Effect of Psycho-educational Program on Social Functioning among Schizophrenic Patients

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Abstract

Social functioning impairment is considered one of the essential characteristics of schizophrenic disorder which prevents patients from adhering to treatment and diminishes their satisfaction with life. This study aimed to evaluate the effect of psycho-educational program on social functioning among schizophrenic patients. Quasi-experimental research design was utilized in this study. A purposive sample of 50 schizophrenic patients at Minia Hospital for Mental Health and addiction treatment was included. Personal/clinical data sheet and the Social Functioning Scale were utilized. The study's results revealed that, at pre-test, (34%) of the study subjects exhibited low social functioning level, (56%) of them exhibited a moderate social functioning and only (10%) exhibited a high social functioning level. However, at post and follow up, there is a marked increase in the total social functioning score compared to the pre-test with highly statistically significant difference. **Conclusion**: Psycho-educational program was effective in enhancing schizophrenic patients' social functioning. Continuous provision of psycho-educational programs is recommended for schizophrenic patients to increase their social functioning.

KeyWords: Schizophrenic patients, Social functioning, Psycho-education.

Introduction

Schizophrenia is a serious and persistent psychiatric disorder that has an impact on the person's ability to think logically, act rationally, express their feelings, as well as interact with others **(Shanko et al., 2023)**. Symptoms of schizophrenia include positive symptoms, negative symptoms and impaired cognitive function **(Merikangas et al., 2022)**. In addition, impairments of social functioning are pervasive among schizophrenic patients and are considered the cardinal features of schizophrenia. These impairments exist long before the onset of schizophrenia, continue throughout adult life and act as treatment challenge **(Fulford et al., 2018)**.

Moreover, social functioning refers to the people's capacity to fulfill specific social tasks and their pleasure with this capacity, as well as their capacity for self-care and leisure interests **(Nemoto et al., 2019)**. Certain factors are believed to negatively affect the social functioning of schizophrenic individuals including the psychotic symptoms of schizophrenia and cognition impairment. Social functioning impairments can manifest in a number of ways as withdrawal from social interaction; inability to maintain familial or friendly relationships; inadequate performance at work and lack of ability to be involved in society **(Porcelli et al., 2020).**

Indeed, Psycho-education is one of the first and best-known psychosocial therapies used for treating schizophrenia **(Abdelgelil et al., 2022)**. Psychiatric nurses play an active role in psycho-education of schizophrenic patients as they can help patients understand their conditions by giving them practical instruction on a variety of subjects, such as the duration of illness, challenges faced during the disease process, and treatment **(Arabacı et al., 2018)**. In addition, among the important duties of a psychiatric nurse is to identify situations that can negatively impact the patient's social functioning and use those to help the patient function better by teaching them the crucial skills they need to effectively cope with everyday issues **(Çapar& Kavak, 2019)**.

Significance of the study:

Schizophrenia is a common and chronic psychotic condition affecting approximately 24 million people worldwide and constitutes the majority of patients in psychiatric facilities of Egypt **(Manea et al., 2020; Shanko et al., 2023)**. Social functioning is very impaired among schizophrenic patients and is repeatedly associated with poor adherence to medical treatment, poor prognosis, higher relapse rate and increased risk of premature mortality **(Shimada et al., 2022; Alhadidi et al., 2020; Porcelli et al., 2020)**. A study conducted by **Al-Maghraby et al., (2020)** found that (78%) of the studied subjects were having poor social functioning. Also, **Tawfik et al. (2021)** reported that, (90%) of the psychiatric patients had poor social functioning.

In this respect, numerous researches supported the positive effects of psycho-education on schizophrenic individuals. For example, **Dubreucq et al. (2020)** found that psycho-education is very effective in counteracting the social deficits among schizophrenic patients. Moreover, researches that support the utility of psycho-education in improving social functioning among schizophrenic patients haven't been conducted at Minia governorate before. So, this research could be helpful in improving social functioning among schizophrenic patients.

Aim of the study

The present study aimed to evaluate the effect of psycho-educational program on social functioning among schizophrenic patients.

Research Hypothesis

❖ Schizophrenic patients who will participate in psycho-educational program will exhibit a higher score in social functioning after the program's implementation than before.

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Subjects and Methods

Research Design:

Quasi-experimental (pre, post and follow up) research design was utilized to achieve the study's aim.

Setting:

The study was carried out in Minia Hospital for Mental Health and Addiction Treatment at New Minia City.

Subjects:

A purposive sample of 50 hospitalized patients with schizophrenia was included.

