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Nutritional and Psychological Evaluation of Patients with Schizophrenia at the Benha Mental Health Hospital

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Abstract
This study aimed to assess the nutritional and psychological status of patients with schizophrenia and to achieve the objectives of this study, a sample of (50 patients in the depression group and 50 healthy volunteers in the control group) was identified. The social status was tested where the ratio appeared between the social status, the economic status, the financial income of schizophrenia patients, and the health status of schizophrenia patients, as they were divided into (outward appearance injuries, body scratches, congenital disabilities) (50:30:20). The health status of people with schizophrenia, where the health status was divided into (myopia, myopia, diabetes, thinness, obesity, liver disease) and the result appeared (16:16:54; 14) and was found that people with schizophrenia are obese by 54%. The fifth axis divided the cause of psychological injury (genetic factors, social factors) and the percentage was (8%: 92%). The sixth and final axis was divided into social factors (family problems, medications) and the percentages were (70%: 30). Regarding the nutritional status of schizophrenic patients, we note a variation in the nutritional status between males and females, where the intake of both males and females differed from that of females: animal fats, animal protein, vegetable protein, vegetable fats ,and carbohydrates 25.25, 8.41, 17.79, 5.93, 16.46, 5.49 and 27.29, 9.12, 137.97, and 45.99 for males and females, respectively.

Key words: Schizophrenia, nutritional status, psychological, marital status.

Introduction
Schizophrenia is a severe psychiatric disorder, a heterogeneous behavioral and cognitive syndrome that is related to the disruption of brain development caused by genetic or environmental factors [(1)], which is a component of the schizophrenia spectrum disorders,

a chronic debilitating and complex mental health disorder characterized by impairments in cognition, mood, perception of reality ,and interpersonal relationships[(2)]. Schizophrenia affects approximately 24 million people or 1 in 300 people (0.32%) worldwide. This rate is 1 in 222 people (0.45%) among adults [(3)].

Schizophrenia has varied symptoms that generally begin in early adulthood and usually continue throughout life. Most patients have a history of behavioral dysfunction primarily social and learning difficulties. Diagnostic features of schizophrenia include auditory hallucinations (an experience involving the apparent perception of something not present) and delusions (the action of deluding or the state of being deluded). Schizophrenia has different main symptoms which can be divided into different phases which are; positive, negative ,and cognitive symptoms [(4)]. Positive symptoms are those which can be easily identified and not seen in healthy people. Such symptoms include hallucination, delusion ,and abnormal motor behaviour having fluctuating degrees of severity. Negative symptoms are can't be easily identified and associated with a high morbidity rate. The most common negative symptoms included reduced motivation, impoverished speech, blunted affect, and social withdrawal. Cognitive symptoms are the newest classification. These ultimately impair the individual's communication skills by disturbing his speech and attention [(5)].

The etiology of schizophrenia is unknown, but there are several theories related to schizophrenia, the first theory is hereditary [(6)]. The illness occurs in less than 1 percent of the general population, but this range becomes 10 percent who have first-degree relatives with the disorder, such as parents, brothers, or sisters. Many environmental factors may be involved, such as exposure to viruses or malnutrition before birth, problems during birth [(7)]. Scientists also believe that the brain structure of people with schizophrenia is slightly different than healthy people. For example, fluid-filled cavities at the center of the brain called ventricles are larger in some people with schizophrenia [(8)]. Another most common cause of schizophrenia is evidence that most people identified with schizophrenia have an increased in dopamine level [(9)].

Recently, there have been reports that nutrition, nutritional deficiencies ,and excesses are important determinants of mental health [(10)]. Over the years, nutritional interventions have been considered as possible preventive and therapeutic options first in high-prevalence mental health disorders like depression and anxiety and more recently in low prevalence disorders such as schizophrenia [(11, 12)]. Nutritional interventions are also crucial to combatting the physical health inequalities and decrements in life expectancy associated with the psychotic-spectrum [(13)].

Schizophrenia patients display poor eating habits, their diet is mainly rich in saturated fats and low in fiber and fruit. Such a diet may increase the risk of developing metabolic disorders [(14)]. The most important nutrients recommended by previous studies for schizophrenia patients are polyunsaturated fatty acids (PUFA), vitamins, antioxidants, micro/macro elements, and proteins [(15)].

This work aimed to study the nutritional and psychological status of patients with schizophrenia and the other factors linked with schizophrenia.

Subjects and methods

This randomized controlled study was conducted Mental health in Benha hospital. One hundred inpatients were diagnosed with schizophrenia according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV-TR), aged between 18 and 60 years between 2009 and 2010. (50 patients in the depression group and 50 healthy volunteers in the control group).

