

Role of Demographic Factors on the Positive–Negative Symptoms in Schizophrenic Patients

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Abstract: This paper explored how France has reacted to this move by exclusion to AUKUS not through a direct military confrontation, but through soft balancing and hedging approaches. These included diplomatic outreach, defense co-operation, and diversification of the economy with regional powers such as India, Japan, and ASEAN members. The qualitative research approach is employed to identify official reports, policy reports, and academic sources to describe the identified behaviors of France as the outcome of the assessment of the strategic threats and an effort to maintain the status of influence in the problematic region. The study focuses on the multidimensionality of the objectives of France in balancing-seeking, the significance of norms, multilateralism, and sovereignty. France counters the ambitious nature of China to stabilize the situation in the region in a non-confrontational manner. France considers itself the major security guarantor in the Indo-Pacific. Even at the expense of AUKUS and thus, it is a key contributor to alliances without compromising their own independent status, even after AUKUS.

Keywords: Demographic Factors, Frequency of Hospital Visits, Age, Gender, Birth Order, Family System, Positive–Negative Symptoms, Schizophrenic Patients

Introduction

Schizophrenia is a serious mental disease that alters the way a person performs, think, observe reality, express feelings and narrate to others. Schizophrenia is one of the most enduring and impairing of all the main brain disorders and it guides an individual to have issues working at school, work, in relationships and in society as a whole. Moreover, individuals with this disease always remain intimidated and reserved. This chronic condition can be managed but cannot be completely treated. Men and women are equally affected by schizophrenia and almost 7 to 8 individuals out of 1000 are suffering from this disorder. Schizophrenia has a range of indicators comprising changes in thinking, sensation, perception, slow motor activities and asociality. People who suffers from schizophrenia may hear things that others are not hearing. They can also think that others are reading and controlling their thoughts or trying to hurt them. These symptoms usually start in early youth and remain throughout life. Some can also have learning disabilities previously (Kahn, et al, 2015).

Commonly, there are five types of schizophrenia as paranoid schizophrenia, disorganized schizophrenia, catatonic schizophrenia, undifferentiated schizophrenia and residual schizophrenia (Bengston, 2020).

The symptoms of schizophrenia can be characterized by positive, negative and cognitive symptoms. Psychotic symptoms are type of symptoms involve distorted perceptions such as alteration in senses including hearing, visual, smelling, tasting, touching. People can also exhibit unusual or strange behavior and atypical thinking. These symptoms are also known as positive symptoms. Individuals typically experience detachment from reality and sees the world and themselves in a misleading or biased way. Some common psychotic symptoms include hallucinations, delusions and thought disorganization. Whereas negative symptoms comprise of loss of pleasure, lack of motivation, apathy regarding daily life activities, trouble in exhibiting sentiments or emotions, a sociality and struggle in normal functioning. People can also have difficulty in preparing, starting and sustaining actions. They do not properly express

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their feelings thorough facial expressions. They can also speak also and in some cases mutism occur. Cognitive symptoms may vary among individuals. Some people experience subtle cognitive symptoms and others who feel disturbances in their thinking and memory can develop severe symptoms. Symptoms can involve difficulty in concentration, memory and attention. People with these problems can have hindrance in performing different tasks such as learning novel information, initiating and succeeding chats, making choice and remembering schedules. (National Institute of Mental Health, 2020)

Diagnostic Criteria

According to the Diagnostic and Statistical Manual of Mental Disorders, the following criteria is given for the diagnosis of schizophrenia.

1. Two or more of the following symptoms should be present for substantial amount of time in one month. Hallucinations, delusions, disordered speech, negative symptoms (decreased emotive expressions or motivation) and grossly muddled or catatonic conduct. One of the symptoms must be from hallucinations, disordered speech and delusions.
2. Since the beginning of the problem the level of functioning in one or more main areas like, personal care, relationships or work is significantly lower from the past.
3. Constant symptoms of the disorder continue for at least 6 months. There must be active-phase signs involved for at least 1 month and there might be residual period in these 6 months.
4. Depressive, bipolar and schizoaffective disorders must be ruled out before making a diagnosis.
5. The distortions should not be any effect of substance or other medical condition.
6. If the history of communication or autistic disorder is present, extra diagnosis is made only if significant hallucinations and delusions exist for 1 moth at least.

Positive Symptoms

Positive symptoms refer to the symptoms that are excessive in the normal functioning of mind. In other words, schizophrenia cause excess in normal thoughts, behavior and emotions. These surplus can be categorized as positive symptoms (Batinic, 2019). These symptoms are previously classified as acute or type-1 schizophrenia (Crow, 1985). Usually people with positive symptoms have distortions in perceiving reality. They cannot tell what is real and what is not. As the name suggest, it is the presence, not the absence of signs (Tracy, 2012).

