

Healthy Lifestyle of Patient with Pulmonary Tuberculosis

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Abstract

Background: Maintaining a healthy lifestyle is crucial for disease prevention, health improvement, and general well-being during the course of a person's life. Many lifestyle modifications are also helpful in the treatment of pulmonary tuberculosis. **Aim of the study:** Was to assess the healthy lifestyle of patients with pulmonary tuberculosis. **Research design:** This study was carried out using a descriptive research design. **Setting:** A descriptive research design was used. **Setting:** The current study was conducted at Benha Chest Hospital and the Pulmonary Tuberculosis Dispensary at the 23 July Hospital for Chest in New EL Marg, which is affiliated to the Ministry of Health and Population. **Sample:** A purposive sample was used. The total number of patients with pulmonary tuberculosis in the study was 80. **Tools:** **Tool I:** A structured interviewing questionnaires were used to assess: a) patients' socio-demographic characteristics, b) patients' health status, c) knowledge about pulmonary tuberculosis. **Tool II:** Lifestyle pattern scale. **Results:** 50% of the studied patients were aged from 20<30, with a mean SD of 44.5 ± 14.46. Males made up 55.0% of the studied patients, 48.7% of the studied patients had an average level of knowledge about pulmonary tuberculosis, while 66.3% had unhealthy lifestyle pattern, and 76.3% had poor health status. **Conclusion:** This study found that more than two-fifths of the studied patients had total average level of knowledge about pulmonary tuberculosis disease, three-quarters of the patients had poor health status, nearly two-thirds of the patients had unhealthy lifestyle pattern, and there was a highly statistically significant relation between total lifestyle pattern and their health status. **Recommendation:** Provide a health education program for patients with pulmonary tuberculosis developed and implemented to improve and upgrade patients' knowledge about increasing compliance with healthy lifestyle patterns.

Key words: Pulmonary tuberculosis, Patient, Healthy Lifestyle

Introduction

Tuberculosis (TB) is one of the top ten causes of death in the world and the leading cause of death from a single infectious agent, ahead of Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS)(**Yanogo et al., 2022**). Globally, in 2022 about 10.6 million people contracted tuberculosis and 1.4 million is died (**World Health Organization (WHO), 2022**). Tuberculosis is a serious threat to global public health, with about 10 million people suffering from Pulmonary Tuberculosis (PTB)

and nearly 2 million people will die of this disease each year (**Liu et al., 2022**).

The main cause of pulmonary tuberculosis is the bacteria mycobacterium tuberculosis, commonly known as tuberculosis bacilli. M. tuberculosis infects nearly a third of the world's population, putting them at risk of acquiring the disease. with millions of people developing the disease each year, tuberculosis usually affects the lungs this called (pulmonary tuberculosis), but can also affect other parts of the body this called (extra - pulmonary tuberculosis) (**WHO, 2021**).

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Anything that weakens a person's immune system or puts them in close contact with someone who has active tuberculosis is a risk factor for tuberculosis (Ostrowska-Nawarycz et al., 2022). The social and behavioural risk factors that contribute to PTB infection include smoking, alcohol, and indoor air pollution. People with comorbidities (chronic diseases that affect the immune system) such as diabetes, cancer, and HIV; people in close contact with active pulmonary tuberculosis (PTB) patients; intravenous drug abuse; patients receiving immunosuppressive therapies; and health care workers are at high risk of TB infection (Durate et al., 2018).

Tuberculosis can be fatal if not treated, giving rise in complications such as: Spinal cord and Back pain and stiffness are common tuberculosis complications. Joint injury. Arthritis is most commonly found in the hips and knees. The membranes that cover the brain swell (meningitis). This can result in a persistent or intermittent headache that lasts for weeks, as well as mental changes. Problems with the liver or kidneys. Tuberculosis in the liver or kidneys can impair function. Heart problems. In rare cases, tuberculosis can infect the tissues surrounding the heart, causing inflammation and fluid accumulation (Pruthi, 2022).

Healthy lifestyle approach includes the promotion of proper diet and nutrition, increased physical activity, and smoking prevention and cessation among others, so measurement of healthy lifestyle behaviors is necessary for the identification of causal associations between unhealthy lifestyle and health outcomes, description relationships between lifestyles and health outcomes, documentation of changes and differences in unhealthy lifestyles within and between individuals, respectively, over time, and comparison of unhealthy lifestyles levels

between populations, particularly when cultural and language differences exist (Pradip et al., 2017).