Inclusion criteria:

- ❖ Age (18 – 55) years old.
- ❖ Both genders.
- ❖ Diagnosed as a schizophrenic based on DSM-V.

Exclusion criteria:

- ❖ Patients with evidence of mental retardation.
- ❖ Patients with a history of neurological disorder.
- ❖ Patients with comorbid diagnosis of substance dependence

Study tools:

I- Personal and clinical data questionnaire:

The questionnaire was developed by the researcher for assessing personal and clinical characteristics of schizophrenic individuals that include: the subject's age, gender, residence, education, occupation, marital status, living condition, mode of admission, frequency of hospitalization, and illness duration.

II- The Social Functioning Scale (SFS):

This scale was developed by Birchwood et al (1990) for assessing social functioning, relevant to the needs and impairments of schizophrenic patients. All items in the scale are assigned to 7 subscales as: Social Engagement, Interpersonal Functioning, Pro-social Activities, Recreational Activities, Independence Performance, Independence Competence, and Employment. The scale modified by the researcher and the items numbered (16, 17, and 21) were deleted from subscale of pro-social activities because these items (Disco, Nightclub and Pub) are not suitable for the researchers' culture.

Scoring System for the Social Functioning Scale (SFS) was calculated as following:

The sum of all item values in each subscale determines the score of that subscale. The combined scores of the 7 domains make up the total final modified social functioning score which ranges from 0 to 235. The higher score reflects higher social functioning, while the lower score indicates lower social functioning level according to the following:

- ❖ From 0 to less than 78 indicates low level of social functioning.
- ❖ From 78 to 156 indicates moderate social functioning level.
- ❖ From 157 or above indicates high social functioning level.

Validity and reliability of Social Functioning Scale (SFS):

The researcher translated the scale's statements and then, five professors in Psychiatric and Mental Health Nursing examined content validity of the scale by reviewing the scale's statements for clearness, thoroughness and suitability. They deleted some items numbered (16, 17., and 21) from subscale of pro-social activities to be suitable for the researchers' culture. The scale was modified by the researcher according to the experts' recommendations and then reviewed by Jury members who confirmed that the modified tool is valid, fit the studied patients' culture and relevant to the study's aim. Internal consistency for the modified Social Functioning Scale was calculated and confirmed by Cronbach's alpha coefficients test for reliability which was (0.821).

Program description:

Program's general objective:

The program was created with the general objective of teaching schizophrenic patients the necessary skills needed for improving their social functioning.

Program's specific objectives:

Following the program's implementation, the patients will be able to:

- ❖ Gain information about the nature of schizophrenia, its main signs and symptoms, immediate influence of these symptoms on patients.
- ❖ Practice effective conversational skills with others.
- ❖ Be aware of the various communication styles (passive and aggressive communication).
- ❖ Recognize the different skills of being assertive such as making and refusing requests and also skills of expressing unpleasant and positive feelings.
- ❖ Apply effective problem solving skills.
- ❖ Practice self-care activities such as grooming and personal hygiene.

The following phases were involved in the proposed program's execution:

1. Assessment phase:

This stage looked at assessing social functioning of individuals with schizophrenia. In order to get the necessary information, each patient was interviewed during this phase. The researcher filled out the scale after clarifying the meaning of each question for the patients, to enable them understand its meaning. According to the results of the assessment, the researcher created the program material and exercises with the help of videos and posters and then, the supervisors revised the program's exercises and content.

2. Planning (preparatory phase):

The program's strategy, duration, sessions' number, teaching techniques and supporting media were all designed during the planning phase. Additionally, the suitability of the program's facilities and the teaching environment was examined. The program comprised a variety of teaching methods, including lectures, group discussions, posters and role playing. The total number of sessions was 10 and the time spent to conduct each session was 2 hrs. according to the needed explanation.

3. Implementation of the program:

The patients were classified into five subgroups by the researcher; each subgroup consisted of ten participants to facilitate interaction. Each subgroup of patients received the same program sessions until finishing the five subgroups. On the start of every session, the researcher greeted the participants, clarified the session's goals and content and then took on role with one participant. Lately, the researcher repeated the process with a different participant and then 2 participants were selected to complete these activities.

On each session's termination, the researcher offered a brief summary of the session's content, asked patients if they had any questions, informed them about the of following session's time and assigned them session homework. The researcher also summarized the previous session in order to ascertain how well the patients understood the exercises that were covered and to go over the session's material once more. The researcher gathered the data and carried out the program within (10) months from the start of (October, 2021) to the close of (July, 2022).