Demographic characteristics such as age, gender, family status (married, divorced, and widowed), financial status (average annual income over the past three years), smoking habits, alcohol consumption, occupational status as well as educational level were obtained by questionnaire through a face-to-face interview. There were no differences between groups across race/ethnicity.

The frequency of food, energy and nutrient intake was determined by 24-hour food recall. Daily energy expenditures and physical activity levels were calculated. Selected biochemical parameters (blood glucose, folic acid, vitamin B12, and insulin) were evaluated.

All participants provided written informed consent, and the protocol was approved by the institutional review boards of the participating centers

Data collection

A 24-hour dietary recall form was designed and repeated food intake, energy and nutrient intake, and physical activity level with 24-hour recall.

Food Consumption Assessment

The participants' dietary behavior was determined by repeating food consumption and diet recalls over a 24-hour period.

Biochemical analysis:

Determination of serum ALT was carried out according to the method of Tietz, [(16)]. Determination of serum AST was carried out according to the method of Henary [(17)]. Urea was determined by the enzymatic method according to Patton and Crouch (18). Serum

creatinine was determined according to the method described by Henary (17). Serum glucose was determined using chemical kits according to Trinder (19). Serum CBC was determined using chemical kits according to Dacie and Lewis (20).

Research Ethics

All subjects (or caregivers) agreed to participate in the study and signed the consent form.

Statistical analysis:

The results were recorded as the mean ± SD. The experimental data were subjected to an analysis of variance (ANOVA) for a completely randomized design using a statistical analysis system SAS. Duncan's multiple range tests were used to determine the deference's among means at the level of 5% (21).

Results and discussion

Data presented in table (1) showed studied the marital status of schizophrenia patients where it was the ratio between marital status (unmarried, married, divorced, widowed) was found (64:18:10:8).

The results showed that the majority of those who suffer from schizophrenia are unmarried, with the unmarried percentage reaching 64%. This is in agreement with Allebeck, who has shown increased mortality in schizophrenia. The high SMR in our sample could be explained by the ignorance and illiteracy among our patients, which dissuade them from seeking treatment at an early stage (22).

Table (1): Marital status of schizophrenia patient

Marital status	Number	Percentage
Unmarried	64	64%
Married	18	18%
Divorced	10	10%
Widow	8	8%
Total	100	100%

Data in table (2) studied the economic status of schizophrenia patients where the ratios appeared between (weak, average, and excellent) (50:40:10).And it was found that most of those who suffer from schizophrenia have a weak economic condition, as 50% appeared this is in agreement with Byrne et al. who reported that this finding is an important addition to the growing literature focused on elucidating the specific role played by a number of neighborhood-level or population-level environmental factors (social determinants) in increasing risk for schizophrenia. It may also shed light on the findings that level low socio-economic status (SES) is associated with an increased risk for schizophrenia (23).

Table (2) :Economic situation status of schizophrenia patient general income

Income from pension, family	Number	Percentage
Income> from 1000	64	64%
Income <from 1000	36	36%
Total	100	100

Data in table (3) studied the health status of patients with schizophrenia, where they were divided into (outward appearance injuries; body scratches; congenital disabilities) (50:30:20). Where it was found that the majority of patients with schizophrenia have external injuries, where the percentage was 50% (24). The physical condition of patients with schizophrenia, as the result showed that 100% could move is in agreement with Bighelli, who said showed that among factors related to the creation of susceptibility to mental disorders, researchers mention, among other things, deficiencies of exogenous polyunsaturated fatty acids, vitamin D and iron. It was shown that the consumption of high-caloric food, rich in saturated fatty acids and simple sugars causes deterioration of the nervous system function by increasing the oxidation stress and decreasing the synaptic plasticity (25).

Table (3): Health status of schizophrenia patient

Clinical Status	Number	Percentage
Outward appearance injuries	50	50%
Body scratches	30	30%
congenital disabilities	20	20%
Total	100	100%
Physical and mental condition	Number	Percentage
can move	100	100%

Table (4) studied the health status of patients with schizophrenia, where the health condition was divided into 6 axes, and the first axis was the mouth and was divided (dry, wet, difficulty swallowing) the ratios were (40:40:20) and the second axis was appetite (very good, good, weak) and the ratios appeared (50:40:10) and it was found that patient with schizophrenia have a very high appetite. The third axis of schizophrenia was divided into teeth, and the percentage appeared to be 100% suffering from tooth loss. The fourth axis was divided for those with chronic diseases (myopia, myopia, diabetes, thinness, obesity, liver disease) and the result appeared (16:16:54; 14) and it was found that patients with schizophrenia suffer from obesity with a large percentage of 54%. The fifth axis was divided into the cause of mental injury (genetic factors, social factors) and the percentage was (8% : 92%). The sixth and last axis was divided into social factors (family problems, medications) and the percentages were (70% : 30). This is in agreement with (12) who showed that have shown that depression proved to be a predictor of cardiovascular

disease, promoted an increase in body weight and an increase in percentage of overweight and obese persons, especially with abdominal obesity and collection of metabolically active visceral adipose tissue.

