The Relationship between Negative Symptoms and each of Instrumental Activities of Daily Living and Quality of life among Patients with Schizophrenia

Karima Fawzy Amin Elbardan, Clinical Instructor
Psychiatric and Mental Health Nursing, Faculty of Nursing, Damanhour University.

Aleya Mohamed Gamal El-Dein, Assistant Professor Emeritus
Psychiatric and Mental Health Nursing, Faculty of Nursing, Alexandria University.

Ghada Ahmed Ghazi Mohamed, Assistant Professor
Psychiatric and Mental Health Nursing, Faculty of Nursing, Alexandria University.

Abstract:

Background: *Profound functional impairments and poor quality of life have been associated with the negative symptoms of schizophrenia. Psychosocial therapies aimed at bettering the management of these symptoms alone frequently fail to enhance patients' functioning and quality of life. So, clarifying the relationship between these variables represents an important step in understanding the concept of QoL and IADL, to guide developing future treatment efforts that could assist the psychiatric nurse in developing a plan of care for rehabilitating patients with schizophrenia.* ***Aim****: To assess the levels of the negative symptoms, IADL and QoL among patients with schizophrenia and to determine the relationship between negative symptoms and each of IADL, and QoL among those patients.* ***Setting****: El-Maamoura Hospital for Psychiatric Medicine's outpatient clinic in Alexandria, Egypt.* ***Subjects:*** *A convenient sample size of 200 people who had been diagnosed with schizophrenia.* ***Tools:*** *A Socio-Demographic and Clinical Data Structured Interview Schedule, Scale for the Assessment of Negative Symptoms of Schizophrenia (SANS), World Health Organization Quality of Life Scale–Brief Version (WHOQoL–BREF), and Instrumental Activities of Daily Living (IADL) Scale.* ***Results:*** *Participants' total score of Negative Symptoms of Schizophrenia Scale (SANS) was highly significantly negatively correlated with each of overall scores of Instrumental Activities of Daily Living and Quality of Life (P<0.001).* ***Conclusion:*** *Increased level of negative symptoms causes decreased level of performance on instrumental activities of daily living and quality of life. In addition, both the quality of life and the capacity to do the instrumental activities of everyday life suffer when negative symptoms are present in a great level.* ***Recommendations:*** *Routine* ***c****linical assessments and the development of individualized rehabilitation programs for people with schizophrenia must include careful consideration of the evaluation of negative symptoms, instrumental activities of daily living, and quality of life. Further studies to examine factors that affect Instrumental Activities of Daily Living and Quality of Life among patients with schizophrenia are needed.*

Keywords: Instrumental Activities of Daily Living, Negative symptoms of schizophrenia, Quality of life.

Introduction:

Schizophrenia is considered as a severe mental disorder that has prolonged consequences which affect the whole areas of an individual's life; including the academic, social, professional, personal and family functioning. Disability, loss of productivity, and inefficiency are negative effects associated with schizophrenia. As a result, patients' levels of personal happiness and well-being are negatively affected (Keepers et al., 2020).

Schizophrenia's negative symptoms include avolition, alogia, asociality, anhedonia, affective blunting, lack of motivation and lack of pleasure (Richter, 2019). Ebrahimi et al., (2021) found that even after receiving therapy, 60% of those who have been diagnosed with schizophrenia still have negative symptoms. These symptoms may be severely disabling and have been shown to affect mental health,

work performance, and quality of life of those patients (Correll & Schooler, 2020).

Areas of individual's functioning consist of both basic activities of daily living (BADL) and instrumental activities of daily living (IADL). The term "IADL" is referring to a broad variety of tasks that are essential for gaining home and community-based autonomy and independence. In fact, IADLs are more important than BADLs in evaluating the quality of life of people with schizophrenia. These activities (IADLs) are more advanced & progressive and involve more complicated interactions with patients' surroundings. All problems with IADL independence may be indicator to difficulties with the performance of BADL and the inability to live freely. Therefore, difficulties with IADL have major effect on peoples' happiness, health, life satisfaction and whole QoL (Ghaffari et al., 2021; Widiyawati et al., 2021).

Quality of life (QoL) as defined by Lim & Lee (2018) refers to the comprehensive idea that represents an individual's subjective assessment of his or her own health, happiness and contentment in light of his or her present living status and experiences. Physical and mental well-beings, social connections, independence, personal growth and learning, social support, a safe and supportive work environment, expression of self, opportunities for creation, and free time are all often cited as ingredients of quality of life.

A thorough understanding of the connection between negative symptoms of schizophrenia, IADL, and QoL is necessary due to the limited success of psychosocial interventions that focused solely on improving the negative symptoms. These interventions did not enhance the functioning and quality of life of the patients (Lorena et al., 2022; Zierhut et al., 2021). Clarifying the relationship between these variables represents an important step to better understand the factors that affect QoL in people with schizophrenia. It also helps to understand the notion of QoL and IADL that will guide developing future treatment efforts. As a result, this may assist psychiatric nurse design a plan of care for rehabilitating patients with schizophrenia.

Aims of the study

The aim of this research is to assess the levels of the negative symptoms, instrumental activities of daily living and quality of life among patients with schizophrenia and to determine the relationship between negative symptoms and each of instrumental activities of daily living, and quality of life among those patients.