4. Program evaluation:

The program was evaluated twice; using the same study tool;

a) First, immediately a week after implementation of the program (post-test).

b) Second, three months after the program implementation (follow up's test) in order to verify the program's long term effectiveness in the future.

Pilot study:

A pilot study was carried out on ten percent that equals 5 patients from the total number of studied patients to ensure tools clarity and applicability. No changes have done, so those patients were included in the study's sample.

Ethical Considerations:

A formal permission was granted by the Research Ethical Committee of the Faculty of Nursing, Minia University. Then, formal agreement was derived from the General Secretariat of Mental Health and Addiction Treatment, Ministry of Health & Population to conduct the study. Since the study adhered to the standard clinical ethical guidelines for clinical research participation, there was no harm to the researched patients during the implementation of this research. Privacy was protected when collecting the data. The data were coded to ensure anonymity and confidentiality. In addition, patients have the right to decline participation in the study for any reason. Both educated and uneducated study participants gave their spoken informed agreement to take part. The hospital's patient rights committee also provided written consent.

Statistical analysis:

Data were collected, codified, classified, presented, scored, tabulated and entered into the SPSS version (21). For qualitative variables, the data were data were presented using descriptive statistics in the form of frequencies and percentages. For quantitative variables, data were described by mean and standard deviation. Non-parametric Friedman tests were utilized in order to distinguish significance level between quantitative data in the three different tests. Kruskal Wllis and Man-Whitteny tests were used to test the relation between personal and clinical data with the score of social functioning using mean and standard deviation. Probability (p-value) less than 0.05 was considered significant.

Results:

**Table (1): Frequency distribution of schizophrenic patients according to their personal data (n = 50):**

Personal data	No.	%
Age / years		
18-39	34	68
40-49	11	22
50-60	5	10
Gender		
Male	44	88
Female	6	12
Residence		
Urban	10	20
Rural	40	80
Marital status		
Single	21	42
Married	23	46
Divorced	6	12
Educational level		
Illiteracy	6	12
low education	36	72
High education	8	16
Occupation		
Working	6	12
Not working	44	88
Living condition		
Alone	7	14
With family and relative	43	86

Table (1) presents that, (68%) of the research subjects belong to age between (18- 39) years old, (88%) of them are males and not working, (80%) are from rural areas, and (46 %) of them are married. Also, (72 %) of the research subjects are low educated and (86%) of them are living with their families or relatives.

Table (2): Frequency distribution of schizophrenic patients according to their clinical data (n = 50).

Clinical data	No.	%
Mode of admission to psychiatric hospital		
Voluntary	8	16
Involuntary	42	84
Frequency of hospitalizations		
Once	11	22
2 times	12	24
3 times and more	27	54
Duration of disease		
Less than one year	6	12
less than3 years	14	28
3 years and above	30	60

Table (2) illustrates that, (84%) of the study subjects were admitted involuntary to psychiatric hospital, more than half (54%) of them were previously hospitalized three times and more. Regarding illness duration, it was found that (60%) of the patients were having the disease for 3 years and above.
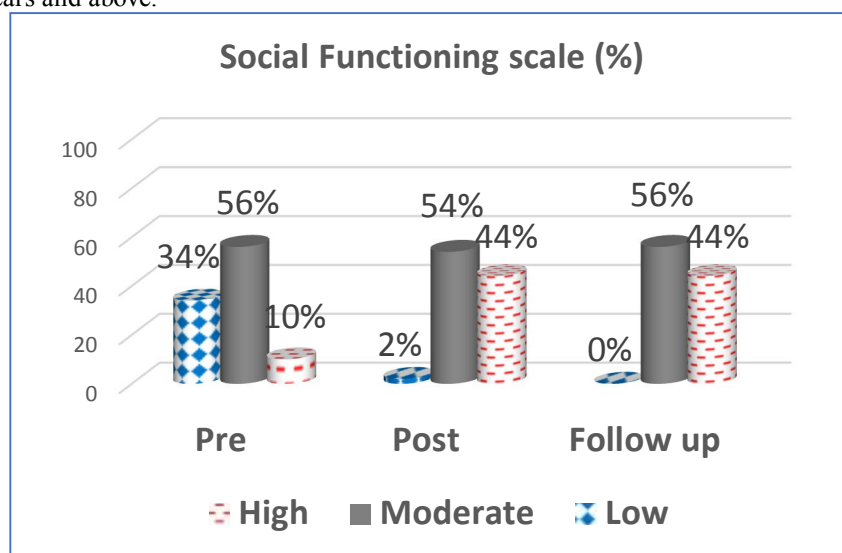
Figure (1): Frequency distribution of the total social functioning (n = 50)

