ORIGINAL ARTICLE

Effect of positive and negative symptoms on schizophrenia related quality of life of hospitalized schizophrenic patients at Sargodha and Lahore: Moderating role of neuropsychiatric symptoms

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Abstract

Objective: The purpose of the study was to find out the moderating effect of neuropsychiatric symptoms in the relationship between positive-negative symptoms of schizophrenia with quality of life of schizophrenic patients.

Subject and Methods: This cross-sectional study was conducted at Lahore and Sargodha, Pakistan. Data was collected by administering the Positive and Negative of Schizophrenia Questionnaire, Quality of Life of Schizophrenia Scale and Neuropsychiatry Inventory. SPSS-23 was used for data analysis. The study was completed in one year. The data was collected from September 4, 2017 to November 1, 2018 after 10am.

Results: The findings indicated that positive symptoms had significant positive correlation with negative symptoms ($p < 0.001$) and neuropsychiatric symptoms ($p < 0.001$) with significant negative correlation with schizophrenia quality of life ($p < 0.001$). Negative symptoms had significant positive correlation with neuropsychiatric symptoms ($p < 0.001$) and significant negative correlation with schizophrenia related quality of life ($p <0.001$). Neuropsychiatric symptoms had significant negative correlation with schizophrenia quality of life ($p <0.001$) in the study. Moreover, neuropsychiatric symptoms moderated between negative symptoms and schizophrenia related quality of life.

Conclusion: In this study, findings suggested that negative symptoms and neuropsychiatric symptoms have positive association with quality of life of schizophrenic patients whereas positive symptoms have inverse relationship. The study also revealed that neuropsychiatric symptoms enhanced the effect of negative symptoms on quality of life of schizophrenic patients.

Keywords: Schizophrenia, Positive Symptoms, Negative Symptoms, Quality of Life, Neuropsychiatric Symptoms

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Introduction

Schizophrenia could be a severe disorder that effects the way someone thinks, and acts. Individuals with psychosis can appear as though they have lost contact with reality. They can hear voices which others do not realize. They assume others are trying to harm them. Psychosis signs will make that difficult for someone to travel with others, visit college, keep a job, or make sure of day to day tasks. Psychosis is an illness with main features being significant dysfunctions in thought process, academic activities, disturbed sexual functioning, hallucination, delusion, confused behaviour and also the weak emotional responses.[1,2] Symptoms of schizophrenia are usually divided into positive and negative symptoms due to their effects and adjacent treatment. Positive symptoms are those which seem to reflect in the form of delusions and hallucinations whereas negative symptoms include diminishing of affect, apathy, anhedonia, deficient social interest, poverty of speech and thought, reduced social drive, loss of motivation, and inattention to cognitive or social input.

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The term of psychosis, in keeping with DSM-IV, needs a minimum of 1-month span of 2 or additional positive symptoms, if hallucinations or delusions are particularly strange. These usually act the lives of individuals with psychosis in periods of low (or absent) positive symptoms. The simplest predictors of the impaired social functioning appear to be negative symptoms.[3] Both of the positive and negative symptoms of schizophrenia are related to economic, social and real life difficulties in patients who have to face long hospitalization periods, late recovery, unwillingness, poor treatment outcomes that significantly reduce their quality of life[4] as they lack insight (limited reality contact) into their problems due to severe neuropsychiatric symptoms.[5,6] Due to the lacking insights, the measurement of positive and negative symptoms is usually done by care givers in inventory.[7] More specifically, schizophrenia is a disorder characterized by loss of reality contact, abnormal and irrational thinking, strange behaviours, lake of motivation, impaired social and work functioning, and long-lasting mental illness that have direct effect on the behaviours, thoughts and emotions of patients.[8,9] In short, the quality of life of schizophrenic patients is extremely poor. Quality of life might be well-defined as a sense of comfort and pleasure with life