Research Questions:

- What are levels of instrumental activities of daily living (IADL) among patients with schizophrenia?
- What are levels of quality of life (QoL) among patients with schizophrenia?
- To what extent do the negative symptoms of schizophrenia relate to each of patients' IADL and QoL?

Materials and Method

Materials:

Research design: A descriptive correlational research design was used.

Settings: The study was conducted at the EL-Maamoura Hospital for Psychiatric Medicine' outpatient clinic, Alexandria, Egypt. It is affiliated to the Ministry of Health and Population. This hospital serves Alexandria, Matrouh, and El-Beheira governorates. All patients suffering from substance use disorders and mental illness get therapy at no cost. The psychiatric outpatient clinic works from Saturday through Thursday every week, with service hours starting at 9 am and ending 1 pm. Around 800 cases of schizophrenia visited the outpatient clinic during the previous three months (The Official Statistics of El-Maamoura Hospital for Psychiatric Medicine, 2021).

Subjects: *U*sing the EPi info software program, the sample size was calculated based on these parameters: 7 % acceptable margin of error, a 95% confidence coefficient, and a 50 % expectant frequency. A sample size of 158 patients was determined to be the minimal. The following criteria were used to enroll a convenient sample of 200 patients:

- Diagnosed with schizophrenia with no co-morbidity (as stated in patient's chart).
- Have a duration of illness of two years or more.
- Aged not more than 50 years to avoid impact of aging.
- Have ability to communicate in relevant and coherent manners.

Tools: the used tools were:

Tool I: A Socio-Demographic and Clinical Data Structured Interview Schedule: The

researcher developed this interview schedule to record socio-demographic information and clinical data of the study participants as gender, age, educational level, marital status, residence, working status, monthly income, source of income; as well as the beginning age of schizophrenia, illness duration, number of previous psychiatric hospitalizations, current medication, drug compliance and family history of mental illness.

Tool II: Scale for the Assessment of Negative Symptoms of schizophrenia (SANS): Andreasen (1983) developed the scale to assess the level of negative symptoms in people with a schizophrenia diagnosis. It was adopted in present study. It has 25 items in all that give an evaluation of five groups of schizophrenia' negative symptoms. These include: affective flattening or blunting, alogia, avolition/apathy, anhedonia/asociality and inattention. The scale is measured on a 6-point Likert scale from 0 (non) to 5 (severe negative symptoms). The total score may take on any number from 0 to 125 with scores ranging from 0 to 24 indicate absence of negative symptoms. Mild negative symptoms are reflected by scores from 25 to 42, whereas moderate negative symptoms are indicated by scores from 43 to 83. Severe negative symptoms correspond to scores from 84 to 125. SANS scale has been found to be valid and reliable (Mach et al., 2015). Previous studies done on Egyptian population used and standardized this scale. The validity and reliability of the scale were tested by Mohamed et al. (2019) and was found to be valid and with strong internal consistency (Chronbach's Alpha = 0.906).

Tool III: World Health Organization Quality of Life Scale-Brief Version (WHOQoL-BREF): World Health Organization (1998) originally developed the WHOQoL-BREF scale. It is a shortened form of the WHO QoL-100 scale. In the present research, the Arabic version of the WHOQoL–BREF scale that was adopted by Abd El-Fatahet al., (2020) was used. Self-assessment scale like WHOQoL-BREF is found to be the most common suitable tool used to evaluate patient's quality of life, and persons with schizophrenia are no exception (Kim, 2020). This scale is composed of 26 items, of which 24 cover four domains: physical health, psychological well-being, social relationships and environmental health. Two more questions have been included to assess a person's general perception of quality of life and his or her sense of satisfaction with health. Each item is given a score between 0 and 4 on a 5-point Likert response scale. As scores go up, a better level of quality of life is expected. Each domain score is determined by adding together the averages of the items scores for that domain. After the scores are calculated, a linear transformation is used to turn them to a normalized 0-100-scale. The goal of this transformation is to make it easier for direct comparisons with the domain scores of the WHOQoL-100 scale. The patients' QoL is classified according to their responses into High (>75%), Average (50-75%) and Low (<50%). The Cronbach's alpha for the WHOQoL-BREF scale was 0.96, indicating high degree of internal consistency and reliability. Abd El-Fatahet et al., (2020) and Mohamed et al., (2021) standardized the scale and used it in previous studies on the Egyptian population and evaluated its validity and reliability.

Tool IV: Instrumental Activities of Daily Living (IADL) Scale: Lawton & Brody (1969) created IADL scale. It was developed to evaluate how well patients have been doing on functional IADL in the community during the previous month. The scale consists of 8 items meant to elicit information reported by individual self about skills necessary to function and live independently. As there is no a uniform response structure across the eight items, they are coded in different ways to preserve the structure of the original response. The after-mentioned items cover a wide range of abilities, including the following: the ability for using a telephone (0-3), performing simple shopping (0-3), food preparation (0-3), housekeeping (0-4), doing the laundry independently (0-2), the ability for traveling to different places & the required kind of transportation (private vehicle/ auto/ public bus etc.) (0-4), the responsibility for taking medications (0-2), and their ability for handling finances (0-2). Each participant is asked to rate him/her-self on each category as his/her highest functioning level in that domain. Complete dependency is represented by the minimal possible score on each item, whereas total independence is represented by the greatest possible score. In line with scale guidelines; to calculate the final score each item was given a value of either 0 (showing dependency) or 1 (being independent). Therefore, the overall score of the scale ranges from 0 to 8 with 0-1 points indicate total dependence and 2-6 represent moderate dependence and 7-8 points indicate severe independence. IADL scale has been cited by several published studies (Harvey, 2019;

Samuel et al., 2018) and has been found to be valid and with strong internal consistency (Chronbach's Alpha = 0.88). The scale was then translated into Arabic. Abd Allah et al., (2017); Abd El-Mottelb et al., (2018) used and standardized it in previous studies on Egyptians and tested it for validity and reliability.