Figure (1) shows that, **at the pre-test,** there were (34%) of the studied patients who exhibit a low social functioning level, greater than half (56%) of them exhibit a moderate social functioning, and only (10%) of them exhibit a high social functioning level. **Regarding posttest and the follow up test,** the same figure indicates that, the percentage of subjects who have low social functioning decreased to (2% and 0% respectively), while the percentage of subjects who have high social functioning is increased to (44%)

Table (3): The mean score of social functioning and its subscales (n = 50):

Items	Pre Mean±SD	Post Mean±SD	Follow up Mean±SD	Friedman Test	P Value
Social Engagement	7.2±3.9	11.1±2.7	10.7±2.5	27.2	0.0001*
Interpersonal Behavior	10.4±6.1	15.2±4.8	15.1±4.8	30.7	0.0001*
Pro-social Activities	18.4±12.3	33.6±19.01	33.4±17.1	44.6	0.0001*
Recreational Activities	16.1±7.2	11±4.1	10.7±3.5	67.5	0.0001*
Independence Competence	9.5±4.3	26.2±5.6	26.2±4.3	57.3	0.0001*
Independence Performance	23.6±9.2	32.2±4.6	31.7±4.1	45.9	0.0001*
Employment	20.2±8.5	31.1±4.8	29.7±3.6	8.5	0.4
Total Social Functioning	98.8±38.9	153.7±24.8	151.1±19.8	68.8	0.0001*

Tables (3) shows highly statistically significant differences between pre, post and follow up regarding the total social functioning as well as it's all subscales with P- value (0.0001*), **except for employment** as the P- value = (0.4). In addition, this table reveals that, the total social functioning score was (98.8±38.9) **at pre-test** which was increased to (153.7±24.8) **at the post-test**. While, **at the follow up**, it was (151.1±19.8). **Also,** this table demonstrates that, **at pre-test**, **social engagement subscale** had the lowest mean score, followed by independence competence, and interpersonal behavior as (7.2±3.9 **&** 9.5±4.3 **&** and 10.4±6.1 respectively).

Table (4): Relation between the patients' social functioning mean score and their personal data (n = 50).

Personal data	Social functioning								
	Pre			Post			Follow up		
	Mean±SD	Kruskal Wallis	P	Mean±SD	Kruskal Wallis	P	Mean±SD	Kruskal Wallis	P
Age / years									
18-29	102.8±42.6			156.2±25.1			155.5±17.8		
30-39	104.7±38.01	1.8	0.5	158.2±18.8	2.05	0.7	152.2±14.5	2.3	0.7
40-49	88.5±34.3			147.5±33.8			148.7±27.8		
50-60	85.4±41.1			142.2±21.9			137±22.5		
Marital status									

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Personal data	Social functioning								
	Pre			Post			Follow up		
	Mean±SD	Kruskal Wallis	P	Mean±SD	Kruskal Wallis	P	Mean±SD	Kruskal Wallis	P
Single	95.1±42.3			155.5±22.5			150.3±19.8		
Married	110.7±37	6.6	0.06	157.8±21.4	2.1	0.1	157.1±12.9	4.6	0.03*
Divorced	72.7±15.7			135.8±35.8			134.8±29.3		
Educational level									
Illiteracy	102.3±31.2			148.1±29.1			147.5±12.6	0.5	1.07
Low education	95.1±42.5	2.9	0.2	154.2±25.7	0.4	0.8	151.2±21.8		
High education	113±23.5			156.8±12.2			154.6±14.9		

Table (4) illustrates that, **at the follow up**, there was a statistically significant relation between patients' social functioning mean score and marital status with P- value = (0.03*). The same table illustrates that, **at pre, post, and follow up**, the highest social functioning scores were among married patients as (110.7±37 & 157.8±21.4 & and 157.1±12.9 respectively) and among **the highly educated patients** as (113±23.5 & 156.8±12.2 & and 154.6±14.9 respectively)

Table 4 (cont.): Relation between the patients' social functioning mean score and their personal data (n = 50).