According to Diagnostic and Statistical Manual of Mental Disorders (DSM-V), these are the following types of positive symptoms.

Hallucinations: Hallucinations are experiences similar to perception but no external stimulus is actually present. In other words, an individual with schizophrenia may hear, see, or sense things that other people cannot perceive.

Delusions: Delusions are false and fixed ideas and belief of a person that are not willing to change despite of any evidence. These beliefs are so strong that they cannot be changed so easily.

Disorganized Thinking (Speech): People with schizophrenia find it hard or even impossible to organize and express their thoughts in a direct manner. It is difficult for other to understand properly what they are trying to say. Sometimes these people completely lost the construction of speech and suddenly stop the thinking process.

Abnormal Motor Behavior: This type of behavior may become evident in multiple ways such as childish habits or repeatedly performing the same behavior, also known as agitation. Sometimes, people can stay still in same position for several hours, experts referred this state as catatonia (American Psychiatric Association, 2013).

Etiology, Causes or Risk Factors of Positive Symptoms: Etiology of positive symptoms are linked with amalgamation of different neurotransmitters functioning. Predominantly, dopamine is considered to be the main cause of these symptoms. Either inhibition or escalation in production of dopamine could be the reason of Positive symptoms in schizophrenics. Dopamine plays a key part in person's attention, attitude, learning and cognition, which are linked with most of the subtypes of positive symptoms. Further, it is stated that two different regions of brain Wernicke's and Broca's area are responsible for comprehension

and production of speech respectively. Abnormalities in the functioning of these regions can make a person to hear his or her own voices, also known as auditory hallucination. Some Positive Symptoms can also be ascribed to irregularities in acetylcholine paths. It is a monitoring neurotransmitter accountable for the handling of retrieving information and sensory input. Disruption in this area of brain can result in problematic memory and misinterpretation of sensory input (Hinzen, & Rosselló, 2015).

Negative Symptoms

Negative Symptoms refers to a reduction and lack of normal functioning. A person experiencing negative symptoms may loss interest in daily life activities (National Institute of Mental Health, 2020). In the past, people who experience negative symptoms were described by different terminology, known as type-2 or chronic Schizophrenia (Crow, 1985).

Types of Negative Symptoms

Several kinds of negative symptoms are listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). These types are defined underneath.

Diminished Emotional Expression: People with schizophrenia might look like they are terrible at express emotions. They usually have reduced facial expressions, eye contact, hand, head movement and inflection in speech. When these people talk, they show no motions, their voice seems flat and they do not smile or give any facial response during communication.

Avolition: This symptom causes reduction in a person's ability to participate in daily life activities, perform daily chores and fulfil aims. People with this negative symptom shows no interest in initiating purposeful activities. Generally, people will sit for long period of time and express little to no interest in work and other related tasks.

Alogia: It is defined as decreased speech productivity or speaking expressions. Alogia can hinder person's ability to carry on a discussion and express thoughts and opinions. People with this symptom might have delay in speaking words or only responds to questions in yes and no.

Anhedonia: It is a state in which people are not capable of feeling pleasure from positive incentive. People may lack in excitement and eagerness for hobbies, desires, activities that he or she previously enjoyed.

Asociality: It refers to as obvious lack of interest in social relations and wish to stay alone for most of the time. A person may no longer make plans with friends and family or refuse to go to any social gatherings (American Psychiatry Association, 2013).

Etiology, Causes or Risk Factors of Negative Symptoms

Generally, we do not understand the exact causes of negative symptoms of schizophrenia but some theories indicate that these symptoms occur due to changes in brain cells (Watkins, 1996) It is thought that negative symptoms can be caused by particularly in reduction of a brain hormone called dopamine. This hormone is also responsible for positive symptoms as well. Though, there are a lot of views that these symptoms could be a reaction to the attack on human perception caused by an episode of positive symptoms. For instance, when a person faces some kind of trauma, the mind activates the emotional withdrawal mechanism which usually turn off the ability of a person to show emotional responses. This seem to protect schizophrenics from traumatic experiences. Although negative symptoms can be related to dopamine level but some other neurotransmitters also play a role in causing negative symptoms in schizophrenics. GABA is one of them, that stimulates relaxation but disruption in its production may cause negative symptoms. Another neurotransmitter, which is known as serotonin could be the reason of loss of appetite, not able to enjoy life, not able to perform goal directed behavior and lack of motivation (Burton & Davison, 2012).

There are number of demographics involved in influencing these positive and negative symptoms. Let us consider these one by one. The demographics included in the current study was age, gender, birth order, family system and times admitted to hospital.

