# Relationship between Negative Symptoms and Functional Outcome among Patients with Schizophrenia

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## Abstract

**Background**: Schizophrenia is a severe, chronic mental disorder characterized by disturbances in thought, perception and behavior leading to impaired function that persist for at least 6 months of disturbed functioning. Negative symptoms are core features of the disorder even during the first episode and it has emerged a key predictors of functional outcomes in individuals with chronic schizophrenia. **Aim:** to assess the relationship between negative symptoms and functional outcomes among patients with schizophrenia. **Design & Setting:** A descriptive correlational research design was used; the study was conducted at El-Azazy hospital for mental health and addiction management. **Sample:** Purposive sample consists of 107 patients was diagnosed with schizophrenia. **Tools:** Data were gathered through structured interview questionnaire through three tools: First: Personal characteristics of the study sample, Second: 4-Item Negative Symptom Assessment scale (NSA-4) and Third: Social functioning scale. **Results:** (50.5%) of studied sample had moderately severe level of negative symptoms , the majority (93.5%) of the studied sample have poor social function level while minority (6.5%) of them have fair social function level. **Conclusion:** There is a highly statistically significant negative correlation between negative symptoms and social functioning domains among studied patients. **Recommendations:** Developing program for training mental health nurses on the accurate assessment of negative symptoms and social functioning among patients with schizophrenia.

**Keywords:** Negative symptoms, Patients of schizophrenia, Social function.

## 1. Introduction

Schizophrenic spectrum disorders is a severe, chronic mental disorders characterized by disturbances in thought, perception and behavior leading to impaired function that persist for at least 6 months of disturbed functioning, it is a challenging brain disorder that often makes difficulty to distinguish between what is real and unreal, to think clearly, manage emotions, relate to others, and function normally as well as it affects the way a person behaves, thinks,

and sees the world **(Sadock and Sadock, 2019)**.

Schizophrenia is a severe and disabling mental disorder that affects more than 24 million people globally and affects 273.441 of adult population in the Egypt **(WHO, MOHP, 2020)**. Additionally, the number of patients in Elazazy hospital for mental health and addiction management in sharkia governorate in the year 2021 was 3247, where 40% were women. The patients admitted to mental hospital are mainly diagnosed under two diagnostic categories: schizophrenia and other psychotic disorders (73%) and mood disorders (11%) as recorded by Elazazy hospital for mental health.

According to **Ahmed, Kirkpatrick and Galderisi (2019)**, negative symptoms are core features of the disorder even during the first episode and it has emerged as a key predictors of functional outcomes in individuals with chronic schizophrenia, it defined as the absence or diminution of normal behavior and function. However, experience factors in individuals with schizophrenia are associated with a lack of motivation and ability to enjoy pleasant life experiences, and they include anhedonia, a sociality, and avolition **(Strauss et al., 2019)**.

However**,** expression factors indicate a decline in linguistic and nonverbal communication, including blunted affects and alogia **(Strassnig et al., 2018)**. Recent study using a two-dimensional model has investigated the effects of these two negative symptom factors (experience and expression factors) on functional outcomes **(Kring and Barch, 2018)**.

According to **Kaiser et al.**, **(2017)**, schizophrenia is associated with impairment in the ability to perform activities of daily living, including self-care activities such as instrumental activities like financial management, shopping, cooking, cleaning, and managing medications and transportation. Study of recovery from the first episode of schizophrenia has estimated rates of adequate functioning across social and vocational domains of less than 15% after 5 years of disorder; moreover, such recoveries generally occurred quite early in the five-year period **(Waltz et al., 2020)**.

The link between negative symptoms and functional outcome has attracted interest from the perspective of interventions in patients with schizophrenia. It includes a

wide range of abilities from successful performance on neurocognitive tests to living independently in the community **(Harvey, 2019)**.

PMHN have advanced knowledge to make assessment, nursing diagnosis, and providing care to patient with schizophrenia that helps them provide specialized care. They typically work alongside other health professionals in a medical team with the aim of providing the optimal clinical outcomes for the patients **(Kingdon and Turkington, 2022**).

The nurses initiate and establish a therapeutic relationship with the patients based on trust by displaying an attitude of acceptance, empathy, and support **(Rogers and Wattis, 2020)**. The therapeutic relationship is basic principle in patient care through interaction between the nurse, the patient and family caregiver in which the collaboration between them contributes to a curative climate, promoting growth and/or prevention of the disease. There are several obstacles to the therapeutic relationship between the nurse and the patients with schizophrenia, since they are usually desperate, with difficulty expressing their symptoms and fearful of consequences and with confronting the need to change **(Hu et al., 2022).**

Caring for schizophrenic patients requires that nurses have a great capacity for understanding and empathy and non-stigmatization of mental illness, so that an effective and efficient therapeutic relationship can be established. The nurse must be able to see that beyond the symptoms, there is a person in terrible mental suffering, despair, hopelessness and may even have suicidal thoughts. Nurses must be able to understand that these patients live in a frightening unreal world and has difficulty distinguishing reality from delusions and hallucinations, because everything seems real to them. For all of these reasons, it takes a great deal of hard work for nurses to understand the patient with schizophrenia who is suffering from a mental pathology and that it is essential to learn to live with symptoms and adhere to therapy to prevent relapse **(Pratt, Moroney and Middleton, 2021)**.

