Effect of Counseling on Self-Care Management among Adult Patients with Pulmonary Tuberculosis

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Abstract: Today, tuberculosis is still one of the major public health problems in many places in the world especially in Africa and Asia. The aim of this study was to evaluate the effect of counseling on self-care management among adult patients with pulmonary tuberculosis (T.B). An intervention design was conducted at homes of pulmonary patients with tuberculosis who attended at Benha Chest Hospital during the years 2010. The sample was composed of 100 adult patients with tuberculosis. Two tools were utilized in this study: 1)A structured interview questionnaire to collect data about general characteristics of patients and their knowledge about the disease.2) An observational checklist for assessing T.B patient's self-care and home condition. Results revealed that significant improvement in patient's knowledge and practice post implementation of the health educational counseling. This study concluded that after the counseling implementation there was a significant improvement on participants' physical, social and psychological conditions. The study recommended that health education intervention should be carried out for all new T.B cases at the chest clinics about T.B self-care, and continuous health education to all old cases attending at chest clinics for follow up to upgrade their knowledge and practice related to T.B self-care management at home [Howyida, S. Abd ElHameed, Heba, A.Aly and Abeer, Y.Mahdy. **Effect of Counselling on Self-Care Management among Adult Patients with Pulmonary Tuberculosis**. Life Science Journal 2012;9(1):956-964]. (ISSN: 1097-8135). http://www.lifesciencesite.com. 139

Key word: Counseling, Pulmonary Tuberculosis, Adult patients.

1. Introduction

The world health organization declared tuberculosis as a global emergency in recognition of its increasing infection and mortality rates.[1]Tuberculosis is a common and often deadly infectious disease caused by mycobacteria; tuberculosis usually attacks the lungs (as pulmonary tuberculosis) but can also affect other body systems.[2]

Globally, there were an estimated 9.27 million incident cases of tuberculosis in 2007. Most of the estimated number of cases was in Asia 55% and Africa 31%, with small proportions of cases in the Eastern Mediterranean Region 6%, the European Region 5% and the Region of the Americas 3%.[3]

In Egypt, there are 16 thousand patients annually, and the number of patients currently at around 23 thousand patients.[4]Tuberculosis is spread through the air, when people suffering from active pulmonary tuberculosis cough, sneeze, speak, or spit, they expel infectious aerosol droplets 0.5 to 5 μm in diameter. A single sneeze can release up to 40.000 droplets. Each one of these droplets may transmit the disease, since the infectious dose of tuberculosis is very low and the inhalation of just a single bacterium can cause a new infection.[5]

Main symptoms of pulmonary tuberculosis include chest pain, coughing up blood, and prolonged cough for more than three weeks. Systemic symptoms include fever, chills, night sweats, appetite loss, weight loss, pallor, and often a tendency to fatigue very easily.[6]

The previous researches identified that the most common complication of pulmonary T.B are lung abscess, chronic obstructive pulmonary disease, spread of infection to other organs, respiratory failure and bronchitis in addition to malnutrition, military T.B, pleural effusion, pneumonia, empyema, fibrosis and Haemoptysis.[7]

Treatment for tuberculosis uses antibiotics to kill the bacteria. The two antibiotics most commonly used are rifampicin and isoniazid. [8]

Tuberculosis prevention and control takes two parallel approaches. In the first, people with tuberculosis and their contacts are identified and then treated. Identification of infections often involves testing high-risk groups for tuberculosis. In the second approach, children are vaccinated to protect them from tuberculosis. Unfortunately, no vaccine is available that provides reliable protection for adults.[9]

Home health care is provided to individuals and families in their place of residence for the purpose of promoting, maintaining or restoring health for maximizing the level of independence while minimizing the effects of disability and illness including terminal illness.[10]

Counseling refers to face to face communication between counselor (care provider) and clients to make free and informed choice about their life and act on their choice.[11]It is also a process through which one

person helps another by purposeful conversation in understanding atmospheres. [3]

According to **Orem et al.** [12], self-care is the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health and well being. It is also defined as any action or psychological process undertaken to promote, assess, maintain or restore through as self-help.[13]

Nurses who work in the community can control communicable diseases in several ways as education, immunization, early detection through case finding and contact notification, initiation of appropriate treatment, support, encouragement and referral, Nurses can educate members of the community about ways to prevent such a communicable disease, how to detect signs and symptoms of communicable disease, actions that people can take to reduce the transmission of the disease, and when to seek help.[10]

Significance of the study

Tuberculosis is an important public health problem in the world, more people will die from tuberculosis than in any other disease and almost all deaths from tuberculosis are preventable. In relation to the incidence of tuberculosis, Egypt is ranked among the mid-level incidence countries; there are 16 thousand patients annually and the number of patients currently at around 23 thousand patients. Tuberculosis is considered the second most important public health problem after bilharziasis in Egypt. So, this study will be carried out trying to fulfill the health needs, upgrade knowledge and practice for this group and increase their health awareness about the importance of tuberculosis treatment and prevention.