Method:

I- Administrative steps:

- Prior to conducting the study, the researchers got an official approval from the Research Ethics Committee, at the Faculty of Nursing, Alexandria University.
- The study was conducted after obtaining written official permissions from the General Secretariat of Mental Health, then the Director of EL-Maamoura Hospital for Psychiatric Medicine in Alexandria.

II- Preparation of study tools and the pilot study:

- The researcher developed Tool I after reviewing the related literature extensively.
- Tools II, III and IV are self-reporting scales but has been applied by the researcher through the interview method as some patients are not educated. The researcher read and explained each item to the patients and recorded their response.
- Twenty patients who had been diagnosed with schizophrenia and were undergoing treatment at the outpatient clinic were involved in the pilot study in order to assess the clarity and applicability of the research tools. Those patients met the predetermined inclusion criteria. The results showed that the research tools were applicable, understood and clear. These patients were not included in the actual study sample.
- Twenty patients with schizophrenia who were receiving outpatient treatment were included to test the reliabilities of tools II, III and IV. Those patients were involved if they met the study's inclusion criteria and gave their written consent to participate. They were not included in the actual study.
- Cronbach's alphas values for tool II was 0.934, tool III was 0.799 and tool IV was 0.859 meaning that all three study tools are highly reliable and have excellent internal consistency.

III- Actual study:

- On a weekly basis, the researcher visited the outpatient clinic every Saturday, Monday, Tuesday and Wednesday.
- All medical charts of patients were screened throughout the previously mentioned days in order to identify those who met the predetermined inclusion criteria and had been diagnosed with schizophrenia.
- An individual interview for each participant was done for at least 15 minutes prior to starting data collection with the main goal of establishing rapport. Then, the study's purpose was explained and the patient was asked to sign an informed consent form.
- The interview was conducted at the outpatient clinic while patients were waiting for follow-up visit or for taking their prescribed medications from the hospital pharmacy.
- Each patient was interviewed individually to collected data, using the study tools I, II, III, and IV.
- The researcher started by asking open-ended general questions to fill out the SANS scale (Tool II) and then proceeded to complete the IADL scale (Tool III) and WHO QoL-BREF scale (Tool IV). The researcher read and explained each item to the patients and recorded their responses.
- An in-depth review of the patient's medical record again was done to complete the data collected from the patient and to ensure data accuracy of Tool I.
- The length of each interview varied from 60-90 minutes according to the patient's responsiveness, understanding, level of attention, concentration, and cooperation.
- The interviewing process continued until the required number of study subjects were recruited.
- Data collection started from March 2022 until May 2022 (throughout a three months' period).

Ethical considerations:

- Recruited patients or their accompanying family members were given a throughout explanation of the study's aim before obtaining their informed written consent.
- Data confidentiality was assured.
- Patients' privacy and anonymity was respected and protected.
- It was emphasized that the patient's participation was entirely voluntary and that he or she had the right to refuse to participate in the research or abort the interview at any time.

Results:

Table (1) shows the socio-demographic characteristics of the patients in this study. Males constituted 70.5% of the total studied participants' number, while females were 29.5% of them. Participants' age ranged from 19 to 50 years with a mean (standard deviation) age of 35.06 ± 7.66 years. Forty-five percent of the patients in this research were between the ages of 35 and less than 45, and 36.5% were between the ages of 25 to less than 35 years. It can also be noted that, 25.5% had primary/preparatory education, 55.5% were single, 84% were living in urban areas, 32.5 % were skilled workers, 68.5% reported that their income was not enough and 81.5% stated that their relatives' support was their main source of income.

Table (2) shows the clinical characteristics of studied participants. Patients' ages ranged from 15 to 35 years when they first had symptoms of schizophrenia, with a mean age of onset of 23.84 ± 6.16 years. Forty-five of studied participants with schizophrenia diagnosis suffered from the disease since they were 15 to less than 20 years; while another 37.5% of them had been diagnosed between the ages of 20 to less than 25 years. Illness duration ranged from one year to 33 years with 11.25 ± 6.52 years being the mean score. About 39% of studied people had an illness duration of 5 to less than 10 years. Moreover, 57.0% of participants were previously hospitalized, among them 33.3% were hospitalized two times. Among total study subjects, 62.8% received mixed types of typical and atypical antipsychotics. Adherence to drug regimen was high (62.5%) among study participants and 71.5% of them had no family history of mental illness.

Figure (1) presents the percentage distribution of the studied patients according to levels of severity of overall total score of negative symptoms of schizophrenia scale. According to the obtained results, 61% had moderate level of negative symptoms, 35% had severe level, 3% had mild level and only 1% had a questionable level of negative symptoms.

Table (3) shows distribution of the studied patients according to subscale scores of IADL by levels of dependency. The majority of studied patients were dependent on others in terms of food preparation, doing the laundry and housekeeping tasks (72.0%, 65.5%, and 51.5% respectively). Meanwhile, a large percentage of research participants were independent regarding the use of transportation, ability for handling finances, responsibility for taking medications and ability to use the telephone (95.5%, 93.0%, 87.0 %, and 86.0 respectively); while, 50% can take care of all shopping needs independently. IADL scale's total mean score was 5.23 ± 1.89 with a median of 5.0.