Moreover, the most important role of nurse to assess whether the client has an active support system, whether the client is able to perform activities of daily living, and whether the client displays any bizarre eating habits such as pica (eating nonnutritive

substances) or compulsive overeating **(Watson, 2019)**. Document the client's physical condition noted during the assessment. Comorbid medical problems that are commonly seen in clients with psychotic disorders include obesity, hypertension, type 2 diabetes, and hepatitis. A complete physical exam may be necessary to differentiate schizophrenia versus acute psychosis resulting from an organic disease or nonpsychotropic medication **(Doleys, 2021)**.

The nurse must provide health education to family about how to maintain low level of stimuli in client's environment such as low lighting, few people, simple decor, low noise level, because anxiety level rises in a stimulating environment, observe client's behavior frequently and remove all dangerous objects from client's environment to ensure client and others safety **(McKenna, Brown, Williams and Lau, 2020)**.

The psychiatric nurse provide health teaching, group therapy, follow-up care, health promotion, prevention and early detection of problems by using core competencies and knowledge of schizophrenia spectrum disorder and full range of withdrawal management services including services using best practice treatment protocols, outreach, prescribing schizophrenic patients counseling using motivational interviewing techniques to help clients effect change to live out their lives that fulfill their underlying hopes, belief and values **(Yoo, Lim and Shim, 2020)**.

Effective treatment requires a comprehensive and multidisciplinary effort, including pharmacotherapy and various forms of biopsychosocial care, such as living skills and social skills. Schizophrenia probably is responsible for lengthier hospitalizations, greater chaos in family life more exorbitant costs to individuals and governments **(Morera-Balaguer et al., 2019)**.

**Significance of the study:**

Negative symptoms of schizophrenia have been associated with detrimental effects on the long-term outcome and the quality of life of patients. The researcher focuses on this category of symptoms due to the heterogeneity of the psycho-pathology of the domain and sometimes not yet controlled by current treatments **(Bobes et al., 2016).**

It is very important to assess relationship between negative symptoms and

functional outcomes among schizophrenic patients in order to predict new mechanisms or care with schizophrenic patients to reduce the effect of negative symptoms. Therefore, this study was conducted to assess the effect of negative symptoms on physical, functional, psychological, and social and recreation aspects for patients with schizophrenia.

**The aim of the study:** Assess the relationship between negative symptoms and functional outcomes among patients with schizophrenia.

**Research Question:**

1- Do patients with schizophrenia have severe negative symptoms?

2- Do negative symptoms effect on functional outcome among patients with schizophrenia?

3-Is there a relationship between negative symptoms and functional outcomes among patients with schizophrenia?

## 2. Subjects and Methods

**Study design:** A descriptive correlational research design was utilized to conduct the current study.

**Study setting:** The study was carried out at El-Azzazi hospital for mental health and addiction management in sharkia governorate, Egypt.

**The sample of the study:** 107 Purposive Sample was used to recruit of the study sample. Sample calculated for schizophrenic patients by the following equation:

$$n = \left[\frac{Z_{\alpha/2} + Z_{\beta}}{\frac{1}{2}\log\frac{1+r}{1-r}}\right]^2 + 3$$

**Inclusion criteria:**

- Patient aged from 18 to 60 year old.
- Both genders.
- Patients have negative symptoms of schizophrenia.

**Exclusion criteria:**

- Substance use disorder.
- History of neurological disorders or mental retardation.
- Patients have positive symptoms of disturbed patients.
- Sever cognitive impairment.

**Tools of data collection:**

Three tools were utilized to collect data pertinent to the study variables:

**1- Personal data sheet was developed by researcher to record all data**:

It includes patient personal data such as age,

gender, level of education and marital status.

**2- Negative Symptom Assessment Instrument (NSA-4):**

It was developed by **Ang, Rekhi and Lee (2019)** and translated into Arabic by **Salama, (2022)**. It was used to assess negative symptoms in patients was diagnosed with schizophrenia. The NSA-4 consists of 5 items (speech, anhedonia, affect, motivation, and social drive). All items answered by using a 5-point Likert scale formal ranging from (0) representing normal, (1) representing mild negative symptoms, (2) representing moderate negative symptoms, (3) representing moderately sever and (4) representing sever negative symptoms. Total score of NSA-4 ranged from 0-20 points to determine level of severity of negative symptoms. A higher score reflects high severity level of negative symptoms.

**Scoring System of (NSA-4):**

The following steps will be followed in categorizing the levels of severity of negative symptoms into (1-4) indicate to mild, (4-8) moderate, (8-12) moderately sever and more than (>12) indicate sever negative symptoms. The present study have strong reliability as Cronbach's alpha= (.64 - .85).

