

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

**Hend Adel Abdelhameed¹, Mona A. Elnagar²,
Sabah M. Ebrahim³, Hanaa Mohammad Abo Shereda⁴**

¹*Clinical Instructor of Psychiatric and Mental Health Nursing,*

^{2,3}*Professor of Psychiatric and Mental Health Nursing,*

⁴*Assistant Professor of Psychiatric and Mental Health Nursing,*

^{1,2,3,4}*Faculty of Nursing, Menoufia University, Egypt*

Background: Subjective wellbeing for those who have schizophrenia is a big challenges which leads to increased psychological distress, worsening depressive symptoms, low self-esteem, unhappiness, conflict, and suffering. Patients with depressive symptoms have a lower quality of life, which is reflected on the extensive burden of schizophrenia and the need for treatment. **Purpose:** To assess the relation between depressive symptoms and subjective wellbeing among patients with schizophrenia. **Design:** A descriptive correlational design was utilized. The study was conducted at Meet Khalaf Psychiatric Hospital in Shebin El-kom city, Menoufia Governorate, Egypt. **Sample:** A purposive sample of 148 patients who had schizophrenia was selected. **Instruments:** Three instruments were used 1) A structured interview questionnaire to assess socio-demographic characteristics and medical history of the patients 2) Calgary depression scale for schizophrenia 3) Subjective wellbeing under neuroleptic short version scale. **Results:** 92.6% of the studied patients with schizophrenia had low level of subjective wellbeing, 7.4% had moderate level of subjective wellbeing, 85% of the studied patients with schizophrenia suffered from major depressive episode and 96.8% of patients with schizophrenia who had depressive episode had low subjective wellbeing. **Conclusion:** There was a statistical significant negative correlation between subjective wellbeing and depressive symptoms. **Recommendations:** comprehensive intervention programs should be developed to improve depressive symptoms and enhance subjective wellbeing among patients with schizophrenia.

Keywords: *depressive symptoms, schizophrenia, subjective wellbeing.*

Introduction

Schizophrenia is one of the most severe, chronic, and disabling mental disorders. It affects many areas of functioning, subjective well-being, and individuals' perception of reality.

Globally, as estimated by the World Health Organization (WHO), about 24 million people suffer from schizophrenia. It was ranked as one of the top ten illnesses contributing to the

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

global disease burden. The course of schizophrenia appears to be favorable in about 20% of people with schizophrenia, and a small number of individuals are reported to recover completely (Solmi et al., 2023). Patients with schizophrenia are also prone to stigma, which leads to discrimination and thus affects their life opportunities and quality of life (Hoseinipalangi et al., 2022).

Subjective well-being indicates people's perceptions of life satisfaction and emotional well-being regarding positive and negative affect or how people feel about their experiences and how satisfied they are with their lives. Subjective wellbeing has both affective and cognitive components, the affective component of well-being refers to the frequency with which people feel positive and negative emotions. The cognitive component of well-being is the general evaluation of people's satisfaction regarding their life subjective well-being (SWB) concerns people's evaluations of the quality of their own lives (Yang, et al, 2021). This appraisal comprises a cognitive and an affective component, which refer, respectively, to cognitive judgments about achieving important values and goals in the life span of the individual and to the balance between positive and negative affect. Thus, SWB corresponds to an overall satisfaction with one's life and long-term levels of happiness that result from a global self-evaluation of whether individuals are living a good existence or not (Llamas-Díaz, et al, 2022).

Recently the promotion of the quality of life of patients with schizophrenia is considered an important goal in their treatment. To improve the quality of life of patients with schizophrenia, attention should be paid to their insight and negative symptoms, educational level, depression symptoms, side effects of antipsychotics, and social support as significant variables associated with subjective well-being. Therefore, it is necessary to evaluate the depressive symptoms and side effects of antipsychotics that cause deterioration of the quality of life of patients with schizophrenia and to provide the patients with appropriate treatments (Degnan, et al 2021).

Depressive symptoms in patients with schizophrenia have been reported to contribute to poor outcomes, with frequent psychotic episodes, substance misuse, poorer quality of life (QOL), and suicide. In recent years it has become apparent that depressive symptoms are common in patients with a diagnosis of schizophrenia. Depression can occur at different phases of schizophrenia (Mosolov & Yaltonskaya, 2022). The presence of depressive symptoms may be associated with many psychological factors such as stress, sense of insecurity, hopelessness, and social exclusion. Recurrent depressive episodes adversely affect treatment outcomes in schizophrenia, devastate the lives of sufferers as well as their caregivers via increasing distress, disability, and reduced productivity (Ali Mohammed, et al, 2022).

Basically the psychiatric nurse has an important role toward schizophrenic

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

patients in teaching patients how to recognize the disease they are suffering from, build personal identity, regain the meaning of life, and maintain it, achieving functional recovery to develop social functioning, achieving good prognosis and good quality of life. Also, psychiatric nurse should be able to identify depressive symptoms in schizophrenic patient, its precipitating factors and have considerable potential to reduce the effects of depressive symptoms through the use of relevant evidence-based interventions (Arya & Rentala, 2022).

Also, the psychiatric nurse should improve subjective well-being and quality of life by involving patient in different activities, avoid promoting dependence by doing only what the patient can't do for himself, reward positive behavior and work with him to increase his personal sense of responsibility in improving functioning. Thus, nurses are not responsible for the fulfillment of daily life. But how to be a resource provider, supporter, and encourager of patients to manage their condition by providing trust, fostering a sense of responsibility, and motivating them to believe that they can recover (Lundström, et al, 2020).