Community health nurses play critical roles in tuberculosis prevention and management; they educate communities and families about tuberculosis risk factors, symptoms, complications, prevention, and treatment. The most important aspect of management is TB prevention health education. Community health nurses collect, analyse, and report on the prevalence, incidence, and effects of tuberculosis in communities. In addition, evaluate the efficacy of various treatment regimens. Research is a critical component of tuberculosis prevention. In this regard, it is critical that community health nurses participate in research at all levels. levels (Motswasele et al., 2020).

Significant of the study:

In Egypt, pulmonary tuberculosis is a major cause of morbidity and mortality, and it is a major public health concern. According to TB prevalence, Egypt is classified as a country with a medium disease burden (WHO, 2020). Egypt's tuberculosis incidence rate was 10 cases per 100,000 people; as a result, Egypt has invested heavily in early case detection, adequate chemotherapy, and prevention of transmission to new cases (WHO, 2022).

Healthy lifestyle habits are essential for disease prevention, health improvement, and overall well-being throughout one's life. Adopting a healthy diet, quitting smoking, maintaining a healthy weight, avoiding harmful alcohol consumption, and being physically active are all examples of healthy lifestyle habits. A healthy lifestyle also lowers the risk of developing major chronic diseases. While the above-mentioned modifiable lifestyle factors are individually associated with a lower risk of major chronic diseases and a longer life expectancy, several studies have found that healthy lifestyle habits combined

have a greater impact on increased life expectancy than healthy lifestyle habits alone (**Khaw et al., 2022**).

Aim of the study:

This study aimed to assess healthy lifestyle of patient with pulmonary tuberculosis.

Research Questions

- 1) What is the health status of the patient with pulmonary tuberculosis?
- 2) What is the level of patients' knowledge about pulmonary tuberculosis?
- 3) What is the pulmonary tuberculosis patients' lifestyle?
- 4) Is there a relation between pulmonary tuberculosis patients' health status and their healthy lifestyle?

Subjects and Method

Research design:

This study was carried out using a descriptive study design.

Study setting:

This study was conducted at Benha Chest Hospital and the Pulmonary Tuberculosis Dispensary at the 23 July Chest Hospital in New EL Marg.

Sample type:

A purposive sample of patients with pulmonary tuberculosis. These patients had specific inclusion criteria as their age was more than 20 years old and were diagnosed with PTB up one year.

Sample size:

80 patients with pulmonary tuberculosis who visited the chest dispensary at the 23 July hospital and the Benha chest hospital within six months. These patients met specific inclusion criteria because they were over the age of 20 and had been diagnosed with tuberculosis within the previous year.

Hospital name	Number of patients
Benha chest hospital,	35
23 July	45

Hospital for Chest in New EL Marg,	
Total	80

Tools of data collection:

Two tools were used for data collection:

Tool 1: A structured interviewing questionnaire: designed and carried out by the researchers based on a review of the literature. It was written in a simple Arabic language to suit the patients' understanding level, and it was divided into three parts.

First part: A- Socio-demographic characteristics of patients with pulmonary tuberculosis It consisted of eight questions about age, gender, marital status, educational level, occupation, place of residence, type of family, and family monthly income of patients with pulmonary tuberculosis.

The second part: Was concerned with assessing patients' health status; assessing patients' vital signs (temperature, blood pressure, pulse, breathing, and body mass index).

Scoring system

Every health indicator was scored as one for normal and zero for subnormal and above normal. The total health status score considered good when the score $\geq 60\%$ and considered poor when $<60\%$.

Third part: This section assessed patients' knowledge of tuberculosis and included 9 multiple-choice questions. Tuberculosis definition, signs and symptoms, causes, transmission, risk factors, diagnosis, preventive measures, complications, and treatment are all covered.

Knowledge scoring system:

The scoring system for patients' knowledge was calculated as follows (2) score for correct and complete answer, while (1) score for correct and incomplete answer and (0) for an incorrect answer or don't know. Knowledge score was summed-up and the total divided by

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the number of items. These scores were converted into a percent score. The total knowledge score =18 points which considered good if the score of the total knowledge $\geq 75\%$ (≥ 14 point), while considered average if it equals $50 < 75\%$ ($9 < 14$ points), and considered poor if it is $< 50\%$ (< 9 points).

Tool (II): Lifestyle patterns scale guided by Fagerstrom (2008) which was adopted and modified by the researchers under supervisor to assess patients lifestyle patterns included; exercises, diet, smoking, sleeping, Nutrition, Medications It was translated into Arabic by the researchers and divided into;

Nutritional habits (17 statements): Eat 3:6 small meals, drink 6:8 cups of water, commit to dividing meals throughout the day, eat animal protein-rich foods, eat foods high in plant protein, fresh fruits and vegetables.