**3- Social Functioning Scale (SFS):-**

It was developed by **Smith & Birchwood (1990)** and translated into Arabic by **Salama (2022)**. It is used to measure social functioning for patients with schizophrenia. The SFS Scale consists of 74 items and divided into seven subscales. The first subscale describes the social engagement/withdrawal consists of (5 items) include four items of them rated by four point Likert scale and one item rated by five point Likert scale. Second subscale describes the interpersonal behavior consists of (10 items) include two item rated by dichotomous question, seven item rated by four point Likert scale and one item rated by asking about number of friends. Third subscale describes the pro-social activities consists of (11 items) rated by four point Likert scale. Fourth subscale describes the recreation consists of (12 items) rated by four point Likert scale. Fifth subscale describes the independence\self-reliance and ability consists of (12 items) rated by four point Likert scale. Sixth subscale describes the independence\self-reliance and performance consists of (13 items) rated by four point Likert scale. Seventh subscale describes the employment/occupation consists of (5 items) include two items rated

by dichotomous questions , one item rated by three point Likert scale, one item rated by four point Likert scale and one item rated by asking about sort of job and number of hours working in day.

**Scoring System of Social Functioning Scale:** The overall score on the social function scale ranged from 0 to 194.

-Poor social function: < 50% (0-96)
-Fair social function: 50%-75% (97-145)
-Good social function: > 75% (146-194)

**Tool validity:**

The tools were revised by a panel of seven experts in psychiatric mental health nursing and medicine to test clarity, relevancy, applicability, comprehensiveness, understanding and ease for implementation as well as cheeked the content validity of tools. According to their opinion the needed modifications were done.

**Reliability of the study Tools:**

Chronbach's alpha coefficient was calculated to assess the reliability of the tools through its internal consistency. Suggest that a reliability coefficient of 0.64 or higher is acceptable.

**Pilot study:**

A pilot study was carried out on 11 patients with schizophrenia (10%) at study setting to check the applicability and feasibility of study tools, to identify the obstacles and problems, and take needed measures to manage these obstacles and problems when collecting data. Pilot study play a vital role to identify the time needed to fill each tool. The time allowed to complete the questionnaires was 35-40 minutes. Data obtained from the pilot sample were analyzed and some modification was done. Pilot sample was excluded from the main study sample.

**Field work:**

-The data were collected from schizophrenic patients in El-Azazy hospital for mental health and addiction management after take permission of ministry of health and General Secretariat of the Mental Health (GSMH) in Abbasia mental health hospital in Cairo.

-Therapeutic relationship had been established between researcher and patients with schizophrenia started with introducing self and the innate scientific nature of the study purpose and benefits, emphasizing on trust relationship, offering self for explanation of any difficulties in understanding the questionnaire statements.

-The researcher started the interview with patients individually after follow up with doctor by using questionnaire and the questions were read, explained and clarified any questions if needed.

-The time allowed to complete the questionnaires was 35-40 minutes. The data collection lasted for five months starting from November 2022 to March 2023. The data was collected two days weekly (Sunday and Monday).

-The data was collected from two or three patients per day at the waiting areas outside the outpatient clinics during the patient's attendance to the clinic for follow as doctor ordered. Each patient was individually interviewed using the study tools.

-An informed written consent to participate in research was obtained from each participant or family caregiver after full explanation of the study. When assessing negative symptoms, asking the patient open-ended questions rather than questions that can be answered with a "yes/no" response can yield useful information.

**Administrative design:**

Official permission was obtained from the dean of faculty of nursing, Suez Canal University and permission of ministry of health and General Secretariat of the Mental Health (GSMH) in Abbasia mental health hospital in Cairo for collecting the data from schizophrenic patients at El-Azazy hospital for mental health and addiction management through structured interview questionnaire with patients**.** The researcher was explained the aim and nature of the study to schizophrenic patients and their family caregiver for gaining their cooperation.

**Ethical considerations:**

Primary approval was obtained from the research ethical committee in the Faculty of Nursing, Suez Canal University (code149\2022). The researcher explained the aim and nature of the study to schizophrenic patients and their family caregiver for gaining their cooperation. Written consent was obtained from schizophrenic patients or their family caregiver to participate in the study and inform them about voluntary participation and about their right to withdraw at any time from the study. The topic of this study will not touch religious, ethical, moral and culture issues among participants and family caregivers, also they were notified that they were assured that the information would

renowned confidentially and used for the research purpose only, and they have the right to withdrawn from the study at any time.

**Statistical design:**

Data entry was organized; revised, tabulated and all statistical analyses were performed using the Statistical Package of Social Science (SPSS) program, version 23. All continuous data were normally distributed and were expressed in mean ±standard deviation (SD). Categorical data were expressed in number and percentage. T test was used for comparison between two variables with continuous data. One-way analysis of variance (ANOVA) test was used for comparison among more than two variables with continuous data. Correlation co-efficient test was used to test correlations between two variables with continuous data. Statistical significance was set at $p<0.05$ and highly statistical significance was set at $p<0.001$.

