schizophrenia is going through, especially if they are a close family member.
2) Know the side effects of all medications taken by the patient being treated.
   Recognizing side effects can alert caregivers to potentially serious problems before they become critical. Many medications require regular blood tests to check cholesterol and sugar levels. Consult with your doctor about other tests that may be necessary for a specific medication. Be sure to consult your doctor or pharmacist before taking any over-the-counter medications. Some over-the-counter medications can cause negative drug interactions.
3) Know the rights and laws regarding people with mental disorders in the country where the sufferer and caregiver live.
4) Planning for crises or emergencies is essential. If a patient requires hospitalization, caregivers are expected to be familiar with the policies and regulations regarding the patient's health rights. Caregivers should know the location of the nearest hospital with a floor designated for patients experiencing a psychiatric crisis.
5) Make an emergency plan.
   Communicate with the patient once they're stable and ask what they'd like to do in case of an emergency. If they do want to contact their psychiatrist, ensure there's a "notification" so their doctor is legally permitted to share information with the patient's caregiver.
6) Keep all maintenance-related phone numbers handy.
   Some important phone numbers might include pharmacies, therapists, doctors, family members, and others.
7) Research all services available in your area regarding schizophrenia care and policies.
   Sufferers may be eligible for services they are unaware of. There may also be beneficial groups or research studies.
8) Encourage self-care and independence.
   For some people with schizophrenia, things like personal hygiene can be difficult to maintain. Teaching or encouraging participation in basic skills like laundry, cooking, and other ways to care for one's home and self can help build self-esteem and motivation.
9) Encourage social interaction.
   Many people with schizophrenia can lack motivation, especially when it comes to social engagement. Some cities have clubs for people recovering from psychiatric crises. Clubs can help loved ones build relationships, engage in activities, and possibly receive job training.
10) Maintaining the physical and mental health of the caregiver himself.
    For anyone caring for a family member with a mental illness, it can be a difficult situation. The most important step in ensuring a decent life for the caregiver or caregiver is ensuring they have a support network and taking the necessary steps to ensure their needs are met.

3.5. The Relationship between Caregiver Roles and Relapse in Schizophrenia Patients

It is widely accepted that schizophrenia relapse is characterized by a recurrence or worsening of psychotic symptoms. Relapse is defined as worsening of positive or negative symptoms, recent hospitalization, and extensive case management and therapy adjustments. A method for relapse prevention known as "early warning signals" attempts to identify the earliest warning symptoms of an impending psychotic relapse to provide timely and effective interventions that can halt its progression to overt psychosis.[38]

Relapse is the return of poor health after apparent or partial recovery, and is characterized by acute psychotic exacerbations that may have serious implications. Repeated relapses also place a burden on families, communities, and the public health care systems in every country. Relapse can be triggered by a variety of factors, including poor treatment adherence, substance abuse, co-occurring mental and physical health problems, stressful life events, and the care setting.[17,36]

In general, relapse rates for people with schizophrenia range from 50 to 92%. Patients on medication have a 40% relapse rate, while those who discontinue treatment have a 65% 1-year relapse rate and a 80% 2-year relapse rate. Patients in a South African study showed similarly high relapse rates. Approximately two-thirds of patients had at least one relapse, with the majority experiencing two.[17,18]

Relapse in schizophrenia is associated with factors such as age, education level, medication adherence, mood, patient care, and family support. Families are an integral part of the care system for people with chronic mental illnesses like schizophrenia. It is widely accepted that a schizophrenia relapse is characterized by a recurrence or worsening of psychotic symptoms. Relapse is more precisely defined by a set of criteria. Relapse can result in hospitalization, treatment resistance, and cognitive impairment due to progressive structural brain damage, personal distress, incarceration, and interference with rehabilitation efforts. Relapse in psychiatric disorders can be associated with many risks, especially the risk of harming others. Some relapse episodes occur after early warning signs. Signs such as insomnia, social withdrawal, difficulty concentrating, irritability, hallucinations, loss of interest, and increased paranoia are common warning signs before a schizophrenia relapse occurs.[12]

Families of people with severe and chronic mental illnesses bear significant responsibility for the care of their family members. The burden of caregiving for those with severe mental illness includes financial responsibilities, job loss, disruption of household routines, restrictions on social and leisure activities, and reduced attention to other family members. Studies of caregiver burden have increased steadily since the advent of community-based care for patients with severe mental illness [27].