Table (4): Health status of patient with schizophrenia

Health status			
	Status	Number	Percent
Oral care assessment	Dry	40	40%
	Wet	40	40%
	Difficulty swallowing	20	20%
	Total	100	100%
Appetite	Very good	50	50%
	Good	40	40%
	Weak	10	10%
	Total	100	100%
The teeth	Missing part of the tooth	100	100%
Chronic diseases	Myopia disease	16	16%
	Diabetes	16	16%
	Obesity	54	54%
	Liver disease	14	14%
	Total	100	100%
Mental state	Genetic factors	8	8%
	Social factors	92	92%
	Total	100	100%
Social factors	Life and family problems	70	70%
	Drugs	30	30%
	Total	100	100%

Table (5) studied the psychological status of patients with schizophrenia, they were divided into 9 axes, and the first axis was divided into clothing (dirty, very dirty, not soiled) and the ratios were (30:50:20). The second axis was about physical health (good, medium,bad)(the proportions were 60:30:10). The third axis was divided according to height and shortness (short, medium, long) (30:35; 35) and the fourth axis was divided according to body position (normal, arched back) (65:35). The fifth axis was divided into he facial features of the schizophrenic patient (responding, tight, tense, angry) (30:20:20:30) and the sixth axis was divided into eye contact (normal, fleeting ,avoidance, staring). (40:10:20:30). and the seventh axis is about movement (fast-moving, Troubled , slow-moving) (25:35:40) and the eighth axis is about mental ability (conscious,

unconscious, and Denial) (10: 70:20..and the ninth axis of attention in schizophrenia (Natural, scattered, anxious) (30:40:30).

Table (5): Psychological status of schizophrenia patient

Psychological examination form			
General Appearance	Status	Number	Percentage
Clothe	Dirty	30	30%
	very dirty	50	50%
	not dirty	20	20%
	Total	100	100%
Physical health	Good	60	60%
	Medium	30	30%
	Bad	10	10%
	Total	100	100%
Height and body	Short	30	30%
	Medium	35	35%
	Long	35	35%
	Total	100	100%
Body position	Natural	65	65%
	arched back	35	35%
	Total	100	100%
Face features	Responsive	30	30%
	Taut	20	20%
	Tense	20	20%
	Angry	30	30%
	Total	100	100%
Eye contact	Natural	40	40%
	sneak peek	10	10%
	Avoid	20	20%
	Staring	30	30%
	Total	100	100%
Motor behavior	fast moving	25	25%
	Troubled	35	35%
	slow moving	40	40%
	Total	100	100%
Mental capacity	Conscious	10	10%
	Unconscious	70	70%

Psychological examination form			
General Appearance	Status	Number	Percentage
	Denial	20	20%
	Total	100	100%
Attention	Natural	30	30%
	Scattered	40	40%
	Worry	30	30%
	Total	100	100%

Table (6) studied the nutritional status of schizophrenia patients, the results showed that the in take of both males and females was different for males than females: animal fats, animal protein, vegetable protein, vegetable fats, and carbohydrate, 25.25 ± 22.53, 17.79 ± 12.52 16.466 ± 15.69 ,27.29 ± 57.85 , 137.97 ±235 , 8.41 ± 41, 5.93 ± 4.17, 5.49 ± 5.24 , 9.12 ± 17.30 45.99 ± 78.62, where the proportions were for both males and females, respectively, this is in agreement with Teasdale, who said that nutritional interventions are also crucial to combatting the physical health inequalities and decrements in life-expectancy associated with the psychotic-spectrum (26).

Table (6): A study of dietary 24-hour questionnaire

	Male Mean±SD	Female Mean±SD
Animal protein	25.25a ± 22.53	8.41a ± 41
Vegetable protein	17.79a ± 12.52	5.93a ± 4.17
Animal fats	16.46a ± 15.69	5.49a ± 5.24
Vegetable fats	27.29 a ± 57.85	9.12a ± 17.30
Carbohydrate	137.97a ± 235	45.99a ± 78.62

Table (7) indicated a blood analysis for patients with schizophrenia, where the average results appeared: urea test, creatinine analysis, liver function analysis, blood glucose analysis, and analysis of a complete blood picture (hemoglobin, red blood cells, white blood cells and platelets) and the result was this, where the average limit of the blood picture was determined from (22:7) (1:12) Determination of creatine test Red blood cell (RBC) count:3.63 to 5. ×106 Hemoglobin (Hgb, Hb): 7.40 to 15.80 (g/dl) for males; 12.0 to 16 g/dL for females. White blood cell (WBC) count: 2.90 to 14.80 ×103 Platelet (PLT) count:102.00 to 356.00 per cubic millimeter (thousand/mm3).natural urea, the highest requirement of 24for men and woman,is21mg/dl.