**Limitation of the study**:

1- The study was involved travelling to El-Azazy hospital for mental health and addiction management which involves a financial and physical strain on the researcher.

2- Lack of cooperation by some patients while collecting data.

3- The permission from General Secretariat of Mental Health in Abbasia hospital in Cairo took 4 months which time consuming.

## 3. Result:

**Table (1):** Shows that (32.1%) of studied sample aged 40 to less than 50 years old. Regarding gender (72.9%) of the studied sample were males. Regarding marital status (43.0%) of the studied sample is divorced while (21.5%) are married. According to educational level (52.3%) of the studied sample had secondary education level while (9.3%) of them had university education.

**Table (2)**: Indicates that (61.7%) of studied sample had moderately severe level of pleasure/having anhedonia. (59.8%) of studied patients have moderately severe level of avolition. (58.9%) of studied patients has moderately severe level of emotional expression/affect. (53.3%) of studied patients have moderate level of social drive. (42.1%) of studied sample had moderately severe level of alogia. Finally, (52.1) of total sample size had moderately severe level of negative symptoms.

**Figure (1)**: Illustrates that nearly half (50.5%) of studied sample had moderately severe level of negative symptoms while minority (8.4%) of them had mild level of negative symptoms.

**Table (3):** Illustrates that (71.34%) of studied sample had defect in interpersonal functioning. Total mean of social functioning score was 75.27±13.14**.**

**Figure (2):** Shows that the majority (93.5%) of studied patients has poor social function level, while the minority of them (6.5%) has fair social function level.

**Table (4)**: Illustrates that there is a statistically significant relationship between negative symptoms and social functional levels where as P value = 0.001.

**Figure (3):** Shows that there was a statistically significant negative correlation between negative symptoms and social functional whereas r = -0.602 and p value <0.001.

## 4. Discussion

Schizophrenia is the most common chronic psychosis and accounts for the majority of inpatients and outpatients in mental hospitals. It affects individuals at age 15 and 25 years old. Men tend to develop schizophrenia slightly earlier than women after age of thirty that influence their marital status**,** occupations, health and quality of life **(Mosolov, 2020)**. Schizophrenia is a major type of psychotic disorders, which affects around 24 million people worldwide. About seven per thousand of the adult population suffer from this chronic psychotic disorder **(WHO, 2022)**.

Despite advancements in pharmaceutical and psychosocial therapies for schizophrenia, functional challenges persist. This emphasizes the importance of learning more about these challenges in order to improve functioning therapies in schizophrenia **(Huxley et al., 2021)**. Social functioning refers to individuals' ability to perform day to day social tasks appropriately and to maintain a sufficient social life. Social performance depends in part on the level of social skills such as independent living skills, engaging in positive relationship with other, engagement in a range of common social activities such as sports and engagement in productive employment **(Cohen, 2019).**

The present study aims to assess relationship between negative symptoms and

functional outcomes among patients with schizophrenia. Interpretation and discussion of results obtained from the current study were presented in four main sections; the first section describes personal characteristics of the studied patients, the second section represents severity levels of total negative symptoms among studied patients, the third section describe frequency percentage distribution of social functioning (SFS) domains among studied patients, Finally the forth section represents relationship between negative symptoms and functional outcomes among studied patients.

**The first section describes personal characteristics of the studied patients**, regarding the age; more than two thirds of patients aged 40 to less than 60 years old. This finding may be related to different factors, the most important one because of customs, cultures and traditions there is a stigmatized for going to a psychiatrist or a psychiatric hospitals and they go to charlatans or fortune-tellers believing that they envied or deceived and thus they delay the stage of discovering mental illness. This result is congruent with **(Fišar, 2023)** and **Iasevoli et al., (2022)** who reported that the onset of schizophrenia occurs after the age of 40 years. However, this result is incongruent with **Kanemoto et al., (2022)** who reported that the majority of schizophrenic patients belonged to 20 to less than 40 years age group.

Regarding to gender, nearly three quarters of the studied patients were males. This finding may be due to men may be more susceptible to schizophrenia than women potentially because women have higher levels of estrogen; estrogen helps regulate important neurotransmitters that play a role in schizophrenia onset. This result is congruent with **Panov (2022)** who reported that more than the half of schizophrenic patients was males. In support of our result, the study of **Hong, Bennett and Rosenheck (2023)** founded that three quarters of the studied patients were males. This result is incongruent with **Pence et al., (2022)** who reported that more than of schizophrenic patients were females.

Regarding patient's marital status, nearly half of studied patients were divorced while one third of them single. This finding may be due to individual with schizophrenia have trouble in establishing social connections and intimate relationships because of their paranoia and fear, so if they have managed to find marriage, divorce is a common outcome and a mental- ill patient

hinder the marriage because of stigma of being a psychiatric patient inability to work and low income. This result is congruent with **Köktaş and Arslantaş (2023)** who reported that nearly two thirds of schizophrenic patients were divorced. However, this result is incongruent with **(Safont et al., 2023)** who founded that more than half of studied sample were single.