Significance of the study

Worldwide, Schizophrenia is the 8th leading cause of disability-adjusted life years (DALYs) worldwide. Schizophrenia affects approximately 24 million people or 1 in 300 people (0.32%) worldwide and the rate is 1 in 222 people (0.45%) among adults

(Shanko, et al, 2023). In Egypt, about 1 million patients in Egypt have schizophrenia (Okasha, 2019). Then a national survey of mental disorders performed over 14,640 adults between the age of 18 and 64 showed that the prevalence of psychotic disorders in Egypt including schizophrenia was 0.19% (Mostafa et al.,2022). The prevalence rate of schizophrenia in Egypt is expected to be around 22 percent of people or 56 thousand Egyptians (Hasan Alam, et al, 2023). Additionally, schizophrenia affects around seven per thousand adults in Egypt, primarily those between the ages of 15 -35. Although the incidence is modest (3 per 10,000), the prevalence is significant due to the illness's chronicity (El-Azzab et al.,2022).

The comorbid depressive symptoms in patients with schizophrenia have often been associated with impaired mental functioning, poorer subjective wellbeing, higher rates of relapse or re-hospitalization and suicidal ideas (Tan, et al, 2019). Decreasing depressive symptoms and enhancement of subjective wellbeing for patients with schizophrenia allow patients to feel satisfied with their lives, experience good feelings such as joy, contentment, and hope, be more flexible, higher self-esteem and self-efficacy and active in social relations and can maintain inspirations, gives individuals the ability to make accurate judgments since they are self-aware of their power and limitations and can greatly aid recovery and improve the patient's quality of life and illness prognosis (Chiang, et al, 2021). All of this has

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

positive effects on quality of life and well-being among patients with schizophrenia. So, this study aimed to assess the relationship between subjective wellbeing and depressive symptoms among patients with schizophrenia.

Theoretical Definitions:

a. Depressive Symptoms

Depressive symptoms in schizophrenia is theoretically defined as symptoms that similar to those in negative symptoms in schizophrenia, which appear to reflect a diminution of normal functions, such as apathy, lack of emotion, or poor social functioning, Brinsley, et al (2021). In the present study it is operationally defined as the degree to which schizophrenic patient experience hopelessness, self – deprecation, guilty ideas, pathological guilt, morning depression, early wakening and suicidal ideation which will be measured by Calgary Depression Scale for Schizophrenia developed by (Addington, et al, 1990) and translated into Arabic by Hani et al, (2016).

b. Subjective well-being:

Subjective well-being is theoretically defined as people’s appraisals and evaluations of their own lives. It includes both reflective cognitive judgments, such as life satisfaction, and emotional responses to ongoing life in terms of positive and pleasant emotions versus unpleasant and negative emotions. When people reflect on their lives and give judgments about their life as a whole, or about domains in their life such as work and health, they compare with

the standards they have for the good life (De Millas, et al (2022). In the present study it is operationally defined as patient's mental, physical and psychological evaluation which will be measured by subjective well-being under neuroleptic treatment scale short form (SWN-K) developed by (Naber, et al, 2001).

The Purpose of the Study:-

The purpose of this study was to assess the relationship between depressive symptoms and subjective well- being in patients with Schizophrenia.

Research Questions:

- 1) What are the levels of depressive symptoms among patients with schizophrenia?
- 2) What are the levels of subjective well- being among patients with schizophrenia?
- 3) Is there a relation between depressive symptoms and subjective well- being among patients with schizophrenia?

Methods:

Research design:

A descriptive correlational design was used in this study.

Research setting:

The study was conducted at one setting; Meet Khalaf Psychiatric Hospital in Shebin El-kom city, Menoufia Governorate, Egypt.

Sampling:

A purposive sample of 148 patients who were above 18 years old, diagnosed with schizophrenia, taking antipsychotic drugs, do not use medications for other disorders

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

Sample size:

The sample size was calculated using this formula, where n is the required sample size, N= total population, Z is 1.96 at 95% confidence interval (CI), D is the margin of error (0.50). The estimated sample size is 148 patients out from 240 patients at the previous mentioned setting (Thompson, 2012).

$$n = \frac{N \times p(1-p)}{\left[\left(N-1 \times \left(d^2 \div z^2 \right) \right) + p(1-p) \right]}$$

$$240 \times (0.5 \times 0.5) = 60$$

148

$$\frac{239 \times (.0025 / 3.8416)}{239 \times .000651 + .25} = .4055$$

Which:

n= Sample size, N= Total size, Z= 1.96, d= Error level 5%, p= 0.5.

Instruments

Data were collected using the following instruments:

Instrument one: Characteristics of patients structured interview questionnaire:

This questionnaire was developed by the researcher to assess characteristics and medical history of the patients as age, sex, education, marital status, place of residence, age of onset of schizophrenia, duration of illness, type of treatment, smoking condition, medications, history of any medical conditions and way of entering hospital.

Instrument two: Depressive symptoms scale

The Calgary Depression Scale for Schizophrenia (CDSS) was originally developed by Addington et al, (1990) and translated into Arabic by Hani et al, (2016). It consisted of nine items. It was used to assess depression in schizophrenia. The CDSS consisted of eight structured questions and a ninth observational item that depends on observation over the course of the interview. Items were constructed to measure: depression, hopelessness, self-deprecation, guilty ideas, pathological guilt, morning depression, early wakening, suicidal ideation and observed depression. Items were graded on a 4-point Likert type scale (0, absent; 1, mild; 2, moderate; 3, severe). High internal consistency has been reported for scale (Cronbach's alpha α = 0.85) (Hani, et al., 2016).

Instrument three: Subjective well-being scale under Neuroleptics (short form) (SWN-K)

The SWN-K was developed by Naber et al, (2001). It was translated into Arabic and validated by the researchers. SWN-K was a self-rated scale consisting of 20 items (10 positive and 10 negative. It was developed to assess subjective experiences of patients during antipsychotic treatment. It ranges from Not at all= 1 to Very much = 4 for positive (+) statements and from Not at all= 4 to Very much = 1 for a negative (-) statements. It consists of five subscales: Physical functioning subscales: 8(-), 7(-), 5(+), 6(+), Mental

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

functioning subscales: 12(-) 11(-) 9(+), 10(+), Self-control subscales: 2(-), 1(-), 4(+), 4(+), Emotional regulation subscales: 16 (+), 15 (+), 14 (-), 13 (-), Social integration subscales: 20 (+), 19 (+), 17 (-), 18 (-). Total scores range from 20 to 80 points, with higher scores indicating greater well-being.