Figure (2): shows distribution of the studied patients according to their total score of the IADL scale by their levels of dependency. It is important to note that 69.0% of participants were moderately dependent, 27.0% of them were totally independent; while, 4.0% were severely dependent on others in performing ADLs.

Table (4) reflects distribution of the studied patients according to their levels of different domains of QoL scores. Studied people reported low levels of psychological well-being, social relationships, physical health and environmental health respectively (86.0%, 67.0%, 63.5% and 60.0% respectively). Only 61.0% of them reported having moderate level of general satisfaction of quality of life and general health.

Figure (3) presents percentages distribution of studied patients according to levels of QoL scale total score. Results showed that participants were divided into two groups based on their overall QoL: those who had a low QoL (77%) and those who had a moderate QoL (23%).

Table (5) shows the correlation between total scores of Scale for the Assessment of Negative Symptoms of schizophrenia (SANS) & its domains and the overall scores of both instrumental Activities of Daily Living (IADL) & World Health Organization Quality of Life scale-brief version (WHOQoL-BREF) and

their domains among studied participants. The overall IADL and QoL were significantly negatively correlated with the total score of SANS (r= -0.365 and r = –0.440 respectively), p<0.001.

Discussion

Patients with schizophrenia suffer from negative symptoms, which may be difficult to manage. A patient's ability to have an independent life, do daily living activities, interact with others, form and maintain personal relationships, and succeed in school or work is severely impaired due to these symptoms. (Manea et al., 2020). Therefore, the present research was carried out to assess the levels of the negative symptoms, instrumental activities of daily living and quality of life among patients with schizophrenia and to determine the possible relationship between these variables.

According to the present study's findings, the majority of the studied patients had negative symptoms with a moderate level and more than one third of them experienced severe negative symptoms. These findings are consistent with those of other studies which found that negative symptoms are highly prevalent in adult outpatients with schizophrenia (Downs et al., 2019; Galderisi et al., 2021).

These results may be related to patients' greater propensity to ignore their difficulties, rather than employing positive coping techniques that rely on sufficient cognitive functioning and attentional volition. So, the present study results may be related to a decline in the use of such mechanisms. These deficits affect patients with schizophrenia's abilities to adapt to every day's circumstances and to form and maintain meaningful relationships with others. As time goes on, patients become more and more isolated from their social network, unable to take care of their families or manage their own lives, and lately disabilities develop.

These study's findings go along with those of Seidisarouei et al., (2022) and Yu et al., (2021) who found that among the negative symptoms of schizophrenia, anhedonia was the most common. Similarly; Ahmed et al., (2019) found that the highest connection between negative symptoms and functional impairment was found in interest-related and avolition domains such as asociality or anhedonia. In contrast to the current research; Strauss et al., (2021) found that emotional blunting or flattening, asociality and anhedonia were the most prevalent symptoms.

More than three quarters of participants in this study experienced low quality of life (QoL), and the rest had moderate QoL and no one had high QoL. This finding may be related to the negative effect of the disease on patients' QoL. Schizophrenia causes psychosocial and cognitive deficits & limitations due to the disorder, adverse effects of antipsychotic drugs, financial difficulties and stigma. All of these effects are linked to decline in QoL.

In the same vein, Manea et al., (2020) found that the majority (more than half) of participants exhibited a low QoL and more than two fifth of them reported a good QoL. Similarly, Mahmoud et al., (2015) reported that a great number of those diagnosed with schizophrenia had poor or moderate QoL. The present study findings are also supported by results of a study done on Egyptian schizophrenic patients by Negm et al., (2014).

Individual's ability to perform adequate muscular work decreases in tandem with the worsening and impairments of cognitive and motor skills, this affects a number of instrumental activities of everyday life, including using a telephone, going shopping, preparing food, housekeeping, using transportation, and doing laundry (Erim et al., 2019; Holm et al., 2021).

According to the results of the current study, only 27% of patients were completely independent in performing their IADL while the remaining 73% were either moderately dependent (69%) or completely dependent on others (4%). These findings may be the outcome of negative symptoms that have an impact on the patients under study and manifest as changes in involvement and inadequate performance of functional tasks. Schizophrenic patients' poor social performance, diminished social competence, diminished executive functions, and attention deficiency also have a negative impact on their day-to-day activities. In this context, Putri et al., (2020) discovered that most of studied patients with schizophrenia exhibited high IADLs function scores, while just a few showed poor IADLs function and suggested slight reliance. Similarly, Rohmi et al., (2020) found that the vast majority of their

schizophrenia individuals exhibited competence in doing their everyday tasks without assistance.

Regarding the correlation between the three study variables (SANS, IADL, and QoL), negative symptoms of schizophrenia seemed to have a significant impact on both the capacity to perform instrumental daily tasks and the maintenance of a low quality of life. Results of the current study showed that there are strong negative relationships between negative symptoms, IADL, and QoL; as negative symptoms become more severe, IADL and QoL of life decrease.

An explanation of the present results is the fact that symptoms as impaired reward processing and lack of motivation are acknowledged as major indications of poor QoL and impairment in functioning.