Regarding the educational status, the present result revealed that nearly half of the studied patients had secondary education. This result is due to the common age onset for schizophrenia is after 18 years, and therefore sometimes it has secondary school. This result is congruent with **(Kouakou et al., 2023)** who reported that nearly half of schizophrenic patients had secondary education. This result is incongruent with **(Tesli et al., 2022)** who discovered that nearly half of schizophrenic patients had primary school.

**The second section represents severity levels of total negative symptoms among studied patients**; the current study showed that half of studied patients had moderately severe level of negative symptoms, while one third of them had moderate level of negative symptoms. This finding may be due to patients' had poor social function because of negative symptoms are associated with impaired daily life functioning, social relationships, and the professional activity as well as rarer achievement and poorer quality of remissions in the course of the disease. Compared to positive symptoms, negative symptoms show no tendency toward spontaneous improvement in the course of the disease and respond poorly to treatment with currently used antipsychotics.

This result is congruent with **Chan, wang & lui (2022)** who reported that nearly two thirds of studied patients had moderately severe level of negative symptoms. In addition, **Mosolov and Yaltonskaya, (2022)** founded that greater than half of schizophrenic patients had moderately severe level of negative symptoms. Also the study of **(Davidson et al., 2022)** reported that nearly half of schizophrenic patients had moderately severe level of negative symptoms.

Conversely, **Reddy (2023)** reported that more than one third of studied patients had moderate level of negative symptoms. Also the result disagree with **Weber, Scott and Chatterton, (2022)** who reported that

greater than half of schizophrenic patients had moderate level of negative symptoms. Finally, **Swora et al., (2022)** founded that nearly two thirds of studied patients had moderate level of negative symptoms.

**The third section describe frequency percentage distribution of social functioning (SFS) domains among studied patients**, the current study showed that the majority of the studied patients had poor social functioning level. This could be explained by that deficits in social functioning are important determinant in schizophrenia. Acore feature of the illness that persists despite treatment. This result may be due to loneliness, withdrawal symptoms, avoid friends, and decrease share in pro-social activities in schizophrenia as major risk factors for negative health and effect on social functioning, so schizophrenic patients have poor social functioning.

This result is congruent with the study of **Ryu et al., (2020)** and **Tawfik (2020)** who founded that more than two thirds of the studied patients had poor social functioning level. Additionally, **Weittenhiller et al., (2021)** reported that more than half of the studied patients had poor social functioning level. The study of **Evensen et al., (2016)** affirmed that schizophrenia is associated with poor social functioning and founded that nearly half of the studied patients had poor social functioning level.

In the opposite direction, **Torio et al., (2014)** discovered that schizophrenic patients had moderate difficulties in social functioning and reported that nearly half of the studied patients had fair social functioning level. In addition, this study disagrees with **Nadesalingam et al., (2022)** who reported that greater than half of the studied patients had fair social functioning level. In the same context, **Oomen et al., (2023)** founded that nearly two thirds of the studied patients had fair social functioning level.

**Finally the section represents the relationship between negative symptoms and functional outcomes among studied patients,** the results of the current study showed that, there is a highly statistically significant negative correlation between negative symptoms level and social functioning of studied schizophrenic patients. This result may be due to negative symptoms appeared to play an important role in impaired functioning of schizophrenia and thus treating they appeared to be a possible

path for improving the social functioning in schizophrenia. This finding is in the same direction with **Santosh, Roy & Kundu (2015)** who founded a statistically significant negative correlation between social functioning and negative symptoms in schizophrenic patients.

This finding is in the same line with **Harvey et al., (2019)** who pointed that social functioning among schizophrenic patients can be influenced by negative symptoms and concluded that significant negative correlation between social functioning and negative symptoms in schizophrenic patients. Also **Nemoto et al., (2020)** founded that worsening negative symptoms of schizophrenia was related to decrease in patients' social functioning and reported that there is a significant negative correlation between social functioning and negative symptoms in schizophrenic patients.

In the same line **González-Blanch and Seeman (2020)** pointed that an association between higher negative symptoms severity and poorer social functioning and founded that a significant negative correlation between social functioning and negative symptoms in schizophrenic patients. Also **Ryu et al., (2020)** discovered that severe negative symptoms were linked to poor functional results in schizophrenia. In the same context, **Abel & Minor, (2021)** reported that treatment of negative symptoms of schizophrenia is one of the main areas to consider in order to improve social functioning and concluded that there were a significant negative correlation between social functioning and negative symptoms in schizophrenic patients.

In addition, **Robertson et al., (2014)** indicated that negative symptoms in schizophrenia contributed to real-world social dysfunction and founded that significant negative correlation between social functioning and negative symptoms in schizophrenic patients. Also **Isvoranu et al., (2022)** founded that negative symptoms were related to social functioning in schizophrenia and reported that there were a significant negative correlation between social functioning and negative symptoms in schizophrenic patients.