Validity:-

Before starting, the tool three data collection instruments (instruments one and three) were tested for validity by a jury of five experts in the field of psychiatric mental health nursing to check the relevance, coverage of the content and clarity of the questions. The required modification were carried out accordingly.

Reliability:-

Reliability was estimated among 10 participants by using test retest method within two weeks period between them. Then Cronbach alpha reliability test was done using SPSS computer package. Cronbach alpha reliability test for instrument three subjective wellbeing under neuroleptics was 0.88, which indicated that the instrument was reliable to assess the objectives of the study.

Ethical Considerations:

Approval of the Ethical Research Committee/Faculty of Nursing, Menoufia University was obtained as well as the committee for research ethics of The General Secretariat of Mental Health Hospitals. Secondly, written informed consent was taken from each patient in the study after explaining the purpose and the importance of the study. Patients who

agreed to participate in the study were assured about the confidentiality and anonymity of the study. They were informed about their right to withdraw from the study at any time without giving any reason. Then, a brief description of the purpose of the study and the type of questionnaire required to fill was given to each participant.

Pilot study:

A pilot study was conducted at 10% of the total sample (15 patient) to test the applicability, feasibility and clarity of instruments and to estimate the needed time to fill the instrument. Minimal modifications were done. Patients in the pilot study were excluded from the main study sample.

Procedure:

An official letter was addressed from the faculty of nursing, Menoufia University to the directors of the selected hospital, requesting their cooperation and permission to conduct the study. Then, official letter was carried to the committee for research ethics of The General Secretariat of Mental Health Hospitals to take the permission to carry out the study at the selected setting. After permission was obtained informed consent from participants was obtained after complete description about the purpose, nature and confidentiality of the study. The data were collected from patients with schizophrenia at Meet Khalaf Psychiatric Hospital in Shebin El-kom city, Menoufia Governorate, Egypt. Data collection was collected three days/ per week, each interview lasted for 1 hour, depending on the response of the

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

patient. The process of data collection took 3 months started from beginning of February 2023 to the end of April 2023.

Statistical Analysis:-

Data was entered and analyzed by using SPSS (Statistical Package for Social Science), version 22. Graphics were done using Excel program. Quantitative data were presented by mean (X) and standard deviation (SD). It was analyzed using student t test for comparison between two means, and ANOVA (F) test for comparison between more than two means. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square (χ^2) test. However, if an expected value of any cell in the table was less than 5, Fisher Exact test was used(if the table was 4 cells) , or Likelihood Ratio (LR) test (if the table was more than 4 cells). Level of significance was set as P value <0.05 for all significant tests.

Results

Table 1 revealed characteristics of the studied patients having schizophrenia. It showed that more than three quarters of patients having schizophrenia (78.4 %) aged between 25 - 45 years with mean age of (28.2 ± 2.5 Years). More than half of them were males (56.1. About half of patients had secondary education (48.6%), 56.1% were unemployed, 73.6 % of the studied patients were smoking. The majority of patients (90.5 %) were admitted involuntarily. The highest percentage of the lived in urban areas (84%).

Figure.1 illustrated levels of depressive symptoms among studied patients. The figure highlighted that the highest percentage of studied patients (85 %) suffered from major depressive episode, On the other hand only 15 % of the studied schizophrenic patients had no depressive episode.

Figure 2 revealed levels of subjective wellbeing among studied patients. The figure revealed that the majority of the studied patients (92.6 %) had low subjective wellbeing while only 7.4 % of them showed moderate subjective wellbeing

Table 2 revealed the relation between depression levels and subjective wellbeing in studied patients with schizophrenia. The table demonstrated that there was a statistically significant relation between levels of depression and levels of subjective wellbeing of the studied schizophrenic patients ($P < 0.0001$). The majority of patients having depressive episode showed low subjective wellbeing (96.8%).

Figure.3 revealed correlation coefficient between grand total depression scores and grand total subjective wellbeing score with regression line among the studied schizophrenic patients. The figure demonstrated that there was a highly statistically significant negative correlation between grand total depression scale as an Independent variable and grand total subjective wellbeing or any of its five subscales as a dependent variable. The graph highlighted a good negative and high significant correlation between them ($r = - 0.43$, and $p < 0.0001$). Which means that as the level of depression

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

increased, the level of subjective wellbeing will be decreased. This result answered the third research question of current study which stated

“What is the relationship between depressive symptoms and subjective well- being in patients with schizophrenia?”

Table 1 Characteristics of Studied Patients (N=148)

Characteristics of patients	Frequency	
	N0.	%
Age groups:		
25 - 45 years	116	78.4
46 - 55 years	24	16.2
56 - 65 years	8	5.4
Mean ± SD	28.2 ± 2.5 Years	
Gender :		
Male	83	56.1
Female	65	43.9
Marital status:		
Single	98	66.2
Married	44	29.7
Divorced/Widow	6	4.1
Education:		
Illiterate / R&W	49	33.1
Basic Education	12	8.1
Secondary education	72	48.6
High education	15	10.2
Job:		
Doesn't work	83	56.1
Work	65	43.9
Residence :		
Urban	124	84
Rural	24	16
Patient had smoking:		
No	39	26.4
Yes	109	73.6
Way of entering hospital:		
Involuntary	134	90.5
Voluntary	14	9.5
Total	148	100