Personal data	Social functioning								
	Pre			Post			Follow up		
	Mean±SD	Mann-Whitney	P	Mean±SD	Mann-Whitney	P	Mean±SD	Mann Whitney	P
Gender									
Male	101±39.5	114.5	0.7	155.9±24.9	68.5	0.05*	152.9±19.2	76	0.09
Female	89.3±35.7			138.1±18.6			138±20.4		
Residence									
Rural	93.7±36.9	89.5	0.03*	151.8±24.2	126.5	0.2	149.2±18.5	126.5	0.1
Urban	122±39.7			161.5±26.9			159±23.8		
Occupation									
Working	121.6±28.8	72	0.1	161.3±21.1	99.5	0.3	160.1±16.3	85	0.1
Not working	93.5±39.3			152.7±25.3			149.9±20.09		
Living condition									
Alone	109.8±56.1	134	0.01*	158.7±29.5	123	0.2	153.5±30.5	136.5	0.3
With family and relative	97.06±35.9			152.9±24.4			150.7±18.01		

Table 4 (cont.) illustrates that, **at the pretest**, there were statistically significant relations between patients' social functioning and **residence** as well as **living condition** with P- values = (0.03* and 0.01* respectively). **Also, at the posttest**, there was a statistically significant relation between subjects' social functioning and their **gender** with P- values = (0.05*). The same table shows that, **at pre, post and follow up,** the highest social functioning scores were among **male** as (101±39.5 & 155.9±24.9 & and 152.9±19.2 respectively); among **patients who lived in urban areas** as (122±39.7 & 161.5±26.9 & and 159±23.8 respectively); and among **the working patients** as (121.6±28.8 & 161.3±21.1& and 160.1±16.3 respectively).

Table (5): Relation between the patients' social functioning mean score and their clinical data (n = 50).

Clinical data	Social functioning								
	Pre			Post			Follow up		
	Mean±SD	Kruskal Wallis	P	Mean±SD	Kruskal Wallis	P	Mean±SD	Kruskal Wallis	P
Number of hospitalizations									
Once	96.3±37.4	0.8	0.8	148.1±31.3	0.9	0.7	150.5±25.9	0.4	0.9
2 times	107.2±40.5			157.9±25.02			153.8±19.02		
3 times	95.2±42.1			151.1±22.9			150.8±19.2		
More than 3 time	97±38.9			157.07±22.7			149.7±17.5		
Duration of disease									
Less than one year	113.2±47.9	2.9	0.3	160.5±15.4	4.3	0.5	159.1±15.1	4.2	0.4
1- less than 3 years	98.6±34.03			159.2±34.7			153.7±27.8		
3-6 years	84.5±30.9			156.3±25.7			154.8±9.9		
More than 6 years	94.8±35.5			148.2±19.2			146.7±16.8		

Table (5): illustrates that, at the pre, post and follow up, no statistically significant relations were found between patients' social functioning and their number of hospitalizations or their duration of disease as p-values more than 0.05. The same table shows that, **at the pre, post and follow up,** the highest social functioning scores were among **patients who were hospitalized for 2 times** as (107.2±40.5 & 157.9±25.02 & and 153.8±19.02 respectively) and among **the patients who had the disease for less than one year** as (113.2±47.9 & 160.5±15.4 & and 159.1±15.1 respectively)

Table 5 (cont.): Relation between the patients' social functioning mean score and their clinical data (n = 50).

Clinical data	Social functioning								
	Pre			Post			Follow up		
	Mean±SD	Mann-Whitney	P	Mean±SD	Mann-Whitney	P	Mean±SD	Mann-Whitney	P
Mode of admission to psychiatric hospital									
Voluntary	148.6±30.2	29	0.001*	180.2±15.4	36.5	0.001*	170.5±12	42.5	0.002*
Involuntary	89.3±32.8			148.7±23.08			147.5±18.9		

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Table 5 (cont.) illustrates that, **at the pre, post, and follow up**, there were highly statistically significant relations between patients' social functioning score and their mode of admission to psychiatric hospital with P- values = (0.001* & 0.001* and 0.002* respectively). The same table also shows that, **at the pre, post, and follow up,** the highest social functioning score was among the subjects with **voluntary admission** as (148.6±30.2 & 180.2±15.4 & and 170.5±12 respectively).

Discussion
Part I: Personal and clinical data of the studied patients (Table 1& 2):

The present research results revealed that greater than two thirds of subjects were in age between (18- 39). This might be explained by that schizophrenia is a chronic condition that typically emerges in early adulthood and late adolescence. This result agreed to that of **Abdelgelil et al., (2022)** which discovered that (66.7%) from examined schizophrenia patients were between the ages of 18 and 39. Similarly, **Mohamed et al., (2021)** discovered that (70%) of schizophrenic patients belong to age group (20-39 yrs.).