Additionally, the studies of **Glenthøj et al., (2016)**; **Cotter et al., (2015)** who detected a significant negative correlation between social functioning and negative symptoms in studied patients. Moreover, **Bae et al., (2010)** founded that the social

functioning level of the patients was low if the negative symptom score was high and reported a significant negative correlation between social functioning and negative symptoms in studied patients.

Similarly, **Schlosser et al., (2015)** revealed that negative symptoms had been shown to be strongly associated with social functioning than expressive symptoms and founded that a significant negative correlation between social functioning and negative symptoms in studied patients. Furthermore, **Carrión et al., (2016)** pointed out that the length of negative symptoms was a predictor of poor social functioning and concluded that there were a significant negative correlation between social functioning and negative symptoms in studied patients.

Additionally, **Glenthøj et al., (2020)** and **Blanchard et al., (2017)** found that social impairment is the result of the combined effects of negative symptoms in schizophrenic patients. Also **Galderisi et al., (2018)** discussed that negative symptoms including lack of social motivation and anhedonia are closely related with social functioning in in schizophrenic patients.

## 5. Conclusion:

Based on the findings of the present study, it can be concluded that half of the studied patients had moderately sever levels of negative symptoms, while one third of them had moderate levels of negative symptoms. It can be concluded that the majority of the studied patients had poor social function levels, while minority of them had fair social function levels. Finally, there is a highly statistically significant negative correlation between social functioning levels and negative symptoms of schizophrenia.

## 6. Recommendations:

Based upon the result of this study, the following recommendations can be suggested:

**A) Recommendations for the mental health nurses**

1- Developing program for training mental health nurses on the accurate assessment of negative symptoms and social functioning for patients with schizophrenia.

2- A priority intervention to improve the social deficits and addressing

psychiatric symptoms of patients with schizophrenia is essential to improve their levels of social function.

3- Patients with schizophrenia are in need of a rehabilitation programs thus, psychosocial rehabilitation should aim towards individual's mental health promotion.

4- Social skills enhancement training program should be integrated in the psychiatric hospitals 'protocol of care in conjunction with pharmacological therapy.

**B) Recommendations for families and the community**

1- There is a great need to establish programs for the family caregivers to increase their understanding of the nature of schizophrenia and the effect of the negative symptoms on social function to increase their support for their patients.

2- Inclusion family in treatment planning to improve their support to patients and as a result improve their recovery.

**C) Recommendations for future researches**

1- Further research on developing programs that are needed for a better understanding of relations between negative symptoms and social functioning to improve social functions of patients with schizophrenia.

2- Implementation of research programs on patient with schizophrenia to improving negative symptoms.

## Tables and Figures

**Table (1):** Personal characteristics of studied schizophrenic patients (n=107)**.**

| ***Items*** | ***N.*** | ***%.*** |
|---|---|---|
| **Age (Years)** | | |
| 20-< 30 | 25 | 23.4 |
| 30-< 40 | 13 | 13.1 |
| 40-< 50 | 36 | 32.1 |
| 50-≤ 60 | 33 | 31.4 |
| **Gender** | | |
| Male | 78 | 72.9 |
| Female | 29 | 27.1 |
| **Marital status** | | |

| | | |
|---|---|---|
| Single | 38 | 35.5 |
| Married | 23 | 21.5 |
| Divorced \ Widowed | 46 | 43.0 |
| **Educational level** | | |
| Illiterate | 28 | 26.2 |
| Primary\ Preparatory | 13 | 12.2 |
| secondary | 56 | 52.3 |
| University | 10 | 9.3 |

**Table (2)**: Distribution of negative symptoms among the studied patients (n=107).

| Negative Symptom Domains | **Normal(0)** | | **Mild(1)** | | **Moderate(2)** | | **Moderately severe(3)** | | **Severe (4)** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | | |
| 1. Speech Quantity (Alogia) | 0 | 0 | 21 | 19.6 | 41 | 38.3 | 45 | **42.1** | 0 | 0 |
| 2. Pleasure/Anhedonia | 0 | 0 | 6 | 5.6 | 3 | 2.8 | 66 | **61.7** | 32 | 29.9 |
| 3. Emotional Expression/Affect | 0 | 0 | 9 | 8.4 | 35 | 32.7 | 63 | **58.9** | 0 | 0 |
| 4. Motivation/Goals (Avolition) | 0 | 0 | 0 | 0 | 34 | 31.8 | 64 | **59.8** | 9 | 8.4 |
| 5. Social Drive | 0 | 0 | 0 | 0 | 57 | **53.3** | 41 | 38.3 | 9 | 8.4 |
| **Composite percentage** | **0** | | **6.7** | | **31.8** | | **52.1** | | **9.4** | |