Physical exercise (4 statements); to assess daily exercise light exercises such as walking and running down, climbing the ladder or using the elevator tiredness during exercise.

Medications adherence (10 statements); to assess taking drugs as prescribed by your doctor on a regular basis, Go get the treatment dose before it expires. Calculate the missed dose to make up for it.

Smoking habits (4 statements); to assess avoid smoking now, patient knows smoking is a risk factor for pulmonary tuberculosis and is attempting to quit smoking.

Sleeping habits (5 statements): To assess sleeping enough hours, having trouble sleeping, sleeping during the day, drinking stimulants.

Scoring system for healthy lifestyle pattern: The lifestyle patterns of pulmonary tuberculosis patients were calculated as follows: 2=Always, 1=Sometimes, and 0=Never. The total lifestyle patterns score was 80 points, and it was considered healthy if the score was greater than 80% (> 64 points), and unhealthy if it equaled 80% (64 points).

Reliability and content validity of the tools:

The researchers used tool reliability to test the tool's internal consistency by administering the same tools to the same subjects under similar conditions on one or more occasions. The results of repeated testing were compared (test-re-test reliability). Three Faculty Staff Nursing experts from the Community Health Nursing Specialties reviewed the tools for clarity, relevance, comprehensiveness, and applicability and provided their opinions.

Ethical considerations:

All ethical issues were addressed; formal consent was obtained from each pulmonary tuberculosis patient prior to conducting the interview, and they were given a brief orientation to the purpose of the study. They were also assured that any information gathered would be kept strictly confidential and used solely for the purposes of the study. Patients with pulmonary tuberculosis had the right to withdraw from the study at any time and without explanation.

Pilot study:

The pilot study was carried out on 8 of patients with pulmonary tuberculosis which represented 10% of the sample size. The pilot study was aimed to assess the tools clarity, applicability and time required for interviewing and filling each tool based on the result of pilot study, the necessary modification and clarification of some questions more done to have more applicable tools for data collection. No modifications were done, so the pilot study sample was included in the total sample.

Field work:

The actual field work was carried out over a period of 6 months from the beginning of January 2022 to the end of June 2022. The researchers visited Benha Chest hospital from 9 am to 12 pm, two days per week (Saturday and Wednesday) while visited the Pulmonary Tuberculosis Dispensary at the 23 July Hospital for Chest in New EL Marg. from 9

am to 12 pm, another two days per week (Monday and Tuesday) to collect data from patients with pulmonary tuberculosis, and measures vital signs for every one of studied patients by real equipment and the height and weight to calculate body mass index. The average time needed for the sheet was around 30-45minutes, the average number interviewed at the selected setting were from 3-4 patients/week depending on their responses of the interviewers. The researchers met the studied patients in the waiting area to carry out the study.

Statistical analysis:

The Statistical Package for Social Science (SPSS) version of 22 was used to score computerised data entry and statistical analysis . Descriptive statistics (frequency, percentage) were used first, followed by other statistical tests such as Chi-square and mean and standard deviation.

The following observation differences and associations were considered;

- When the P-value is 0.001, the result is highly significant (HS).
- Significant (S) when the P-value is less than 0.05.
- Non-significant (NS) when the P-value is greater than 0.05.

Results

Table (1): Shows that 55.0% of the studied pulmonary tuberculosis patients were male, 43.8% were married, 37.5% had secondary education, 50.0% did not work, 68.7% lived in urban areas, 57.5% of patients' families had 2-4 members, and 50.0% had enough income per month.

Figure (1): Shows that; 76.3% of the studied patients with pulmonary tuberculosis had poor health status and about 23.7% of studied patient had good health status

Figure (2): Shows that 48.7% of studied patients had total average knowledge of pulmonary tuberculosis, 26.3% had total poor knowledge of pulmonary tuberculosis, and only 25.0% had total good knowledge of pulmonary tuberculosis.

Figure (3): Shows that 66.3% of the patients studied for pulmonary tuberculosis had unhealthy lifestyle pattern, while 33.7% had healthy lifestyle pattern.

Table (2): Shows that there was highly statistically significant relation between the total lifestyle pattern scale of studied pulmonary tuberculosis patients and their health status.

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Table 1: Frequency distribution of studied sample regarding their demographic characteristics (n=80).