As regard the gender, the present study's findings found that most of patients were males. This might be because schizophrenia affects men more frequently than women, and because men experience schizophrenia at a younger age than women. This outcome is in agreement with **Nagy et al., (2019)** who stated that (90%) of subjects were men. The present finding is also supported by **Dewedar et al., (2018)** who stated that (85.8%) of the schizophrenics were males. Also, **Ebrahim et al., (2021)** discovered (82.5%) of schizophrenics being male. Similarly, **Elghamry et al., (2022)** found that the majority of schizophrenics (94%) were male.

Concerning the residence, the study's findings illustrated that, greater than three quarters of schizophrenic patients came from rural area. This outcome might be due to that rural areas are associated with several factors such as decreased awareness about psychiatric illness, low levels of education, high poverty, cultural practices and beliefs, as well as the unavailability or the inadequacy of mental health care facilities which all play a key role in incidence of schizophrenia. This outcome is supported by **Ebrahim et al., (2021),** as he found that (80%) of the investigated patients belonged to rural regions.

Regarding educational level, the present study's findings demonstrated that near three quarters of the study's subjects had low education. This could be interpreted as schizophrenia negatively affects the cognitive functions which consequently influence on school achievement. In addition, the earlier onset of the schizophrenia and severity of its symptoms are considered barriers for continuing education. This result is congruent with **Al-Maghraby et al., (2020)** who found that (72.5%) of the subjects able to read & write and with secondary education. Similarly, **El-Monshed et al., (2020)** found that (73.9 %) of the schizophrenics had basic and secondary education. Also, **El-Azzab et al., (2022)** reported that (70 %) of the schizophrenic subjects were able to read and write and have low education.

Regarding occupation, the current research's findings showed that, the majority of patients weren't working. This could be attributed to numerous factors as patients' low level of education, their frequent hospitalization, and stigma of schizophrenic disease. Moreover, the presence of illness manifestations and the poor social skills are considered hinders for working. This outcome is congruent with a research done by **Abd-Elhameed et al., (2020)** who discovered that (94%) of patients with schizophrenia not working. Similarly, **Abdelraof & Behilak, (2020)** reported that (80%) of the sample were not working.

With respect to the mode of admission to psychiatric hospital, it was found that most of the study's subjects were admitted to the hospital involuntarily. This could be explained by that most of patients have a loss of insight about their illness and refuse hospitalization because of the stigma associated with schizophrenia which makes them unable to seek treatment and help from psychiatric hospitals. This finding is in line with the results of **Ahmed et al., (2022)** who found that (92%) of people with schizophrenia were involuntary admitted to the psychiatric hospital. Similarly, **Dewedar et al., (2018)** discovered that (94.2%) of the schizophrenics were involuntary admitted to the psychiatric hospital. **In contrast, Ibrahim & Ahmed (2019)** reported that more than two thirds (68.3%) of the study subjects admitted voluntarily. This discrepancy can result from cultural variations and diverse views of mental disease.

Concerning frequency of hospitalization, the present study's findings demonstrated that greater than half of the subjects were previously hospitalized three times and more. This might be due to the relapse and the chronicity of the disease. In addition, inadequate response to antipsychotic medicines, poor medication compliance as well as the patients' exposure to several life stressors, all can lead to relapse and re-hospitalization. This result is compatible with **Abd-Elhamid et al., (2022)** who reported that (64.1%) were hospitalized for more than 3 times. Also, **Ageeb et al., (2022)** found that (52.3%) of the sample were previously hospitalized three times and more

Regarding illness duration, the present research's results showed that slightly less than two thirds of the studied patients had the disorder for three years and above. This finding might be attributed to the fact that schizophrenia is a chronic condition, progressive and disabling disorder. Moreover, this may be due to lack of response to antipsychotics and poor treatment compliance. This result is supported by **Saber et al., (2018)** who reported that (62 %) of the investigated sample suffered from the disease for two years ago and above. Similarly, **Ageeb et al., (2022)** found that (77.8%) of the sample were having the disease for more than three years.

Part II: The Social Functioning Scale (SFS):

This study indicated that, at the pre-test, there were greater than one third of the patients in the study experienced a low social functioning level, greater than half were having a moderate degree of social functioning and only a very small number of them were having a high functioning level (figure 1). The outcome was explained by the impact of schizophrenia on cognitive, perceptual, motor and emotional aspects which cause distress, a loss of control, and a lack of choice, diminished activity, and demoralization. All of these in turn, lead to negative effect on social functioning inevitably. This result is congruent with that of **Mahanta et al., (2020)** who discovered that there were (36.7%) of the study's subjects had low social functioning level, (60%) of them had a moderate to severe impairment of social functioning and only (3.3 %) of

them had no impairment of social functioning. Similarly, **Salokangas et al., (2021)** found that (38.5%) of the patients that were being studied were having a low level of social functioning, (46.2%) of them were having a moderate to severe social functioning impairment and only (15.3 %) of them with good social functioning.