Note that the normal creatinine ratio for men is(,6:1,2)For females form (,5:1,1)mg/dl, and when the difference from this percentage decreases, psychiatric patients are exposed to liver failure. Department of Psychiatry and Psychotherapy

Table (7): Blood analysis for patient with schizophrenia

Blood analysis	Minimum	Maximum	Mean± SD
Blood urea (mg/dl)	15	42	22.99 ± 7.05
Creatinine (mg/dl)	1.00	12.00	6.45 ± 3.13
ALT (U/L)	7	39	21.45 ± 9.73
AST (U/L)	9.00	34.00	18.52 ± 5.37
F.B glucose (mg/dl)	78.00	340.00	147.67 ± 56.88
RBC ×106	3.63	5.23	4.63 ± 0.37
WBC ×103	2.90	14.80	7.69 ± 3.20
HGB (g/dl)	7.40	15.80	13.28 ± 1.79
PLT (thousand/mm3)	102.00	356.00	218.53 ± 58.83

Red blood cell (RBC) - Hemoglobin (Hgb, Hb)- White blood cell (WBC)- Platelet (PLT)- asparatate amino transferase (AST)- alanine amino transferase (ALT)

Conclusion

Schizophrenia is a chronic psychiatric disorder with a heterogeneous genetic and neurological background that affects early brain development and is expressed as a combination of psychotic symptoms such as hallucinations, delusions, and disorientation—and motivational and cognitive imbalances. The average lifetime prevalence of this disorder is just under 1%, but large regional differences in prevalence rates are evident due to disparities in urbanization and migration patterns. Although gross brain pathology is not a feature of schizophrenia, the disorder involves subtle pathological changes in specific groups of neurons and in cell-cell communication. Schizophrenia, as a cognitive and behavioral disorder, ultimately relates to how the brain processes information. Indeed, neuroimaging studies have shown that information processing is functionally abnormal in patients with first episode and chronic schizophrenia. Although pharmacological treatments for schizophrenia can relieve psychotic symptoms, these medications generally do not lead to substantive improvements in social, cognitive, and occupational functioning. Psychosocial interventions such as cognitive behavioral therapy, cognitive therapy, and supported education and employment have added additional therapeutic value, but are inconsistently applied. Given that schizophrenia begins many years before diagnosis, identifying individuals at risk and those in the early stages of the disorder, and exploring preventive approaches, is critical.

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تقييم الحالة الغذائية والنفسية لمرضى الفصام بمستشفى الصحه النفسيه بنها

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الملخص العربي

هدفت هذه الدراسة الي تقييم الحالة الغذائية والنفسية لمرضي الفصام ،ولتحقيق أهداف هذه الدراسة تم تحديد عينه مكونه من (50 مريضا في مجموعة الاكتئاب و 50 متطوعا أصحاء في المجموعة الضابطة). تم اختبار الحالة الاجتماعية حيث ظهرت النسبة بين الحالة الاجتماعية والحالة الاقتصادية والدخل المالي لمرضى الفصام والحالة الصحية لمرضى الفصام حيث تم تقسيمهم إلى (إصابات المظهر الخارجي ، خدوش الجسم ، الإعاقات الخلقية) (50:30:20). الحالة الصحية للمصابين بالفصام حيث تم تقسيم الحالة الصحية الى (قصر النظر، قصر النظر، السكري، النحافة، السمنة، أمراض الكبد) وظهرت النتيجة (16:16:54 : 14) وجد أن المصابين بالفصام يعانون من السمنة المفرطة بنسبة 54٪. المحور الخامس قسم سبب الإصابة النفسية (عوامل وراثية ، عوامل اجتماعية) وكانت النسبة (8٪ : 92٪). المحور السادس والأخير قسم إلى عوامل اجتماعية (مشاكل أسرية ، أدوية) وكانت النسب (70٪ : 30). فيما يتعلق بالحالة التغذوية لمرضى الفصام ، نلاحظ تباينًا في الحالة التغذوية بين الذكور والإناث ، حيث اختلف تناول كل من الذكور والإناث عن الإناث: دهون حيوانية ، بروتين حيواني ، بروتين نباتي ، دهون نباتية والكربوهيدرات 25.25، 8.41 ، 17.79، 5.93 ، 16.46 ، 5.49 ، 27.29 ، 9.12 ، 137.97 ، 45.99 للذكور والإناث على التوالي.

الكلمات المفتاحية: الفصام ، الحالة التغذوية ، الحالة النفسية ، الحالة الاجتماعية.