Research conducted on schizophrenia to examine the gender differences among different age groups. It was concluded that gender differences depend on what type of negative symptoms exhibited by respondents. Further, patients with older age showed more devastating negative symptoms in men but not in women. (Muralidharan, et al., 2028). A study by Müller (2007) also showed a significant difference

gender on the negative and positive symptoms of schizophrenia. Another study investigated and found that there was no difference existed in gender and age groups until first admission. There was a negative symptoms found for little time in young males a little longer symptoms for older women. Finally, no significant difference in gender according to negative symptoms (Häfner, et al., 1994).

The later birth order sibling has more tendency to get severe schizophrenia symptoms and early onset (Gaughran, et al., 2007). Another very comprehensive study found that bigger family like in joint family system have the greater chance of developing schizophrenia and psychotic disorder. Further, single and first born child exhibit less chance of psychotic disorder as compared to center born child. It confirm the notion that birth order and family size was significant in terms of psychotic symptoms (Eskelinen, et al., 2024; Schooler, 1961). Furthermore, another study concluded that first born and sibling age below 5-years show more symptoms of schizophrenia whereas sibling age more than 10 years have low risk of the problem (Haukka, et al., 2004).

Yet another comprehensive study determining the demographic link with negative symptoms. Results concluded that people at early age, male, not married, more hospital admission, longer stay at hospital and more readmission at hospital were due to the negative symptoms of schizophrenia (Patel, et al., 2015). A study confirmed that elderly age and was repeated and long duration of hospital stay was connected with positive-negative symptoms (Witkowski, et al., 2023). In summarizing the literature, it was confirmed that different demographic has a significant role in influencing positive-negative symptoms of schizophrenia. The current study explores role of demographic on the positive-negative symptoms in schizophrenic patients.

Research Methodology

Design

In this study, a cross-sectional research design was employed. Patients with schizophrenia who were older than 19 made up the research sample. Those with a diagnosis of schizophrenia, only adults, and outpatients were included in the sample. Participants with physical illnesses, impairments, or neurological or other psychiatric problems were excluded. Additionally, the study excluded inpatients with schizophrenia, children, and adolescents, and those with a history of substance misuse or head injuries were not also exclude to participate.

Sampling technique

Participants were selected using the purposive sample technique. Selection criteria were age, outpatient, and a diagnosis of schizophrenia. This method of sampling is non-probability.

Measures

The following tools were used to gather participant data. The demographics include age, gender, birth order, family system and times admitted to hospital. The Brief Psychiatric Rating Scale (BRPS 4.0) was used by Ventura et al. (1993a, 1993b) to evaluate the participants' positive and negative symptoms. The scale, which has 24 items on a 7-point Likert scale, looks at a lot of aspects of schizophrenia. Its dependability rating is.89. The scale was translated into Urdu for the current investigation. For this study, only positive and negative subscales were used. The items were assigned to these subscales based on the symptoms described in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatry Association, 2013).

Procedure

The research sample was recruited using the purposive sampling technique. Participants having a diagnosis of schizophrenia disorder were included in the sample. Participants have to be at least 19 years old. Participants must also be outpatients. The Umar Arshad Hospital in Gujrat, Pakistan, is where the sample was taken. To gather data, the hospital authorities were provided with the scale batteries, written informed consent, and an official permission letter. The current study was explained to the hospital leaders. After receiving written authorization from the authorities, the participants were contacted at the hospital. The responders received thorough instructions and an explanation of the advantages of the

current study. The participants were also assured that their identities and the data would remain confidential. The respondents were also requested to give their written consent. The study only included participants who volunteered. By introducing themselves, the study's summary, its primary goal, and their affiliation with the institution, the researcher established a connection with the participants. The patients with schizophrenia were then given a demographic form and the Brief Psychiatric Rating Scale. The respondents were eager to complete the scales and selected the appropriate answers based on their emotional states. Through email, the respective authors gave their permission to utilize all of the scales in this study. Subsequently, the researcher expressed gratitude to the respondents for supplying all the information needed to finish the study. At the conclusion of data collection, the respondents were also given the email address and phone number in case anyone was interested in getting the research's findings. Lastly, the researcher expressed gratitude to the hospital directors and volunteers for their assistance and effort during the data gathering process.

Data Analysis

Descriptive statistics and neural network analysis were used in the research.

Results

The thorough explanation of the statistical analysis employed in the study was given in this section. The Statistical Package for the Social Sciences (SPSS, V 21.0) for Windows was used to do the statistical study. Most of the participants were female and in the 30–40 age range. The vast majority of respondents lived in nuclear families, were unemployed, unmarried, and uneducated. The majority of participants have three to five siblings. The majority of families made less than 15,000 RS. For six to ten years, nearly half of the subjects had schizophrenia. Thirty-three percent of the population had been hospitalized zero to three times. The majority of respondents said they didn't feel better at any point during the year or during any season. The majority of people believe that their health has not much improved. The purpose of the current study was to determine which demographic characteristics significantly predict the positive and negative symptoms in patients with schizophrenia. Neural network analysis was performed for this objective. It gives the normalized significance of each demographic element on tenants' psychological adjustment as well as the relative inaccuracy of training and testing.