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

Fig.1: Levels of Depressive Symptoms among Studied Patients (N=148)*

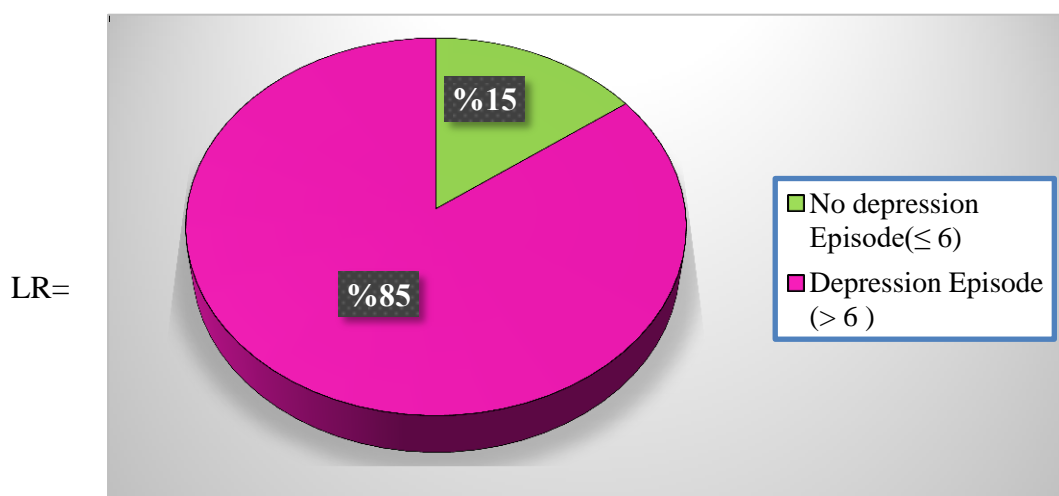


Fig.2: Levels of Subjective Wellbeing among studied patients' (N=148)

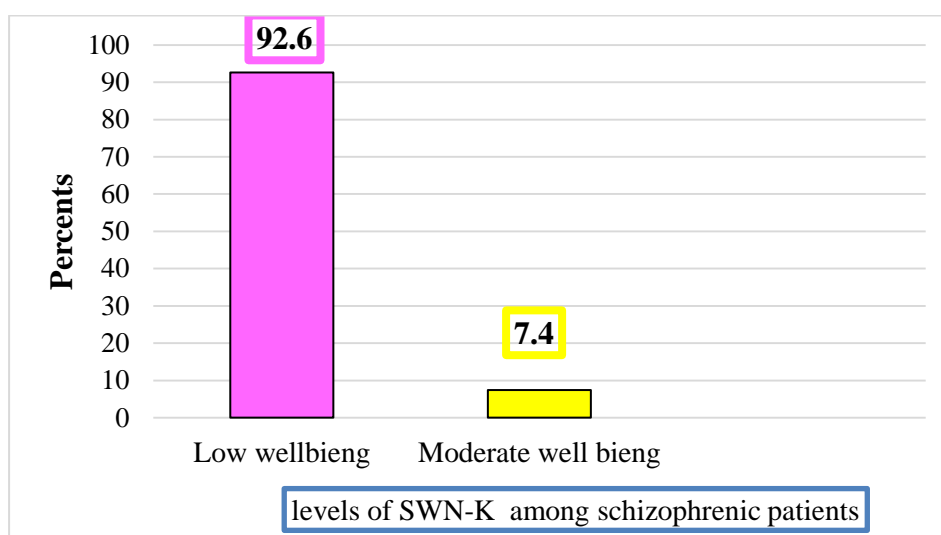
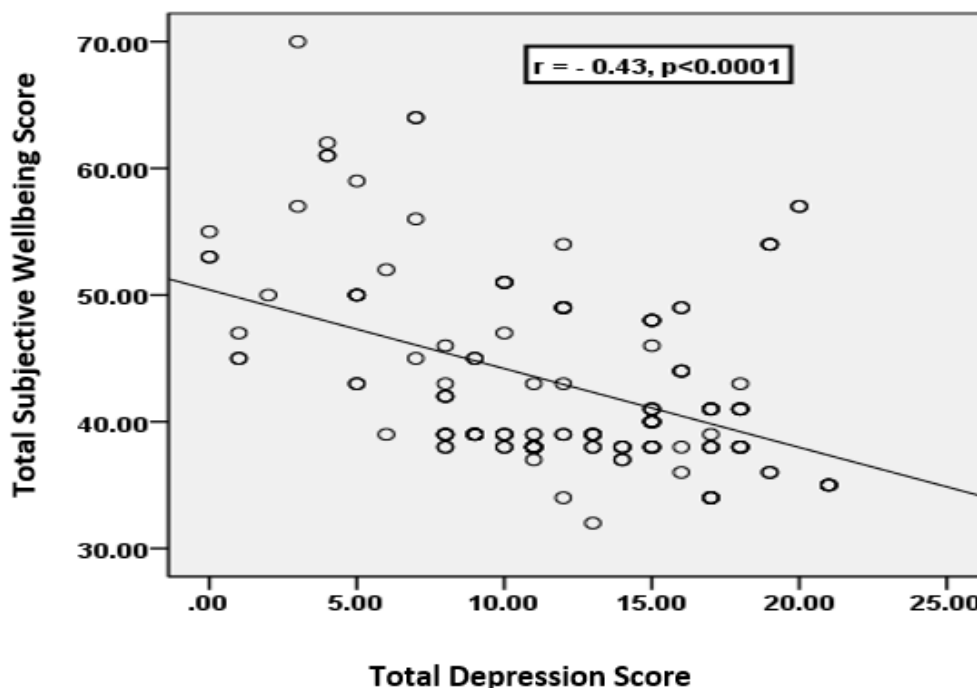


Table 2: Relation between Depression Levels and Subjective Well- being among Studied patients with Schizophrenia (148)*

Levels of depression	Levels of subjective well- being				LR	P
	Low		Moderate			
	N0.	%	N0.	%		
No depression episode (n=22)	15	68.2	7	31.8	15.3	<0.0001 HS
Depression episode (n=126)	121	96.8	5	3.2		
Total	136	92.5	12	7.5		

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

Fig.3: Correlation Coefficient between Total Depression Scores and Total Subjective Wellbeing Scores (N=148)



Discussion

In psychiatric disorders, Subjective well-being has been investigated as an outcome measure for patients with severe mental disorders, particularly those with chronic schizophrenia. Subjective wellbeing in patients with schizophrenia is significantly decreased compared to members of the general population. Clinical variables associated with poor subjective wellbeing of patients with schizophrenia include negative symptoms, general psychopathological symptoms, depressive symptoms, medication side effects, and overall duration of illness and hospitalizations, (Hanafy saber, et al, 2022). Schizophrenic patients have an elevated risk for developing depressive symptoms compared to the prevalence of depression in the general population. Improvement in depressive symptoms

may lead to better long-term functional outcomes such as medication adherence, service utilization, substance misuse, suicide attempts, and quality of life, (Shnayder, et al, 2022). Therefore, the present study was aimed to assess the relation between depressive symptoms and subjective wellbeing among patients with schizophrenia.