Patients frequently show a lack of drive to engage in satisfying and rewarding pursuits such as work and socialization. These deficiencies in motivation may be broken down into four quantifiable areas: decreased effort-cost calculation, impaired learning from reinforcement, impaired reward prediction errors and reduced reward anticipation. These results are congruent with other studies' results which revealed that negative symptoms affect IADL (Abaoğlu et al., 2020) and QoL (Galuppi et al. 2010; He et al. 2010). On the contrary, Tan et al., (2022) found that there is a link between self-reported levels of life satisfaction and depressive symptoms, but not with any symptoms of schizophrenia either negative or positive. Becker et al., (2005) studied the relation between patient & disease characteristics and QoL in a sample of 143 outpatients with schizophrenia. They found that QoL is strongly predicted by patients' anxiety and depression, as well as their level of global functioning.

In summary, this study demonstrated that negative symptoms among patients with schizophrenia seem to be severe. It directly has a significant negative effect on QoL and IADL. Measuring and enhancing QoL and IADL are crucial for regaining control over patients' health and should be a major focus for therapeutic interventions in schizophrenia.

Conclusion:

The level of negative symptoms among studied patients with schizophrenia is related negatively to their levels of instrumental activities of daily living (IADL) and quality of life (QoL). Moreover, increased level of negative symptoms causes decreased level of both IADL and QoL.

Recommendations:

- Assessment of negative symptoms, IADL and QoL must be taken into account during routine clinical assessments and when establishing rehabilitation programs for people with schizophrenia based on their unique needs.
- In-service training programs for nurses and healthcare providers in hospitals and outpatient clinics about how to manage patients with schizophrenia with greater focus on enhancing the QoL and IADL and not just focusing on reducing symptoms.
- Further studies to examine factors that affect IADL and QoL among patients with schizophrenia are needed.

Table (1): Distribution of the studied patients according to their socio-demographic characteristics (n=200).

Socio-demographic characteristics	n=200	
	No.	%
Gender		
Male	141	70.5
Female	59	29.5
(in years) Age		
<25	19	9.5
25-	73	36.5
35-	81	40.5
45<	27	13.5
Min. – Max.	19.0 – 50.0	
Mean ± SD.	35.06 ± 7.66	
Median	35.0	
Educational Level		
Illiterate	39	19.5
Read and write	27	13.5
Primary/Preparatory	51	25.5
Secondary	19	9.5
Technical/Diploma	49	24.5
University	15	7.5
Marital status		
Single	111	55.5
Married	61	30.5
Divorced	26	13.0
Widowed/ Separated	2	1.0
Residence		
Rural	32	16.0
Urban	168	84.0
Working status		
Unskilled workers	40	20.0
Skills workers	65	32.5
Housewife	47	23.5
Not Working	48	24.0
Monthly income		
Not enough	137	68.5
Partially enough	53	26.5
Enough	10	5.0
Source of income		
Personal work	5	2.5
Supported by relatives	163	81.5
Pension	10	5.0
Personal assets/properties	3	1.5
charitable/ organizations	19	9.5

Table (2): Distribution of the studied participants according to their clinical characteristics (n = 200).

Clinical characteristics	n = 200	
	No.	%
Age of onset of schizophrenia (years):		
15	90	45.0
20-	75	37.5
25-	20	10
30-35	15	7.5
Min. – Max.	15.0 - 35.0	
Mean ± SD.	23.84 ± 6.16	
Median	23.0	
Duration of illness (in years):		
5<	43	21.5
5-	78	39.0
10-	28	14.5
15-	34	17.0
20-	12	6.0
≥25	5	2.5
Min. – Max.	1.0 - 33.0	
Mean ± SD.	11.25 ± 6.52	
Median	10.0	
Previous psychiatric hospitalization:		
Yes	114	57.0
No	86	43.0
Frequency of hospital admission	n=114	
One time	32	28.1
Two times	38	33.3
Three times	30	26.3
Four times & more	14	12.3
Type of currently prescribed medications #		
Typical antipsychotics.	27	12.4
Atypical antipsychotics.	36	16.5
Mixed types of antipsychotics.	137	62.8
Antipsychotics & other medications	18	8.3
Drug Compliance		
Compliant	125	62.5
Non-compliant	75	37.5
Family history of mental illness:		
Yes	57	28.5
No	143	71.5

 # Frequencies aren't mutually exclusive

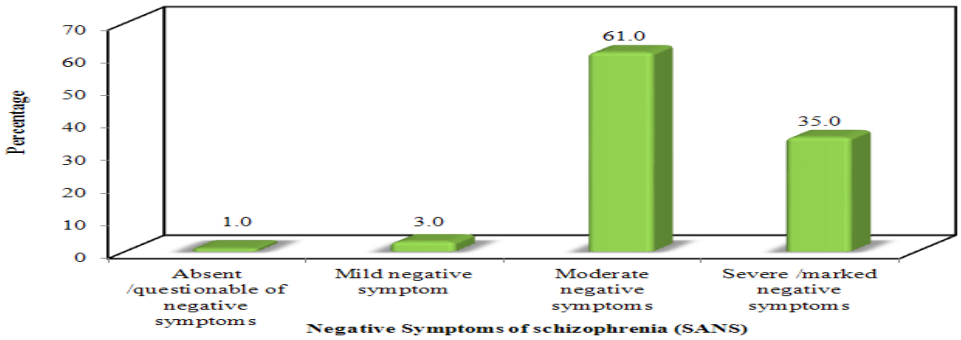

Figure (1): Percentage distribution of the studied patients according to levels of severity of overall total score of negative symptoms of schizophrenia (SANS) scale (n = 200).

