Research Article

Journal of Psychology, Health and Social Challenges

Journal homepage: www.jphasc.com

ISSN ONLINE: 3006-8800/PRINT: 3006-8797

Clinical and Sociodemographic Factors related with Symptomatic Relapse in Patients with Schizophrenia in Pakistan

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Abstract

This study aims to evaluate factors associated with symptomatic relapse in schizophrenia. Psychometric assessments using the Positive and Negative Syndrome Scale (PANSS) were conducted with 60 patients diagnosed with schizophrenia (49 males and 11 females) across four psychiatric hospitals in the Peshawar region of Pakistan. Statistical analyses were performed using chi-square tests to determine the significance of the associations among study major variables. Among clinical factors, the duration of illness was significantly associated with symptomatic relapse ($p < 0.05$). Among sociodemographic factors, symptomatic relapse was significantly associated with unemployment, being unmarried ($p < 0.01$), lower levels of education, younger age, and a monthly income of less than twelve thousand Pakistani rupees ($p < 0.05$). This is the first study conducted in Pakistan to examine the role of clinical and sociodemographic factors associated with symptomatic relapse in schizophrenia. It is crucial for mental health professionals to address these clinical and sociodemographic factors to improve treatment outcomes.

Keywords: *Clinical factors, schizophrenia, sociodemographic factors, symptomatic relapse.*

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Pages 29-34 /Received, January 22, 2025, Revision Received, February 26, Accepted March 3, 2025, Published: March 7, 2025

Journal of Psychology, Health and Social Challenges
Journal homepage: www.jphasc.com
ISSN ONLINE: 3006-8800/PRINT: 3006-8797

1. Introduction

Schizophrenia is a severe mental health disorder that affects approximately 23.6 million people globally (Vos et al., 2013). This condition not only significantly impairs quality of life but also reduces life expectancy by 10 to 25 years (Laursen et al., 2012). In 2013 alone, an estimated 16,000 deaths worldwide were attributed to schizophrenia (Beyene et al., 2015). The burden of this disorder is further compounded by the fact that approximately three-fourths of individuals with schizophrenia experience progressive disability due to relapses (Smith et al., 2009), with an estimated 16.7 million people globally living with moderate to severe disability caused by the condition (Mathers et al., 2008).

Schizophrenia typically manifests during late adolescence or early adulthood, with onset occurring up to 40 years of age in males and up to 50 years of age in females (Schizophrenia Research Institute, 2015). This critical phase of life is when individuals strive to achieve key milestones, such as establishing a career, forming relationships, building families, and creating social networks. These endeavours are essential for personal and social development, enabling individuals to contribute meaningfully to society (Armstrong, 2007). Unfortunately, schizophrenia disrupts these efforts, often leading to significant personal and societal challenges.

Symptomatic relapse, a common occurrence in schizophrenia (Falkai et al., 2005; Robinson et al., 2005), is defined as the worsening of symptoms or a score of ≥13 on the positive subscale of the Positive and Negative Syndrome Scale for Schizophrenia (PANSS) (American Psychiatric Association [APA], 2013; Chabungbam et al., 2007). Relapses are associated with profound negative consequences for both patients and their families, including exacerbated clinical symptoms, impaired functioning, and a diminished quality of life (Awad & Voruganti, 2008; Kane et al., 2007). Beyond the personal toll, symptomatic relapses are also economically burdensome, placing significant strain on healthcare systems and society at large. The emotional and financial costs of relapse can be devastating, not only for patients but also for their families, who often bear the brunt of caregiving responsibilities (Almond et al., 2004).