Concerning levels of depressive symptoms and subjective wellbeing among studied schizophrenia patients, the findings of the current study revealed that the highest percentage (85%) of studied patients suffered from major depressive episodes. schizophrenia that more than one-third of the sample had high levels of depressive symptoms. Also, Chen & Li (2021) revealed that the prevalence of depressive symptoms was 48.5% in

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

elderly patients with chronic schizophrenia. Additionally, Fang, et al (2019) which revealed that the prevalence of comorbid depressive symptoms in schizophrenia patients treated with atypical antipsychotics was 53.8%. However, Xu, et al. (2018) showed that depressive symptoms were present in 41.8% of male patients. In addition, studies conducted by Dai, et al., (2018), Hou et al (2016), and Peitl, et al (2016) revealed that more than half of patients had comorbid depressive symptoms. These differences may be due to involuntary admission and restricted numbers of visits that increase depressive symptoms. Also, depressive symptoms might be due to poor social skills among patients with schizophrenia, difficulty managing their emotions, the severity of psychopathological symptoms, lack of self-awareness, unable to understand their moods and emotions, patients can't empathize. The current study revealed also that the majority of the studied patients (92.6 %) had low subjective wellbeing while only 7.4 % of them showed moderate subjective wellbeing. The present study was consistent with the study conducted by He, et al (2022) who revealed that individuals with schizophrenia demonstrated poor subjective well-being, happiness, and life satisfaction despite individual differences. This study was consistent with Gutiérrez-Rojas L, et al., (2021), Fervaha et al (2016) and Vothknecht et al., (2013) who revealed that individuals with schizophrenia endorsed significantly lower levels of subjective well-being, less happiness

and life satisfaction than those without schizophrenia. Moreover, Teetharatkul, et al., (2021) found that an inverse relationship was found; the higher the symptom severity scores of patients with schizophrenia, the lower the patients' subjective well-being. This decrease in SWB may be related to psychotic symptoms and comorbidities, such as depression and anxiety. Also, may be related to social isolation, inadequate social support, longer illness duration, frequent hospitalization and unemployment were associated with bad subjective wellbeing.

Concerning relation between depression levels and subjective well-being, the current study demonstrated that there was a high statistical significant negative correlation between the total score of depressive symptoms and the total score of subjective well-being or any of its five subscales. The study was consistent with the study of Mahfoud, et al (2023), Feldhaus, et al (2019), Malone & Wachholtz (2018) and Saperia, et al (2018). They revealed that higher depressive symptoms level was significantly associated with reductions in happiness, subjective QOL life satisfaction and lower well-being in schizophrenia patients. Likewise, the study of Tan & Rossell (2016) revealed that people affected by schizophrenia had high levels of depression had worse levels of subjective quality of life and life satisfaction. In the same line, Margariti, et al (2015); Oh, et al (2014) indicated that the more severe depressive symptoms and psychopathological symptoms were

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

found to be significantly associated with the lower subjective well-being. . Presence of depression in schizophrenia associated with worse clinical outcome, work impairment, a poorer quality of life, and higher rates of relapse and suicide. However, the presence of depression in schizophrenia could lead to worse clinical outcome, work impairment, a poorer quality of life, and higher rates of relapse and suicide.

Conclusion:

The current study concluded that, the vast majority of studied patients with schizophrenia suffer from low subjective wellbeing and depressive symptoms. Also, there was a significant negative correlation between subjective wellbeing and depressive symptoms.

Recommendations:

This study recommended that patients with schizophrenia should be included in the comprehensive intervention programs to improve subjective wellbeing and depressive symptoms among patients with schizophrenia, Establish an educational program for psychiatric nurses to teach them how to improve subjective wellbeing and depressive symptoms among patients with schizophrenia, Increasing the community awareness about the needs and problems of psychiatric patients especially patients with schizophrenia, how to adjust with it and to make an appropriate referral and the available community mental health services and Emphasizing on the need to focus on improving the environment and

support systems for patients with schizophrenia.

References

- Addington, D., Addington, J., & Schissel, B. (1990). A depression rating scale for schizophrenics. *Schizophrenia research*, 3(4), 247-251.
- Ageeb, M. S., Kotb, F. N., Saber, E. H., & Zaki, S. M. (2022). Relationship between Emotional Intelligence and Suicidal Ideation among Schizophrenic patients. *Minia Scientific Nursing Journal*, 12(1), 114-124.
- DOI/10.21608/MSNJ.2022.170998.1040
- Ali Mohammed, Z., Abo-Bakr Osman, O., & Mohamed Barakat, M. (2022). Relationship between Positive, Negative Symptoms and Quality of Life among Schizophrenic Patients. *Journal of Nursing Science Benha University*, 3(2), 1083-1098.
- Alkan, E., Davies, G., & Evans, S. L. (2021). Cognitive impairment in schizophrenia:relationships with cortical thickness in fronto-temporal regions, and dissociability from symptom severity. *Schizophrenia*,7(1), 20.
- Alnæs, D., Kaufmann, T., Van Der Meer, D., Córdova-Palomera, A., Rokicki, J., Moberget, T., & Karolinska Schizophrenia Project