conditions, well-being and appropriate behaviours, thoughts and emotions.[10] Although the psychiatric symptoms and quality of life have direct inverse relationship but still few studies are conducted, reporting small to moderate relationships between psychiatric symptoms and quality of life.[11,12] Most of the brain disorders (like schizophrenia) might cause neuropsychiatric symptoms[13] along with the classic positive and negative symptoms. In some cases, neuropsychiatric symptoms escalate the impact of positive and negative symptoms on quality of life, just like a special form of visual and auditory hallucination, might occur in aged patients with neuropsychiatric disturbance.[14] Thus the psychiatric symptoms caused by organic brain disorders referred to as "neuropsychiatric" symptoms[15] possibly serve as moderator in the relationship between positive-negative symptoms and quality of life in schizophrenic patients. Thus the present study is an initiative to find out the moderating effect of neuropsychiatric symptoms in the relationship between positive-negative symptoms of schizophrenia with quality of life of schizophrenic patients.

Patients and Methods

Participants of the present study comprised of 100 hospitalized patients of schizophrenia with age ranging between 25 to 45 years (34.52±7.51). Young and middle aged adults were included in the sample due to growing prevalence of schizophrenia in the youngsters. The sample size was calculated through g-power[16] which confirmed that the sample size is desirable for the present study. Data was collected from different hospitals and mental health facilities situated in Lahore and Sargodha, i.e. Pakistan Institute of Mental Health, Lahore (n=30, 30%), Fountain House, Lahore (n=21, 21%), Azam Center, Sargodha (n=10, 10%), Fountain House, Sargodha (n=29, 39%), and DHQ, Sargodha (n=10, 10%). Institutional Review Board (IRB) in University of Lahore, Sargodha Campus, Sargodha reviewed the research on the basis of ethical and legal aspects and approved the research by keeping in view that research is causing no harm or risk for the participants of the study. Patients of joint family system (n=60, 60%) and nuclear family system (n=40, 40%) participated in the study. Data was collected on temporarily stable patients (Under medication). Purposive sampling technique was used for data collection. The sample comprised of only male patients because schizophrenia has greater prevalence in men as compared to women counterparts.[17]

The participants provided the information on their positive and negative symptoms of schizophrenia, neuropsychiatry symptoms, and quality of life. Informed consent was taken from the schizophrenic patients and their care takers by proceeding the information that "We are conducting a research on different psychological problems faced by mental health patients. It is an academic research in which findings will be used for research purpose only. You have right to withdraw from the research at any stage. This research will cause no harm for your health, thus if you are personally willing to provide the required information than you may participate in the study". The scales were translated in Urdu language by using Oblique Translation Technique. In this study, positive and negative symptoms of schizophrenia were measured with Positive-Negative Symptoms Questionnaire (PNS-Q).[17] The inventory was given to the mental health practitioners and they rated their patients. The PNS-Q-Informant was a 68-item questionnaire of true/false format that was intended for the caretaker of a patient. The scale had High internal consistency for each positive (Cronbach's alpha = 0.88) and negative (Cronbach's alpha = 0.89) subscales.

In the present study, neuropsychiatric symptoms of schizophrenia were measured with Neuropsychiatric Inventory (NPI). The Neuropsychiatric Inventory (NPI) was developed by Cummings et.al.[19] to measure dementia-related behavioural symptoms which they felt other measures did not appropriately report. The Inter-rater reliability ranged from 93.6% to 100%, dependent on the sub-domain. Test-retest reliability was also shown to be high (Cronbach's alpha = 0.79). The NPI originally examined 10 sub-domains of behavioural functioning. The inventory was given to the mental health practitioners and they rated their patients' psychiatric symptoms.

In the present study, schizophrenia related quality of life of schizophrenic patients was measured with Schizophrenia Quality Of Life Scale (SQOLS).[20] It contains 33 items combined in two domains: psychosocial feelings (22 items) and thought and vitality (11 items). In the item-total correlation, the magnitude of items range from 0.47 to 0.88 which is greater than 0.40 and therefore satisfactory to retain the item in all scales.[21]

Results

Table 1 shows descriptive statistics, alpha coefficients, normality statistics and zero-order correlation for study variables. Findings indicate that all scales have greater than 0.70 alpha reliability which confirms satisfactory internal consistency of all scales. The values of skewness and kurtosis for all scales are less than +1 and -1 which confirms that data is neither skewed nor kurtic. Therefore, normality of the data is not problematic. The findings of Pearson correlation indicate that positive symptoms have significant positive correlation with negative symptoms and neuropsychiatric symptoms whereas significant negative correlation with schizophrenia quality of life.