Many jurisdictions have identified factors significantly associated with relapse in schizophrenia. These include sociodemographic factors such as younger age (Chabungbam et al., 2007), male gender (Angermeyer et al., 1989), unemployment (Slade & Salkever, 2001; Ssebunnya et al., 2009; Thornicroft et al., 2009), lower socioeconomic status (Fitch et al., 2011; Ssebunnya et al., 2009; Thornicroft et al., 2009), low levels of education (Birdsall et al., 2005; Hoedeman, 2012), and being unmarried (Watt & Szulecka, 1979). Among clinical factors, significant associations have been reported with age at onset (Ascher-Svanum et al., 2010), duration of the disorder (Alphs et al., 2016; San et al., 2013), and a family history of schizophrenia (Schultz et al., 2007). However, none of these clinical and sociodemographic factors has been systematically tested against symptomatic relapse in patients with schizophrenia in a Pakistani context.

To our knowledge, no study has yet examined the clinical and sociodemographic factors associated with symptomatic relapse in patients with schizophrenia in Pakistan. This gap in the literature highlights the need for research in this area, particularly in low- and middle-income countries like Pakistan, where mental health resources are often limited, and sociocultural factors may play a unique role in influencing relapse. Consequently, this study aims to ascertain the role of clinical and sociodemographic factors in symptomatic relapse among a cohort of individuals with schizophrenia in Pakistan. By identifying these factors, this research seeks to inform targeted interventions that can reduce relapse rates and improve long-term outcomes for patients.

2. Methods

2.1 Research Design

This cross-sectional study was conducted to evaluate factors associated with symptomatic relapse in schizophrenia. The study design focused on identifying clinical and sociodemographic factors that contribute to relapse in patients with schizophrenia

2.2 Participants

The sample consisted of 60 patients diagnosed with schizophrenia (49 males and 11 females) by an experienced consultant psychiatrist using the International Classification of Diseases, 10th Revision (ICD-10) operational criteria. Participants were actively engaged with adult mental health services and attended one of four tertiary care psychiatric facilities in the Peshawar region of Pakistan: the Departments of Psychiatry at Sarhad Hospital for Psychiatric Diseases, Hayatabad Medical Complex, Khyber Teaching Hospital, and Lady Reading Hospital.

Participants were selected using a purposive sampling technique, ensuring that individuals experiencing symptomatic relapse were included in the study. This approach was chosen to focus on patients who were currently undergoing a relapse, thereby providing more relevant data for the research objectives.

Participants were excluded if they were younger than 18 years or older than 65 years, had a psychotic disorder other than schizophrenia (e.g., bipolar disorder, drug-induced psychosis, or schizoaffective disorder), or had an intellectual disability or dementia.

2.3 Data Collection

Basic demographic and clinical data were collected for each participant, including age, gender, socioeconomic status, occupational status, and relationship status. Symptom severity was assessed using the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987), a 30-item measure in which symptoms are rated on a scale from 1 (absent) to 7 (extreme). The PANSS has demonstrated good reliability (Cronbach's α = .73–.79). Based on PANSS scores, participants were categorized into three symptom severity groups following the cutoff points established by Kozma et al. (2010): low symptoms (<75), medium symptoms (≥75 and <95), and high symptoms (≥95).

2.4 Data Analysis

The study was designed as a single-group evaluation to assess the association between clinical and sociodemographic factors and symptomatic relapse. For statistical analysis, Statistical Package for Social Sciences (SPSS) version 27.0 for Windows (SPSS Inc., IBM, New York, USA) was used. Categorical variables were summarized using frequencies and percentages, while continuous variables were described using mean, standard deviation, and range. For non-parametric data, group comparisons were performed using the Chi-square test. This approach allowed for a comprehensive analysis of the relationships between the studied factors and symptomatic relapse within the single group.