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

- Consortium. (2019). Brain heterogeneity in schizophrenia and its association with polygenic risk. *JAMA psychiatry*, 76(7), 739-748.
- Amsalem, D., Yang, L. H., Jankowski, S., Lieff, S. A., Markowitz, J. C., & Dixon, L. B. (2021). Reducing stigma toward individuals with schizophrenia using a brief video: a randomized controlled trial of young adults. *Schizophrenia bulletin*, 47(1), 7-14.
- Antonsen, S., Mok, P. L., Webb, R. T., Mortensen, P. B., McGrath, J. J., Agerbo, E., ... & Pedersen, C. B. (2020). Exposure to air pollution during childhood and risk of developing schizophrenia: a national cohort study. *The Lancet Planetary Health*, 4(2), e64-e73.
- Arya, S., & Rentala, S. (2022). Severe mental illness rehabilitation needs and role of Mental health nurse. *Journal of medical pharmaceutical and allied science*, 11.3
- Aydın, M., İlhan, B. Ç., Tekdemir, R., Çökünlü, Y., Erbasan, V., & Altınbaş, K., (2019). Suicide attempts and related factors in schizophrenia patients. *Saudi medical journal*, 40(5), 475.
- Brinsley, J., Schuch, F., Lederman, O., Girard, D., Smout, M., Immink, M. A., & Rosenbaum, S. (2021). Effects of yoga on depressive symptoms in people with mental disorders: systematic review and meta-analysis. *British Journal of Sports Medicine*, 55(17), 992- 1000.
- Blažinović, I., Orlović, I., Karlović, D., & Peitl, V. (2019). Comparison of clinical and sociodemographic characteristics of patients with schizophrenia treated stationary and at Day Hospital. *Archives of Psychiatry Research: An International Journal of Psychiatry and Related Sciences*, 55(2), 127-138.
- Cetin-Karayumak, S., Di Biase, M. A., Chunga, N., Reid, B., Somes, N., Lyall, A. E., & Kubicki, M. (2020). White matter abnormalities across the lifespan of schizophrenia: a harmonized multi-site diffusion MRI study. *Molecular psychiatry*, 25(12), 3208- 3219.
- Caponnetto, P., DiPiazza, J., Kim, J., Maglia, M., & Polosa, R. (2021). A single-arm, open-label, pilot, and feasibility study of a high nicotine strength e-cigarette intervention for smoking cessation or reduction for people with schizophrenia spectrum disorders who smoke cigarettes. *Nicotine and Tobacco Research*, 23(7), 1113-1122.
- Chen, Y., & Li, W. (2021). Prevalence, influencing factors, and cognitive characteristics of depressive symptoms in

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

- elderly patients with schizophrenia. *Neuropsychiatric Disease and Treatment*, 3645-3654.
- Cheng, P., Wang, L., Xu, L., Zhou, Y., Zhang, L., & Li, W. (2022). Factors related to the length of stay for patients with schizophrenia: a retrospective study. *Frontiers in Psychiatry*, 12, 818254.
- Chiang, Y. S., Chang, Y. C., Liu, Y. P., & Tzeng, W. C. (2021). Quality of life in patients with comorbid serious mental illness and chronic diseases: A structural equation model. *Journal of Advanced Nursing*, 77(3), 1271-1283.
- Dai, J., Du, X., Yin, G., Zhang, Y., Xia, H., Li, X., & Zhang, X. Y. (2018). Prevalence, demographic and clinical features of comorbid depressive symptoms in drug naïve patients with schizophrenia presenting with first episode psychosis. *Schizophrenia Research*, 193, 182-187.
- Degnan, A., Berry, K., Humphrey, C., & Bucci, S. (2021). The relationship Between stigma and subjective quality of life in psychosis: A systematic review and meta-analysis. *Clinical Psychology Review*, 85, 102003.
- Research, 193, 182-187.
- De Millas, W., Lambert, M., & Naber, D. (2022). The impact of subjective well-being under neuroleptic treatment on compliance and remission. *Dialogues in clinical neuroscience*, 8(1), 131-136.
- Desalegn, D., Girma, S., & Abdeta, T. (2020). Quality of life and its association with psychiatric symptoms and socio-demographic characteristics among people with schizophrenia: A hospital-based cross-sectional study. *Plos one*, 15(2), e0229514.
- El-Azzab, S. E. S. H. I., Ali, S. M. H., & Othman, B. E. M. (2022). Effectiveness of Psycho-Motivational Training on Improving Social Skills and Emotional Regulation in Patients with Schizophrenia. *Egyptian Journal of Nursing and Health Sciences*, 3(2), 76-102. <https://doi.org/10.21608/EJNHS.2022.271499>
- El-Monshed, A., & Amr, M. (2020). Association between perceived social support and recovery among patients with schizophrenia. *International Journal of Africa Nursing Sciences*, 13, 100236.
- Endriyani, L., Chien, C. H., Huang, X. Y., & Chieh-Yu, L. (2019). The influence Of adherence to antipsychotics medication on the quality of life among patients with schizophrenia in Indonesia. *Perspectives in psychiatric care*, 55(2), 147- 152
- Fang, X., Chen, L., Wang, D., Yu, L., Wang, Y., Chen, Y., ... & Zhang, C. (2019).