Concerning the total social functioning mean score, the current research's findings revealed that, at pre-test, the total social functioning score was at low level **(Table 3)**. This might be related to the psychotic symptoms that affect how patients perceive reality, interact with others and adjust to different social settings. This outcome was consistent with **Khedr, et al., (2020)** who reported that the total social functioning score is at low level. Also, **Al-Maghraby et al., (2020)** found that the total social functioning's mean score was at low level.

Regarding the social functioning's sub-domains; the present study's findings demonstrated that at pre-test, the lowest score was for social engagement, independence competence and interpersonal behavior **(Table 3)**. This impairment in social functioning may be related to the negative symptoms of schizophrenia in which schizophrenic patients become less willing to interact with others, more withdrawn from society and unable to identify, articulate, as well as express their own emotions and needs. Moreover, high level of perceived stigma and feeling of rejection from the surrounding society can also lead to the social withdrawal of patients and decrease social functioning. This outcome is partially consistent with **Khedr, et al., (2020)** who discovered that the lowest mean scores were related to interpersonal behavior and social engagement. Similarly, **Saris, et al., (2022)** found that the lowest mean scores were related to interpersonal behavior and social engagement.

Part III: The impact of the program on social functioning:

The present study's findings demonstrated that the total social functioning score increased at post and follow up's tests with a highly statistically significant difference (table 3). This can be explained by the beneficial impact of the psycho-educational program on improving social functioning of the studied sample through teaching individuals the skills of effective communication, problem solving skills, and how to express their emotions and requests so that they are more likely to accomplish their goals and fulfill their requirements for social interactions and the responsibilities necessary for independent life. The outcome was consistent with the findings of **Karaman et al. (2020)** which revealed that there was a significant increase in social functioning among the study subjects following the educational intervention. Similarly, **Yüksel et al., (2021)** reported that, there were a statistically significant difference between the pre-test and post-test regarding the total social functioning mean score. Also, **Dubreucq et al. (2020)** found that study participants showed a significant improvement in social functioning more than control group.

Regarding how the program affected the subscales of social functioning, the research findings indicated that there were highly statistically significant differences in all social functioning subscales except occupation across the pre, post and follow-up assessments (table 3). This could be interpreted as psycho-educational program help persons with schizophrenia to learn a wide range of skills such as how to conversate; apply skills of behaving assertively; solve problem; and practice self-care activities and keep personal

hygiene which can increase their self-confidence and capacity for contacting with others and consequently, improve their functional ability. This result is supported by **Abaoğlu et al., (2020)** as they discovered that, the mean scores for all subscales of social functioning were statistically different between the pre- and post-test.

Part IV: Relations between patients' social functioning mean score and their personal/clinical data:

As regarding to the relation with personal data, the present study's findings revealed a statistically significant relation between the participants' social functioning and marital status in the follow up and that the highest social functioning's mean scores were among married subjects at pre, post, and follow up **(Table 4)**. This could be explained that marriage may increase the social functioning due to spouse support. Indeed, compared to single patients, married patients reported less loneliness, as they encouraged via the emotional assistance offered by the family context. In addition, marriage may provide individuals with a sense of responsibility to others, which discourages dangerous behavior and promotes healthy one. Moreover, marriage can enhance one's quality of life, foster closer relationships with others, and give patients more confidence in them-selves which helps them to meet their needs and improve their functioning. This outcome was in the same line with **Elsherif et al., (2022)** who discovered a statistically relationship of significance among patients' marital status and their overall social functioning score, with married patients having the highest mean scores. Similarly, **Çapar & Kavak, (2019)** reported that the relation between the marital status and social functioning score was significant. **Also, Duţescu M (2018)** found that married patients had a higher level of total social functioning than other groups.

The current study's results indicated that, the highest social functioning scores were for the highly educated participants at pre, post, and follow up **(Table 4)**. This might suggest that education is considered an important contributor to how stressors were experienced by those patients and how one copes in response to these stressors. In addition, education improve self-esteem, increase decision making capacity, contribute to a feeling that one can make a difference and feeling of having sense of control over life and thus positively affects social functioning level. This finding is supported by **Abdel-Aziz et al., (2017)** who discovered that the highest mean scores of social functioning were among the highly educated patients.