2.5 Ethical Consideration

Journal of Psychology, Health and Social Challenges
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ISSN ONLINE: 3006-8800/PRINT: 3006-8797

Ethical approval for this study was obtained from the Clinical Research Ethics Committee of the Psychology Department at the International Islamic University Islamabad. Additionally, individual approvals were secured from the heads of each of the four tertiary care centers included in the study. All participants provided informed consent before participation, and all data were anonymized and coded to ensure confidentiality

3. Results

Table 1

Socio-Demographic characteristics of patients (N=60)

Variables	n (%)
Age	
19-30	30 (50)
31-40	17 (28.3)
40+	13 (21.7)
Gender	
Male	49 (81.7)
Female	11 (18.3)
Relationship Status	
Single	22 (36.7)
Married	38 (63.3)
Socioeconomic Status*	
Rs: <12,000	37 (61.7)
Rs: >12,000	23 (38.3)
Vocational Status	
Unemployed	39 (65)
Govt. employed	06 (10)
Self employed	15 (25)
Education	
Pre-primary	34 (56.7)
Pre-matric	14 (23.3)
Post-matric	12 (20)
	Mean (SD)
Age	32.70 (8.34)
PANSS score	98.77 (12.12)
Positive Syndrome	25.02 (5.08)
Negative Syndrome	25.20 (4.25)
General Psychopathology	48.97 (7.63)

Note. PANSS= Positive and Negative Syndrome Scale; *Rs = Pakistani rupee

The demographic and clinical characteristics of the 60 participants are summarized in Table 1. The majority of the patients with schizophrenia were male (81.7%), married (63.3%), and aged between 19 and 30 years (50%). Over 62% of the participants had a family income of less than 12,000 Pakistani rupees (PKR), and the mean age of the cohort was 32.7 years (SD = 8.3). A significant proportion of the sample was unemployed (65%), and 82% had not completed secondary education. These findings highlight the socioeconomic challenges faced by the majority of the participants, which may contribute to the severity of their condition.

The mean Positive and Negative Syndrome Scale (PANSS) score for the cohort was 98.77 (SD = 12.12), indicating a high severity of symptomatic relapse. The mean scores for the PANSS subscales were as follows: positive syndrome (25.02 ± 5.08), negative syndrome (25.20 ± 4.25), and general psychopathology (48.97 ± 7.63). These scores further reflect the severity of relapse symptoms, particularly in the domains of general psychopathology and negative symptoms. Detailed demographic and clinical characteristics are presented in Table 1.

The relationship between symptomatic relapse severity and various clinical and sociodemographic factors is presented in Table 2. Severe psychotic symptoms (PANSS score >95) were significantly associated with several factors. These included unemployment ($p < 0.001$), unmarried status ($p < 0.001$), duration of illness between 6 and 10 years ($p < 0.001$), family history of schizophrenia ($p = 0.002$), lower socioeconomic status ($p = 0.010$), lower educational attainment ($p = 0.037$), and age range of 19–30 years ($p = 0.010$). These findings suggest that socioeconomic and clinical factors play a critical role in the severity of symptomatic relapse.

Additionally, higher PANSS scores were observed in female participants and those with a younger age at onset. However, these associations were not statistically significant ($p > 0.05$). This indicates that while these factors may contribute to relapse severity, their impact is less pronounced compared to other variables such as employment status, marital status, and family history of schizophrenia

4. Discussion

This study aimed to explore the clinical and sociodemographic factors associated with symptomatic relapse in patients with schizophrenia in the Khyber Pakhtunkhwa Province of Pakistan. The findings provide valuable insights into the factors contributing to relapse severity and highlight the complex interplay between socioeconomic, clinical, and demographic variables in schizophrenia outcomes. The results are consistent with prior research while also offering new perspectives on the unique challenges faced by this population in a low-resource setting. Below, we discuss the key findings, their implications, and their alignment with existing literature.