Table (3): Percentage distribution of the studied patients according to subscale scores of Instrumental Activities of Daily Living (IADL) by levels of dependency (n = 200).

Q	Instrumental Activities of Daily Living (IADL)	No=200.			
		Level of dependency			
		dependence		Independence	
		No	%	No	%
1	**Ability to Use Telephone**	28	14.0	172	86.0
2	**Shopping**	100	50.0	100	50.0
3	**Food Preparation**	144	72.0	56	28.0
4	**Housekeeping**	103	51.5	97	48.5
5	**Laundry**	131	65.5	69	34.5
6	**Use of Transportation**	9.0	4.5	191	95.5
7	**Responsibility for Own Medications**	26	13.0	174	87.0
8	**Ability to Handle Finances**	14	7.0	186	93.0
Total score (0-8) Mean ± SD. Median		5.23 ± 1.89 5.0			
% Score Mean ± SD. Median		65.31 ± 23.63 62.50			

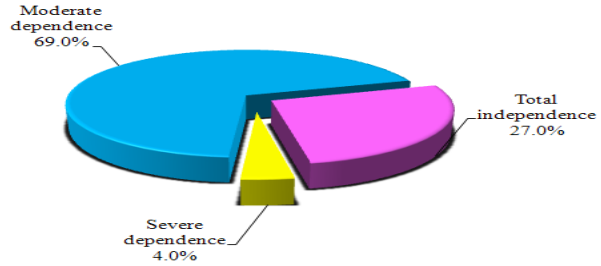

Figure (2): Distribution of the studied patients according to their total score of Instrumental Activities of Daily Living (IADL) scale by their levels of dependency (n=200)

Table (4): Distribution of the studied patients according to their levels of different domains of quality of life scores (n=200).

Quality of life domains	Levels of Quality of life					
	Low (<50%).		Moderate (50-75%)		High (>75%)	
	No.	%	No.	%	No.	%
Physical health	127	63.5	73	36.5	0	0.0
Psychological well-being	172	86.0	28	14.0	0	0.0
Social relationships	134	67.0	66	33.0	0	0.0
Environmental health	120	60.0	80	40.0	0	0.0
General satisfaction of quality of life and general health	78	39.0	122	61.0	0	0.0

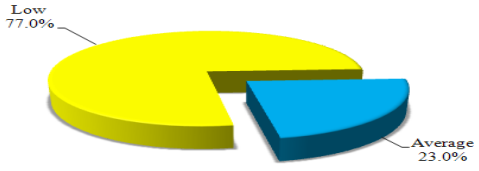

Figure (3): Percentages distribution of studied patients according to levels of quality of life scale total score

Table (5): Correlation between total scores of Scale for the Assessment of Negative Symptoms of schizophrenia (SANS) & its domains and the overall scores of both instrumental Activities of Daily Living (IADL) & World Health Organization Quality of Life scale-brief version (WHOQoL-BREF) and their domains among the studied participants (n = 200).

Domains	SANS											
	Affective Flattening / Blunting		Alogia		Avolition /Apathy		Anhedonia/a-sociality		Attention		Total Score	
	r	P	R	P	r	P	r	P	R	P	r	P
IADL												
Ability to Use Telephone	-0.161*	0.023*	-0.105	0.137	-0.194*	0.006*	-0.066	0.355	-0.204*	0.004*	-0.187*	0.008*
Shopping	-0.188*	0.008*	-0.219*	0.002*	-0.257*	<0.001*	-0.098	0.166	-0.267*	<0.001*	-0.260*	<0.001*
Food Preparation	-0.217*	0.002*	-0.229*	0.001*	-0.238*	0.001*	-0.085	0.234	-0.159*	0.025*	-0.250*	<0.001*
Housekeeping	-0.129	0.069	-0.144*	0.042*	-0.183*	0.009*	-0.104	0.144	-0.146*	0.039*	-0.182*	0.010*
Laundry	-0.149*	0.036*	-0.085	0.230	-0.143*	0.044*	-0.060	0.400	-0.070	0.323	-0.142*	0.045*
Mode of Transportation	-0.218*	0.002*	-0.233*	0.001*	-0.196*	0.005*	-0.072	0.313	-0.284*	<0.001*	-0.259*	<0.001*
Responsibility for Medications	-0.208*	0.003*	-0.244*	0.001*	-0.311*	<0.001*	-0.162*	0.022*	-0.394*	<0.001*	-0.324*	<0.001*
Ability to Handle Finances	-0.175*	0.013*	-0.185*	0.009*	-0.176*	0.013*	-0.106	0.134	-0.272*	<0.001*	-0.232*	0.001*
Overall IADL	**-0.288***	**<0.001***	**-0.286***	**<0.001***	**-0.346***	**<0.001***	**-0.152***	**0.031***	**-0.341***	**<0.001***	**-0.365***	**<0.001***
QoL												
General satisfaction of quality of life and general health	-0.095	0.179	-0.118	0.096	-0.259*	<0.001*	-0.210*	0.003*	-0.224*	0.001*	-0.217*	0.002*
Physical health	-0.341*	<0.001*	-0.191*	0.007*	-0.522*	<0.001*	-0.451*	<0.001*	-0.422*	<0.001*	-0.492*	<0.001*
Psychological well-being	-0.200*	0.004*	-0.112	0.113	-0.307*	<0.001*	-0.286*	<0.001*	-0.228*	0.001*	-0.291*	<0.001*
Social relationships	-0.066	0.356	-0.026	0.717	-0.320*	<0.001*	-0.479*	<0.001*	-0.262*	<0.001*	-0.271*	<0.001*
Environmental health	-0.204*	0.004*	-0.118	0.097	-0.192*	0.006*	-0.290*	<0.001*	-0.176*	0.013*	-0.263*	<0.001*
Overall QoL	**-0.280***	**<0.001***	**-0.167***	**0.018***	**-0.464***	**<0.001***	**-0.482***	**<0.001***	**-0.379***	**<0.001***	**-0.448***	**<0.001***