Aim of the study:

The present study aimed to evaluate the effect of counseling on self-care management among adult patients with pulmonary tuberculosis.

Research Hypothesis:

Participants who will receive the health educational counseling about T.B self-care management will have better knowledge and practice post intervention.

2. Subjects& Methods:
Research design

An intervention design was used in carrying out this study.

Setting

The study was conducted at the Outpatient Clinic in Benha Chest Hospital which is the only specialized chest hospital in Kalyobia Governorate, the study subjects were followed by conducting visits to them at their homes. The researchers provided them with counseling and health education about T.B self-care management.

Sample

Patients who attended to the Outpatient Chest Clinic during the years 2010 were 301patients. The sample size was composed of 1/3 of the attendants (100 patients) who had fulfilled the following inclusion criteria: (diagnosed pulmonary T.B since 6 months, aged 20-45 years and of both genders).

Research instrument (tools): Two tools were used to collect study data:

1- An interviewing Questionnaire: It was developed by the researchers to collect data about: a) A study subjects' characteristics as age, gender, education level, marital status, occupation and income. b)Patient's knowledge about T.B disease signs and symptoms, types and mode of transmission, incubation period, investigations, vaccination, complications, treatment and follow up. 5 closed-ended questions were included dealing with knowledge related practice these were isolation technique, feeding& treatment system, preventive methods, follow up schedule and handling body secretion. The scoring for patient's knowledge and practical knowledge for pre/post/test is one point for the correct answer and zero for wrong or incorrect one. The total score was summed up and divided by the number of the items, giving a mean score for the variable. These scores were converted into percent and the patient was considered having good knowledge if > 65%, while average from 50-65% and poor < 50%. The questionnaire included also participant's knowledge toward their Common physical symptoms from their disease (T.B) as: loss of weight, chest pain, cough, general fatigue, fever, muscle cramps, diarrhea, constipation, skin irritation and dyspnoea. The responses were on a three levels of answers(always),(sometimes) and (rarely), these were respectively scored 3,2 and 1.The total scores were summed up and divided by the number of items. Scores were converted into percent, mean and standard deviation. As regards common social and psychological study subjects, responses in relation to their disease pre/ post counseling intervention, they were adapted from the Social as Psychological Stress symptoms Scale of Burn.[11]Translated and modified by the researchers, it consisted of (11) items for social systems and (13) items for psychological reactions regarding disease. Responses were checked by (either) (always), (sometimes) or(rarely) and they were coded 3,2 and 1.

2- An Observational Checklist, it was designed by to observe the study participants practices regarding their self-care management. It comprised preventive measures as; isolation, cleanliness, health habits, diet patterns, treatment and follow up; and self-care regarding common physical problems from T.B as; fever, loss of weight, productive bloody cough and sputum, dyspnea, chest pain, general weakness and night sweating. The observational checklist was scored as (3) if completely done, (2) if incompletely done and (1) if not done.

The observational checklist was used also for assessment of home environment of the study subjects, it was adapted from **Maurer and Smith** [14]**,**it was composed of (12) closed ended questions, to observe participants by a checklist and assessing the home condition. Items included as residence, type of home, ventilations, room number, water source, sewage disposal and garbage refuse. Each item was assigned score (1) if present or zero if absent. Validity of contents was measured by four experts in the field of medical and community health nursing to test relevance and completeness.

Pilot study

A pilot study was carried out on ten adult patients with pulmonary tuberculosis (10%), to test content relevance, tools applicability, clarity of items needed to fill in the sheets using the interviewing questionnaire and observational checklist applied as pre/post/tests. Those participants excluded from the main study sample. Some modifications and rephrasing of certain tools questions were done accordingly. The content validity of the tools were revised by six consultant in community health nursing, medical surgical nursing and by chest specialists.