The demographic profile of the study participants revealed that the majority were male (81.7%), married (63.3%), and aged between 19 and 30 years (50%). Over 62% of the participants had a family income of less than 12,000 Pakistani rupees (PKR), and a significant proportion were unemployed (65%) and had not completed secondary education (82%). These findings underscore the socioeconomic challenges faced by individuals with schizophrenia in this region, which may exacerbate the severity of their condition and increase the risk of relapse. Lower socioeconomic status and unemployment have been consistently linked to poorer mental health outcomes, as financial instability can limit access to healthcare, medications, and social support (Lund et al., 2011; Thornicroft et al., 2009). The high prevalence of unemployment in this cohort aligns with global trends, where 73% to 89% of individuals with schizophrenia are unemployed (Slade & Salkever, 2001). This highlights the need for targeted interventions to improve vocational rehabilitation and economic stability for this vulnerable population.

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ISSN ONLINE: 3006-8800/PRINT: 3006-8797

Table 2
Relationship between Psychotic Relapse Severity and Sociodemographic Factors (N=60)

Variables	Symptomatic Relapse (PANSS score)			X^2	P
	Mild (<75) n (%)	Moderate (75-95) n (%)	Severe (>95) n (%)		
Age				13.27	.010
19-30 years	0 (0)	2 (28.6)	28 (56)		
31-40 years	0 (0)	3 (49.9)	14 (28)		
40 above	3 (100)	2 (28.6)	8 (16)		
Gender				.84	.654
Male	3 (100)	6 (85.7)	40 (80)		
Female	0 (0)	1 (14.3)	10 (20)		
Relationship Status				17.37	<.001
Unmarried	0 (0)	0 (0)	22 (55)		
Married	3 (100)	17 (100)	18 (45)		
Education				9.64	.037
		4 (33.3)	30 (63.8)		
Pre-matric	0 (0)	3 (25)	11 (23.4)		
Post-matric	1 (100)	5 (41.7)	6 (12.8)		
Vocational Status				15.08	<.001
Unemployed	0 (0)	5 (41.7)	34 (72.3)		
Govt. Employed	1 (100)	3 (25)	2 (4.3)		
Self employed	0 (0)	4 (33.3)	11 (23.4)		
Socioeconomic Status				9.14	.010
Rs. PKR<12000	1 (33.3)	1 (14.3)	35 (70)		
Rs. PKR>12000	2 (66.7)	6 (85.7)	15 (30)		
FH of Schizophrenia				9.49	.002
Yes	0 (0)	12 (66.7)	26 (70.3)		
No	5 (100)	6 (33.3)	11 (29.7)		
Duration of Disorder				32.48	<.001
1-5 years	0 (0)	1 (14.3)	13 (26)		
6-10 years	0 (0)	2 (28.6)	23 (46)		
11-15 years	0 (0)	4 (57.1)	11 (22)		
15+	3 (100)	0 (0)	3 (6)		
Age at Onset				4.42	.352
19-25 years	0 (0)	9 (75)	36 (76.6)		
26-30 years	1 (100)	2 (16.7)	9 (19.1)		
30 above	0 (0)	1 (8.3)	2 (4.3)		

Note. FH = Family History

The mean PANSS score of 98.77 (SD = 12.12) indicates a high severity of symptomatic relapse in the study cohort. The subscale scores for positive syndrome (25.02 ± 5.08), negative syndrome (25.20 ± 4.25), and general psychopathology (48.97 ± 7.63) further emphasize the burden of symptoms, particularly in the domains of negative symptoms and general psychopathology. These findings are consistent with prior research indicating that negative symptoms and general psychopathology are strong predictors of relapse and functional impairment in schizophrenia (Möller et al., 1981; San et al., 2013).

The study identified several clinical factors significantly associated with severe relapse, including a family history of schizophrenia ($p = 0.002$), duration of illness between 6 and 10 years ($p < 0.001$), and younger age at onset. The association between family history and relapse severity is supported by the high heritability of schizophrenia, with genetic factors accounting for up to 89% of the risk (Ascher-Svanum, 2010). Additionally, the finding that a longer duration of illness is linked to poorer outcomes aligns with previous studies (Farooq et al., 2009; Alphs et al., 2016). This suggests that early intervention and sustained treatment are critical to improving long-term outcomes.