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

- Metabolic profiling identifies TC and LDL as potential serum biomarkers
- For depressive symptoms in schizophrenia. *Psychiatry research*, 281, 112522
- Fekih-Romdhane, F., Nefzi, H., Sassi, H., Cherif, W., & Cheour, M. (2021). Sleep in first-episode schizophrenia patients, their unaffected siblings and healthy controls: A comparison. *Early Intervention in Psychiatry*, 15(5), 1167-1178.
- Fervaha G, Agid O, Takeuchi H, Foussias G, Remington G. Life satisfaction and happiness among young adults with schizophrenia. *Psychiatry Res*. 2016; 242: 174–9.
- Feldhaus, T., Falke, S., von Gruchalla, L., Maisch, B., Uhlmann, C., Bock, E., & Lencer, R.(2018). The impact of self-stigmatization on medication attitude in schizophrenia patients. *Psychiatry research*, 261, 391-399.
- Fond, G., Pauly, V., Leone, M., Llorca, P. M., Orleans, V., Loundou, A., ... & Boyer, L. (2021). Disparities in intensive care unit admission and mortality among Patients with schizophrenia and COVID-19: a national cohort study. *Schizophrenia Bulletin*, 47(3), 624-634.
- Goldsmith, D. R., & Rapaport, M. H. (2020). Inflammation and negative symptoms of schizophrenia: implications for reward processing and motivational deficits
- Frontiers in psychiatry*, 11, 46.
- Gutiérrez-Rojas, L., González-Domenech, P. J., Junquera, G., Halverson, T. F., & Lahera G. (2021). Functioning and Happiness in People with Schizophrenia: Analyzing the Role of Cognitive Impairment. *International Journal of Environmental Research and Public Health*, 18(14), 7706.
- Hani, Y., Ghuloum, S., Mahfoud, Z., Opler, M., Khan, A., Yehya, A., ... & Al-Amin, H.(2016). Validation of the Arabic version of Calgary depression scale for schizophrenia. *PLoS One*, 11(9), e0162304.
- Hasan Alam, F., Hassan, N., & El-Azzab, S. I. (2023). Effect of Activity Therapy On Symptoms and Quality of Life among Patients with Paranoid Schizophrenia. *Port Said Scientific Journal of Nursing*, 10(2), 1-28.
- Hanafy Saber, E., Saleh Hassan, S., & Anter Mohamed, A. (2022). The Relation Between Subjective well-being, Resilience, and Hope among Psychiatric Patients. *Egyptian Journal of Health Care*, 13(1), 894-913.
- He, Y., Tanaka, A., Kishi, T., Li, Y., Matsunaga, M., Tanihara, S., ... & Ota, A. (2022). Recent findings on subjective well-being and physical, psychiatric,

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

- and social comorbidities in individuals with schizophrenia: A literature review. *Neuropsychopharmacology reports*, 42(4), 430-436.
- Hoprekstad, G. E., Kjelby, E., Gjestad, R., Fathian, F., Larsen, T. K., Reitan, S. K., & Kroken, R. A. (2023). Depression trajectories and cytokines in Schizophrenia spectrum disorders-A longitudinal observational study. *Schizophrenia Research*, 252, 77-87.
- Hoseinipalangi, Z., Golmohammadi, Z., Rafiei, S., Kan, F. P., Hosseinfard, H., Rezaei, S., & Ghashghaee, A. (2022). Global health-related quality of life in schizophrenia systematic review and meta-analysis. *BMJ Supportive & Palliative Care*, 12(2), 123-131.
- Hou, C. L., Ma, X. R., Cai, M. Y., Li, Y., Zang, Y., Jia, F. J., ... & Xiang, Y. T. (2016). Comorbid moderate-severe depressive symptoms and their association with quality of life in Chinese patients with schizophrenia treated in primary care. *Community mental health journal*, 52, 921-926.
- Kalkan, E., & Kavak Budak, F. (2020). The effect of insights on medication adherence in patients with schizophrenia. *Perspectives in Psychiatric Care*, 56(1), 222-228.
- Kumar, K. S., Vankar, G. K., Goyal, A. D., & Sharma, A. S. (2020). Stigma and discrimination in patients with schizophrenia and bipolar mood disorder. *Annals of Indian Psychiatry*, 4(1), 33.
- Llamas-Díaz, D., Cabello, R., Megías-Robles, A., & Fernández-Berrocal, P. (2022). Systematic review and meta-analysis: The association between emotional intelligence and subjective well-being in adolescents. *Journal of Adolescence*, 94(7), 925-938.
- Lundström, S., Jormfeldt, H., Hedman Ahlström, B., & Skärsäter, I. (2020). Mental health nurses' experience of physical health care and health promotion initiatives for people with severe mental illness. *International journal of mental health nursing*, 29(2), 244-253.
- Ma, H. J., Zheng, Y. C., Shao, Y., & Xie, B. (2022). Status and clinical influencing Factors of involuntary admission in chinese patients with schizophrenia. *BMC psychiatry*, 22(1), 818.
- Mahfoud, D., El Ahdab, J., Helwe, S., Topalian, M., Tarabay, C., Rifi, K., ... & Hallit, S. (2023). The Indirect Effect of Depression between Nightmares and Well-Being in Lebanese Patients with Schizophrenia. *Perspectives in Psychiatric Care*, 2023.
- Mallet, J., Le Strat, Y., Schürhoff, F., Mazer, N., Portalier, C., Andrianarisoa, M., & Dubertret,

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

- C. (2019). Tobacco smoking is associated with antipsychotic medication, physical aggressiveness, and alcohol use disorder in schizophrenia: results from the FACE-SZ national cohort. *European archives of psychiatry and clinical neuroscience*, 269, 449-457.
- Malone, C., & Wachholtz, A. (2018). The relationship of anxiety and depression to subjective well-being in a mainland Chinese sample. *Journal of religion and health*, 57, 266-278.
- Margariti, M., Ploumpidis, D., Economou, M., Christodoulou, G. N., & Papadimitriou, G. N. (2015). Quality of life in schizophrenia spectrum disorders: associations with insight and psychopathology. *Psychiatry research*, 225(3), 695-701.
- Mosolov, S. N., & Yaltonskaya, P. A. (2022). Primary and secondary negative Symptoms in schizophrenia. *Frontiers in psychiatry*, 12, 766692.
- Mostafa, M., Fathy, A. A., Elwasify, M., & Abdelsalam, M. (2022). Analysis of selected polymorphisms in FOXP3 gene in a cohort of Egyptian patients with schizophrenia. *Journal of Genetic Engineering and Biotechnology*, 20(1), 1-9. <https://doi.org/10.1186/s43141-022-00371-y>
- Naber, D., Moritz, S., Lambert, M., Rajonk, F., Holzbach, R., Mass, R., & Burghard, (2001). Improvement of schizophrenic patients' subjective well-being under atypical antipsychotic drugs. *Schizophrenia research*, 50(1-2), 79-88.
- Oh, J., Ko, Y., Paik, J., Lee, M., Han, C., Jeong, H., ... & Kim, S. (2014). Variables influencing subjective well-being in patients with schizophrenia. *Korean Journal of Schizophrenia Research*, 17(2), 93-99.
- Okasha, A., (2019) "Contemporary Psychiatric Medicine Book". Egyptian Angelo Library. 17th Edition, 305.
- Peitl, V., Štefanović, M., & Karlović, D. (2017). Depressive symptoms in schizophrenia and dopamine and serotonin gene polymorphisms. *Progress in neuro- psychopharmacology and biological psychiatry*, 77, 209-215.
- Peng, X., Wang, S., Bi, J., You, L., Zhou, Z., Tan, W., ... & Liu, T. (2021). Gender differences in socio-demographics, clinical characteristic and quality of life in patients with schizophrenia: A community-based study in Shenzhen. *Asia-Pacific Psychiatry*, 13(2), e12446.
- Rodrigues, R., MacDougall, A. G., Zou, G., Lebenbaum, M., Kurdyak, P., Li, L., & Anderson, K. (2019). Involuntary hospitalization among young people with early psychosis: a population-