As regarding to the social functioning relation with gender, the research findings demonstrated that, in the post-test, there was a statistically significant relation between the subjects' social functioning and their gender; and that the mean scores for social functioning were higher for men than for women across pre, post, and follow-up tests **Table 4 (cont.)**. This result could be attributed to the gender related norms and cultures that commonly present men as strong and in control, and this increase male's self-esteem and allow for male's aspirations in various activities such as education, employment, as well as engagement in physical activities and leisure. These disparities can positively affect the male's access to opportunities, resources, as well as services and subsequently enhance their social functioning. In addition, the larger proportion of male patients and the smaller proportion of female patients in this sample may also contribute to explain these disparities. This finding was reinforced by **Çapar & Kavak, (2019)** who stated that participants' social

functionality and gender were significantly related and that functional level in men was found to be higher than women.

Concerning the relation between social functioning and residence, the current study discovered that at the pretest, a relationship of statistical significance was found between the patients' social functioning and their residence; and that patients who resided in urban areas had the highest mean scores for social functioning at pre, post, and follow up **Table 4 (cont.)**. This might be explained by the fact that cities are characterized by the existence and accessibility of essential services as well as the availability of health and educational programs, all of which are crucial in defining a person's degree of wellness as well as life satisfaction and enhancing social functioning. Moreover, in urban areas, there is availability of locations where people frequently go for leisure, socializing, and recreational activities, which in turn provide possibilities for individuals to go outside, interact and engage in social activities. The present finding is supported by **Wang et al., (2021)** who discovered that the level of social functioning of urban participants was significantly higher than that of rural counterparts. This finding is also in the same line with **Elsherif et al., (2022)** who found a statistical significant relation between subjects' social functioning and their residence.

Concerning patients' occupation, this study found that, the highest social functioning scores were among participants who are working at pre, post, and follow up **Table 4 (cont.)**. This could be attributed to the strongest positive effects of working on social functioning. Working directly leads to increase in income and consequently, maintaining a standard of living which contributes to increasing feelings of security, life satisfaction and self-esteem. Besides the income, working may have other benefits such as the cooperating with colleagues, participating in social relations and having decision making capacity which helps form strong work bonds, improve their communication skills and contribute to better social functioning. This result is supported by **Ebuenyi et al., (2019)** who found that those with a work had a higher level of social functionality than those without a work.

The present research's findings illustrated that, the highest scores of social functioning were among the subjects who had the disease for less than one year at pre, post, and follow up **(Table 5)**. This outcome may be due to the benefits of early recognition and treatment of schizophrenia which may improve prognosis, prevent progression to more severe stages of disorder and reduce the development of chronic disabilities. In addition, patients who have the disease for less than one year may be less confronted with the effects of social labeling and avoidance and so, the social functioning of those people is less affected. This finding is in agreement with **Dutescu et al., (2018)** who discovered that good social functioning was related with shorter overall illness duration and vice versa.

In addition, at the pre, post, and follow up, highly statistically significant relations were found between patients' social functioning and their admission mode to psychiatric hospital; and the highest social functioning mean score was for subjects with voluntary mode of admission at the pre, post, and follow up **Table 5 (cont.)**. This might be attributed to the evidence which shows that the individual who is aware of his condition and accepts therapy on his own initiative, has a higher chance of recovery than one who is forced to take treatment. In addition, voluntary admission has the benefits of: respecting individual autonomy; reducing the feeling of compulsion and stigmatization; increasing patients' responsibility and participation in the treatment planning; improving communication with the hospital staff. All of these can increase patient social functioning than patient whom treatment is forced. This result is supported by **El-Monshed & Amr, (2020),** who reported that, patients who were admitted voluntary had higher mean scores of recovery and social functioning than patients who were admitted involuntary. Similarly, **Goula et al., (2021),** mentioned that voluntary admission increases patients' effective communication and functioning due to its many benefits

Conclusion

According to the results of the present research, it is possible to draw the conclusion that, schizophrenic individuals have poor social functioning level that is needed for daily living and to fulfill their roles in society. In addition, there were significant improvements in social functioning of schizophrenic patients after receiving psycho-education. Thus, this psycho-educational program has a beneficial impact on social functioning levels among schizophrenic patients.

Recommendations:
1. A structured psycho-educational program should be developed in all psychiatric departments and social contexts to improve the social functioning among persons with schizophrenia.
2. Continuous provision of psycho-educational programs for schizophrenic patients for supporting their learning skills and maintaining the improvement in their social functioning
3. In service training for the nurses and health providers is very important in order to offer patients with schizophrenia with high-quality care.

Further additional researches with a larger sample size are required in order to generalize findings

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