One of the most notable findings of this study is the significant association between unmarried status and severe relapse symptoms ($p < 0.001$). This result is consistent with the work of Li et al. (2015) and Rosen and Garety (2005), who found that unmarried individuals with schizophrenia are more likely to experience social dysfunction and rapid deterioration. In contrast, married patients often benefit from the support of a spouse and extended family, which can enhance psychological adjustment and overall health (Li et al., 2015; Rosen & Garety, 2005). These findings highlight the importance of social support systems in managing schizophrenia and suggest that unmarried, divorced, or widowed patients may require additional psychological and social interventions to mitigate the risk of relapse.

The study found that individuals aged 19–30 years were significantly more likely to experience severe relapse symptoms ($p = 0.010$). This is consistent with prior research indicating that younger age is a risk factor for relapse, possibly due to the challenges of managing the illness during a critical developmental stage (Ascher-Svanum et al., 2010). Younger individuals often face additional stressors, such as establishing a career, forming relationships, and achieving financial independence, which can exacerbate symptoms and increase the risk of relapse (Schizophrenia Research Institute, 2015). Interventions targeting this age group should focus on providing comprehensive support, including vocational training, social skills development, and family psychoeducation.

Further, the finding that a family history of schizophrenia is significantly associated with relapse severity, with 63.3% of relapsed

Journal of Psychology, Health and Social Challenges
Journal homepage: www.jphasc.com
ISSN ONLINE: 3006-8800/PRINT: 3006-8797

patients reporting such a history, is consistent with previous research. For example, Ascher-Svanum et al. (2010) identified family history as a predictor of relapse in schizophrenia. This suggests that genetic predisposition may play a crucial role in the disease's progression and severity. Moreover, this result underscores the importance of considering family history in clinical assessments and interventions for schizophrenia, potentially aiding in the development of more personalized and effective treatment strategies. Family-based interventions, such as psychoeducation and support groups, may be particularly beneficial for individuals with a family history of schizophrenia, as they can help reduce stigma, improve treatment adherence, and enhance coping strategies (Dixon et al., 2001).

The findings of this study have important implications for the treatment and management of schizophrenia in low-resource settings like Pakistan. First, the high prevalence of unemployment and low educational attainment among participants highlights the need for vocational rehabilitation programs and educational initiatives tailored to individuals with schizophrenia. Second, the significant association between unmarried status and relapse severity underscores the importance of social support interventions, particularly for unmarried, divorced, or widowed patients. Third, the link between younger age and relapse suggests that early intervention programs should be prioritized to address the unique needs of younger patients.

Pharmacological interventions also play a critical role in relapse prevention. The use of second-generation antipsychotics (SGAs) and long-acting injectables (LAIs) has been shown to reduce relapse rates and improve treatment adherence (Kane et al., 2007; Macaluso & McKnight, 2013). However, the availability of these treatments in low-resource settings remains limited, highlighting the need for policy changes to improve access to evidence-based therapies.

Limitations

This study has several limitations that should be acknowledged. First, the sample was drawn from government hospitals in Pakistan, which may not be representative of the broader population, as many patients seek treatment from private healthcare facilities. Second, the single-group evaluation design limits the generalizability of the findings, particularly in terms of cultural and socioeconomic contexts. Third, the small sample size (N = 60) may have reduced the statistical power to detect significant associations for certain variables, such as gender and age at onset. Future studies with larger, more diverse samples are needed to confirm these findings and explore additional factors contributing to relapse.

Conclusion

In conclusion, this study provides valuable insights into the clinical and sociodemographic factors associated with symptomatic relapse in schizophrenia. The findings highlight the critical role of socioeconomic status, relationship status, family history, and age in relapse severity and underscore the need for targeted interventions to address these factors. By integrating pharmacological, psychological, and social support strategies, healthcare providers can improve outcomes for individuals with schizophrenia and reduce the burden of relapse in low-resource settings.

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