Most people believe that schizophrenia is a life sentence, that people with schizophrenia will live a life of low achievement and be a constant danger to themselves or others. In fact, many people with schizophrenia make substantial recovery from their symptoms and go on to lead fulfilling lives. Many types of therapy are available today that can help with schizophrenia, including counseling, support groups, and psychotherapy. Counseling is an essential component of a talk therapy regimen. Counseling involves meeting with a trained counselor, face-to-face, on a regular basis for personal discussions. Relapse in schizophrenia is understood to result from the presence of several antagonistic factors. These factors contribute to an increased risk of relapse. Schizophrenia relapse has been linked to factors such as non-adherence to treatment, substance abuse, caregiver criticism, and poor premorbid adjustment. Discontinuation of antipsychotic medication was found to be the most common risk factor in a five-year study of patients with first-episode psychosis. Even in the early stages of the disease, discontinuation from therapy is common in clinical settings [38].

In recognition of the associated risks, improving medication adherence and preventing relapse have been emphasized as key components of schizophrenia management. Poor social support contributes to schizophrenia relapse in several ways. An individual lacking family or social support may be more likely to fail treatment if they are unsupervised, lack motivation, or have financial difficulties that prevent them from adhering to treatment. The Stress-Vulnerability Model emphasizes that individuals with schizophrenia have a biologically mediated vulnerability to stressful events that can lead to acute psychosis. Patients may also become noncompliant with

treatment due to potential side effects, such as increased lethargy, drowsiness, or impaired concentration, which may be misinterpreted by the patient as solely due to the medication. Although the biological basis for schizophrenia has been identified in numerous empirical studies, current evidence suggests that the course of the disease is highly responsive to the patient's psychosocial and home environment. Factors such as the family environment, emotional expression, and negative attitudes of caregivers are strongly associated with frequent relapses in schizophrenia.[5,38]

Emotional expression, both verbal and nonverbal, is a crucial factor in determining the success of interpersonal communication. Hostility, excessive criticism, and inappropriate support are all forms of emotional expression. Several studies have shown that the likelihood of patients with schizophrenia requiring a second hospitalization is strongly related to their ability to articulate their emotions. Previous research has shown that negative caregiver attitudes can lead to an increased risk of psychological problems and relapse, which is consistent with our findings. Furthermore, higher levels of criticism are associated with higher rates of rehospitalization. The effect of emotional expression on rehospitalization is independent of the effects of caregiver sociodemographic characteristics, patient disease characteristics, medication adherence, and other factors influencing rehospitalization.[31,39,40]

Furthermore, the relationship between caregiver emotional expression and relapse has been replicated across different cultural groups (British, Mexican, and Indian). Relapse rates were observed to be significantly lower in families with low emotional expression or where caregivers expressed more positive comments toward the patient. The study demonstrates a strong need to target caregiver emotional expression and other sociocultural factors related to the course of illness in intervention programs focused on families of people with mental illness. The identified resources were 'family resilience,' 'family activities and routines,' 'community support,' 'positive and affirming communication patterns,' support from family and friends during crises, and spirituality and religion.[31,34]

3.6. Expression of Emotions in the Family

Emotional expression (EE) refers to the ability to convey one's feelings both verbally and nonverbally, which is a crucial factor in determining one's ability to communicate effectively with others. Anger, hostility, and criticism are just a few of the attitudes found in this group. Negative attitudes have been linked to an increased risk of psychological problems and relapse, according to several previous studies.[39,40]

Critical comments (CC) and excessive emotional involvement (EOI) are the two most important aspects in determining how families express their emotions (EOI). Hostility, or high levels of critical comments, is the final consideration. Two other indicators of emotional expression are considered less important in predicting relapse in schizophrenia patients: warmth and positive comments.[39,40]