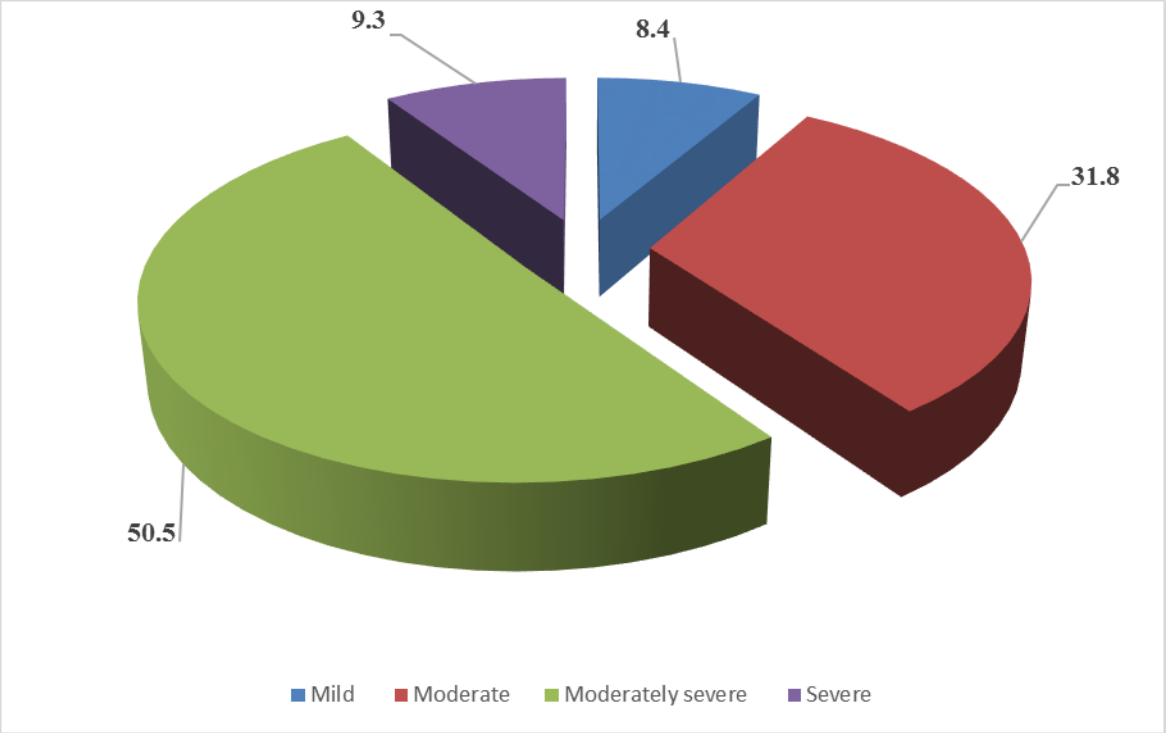


**Figure (1)**: Percentage distribution of negative symptom levels among the studied patients (n=107).

**Table (3):** Frequency percentage distribution of total social functioning (SFS) domains among studied patients (n=107).

| Social functioning domains | N | % |
|---|---|---|
| Withdrawal | 45 | 42.12 |
| Interpersonal functioning | 76 | 71.34 |
| Pro- social Activities | 15 | 13.88 |
| Recreational activities | 31 | 29.36 |
| Independence (self-reliance and ability) | 71 | 66.33 |
| Independence (self-reliance and execution) | 47 | 44.28 |
| Employment | 26 | 24.42 |
| Total Social functioning score | Mean±SD 75.27±13.14 | 39.20 |