Socio-demographic characteristics	No	(%)
Age		
20<30 years	40	50.0
30<40years	28	35.0
40<50years	12	15.0
Min – Max	20-72	
Mean ±SD	44.5±14.46	
Gender		
Male	44	55.0
Female	36	45.0
Marital status		
Divorced	7	8.8
Single	26	32.5
Widow	12	15.0
Married	35	43.8
Level of education		
Can't read or write	22	27.5
Primary education	13	16.3
Secondary education	30	37.5
University education	15	18.8
Occupation		
Retire	10	12.5
Employee	16	20.0
Not work	40	50.0
Worker	14	17.5
Residence		
Rural	25	31.3
Urban	55	68.7
Monthly income		
Enough and save	15	18.8
Enough	40	50.0
Not Enough	25	31.3

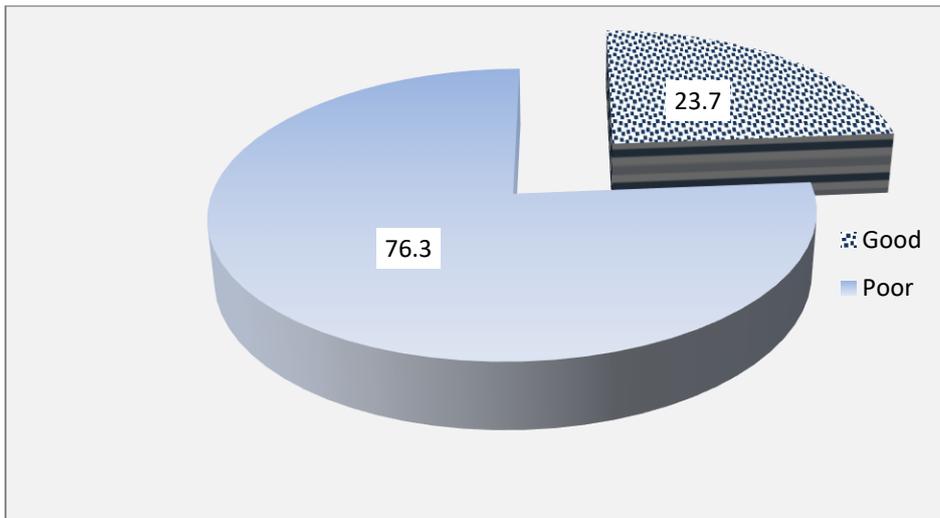


Figure (1): percentage distribution of studied patient regarding their health status (n=80).

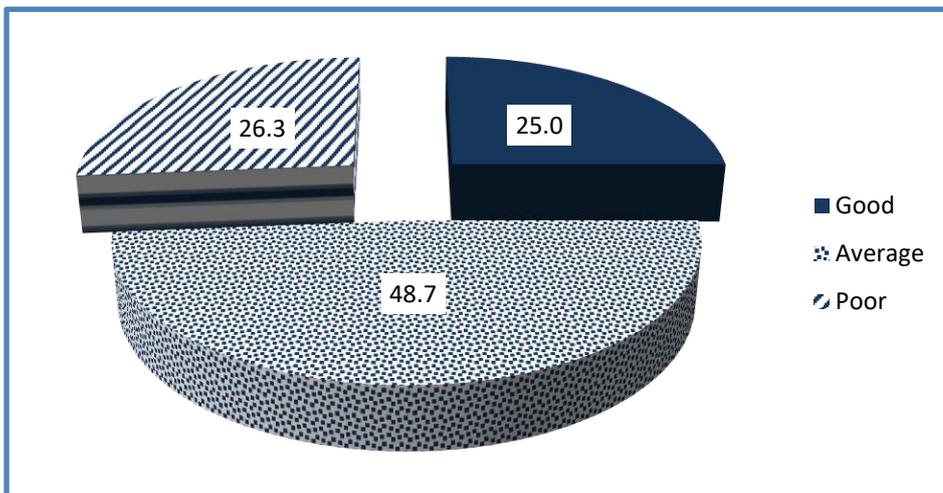


Figure (2): Percentage distribution of studied patient regarding their total knowledge level about pulmonary tuberculosis (n=80).