When assessing emotional outpourings in family members of schizophrenic patients, researchers turn to the Family Questionnaire (FQ). Georg Wiedemann, Oliver Rayki, Elias Feinstein, and Kurt Hahlweg of the Department of Psychiatry and Psychotherapy at the University of Tübingen in Germany developed and validated the Family Questionnaire (FQ) as a self-report scale for assessing emotional expression. The initial development of the Family Questionnaire (FQ) was conducted by clinical professionals, drawing on testimonies from family members of schizophrenics about interactions and socialization within the family. The initial version of the survey was released in 2001 and contained 130 questions; in 2002, the number of questions was reduced to 30, and in the most recent iteration, it contains only 20. Emotional overinvolvement (EOI) and critical comments (CC) are among the 20 items in the latest edition of the FQ, which encompass two distinct dimensions of emotional expression among families of schizophrenics: (EOI). Other items also relate to the CFI's attitude and behavior categories (CC, e.g., disapproval; EOI, e.g., excessive self-sacrifice). The dimensions of criticism (CC) and excessive emotional involvement (EE) were used to the extent possible to meet the CFI's category requirements for maximum agreeableness (EOI).

It is important to frame unfavorable reactions as a product of extreme stress rather than a family defect, to reduce the likelihood that others will respond inappropriately due to a desire for "social desirability." There are four possible answers, ranging from "never/very rarely" = 0 to "rarely" = 1 to "often" = 2 to "very often" = 3, so order them to prevent stereotypical responses.

Nurtanti claims that the FQ instrument has a cutoff point of 23 (low emotional expression, 23 strong emotional expression) with 68% sensitivity and 78% accuracy. The emotional expression variable in caregivers of schizophrenia patients can be measured using the Family Questionnaire (FQ).[41]

Table 3. Family Questionnaire (FQ) Instrument Matrix

Dimensi ***(Domain)***	**Butir Pernyataan**
Critical Comments (CC)	20. *I'm often angry with him/her* 4. *He/she irritates* *8. It's hard for us to agree on things* *18. I have to insist that he/she behave differently* *12. He/she sometimes gets on my nerves* *14. He /she does some things out of site* *6. I have to try not to criticize him/her* *2. I have to keep asking him/her to do things* *16. When he/she constantly wants some thing from me, it annoys me* *10. He /She does not appreciate what I do for him/ her*
Emotional Over Involvement (EOI)	*13. I'm Very worried about him/her* *5. I Keep thinking about the reasons for his her illness* *1. I often think about what is to become of him/her* *7. I Can't sleep because of him/her* *11. I Regard my own needs as less important* *1. I tend to neglect my self because of him/her* *19. I Have given up important things in order to be able to help hip/her* *15. I Thought I would become ill myself* *8. When something about him/her brothers me, I keep it to my self* *17. He /She is an important part of my life*

Table 4. Instrument *Family Questionnaire* (FQ)

NO	Questions Item	Never/ Very Rarely	Rarely	Often	Very Often
1	I tend to neglect my self because of him/ her				
2	I have to keep ask ing him/ her to do things				
3	I often think about what is to become of him/ her				
4	He/ she irritates me				
5	I keep thinking about the reasons for his/ her illness				
6	I have to try not to criti-cize him/her				
7	I can't sleep because of him/her				
8	It's hard for us to agree on things				
9	When something about him/ her bothers me, I keep it to myself				
10	He/she does not appreciate what I do for him/ he				
11	I regard my own needs as less important				
12	He/ she sometimes get son my nerves				
13	I'm very worried about him/ her				
14	He/ she does some thing sout of spite				
15	I thought I would become ill my self				
16	When he/ she constantly wants something from me, it annoys me				
17	He/she is an important part of my life				
18	I have to insist that he/ she behave differently				
19	I have given up important things in order to be able to help him/ her				
20	I'm often angry with him/ her				

In terms of family emotional expression, there are two types: high emotional expression (EE) and low emotional expression (EE) (low EE).