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

References:

- Abd Allah, M., El-Shafie, I., & Soliman, F. (2017). Effect of functional ability on quality of life among diabetic elderly in Basion City. International Journal of Novel Research in Healthcare and Nursing, 4(3), 64-79.
- Abd El Fatah, W., Mahmoud, O., & Zaki, H. (2020). Evidence-Based Using Mobiles Health-Education to Improve Quality of Life among Schizophrenic Patients. Egyptian Journal of Health Care, 11(3), 369-390.
- Abd El-Mottelb, B., Mo'Awad, E., & El-Din, S. (2018). Predicators of successful aging among academic Emeritus. Egyptian Nursing Journal, 15(2), 144.
- Abaoğlu, H., Mutlu, E., Sertaç, A., Esra, A., & YAĞCIOĞLU, A. (2020). The effect of life skills training on functioning in schizophrenia: a randomized controlled trial. Turk Psikiyatri Dergisi, 31(1), 48.
- Ahmed, A. O., Kirkpatrick, B., Galderisi, S., Mucci, A., Rossi, A., Bertolino, A., & Strauss, G. P. (2019). Cross-cultural validation of the 5-factor structure of negative symptoms in schizophrenia. Schizophrenia bulletin, 45(2), 305-314.
- Andreasen, N. (1983). Psychiatric University Hospital Zurich. Division of clinical psychiatry. Scale for the assessment of negative symptoms (SANS). Psychiatric University Hospital Zurich.
- Becker, T., Leese, M., Krumm, S., Ruggeri, M., Vázquez-Barquero, J., & Epsilon Study Group. (2005). Needs and quality of life among patients with schizophrenia in five European centres: what is the impact of global functioning scores?. *Social Psychiatry and Psychiatric*

Epidemiology, 40, 628-634

- Correll, C., & Schooler, N.(2020). Negative symptoms in schizophrenia: a review and clinical guide for recognition, assessment, and treatment. *Neuropsychiatric disease and treatment*, 519-34.

- Downs, J., Dean, H., Lechler, S., Sears, N., Patel, R., Shetty, H., & Pina-Camacho, L. (2019). Negative symptoms in early-onset psychosis and their association with antipsychotic treatment failure. *Schizophrenia bulletin*, 45(1), 69-79.

- Ebrahimi, A., Poursharifi, H., Dolatshahi, B., Rezaee, O., Hassanabadi, H. , & Naeem, F. (2021). The Cognitive Model of Negative Symptoms in Schizophrenia: A Hierarchical Component Model With PLS-SEM. *Frontiers in Psychiatry*, 12.

- Erim B, Boztaş H, Yıldız M, Uygun E. (2019). The Factors Affecting the Relationship between Remission Status and Employment in Chronic Schizophrenia Patients. *Psychiatry Investig*, 16(11), 860-867

- Fitzgerald, P. , Williams, C., Corteling, N., Filia, S., Brewer, K., Adams, A., & Kulkarni, J. (2001). Subject and observer-rated quality of life in schizophrenia. *Acta Psychiatrica Scandinavica*, 103(5), 387-392.

- Galderisi, S., Mucci, A., Dollfus, S., Nordentoft, M., Falkai, P., Kaiser, S., & Gaebel, W. (2021). EPA guidance on assessment of negative symptoms in schizophrenia. *European psychiatry*, 64(1).

- Galuppi A., Turola M., Nanni M., Mazzoni P & Grassi L. (2010). Schizophrenia and quality of life: how important are symptoms and functioning? *International journal of mental health systems*, 4 (1), 31.

- Ghaffari, A., Rostami, H., & Akbarfahimi, M. (2021). Predictors of instrumental activities of daily living performance in patients with stroke. *Occupational therapy international*, 7.

- Harvey, P., Strassnig, M., & Silberstein, J. (2019). Prediction of disability in schizophrenia: symptoms, cognition, and self-assessment. *Journal of Experimental Psychopathology*, 10(3), Retrieved from: https://doi.org/10.1177/2043808719865693.

- He, X., Migliorini, C., Huang, Z., Wang, F., Zhou, R., Chen, Z., Xiao, R., Wang, Q., Harvey, C., & Hou, C. (2022). Quality of life in patients with schizophrenia: A 2-year cohort study in primary mental health care in rural China. *PubMed Central*. 10: 983733.