Table 1

Relative Error for Training and Testing for Positive Symptoms in Schizophrenic Patients

	Relative Error
Training	.781
Testing	.774

The relative errors of testing and training was .774 and .781 respectively. The predictive relationship between the variables is stronger if there is less difference in the relative error of training and testing. As there was less disparities in the relative error, it was confirmed that demographic factors influenced the positive symptoms in schizophrenic patients.

Table 2

Normalized Importance of Demographics Variables and Positive Symptoms in Schizophrenic Patients

Variable	Importance	Normalized Importance
Age	0.318	86.4%
Gender	0.027	7.4%
Birth Order	0.262	71.1%
Family System	0.024	6.6%
Times Admitted to Hospital	0.369	100.0%

Times Admitted to Hospital is the most significant variable among the predictors of the positive symptoms, according to the analysis (Importance = .369; Normalized Importance = 100%). This indicates

that it makes the largest contribution. Age (Importance = .318; Normalized Importance = 86.4%) and Birth Order (Importance = .262; Normalized Importance = 71.1%) are the next best predictors. Though not as much as the frequency of hospitalization, both of these make significant contributions. On the other hand, the predictive significance of gender (Importance = .027; 7.4%) and family system (Importance = .024; 6.6%) is quite low. This implies that, when compared to the other predictors, these variables contribute very little to the model.

Table 3
Relative Error for Training and Testing for Negative Symptoms in Schizophrenic Patients

	Relative Error
Training	.663
Testing	.657

Testing and training had relative errors of .657 and .663, respectively. Less variation in the relative error of testing and training indicates a greater predictive link between the variables. It was established that demographic characteristics affected the negative symptoms in patients with schizophrenia since there were fewer differences in the relative error.

Table 2
Normalized Importance of Demographics Variables and Negative Symptoms in Schizophrenic Patients

Variable	Importance	Normalized Importance
Age	0.137	34.7%
Gender	0.146	37.0%
Birth Order	0.230	58.5%
Family System	0.093	23.5%
Times Admitted to Hospital	0.394	100.0%

According to the findings, the best indicator of the negative symptoms was the time admitted to hospital (Importance = .394; Normalized = 100%). This suggests that the most important factor in predicting negative symptoms was the frequency of hospitalization. Birth Order is the second most significant variable, with a substantial degree of predictive strength (Importance = .230; 58.5%). Although their contributions were comparatively smaller, gender (Importance = .146; 37.0%) and age (Importance = .137; 34.7%) still have some explanatory power. However, the least significant predictor was Family System (Importance = .093; 23.5%), indicating that family structure has little bearing on other factors.

Discussion

Individuals who are affected with schizophrenia may look like that their association with reality is lost. Although, it is not a common occurring disease but its symptoms might be very devastating and immobilizing. Moreover, experiences of schizophrenics are both terrifying and upsetting, such as bizarre speaking, loss of motivation, uncertain thoughts, being emotional and reduced capacity to understand what is real and what is not. Some individuals can also be escorted by additional psychological issue like, depression, substance abuse and anxiety (Bressert, 2020; Andreasen, & Olsen, 1982).

The findings of the current study confirmed that demographics play an important role in regulating the positive-negative symptoms of schizophrenia. In both symptoms frequency of admission at hospital was the most significant factor. Whereas in positive symptoms age was the second important factor after which birth order played the role. In cases of negative symptoms, birth order was the second important factor followed by gender and age.

Previous literature also conformed the roles of these factors in influencing positive-negative symptoms of schizophrenia. Here, elderly age and repeated-long duration of hospitalization play role in positive-negative symptoms (Witkowski, et al., 2023). Another study revealed that early age, male, more hospital admission and re-admission was linked with negative symptoms of schizophrenia (Patel, et al.,

2015). Here the literature on birth order showed that first born display more symptoms of schizophrenia (Haukka, et al., 2004). Other contrasting literature exposed that later born sibling demonstrated more predisposition towards severe schizophrenia symptoms (Gaughran, et al., 2007). While patients with older age showed more overwhelming negative symptoms in men (Muralidharan, et al., 2028). Whereas another study showed gender play role in the negative and positive symptoms of schizophrenia (Müller, 2007).

Conclusion

It was concluded that demographic determined the positive-negative symptoms of Schizophrenia. Times Admitted to Hospital was the most significant variable among the predictors of the positive symptoms followed by age and birth order. In case of negative symptoms again the frequency of hospitalization was most important factor followed by birth order, gender and age.

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