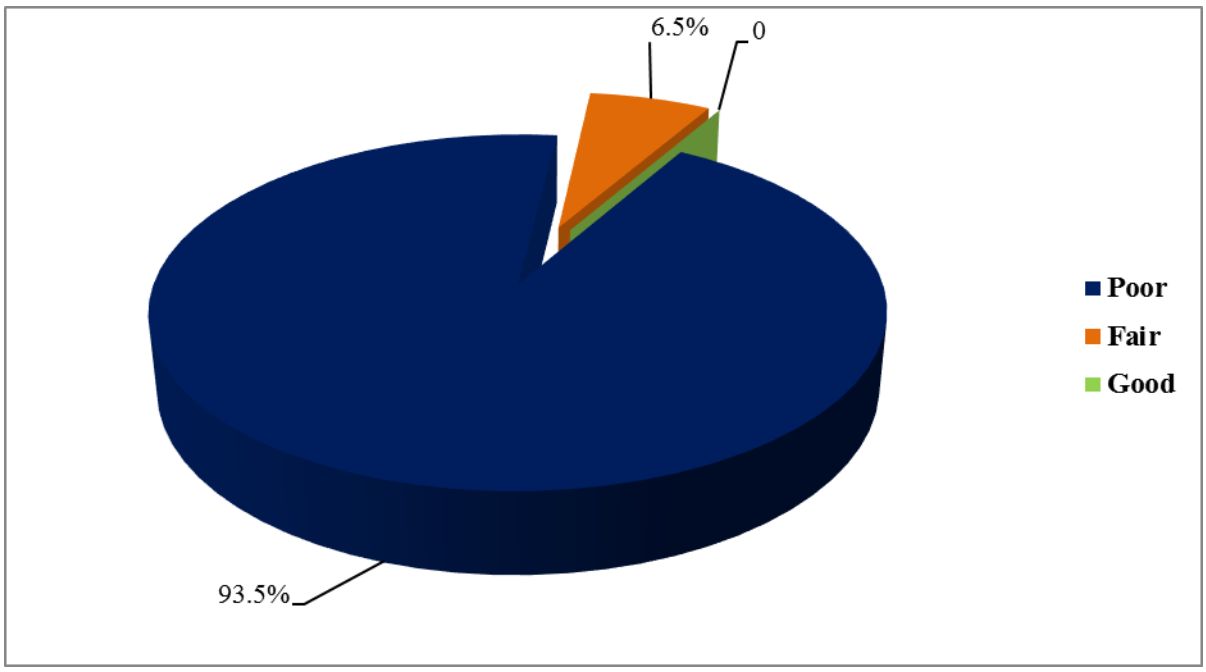


**Figure (2):** Distribution of social functional levels among studied patients (n=107)**.**

**Table (4)**: Relation between severity levels of negative symptoms and social functional levels among studied patients (n=107)**.**

| Items | Social Functional level | | | | $X^2$ | (P value) |
|---|---|---|---|---|---|---|
| | Poor | | Fair | | | |
| | N | % | N | % | | |
| **Negative symptoms level** | | | | | | |
| Moderately severe | 35 | 83.3 | 7 | 16.7 | 11.59 | .001[f] |
| Severe | 65 | 100 | 0 | 0 | | |

[f] is fisher exact for Chi square test & Significant at $p < .05$

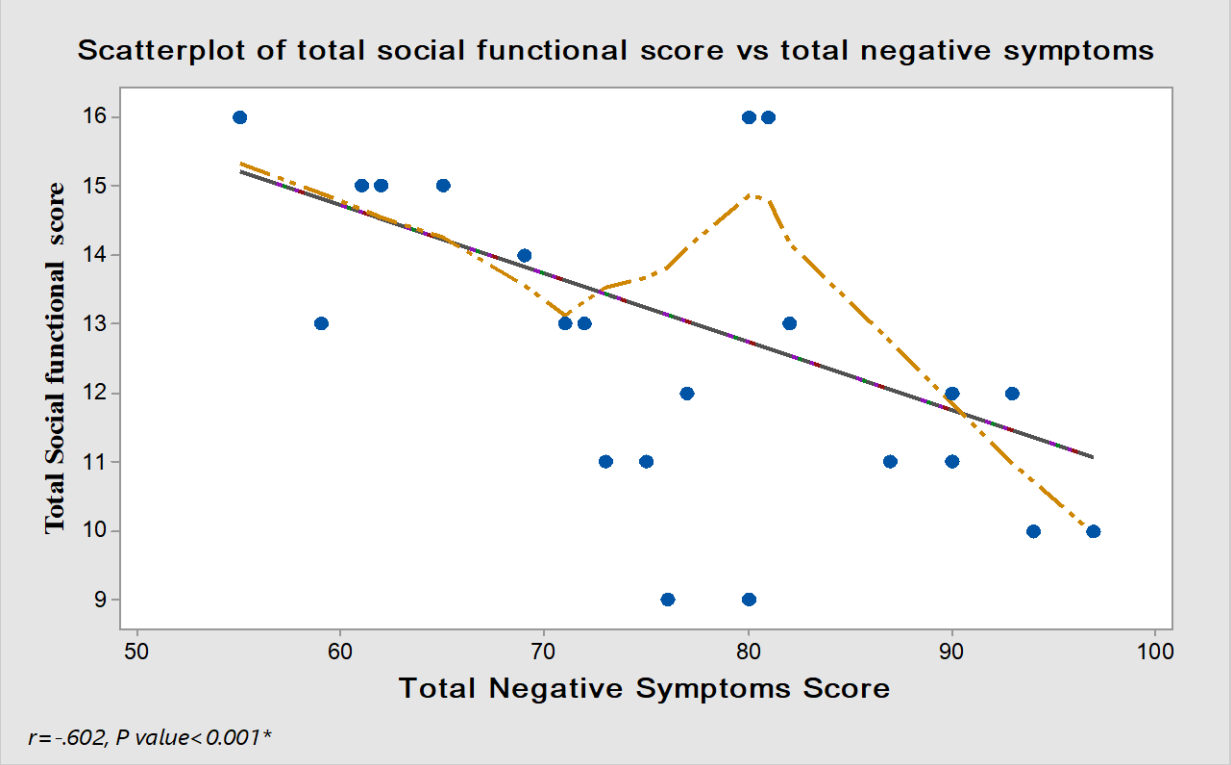


**Figure (3):** Scatterplot between total social functional score and total negative symptoms score (n=107).

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