High emotional expression reveals a critical and resentful mindset. It's common for parents and other family members to believe the disorder is the result of internal issues that only the person with the disorder can control. Parents and other family members believe that criticizing the individual's attitude can change their behavior, often focusing not only on the individual's condition but also on their character.

Reduced emotional expression (EE) indicates a more reserved approach to criticism. Family members sympathize with the patient's suffering because they believe the patient has no control over their condition. This is due to the fact that family members have better information and knowledge about the disease, making them less judgmental. This explains the lack of intensity in the actor's facial expressions.[39–41]

3.7. Psychosocial Interventions for Caregivers of Schizophrenia Patients

Many families are shocked to learn of a family member's diagnosis of schizophrenia. This grief deepens, leading to distress in the early stages and continues due to the burden of caregiving. This situation further diminishes the caregiver's psychological well-being, resulting in anxiety and emotional outbursts. Therefore, it is important to develop family members' resilience and adaptability to living with a family member with a mental illness. Several studies have reported the efficacy of family or caregiver psychoeducation.[42]

Relapse can be prevented or at least delayed by using this treatment for family members or other caregivers. The short-term goal is to shift their intense emotional expression to a more

moderate level. Educational programs, group approaches for family members, and individual therapy sessions for the entire family form the family intervention plan. Schizophrenia is discussed in detail, including its symptoms, causes, progression, and treatment options, in this educational presentation. To help family members cope with the daily struggles of caring for a loved one with schizophrenia without becoming critical or overly involved, group therapy methods are used. The goal of family therapy sessions is to examine the patient's relationships with family members and their reactions to them. In one study, several psychoeducational sessions were conducted to improve the psychological well-being of caregivers. The initial psychoeducational session included an assessment of the family's needs, an introduction session, and the importance of orientation to the patient's habits and symptoms. Subsequent sessions included an explanation of the disease and its management, signs of relapse, the importance of medication adherence, a discussion of how to cope with the patient's current symptoms, and discussions about emotional expression and stress management within the family. Here, families are also invited to discuss the importance of effective communication between family members, and at the end of the session, questions and answers and group discussions are held, as well as practicing relaxation methods.[42]

People with schizophrenia struggle to interact socially, find treatment difficult, and experience a decline in their quality of life due to the negative stigma surrounding mental illness, particularly schizophrenia. Due to the general public's lack of understanding of schizophrenia, many believe and stigmatize it as a curse-induced illness, leading to community-based treatment for schizophrenia. People with schizophrenia are often restrained, often with chains, and frequently face discrimination and ostracism as a result of this practice. When caregivers receive appropriate psychoeducation about schizophrenia, it positively impacts both the patient's own health and the caregiver's mental health, both of which can be beneficial. It reduces caregivers' emotional expression, which in turn reduces the likelihood of future relapses.

4 Conclusion

Schizophrenia is a chronic, relapsing mental illness characterized by psychotic symptoms with a lifetime prevalence of approximately 1% worldwide. Symptoms develop either progressively or appear abruptly. The disorder occurs in three phases: a prodromal phase, an active phase, and a residual phase. Over time, there is a very slow decline in mental functioning, leading to marked personality changes, occupational and vocational disability, cognitive impairment, and poor health. Schizophrenia is a severe mental disorder that significantly impacts not only the individual but also their family.

There is currently no cure for schizophrenia, but treatment options are available. The burden of caregiving for people with severe mental illness, including those with schizophrenia, often falls on family members. Families of people with severe and chronic mental illnesses bear significant responsibility for their family member's care. The burden of caring for families with severe mental illness includes financial responsibilities, job loss, disruption of household routines, restrictions on social and leisure activities, and reduced attention to other family members. Studies of caregiver burden have increased steadily since the advent of community-based care for patients with severe mental illness.

When interacting with patients, family members' concern for the person with schizophrenia can be seen in their parenting techniques and emotional expressions. Family displays of emotion can reveal their attitudes and behaviors toward the patient. Relapses are more common in schizophrenic patients living in families with high emotional expression than in families with low emotional expression. Support from the extended family, community, and psychoeducation all contribute to the emotional well-being of caregivers and those caring for people with schizophrenia.

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