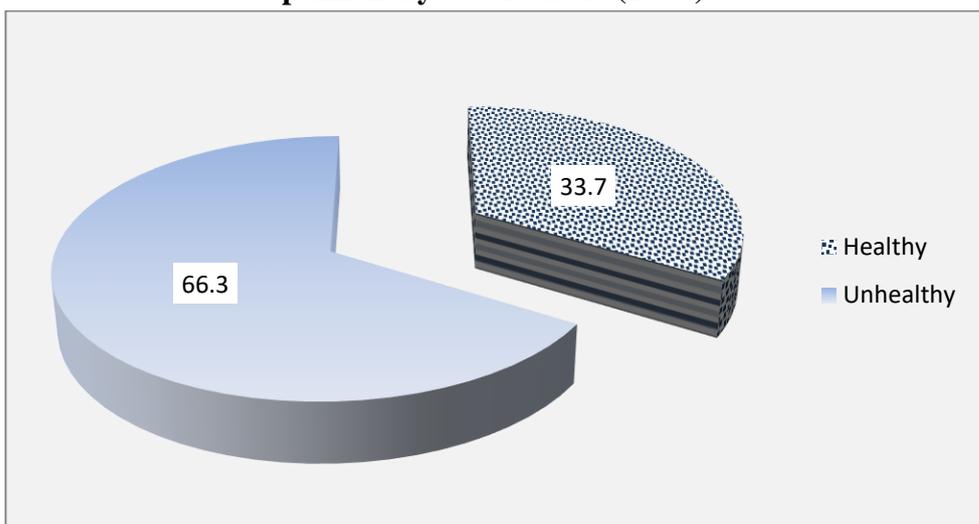


Figure (3): Percentage distribution of studied patients regarding their total lifestyle pattern (n=80).

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Table (2): Statistically relation between total lifestyle pattern and total health status among studied patients(n=80)

Total health status	Total lifestyle pattern					X ²	p-value
	Unhealthy (n=53)		Healthy (n=27)				
	No	%	No	%			
Poor (n=61).	48	90.6	13	48.1	17.77	0.000**	
Good (n=19).	5	9.4	14	51.9			

Discussion:

Pulmonary Tuberculosis is a chronic wasting disease of the respiratory system caused by *Mycobacterium tuberculosis* (MTB). PTB remains a major problem that must be addressed globally due to its lengthy treatment cycle, ease of recurrence, limited number of available therapeutic drugs, and the ongoing emergence of multi-drug resistant *Mycobacterium tuberculosis* (MDR-TB) (Tao et al., 2022). This study aimed to assess healthy lifestyle of patient with pulmonary tuberculosis and was conducted in Benha Chest Hospital and Pulmonary Tuberculosis Dispensary at 23 July Hospital for chest in New ElMarg.

According to the socio-demographic characteristics of the studied patients with pulmonary tuberculosis, the current study found that half of the patients' ages ranged from 20 to less than 30 years, with a mean SD of 44.5±14.46 years. This finding agreed with Rohit et al., (2018), who revealed that the most common age group is 21-30 years, whereas Jose et al., (2022), discovered that the majority of patients are between the ages of 56 and 70 years. This could be because ageing is the most common risk factor for developing pulmonary tuberculosis complications.

According to the current study, more than half of the patients with pulmonary tuberculosis were men. This finding agreed with Yaghi et al., (2022), the majority of patients (74.4%) were males. The reason for the result could be that the majority of males smoke, and smokers have a threefold increased risk of TB. While disagreeing with Arafat et al., (2022), who discovered that 50.95% of the population was female. This could be due to the nature of Egyptian society, in which the male is responsible for family members and financial resources, putting stress on the male and potentially leading to pulmonary tuberculosis.

According to the current study, more than one-third of the patients had a secondary education. This result agreed with Madukoma et al., (2022), who discovered that 47% of participants had a secondary education. This could be due to poverty, disease stigma, and an inability to complete education levels related to tuberculosis.

Regarding the occupation of patients with pulmonary tuberculosis, the current study shows that half of the patients were unemployed. This study agreed with Nautiyal et al., (2019), who discovered that 57.27% of the patients were unemployed. This could be due to insufficient physical

effort as well as the psychosocial stressors of disease and inability to work.

The current study found that less than three-quarters of the studied patients with pulmonary tuberculosis lived in rural areas. This finding was supported by **Salehitali et al., (2019)**, who discovered that 82.4% of the patients were rural residents. This could be due to a lack of health care centers in rural areas, as well as limited access to early TB detection programs.

The current study revealed that; half of patient with pulmonary tuberculosis had enough monthly income. This study disagreed with **Osman et al., (2022)**, who they found that; 55.2% of participants had enough monthly income. This could be due to family problems causing emotional stress, a lack of a balanced diet, or a lack of time needed to educate the patient on how to live with the disease, all of which make the patient vulnerable to TB disease.