- Holm, M., Taipale, H., Tanskanen, A., Tiihonen, J., & Mitterdorfer-Rutz, E. (2021). Employment among people with schizophrenia or bipolar disorder: A population-based study using nationwide registers. *Acta Psychiatrica Scandinavica*, 143(1), 61-71

- Keepers, G. , Fochtmann, L., Anzia, J. , Benjamin, S., Lyness, J. , Mojtabai, R., & (Systematic Review). (2020). The American Psychiatric Association practice guideline for the treatment of patients with schizophrenia. American *Journal of Psychiatry*, 177(9), 868-872.

- Kim, S. (2020). World Health

Organization quality of life (WHOQOL) assessment. *Encyclopedia of quality of life and well-being research*, 1-2

- Lawton, M., & Brody, E. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. Gerontologist, 9, 179-186.

- Lim, M. , & Lee, J. (2018). Determinants of health-related quality of life in schizophrenia: beyond the medical model. *Frontiers in psychiatry*, 9, 712.

- Lorena, G., Verónica, R., Luis, S. , Mónica, D., Isabel, M., David, R., Guillermo, L., Jimmy, L., Jose, L., & Roberto, R. (2022). Impact of Negative Symptoms on Functioning and Quality of Life in First Psychotic Episodes of Schizophrenia. *Journal of Clinical Medicine*, 11(4): 983.
- Mach, C., Morello, R., & Dollfus, S. (2015). The Self-report of Negative Symptoms (SNS): Validity of a Self-assessment of Negative Symptoms in Patients with Schizophrenia. *European psychiatry*, 30, 878. Retrieved from: https://doi.org/10.1016/S0924-9338(15)30686-6.

- Mahmoud, A., Berma, A., & Gabal, S. (2017). Relationship between social support and the quality of life among psychiatric patients. Journal of Psychiatry and Psychiatric Disorders, 1(2), 57-75.

- Mahmoud, M., Yeasmin, B., & Mandal, S. (2015). Quality of life of schizophrenic patients in a tertiary care hospital in Bangladesh. Bangladesh Journal of Psychiatry, 29(1), 30-34.

- Manea, A., Zaki, R., & Morsi, A. (2020). The Relationship between Insight and Quality of Life among Schizophrenic Patients. Egyptian *Journal of Health Care*, 11(4), 212-223.
- Mohamed, O., Mohamed, M., & Ramdan, F. (2019). Relationship between Motivation, Empowerment and Severity of Negative Symptoms among Patients with Schizophrenia [Unpublished master's thesis]. Faculty of Nursing: Alexandria University.
- Mohamed, S., El-Serogy, Y., Abd El-Hameed, N., & Abd El-Aziz, A. (2021). Quality of life and its relation with treatment compliance among schizophrenic patients. Assiut Scientific Nursing Journal, 9(24.0), 8-17.
- Negm, M. , Mahdy, R. , Abd Alshafi, M., & Abd El-Latif, R. (2014). Comparison of family burden, quality of life, and disability in obsessive compulsive disorder and schizophrenia in Zagazig University Hospitals. *Egyptian Journal of Psychiatry*, 35(1), 39.

- Putri, N., Kurnianingsih, T., & Andayani, S. (2020). Daily Living Performance in Schizophrenic Patients in Correlation with Positive and Negative Symptoms. *Althea Medical Journal*, 7(2), 72-78.

- Richter, J. (2019). Decoding the"Meh"-Assessment of Negative Symptoms in Psychosis (Doctoral dissertation, Eberhard Karls Universität Tübingen).

- Rohmi, F., Atmoko, A. , & Hardiyanto, A. (2020). Correlation Family Support on Independence of Patients Schizophrenic Activities Daily Living (ADL). *Journal of Global Pharma Technology*, 12(6), 56-61.
- Samuel, R., Thomas, E., & Jacob, K. (2018). Instrumental activities of daily living dysfunction among people with

schizophrenia. *Indian journal of psychological medicine*, 40(2), 134-138

- Seidisarouei, M., Schäble, S., van Wingerden, M., Trossbach, S. , Korth, C., & Kalenscher, T. (2022). Social anhedonia as a Disrupted-in-Schizophrenia 1-dependent phenotype. *Scientific reports*, 12(1), 1-13.

- Strauss, G., Bartolomeo, L., & Harvey, P. (2021). Avolition as the core negative symptom in schizophrenia: relevance to pharmacological treatment development. *npj Schizophrenia*, 7(1), 16.

- Tan, E., Toh, W., & Rossell, S. (2022). Examining relationships between state and trait psychotic symptoms and quality of life in schizophrenia spectrum disorders. *Psychiatry Research*, 310, 114450.
- The Official Statistics of El-Maamoura Hospital for Psychiatric Medicine. End of august, 2021.

- Widiyawati, W., Yusuf, A., & Rukmini Devy, S. (2021). Developing a vocational social rehabilitation model to increase the independence of the instrumental activity of daily living (ADL) among people with severe mental illness. *Journal of Public Health Research*, 10(4).
- WHOQOL Group. (1998.) Development of the World Health Organization WHOQoL-BREF quality of life assessment. *Psychol Med*, 28:551-5

- Yu, L., Ni, H., Wu, Z., Fang, X., Chen, Y., Wang, D., & Zhang, C. (2021). Association of cognitive impairment with anhedonia in patients with schizophrenia. *Frontiers in Psychiatry*, 12.

- Zierhut, M., Bernard, R., Turner, E., Mohamad, S., Hahn, E., & Bajbouj, M. (2021). Electroconvulsive therapy for negative symptoms in schizophrenia: a literature review from 2000 to 2021. *Current Psychology*, 1-22.