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

- based study using health administrative data. *Schizophrenia research*, 208, 276-284.
- Russo, M., Jovanovic, N., Uka, F., Konjufca, J., Bexulli, D., & Arenliu, A. (2022). Women with schizophrenia have worse clinical presentation compared to their men counterpart in Kosovo: a cross-sectional study. *Global psychiatry archives*. 5 (1) ,42-50
.DOI/10.52095/gp.2022.4548.1043
- Sari, S. P., Agustin, M., Wijayanti, D. Y., Sarjana, W., Afrikhah, U., & Choe, K. (2021). Mediating effect of hope on the relationship between depression and recovery in persons with schizophrenia. *Frontiers in psychiatry*, 12, 627588.
- Saperia, S., Da Silva, S., Siddiqui, I., McDonald, K., Agid, O., Remington, G., & Foussias, G. (2018). Investigating the predictors of happiness, life satisfaction and success in schizophrenia. *Comprehensive psychiatry*, 81, 42- 47.
- Shanko, A., Abute, L., & Tamirat, T. (2023). Attitudes towards schizophrenia and Associated factors among community members in Hossana town: a mixed method study. *BMC psychiatry*, 23(1), 1-10.
- Shnayder, N. A., Novitsky, M. A., Neznanov, N. G., Limankin, O. V., Asadullin, R., Petrov, A. V., ... & Nasyrova, R. F. (2022). Genetic predisposition to schizophrenia and depressive disorder comorbidity. *Genes*, 13(3), 457.
- Sommer, I. E., Tiihonen, J., van Mourik, A., Tanskanen, A., & Taipale, H. (2020). The clinical course of schizophrenia in women and men—a nationwide cohort study. *NPI schizophrenia*, 6(1), 12.
- Solmi, M., Seitidis, G., Mavridis, D., Correll, C. U., Dragioti, E., Guimond, S., Cortese, S. (2023). Incidence, prevalence, and global burden of schizophrenia—data, with critical appraisal, from the Global Burden of Disease (GBD) 2019. *Molecular psychiatry*, 1-9.
- Stone, W. S., Cai, B., Liu, X., Grivel, M. M. R., Yu, G., Xu, Y., ... & Phillips, M. R. (2020). Association between the duration of untreated psychosis and selective cognitive performance in community-dwelling individuals with chronic untreated schizophrenia in rural China. *JAMA psychiatry*, 77(11), 1116- 1126
- Tan, X. W., Seow, E., Abdin, E., Verma, S., Sim, K., Chong, S. A., & Subramaniam, M. (2019). Subjective quality of life among patients with schizophrenia spectrum

Relationship between Depressive Symptoms and Subjective Wellbeing in Patients with Schizophrenia

- disorder and patients with major depressive disorder. *BMC psychiatry*, 19(1), 1-10.
- Tan, E. J., & Rossell, S. L. (2016). Comparing how co-morbid depression affects individual domains of functioning and life satisfaction in schizophrenia. *Comprehensive psychiatry*, 66, 53-58.
- Teetharakul, T., Vitayanont, A., Liabsuetrakul, T., & Aunjitsakul, W. (2021). Association between symptom severity and well-being among Thai patients with schizophrenia: a cross-sectional analytical study. *BMC psychiatry*, 21(1), 1-9.
- Vothknecht, S., Meijer, C., Zwinderman, A., Kikkert, M., Dekker, J., van Beveren, N., de Haan, L. (2013). Psychometric evaluation of the subjective well-being under neuroleptic treatment scale (SWN) in patients with schizophrenia, their relatives/controls. *Psychiatry Research*, 206(1), 62–67.
- Xu, Y. M., Li, F., Liu, X. B., & Zhong, B. L. (2018). Depressive symptoms in Chinese male inpatients with schizophrenia: prevalence and clinical correlates. *Psychiatry research*, 264, 380-384.
- Yang, H. L., Wu, Y. Y., Lin, X. Y., Xie, L., Zhang, S., Zhang, S. Q., ... & Zheng, X.D. (2021). Internet use, life satisfaction, and subjective well-being among the elderly: evidence from 2017 China general social survey. *Frontiers in public health*, 9, 677643.
- Yi, W., Zhang, X., Pan, R., Wei, Q., Gao, J., Xu, Z., ... & Su, H. (2019). Quantifying the impacts of temperature variability on hospitalizations for schizophrenia: A time series analysis in Hefei, China. *Science of the Total Environment*, 696, 133927
- Yi, W., Zhang, X., Gao, J., Wei, Q., Pan, R., Duan, J., ... & Su, H. (2019). Examining the association between apparent temperature and admissions for schizophrenia in Hefei, China, 2005–2014: a time-series analysis. *Science of The Total Environment*, 672, 1-6.
- Zhu, R., Wang, D., Tian, Y., Du, Y., Chen, J., Zhou, H., ... & Zhang, X. Y. (2022). Sex difference in association between insomnia and cognitive impairment in patients with chronic schizophrenia. *Schizophrenia Research*, 240, 143-149.