Regarding pulmonary tuberculosis patients' total health status, more than three quarters of the studied patients with pulmonary tuberculosis had poor health status and one third of studied patient had good health status. This study result was in the same line with **Quarcoopome et al., (2022)**, who studied "Health-related quality of life of persons living with tuberculosis in the Greater Accra region of Ghana: A cross-sectional study"(n=250) and reported that the health status of persons living with tuberculosis was found to be poor and influenced by the patients' socioeconomic status. This result may due to the adverse outcome from incompliance of patient with treatment and unknown with medications name also may due to incompliance with nutritional, sleeping and exercise patterns, also the misunderstanding of the patients with information that given from health staff about

their lifestyle and the importance of continuous follow up.

In regard to the overall knowledge level of pulmonary tuberculosis patients, the current study found that more than two-fifths of patients had an average level of knowledge about pulmonary tuberculosis. This finding was supported by **Huddart, et al., (2018)**, who reported that more than three-fifths of patients (71.1%) had average knowledge of the disease, and disagreed with **Kusheno et al., (2020)**, who reported that 65.0% of PTB patients had good knowledge of the disease, This could be due to a lack of health education for patients, as well as the patients' inability to access information or attend programs related to their cases, as well as their inability to participate in the treatment program while hospitalized.

Regarding pulmonary tuberculosis patients' total lifestyle pattern scale; the present study revealed that nearly more than two thirds of pulmonary tuberculosis patients had unhealthy lifestyle pattern, while more than one third had healthy lifestyle pattern. This might be due to lack of programs offered on social networking sites and lack of rehabilitation centers to help patients practice lifestyle in a correct manner.

The current study found a highly statistically significant relationship between total lifestyle pattern scale and total health status level among studied Pulmonary Tuberculosis patients. This could be because they were married, had a secondary level education, worked, had a sufficient monthly income, and had good TB knowledge, as well as lived in a sanitary environment.

Conclusion

Less than half of studied pulmonary tuberculosis patients had average total level of knowledge about pulmonary tuberculosis, nearly three quarters of the studied patients had poor health status, and about two thirds

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of patients had unhealthy lifestyle pattern, Also, there was highly statistically significant relation between the total lifestyle pattern of the studied patients and their health status.

Recommendations:

- 1- Provide A health education program for patients with pulmonary tuberculosis should be developed to improve and update knowledge and lifestyle pattern scale.
- 2- Distribute a booklet with illustrated pictures containing all information and lifestyle measures for pulmonary tuberculosis at the Outpatient Clinic so that patients can improve their lifestyle practices.
- 3- Regular follow-up for pulmonary tuberculosis patients to ensure medication effectiveness and avoid complications.
- 4- Further studies needed to be applied the same study in large sample size in different setting in Egypt.

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نمط الحياه الصحي لمريض السل الرئوي

فايزه أحمد أبوزيد - هناء عبد الجواد عبد المجيد- دعاء محمد صبحي السيد

ما زال السل مشكله صحيه عامه ويعتبر واحدا من أهم المشاكل الصحيه التي يمكن علاجها والوقاية منها ويعتبر السل السبب الرئيسي للوفاه في العديد من البلدان في جميع أنحاء العالم ، وقد تم إعلانه كحالة طوارئ عالمية من قبل منظمة الصحة العالمية حيث أوضحت أنه مرض معدٍ ينتقل عن طريق الهواء وينتج عن بكتيريا بطيئة النمو ، المتفطرة السلية . لذلك هدفت الدراسة إلى تقييم نمط الحياه الصحي لمريض السل الرئوي . وقد أجريت الدراسة في بمستشفى الصدر بينها ومستوصف السل الرئوي بمستشفى الصدر 23 يوليو بالمرج الجديده حيث تم تكوين عينة غرضية مكونه من 80 مريضاً من مرضى السل الرئوي . وقد كشفت النتائج أنه أن أقل من نصف مرضى السل الرئوي الذين خضعوا للدراسة لديهم متوسط إجمالي من المعرفة حول مرض السل الرئوي ، وأن ما يقرب من ثلاثة أرباع المرضى الذين خضعوا للدراسة لديهم حالة صحية غير مستقره. كما أوصت الدراسة بنشر كتيب يحتوي على صور مصورة يحتوي على جميع المعلومات وتدابير نمط الحياه تجاه مرض السل الرئوي في العيادة الخارجية ليكون متاحاً للمرضى لتعزيز ممارسه أسلوب الحياه.