Table-1: Psychometric Properties of Study Variables.

Variables	Reliability α	Descriptive statistics Mean±SD	Potential	Actual	Normality analysis Skewness	Kurtosis
Positive symptoms	0.88	22.68±7.14	0-33	6-32	0.36	0.13
Negative symptoms	0.92	23.24±6.96	0-35	11-33	0.11	0.59
Neuropsychiatric symptoms	0.93	27.58±6.62	12-36	12-36	0.15	0.52
Schizophrenia quality of life	0.70	61.76±12.21	0-132	35-87	0.07	0.49

Table-2: Hierarchical regression analysis showing moderating effect of neuropsychiatric symptoms in the relationship between negative symptoms and schizophrenia quality of life.

Variables	Outcome: Schizophrenia quality of life Model B	95%CI LL, UL
(constant)	21.52***	[19.59, 23.45
Negative symptoms	-.93**	[-3.08, -1.90
Neuropsychiatric symptoms	-6.80***	[-3.68, -9.91
Negative symptoms x Neuropsychiatric symptoms	-2.27**	[-.60, -3.94
R^2	.50	
F	17.13***	
ΔR^2	.08	
ΔF	7.50**	

***p<.001.

Negative symptoms have significant positive correlation with neuropsychiatric symptoms whereas significant negative correlation with schizophrenia related quality of life. Neuropsychiatric symptoms have significant negative correlation with schizophrenia quality of life in the study.

Table 2 shows results of hierarchical regression analysis showing moderating effect of neuropsychiatric symptoms in the relationship between negative symptoms and schizophrenia quality of life. The R2 value of 0.50 indicates that 50% discrepancy in schizophrenia quality of life is described by predictors with F (2, 97) = 17.13, p< .001. The ΔR^2 value of .08 explained 8 % change in the variance with ΔF (3, 96) = 7.70, p< 0.001. Findings indicate that negative symptoms (B=-0.93, p< 0.01), neuropsychiatric symptoms (B=-6.80, p<0.001) and negative symptoms x neuropsychiatric symptoms negatively predicted schizophrenia quality of life (B=-2.27, p<0.001).

Discussion

The study intended to find out the moderating effect of neuropsychiatric symptoms between symptoms of schizophrenia and schizophrenia specific quality of life of schizophrenic patients.

The insights of the present study confirmed that negative symptoms negatively effected quality of life of schizophrenic patients. Negative symptoms like distorted speech, disorganized thoughts, social withdrawal, flat affect, experiential deficits, anhedonia, and avolition[22,23] are reported to have a strong association with impairments in various types of functioning, including the quality of interpersonal relations, vocational role, personal and social performance, the factors which are combined to form a good quality of life. Beside these positive and negative symptoms, the quality of life is more impaired along with the occurrence of deficits in social cognition across a wide range of psychiatric and neurological conditions and neuropsychiatric symptoms.[24] The study has empirically proved that contrary to positive symptoms, the effect of negative symptoms in interaction with neuropsychiatric symptoms worsen the quality of life of schizophrenic patients.[25]

Limitations and Recommendations

The study executed little control over the confounding factors while testing the moderation model. Thus the study has possibly low internal validity which can be improved in the future research by exerting control on the confounding variables. All scales were translated in Urdu language by the researchers which should be validated in future research.

Implications

The present study adds empirical insights to improve the modern health-care model aiming to improve the quality of life of the schizophrenic patients. The study shares insight to collectivity consider negative symptoms and neuropsychiatric symptoms while studying their impact on the quality of life of schizophrenic patients as the neuropsychiatric symptoms enhance the impact of negative symptoms on the quality of life.

Conclusion

The study confirmed that besides positive and negative symptoms, the neuropsychiatric symptoms have an additive effects in reducing the level of quality of life. Thus the study confirms that while maintaining the quality of life of schizophrenic patients, dual factors should be taken into consideration—i.e. psychological symptoms like positive and negative symptoms and neuropsychiatric symptoms.

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