Ethical considerations and administrative issues:

An oral consent was obtained from each study subject, who agreed to participate in this study in order to gain their cooperation. They were assured about confidentiality of information given and that will be used only for the purpose of the study. They were also informed about their right to withdraw from the study at any time without giving any reason.

Procedures (field work)

Approval was taken from Benha Chest Hospital Director upon a letter issued from the Faculty of Nursing Dean to obtain permission for conduction of the study. Based on the results obtained from interviewing questionnaire and observational checklist as well as literature review, the counseling intervention was developed by the researchers. Contents of counseling were selected to meet study subject's needs. All participant members received the same contents. Methods of the teaching were: lectures, discussion, demonstration and redemonstration; and presentation were done using suitable teaching aids real objects (posters / pictures). The counseling was implemented on 100 adult patients with pulmonary tuberculosis in the form of individual visits at their homes from January 2010 up to December 2010. The duration of home sessions lasted 1-2 hours in each visit, at least two sessions were covered. Home visits were paid 4 times/week. Each session stared by a summary about the previous session and the objectives of the new one, taking into consideration the use of simple language that suite the adult patient T.B's level of understanding. The study subjects were interviewed immediately after counseling implementation. Evaluation was based on the score of the acquired knowledge, practice and self-care management in the pre-test and immediately post-test.

Statistical analysis

Statistical presentation and analysis of the present studied data were carried out, using the mean, standard deviation, student t-test, paired t-test, chi-square, linear correlation coefficient and analysis of variance (ANOVA) test by using the Statistical Package for Social Science (SPSS), version 17.

3-Result

Table (1) shows personal characteristics of the studied sample,59.0% of patients were males, regarding to age, 66.0% of them were 40 years and more, with a mean age of 41.20 ± 5.646 years. As for marital status, 77.0% of them were married. Regarding to educational levels, 30.0% of them were secondary school, 35.0% of them were employees and 74.0% of them their income was inadequate.

Table (2) shows that, there were highly statistically significant improvements in all items related to knowledge of the T.B patients after implementation of the counseling.($P<0.001$).

Table (3) indicates that there were highly statistically significant improvements in all practice items toward T.B disease after implementations of the counseling.($P <0.001$).

Table (4) reveals that, there were highly statistically significant improvements in all items of the physical symptoms after counseling implementation ($P <0.001$).Table (5) reveals that, there were highly statistically significant improvements in all items of the social condition after implementation of the counseling except for the items of change the working relationship, and insecurity, which showed statistically insignificant differences pre/post-implementation of the counseling.($P >0.05$).

Table (6) shows that the majority of the studied sample(87.0%), were always feeling anger at pre–test, while, post-implementation, 7.0% were rarely complaining from it. Concerning feeling of depression at pre-program, it represented 87.0%, however; after counseling implementation at post–test 26.0% rarely complained. The same table reveals that, there were highly statistically significant differences between pre/post counseling regarding to all psychological stress symptoms of T.B patients.

As evident from Table (7), there were highly statistically significant relationships between patients' total knowledge and their educational level(illiterate/read and write), but it shows insignificant relationships between patients' total knowledge and patient's age (20-<30 and 30<40) and inadequate income. There was highly statistically significant relationship between patients' total practice and their educational level (P <0.001) and adequate income but not for their age. As regards total self-care management, the same table shows that significant relationships with both age and educational level but for patient's income it shows an insignificant relationship.

Table (8) shows that, there was a positive highly significant correlation between patient's total practices and total self-care management.

Table (9) shows positive highly statistically significant correlations between knowledge, practice, self–care management and the patient's home environmental condition.

Table (1): Frequency of personal characteristics studied sample (n= 100).

Items	%
Sex :	
Male	59.0
Female	41.0
Age	
20-	4.0
30-	30.0
40 +	66.0
Mean±SD	41.20±5.646
Marital status	
Single	15.00
Married	77.00
Widowed	8.00
Educational level	
Illiterate	29.00
Read and write	21.00
Basic education	13.00
Secondary/Diploma	30.00
University education	7.00
Occupation	
Employed	35.00
Housewife	30.00
Private worker	19.00
Unemployed	16.00
Income	
adequate and saving	14.00
Adequate	12.00
inadequate	74.00

Table (2): Frequency of the studied sample knowledge pre /post counseling implementation (n = 100).

Knowledge	Pre- program (%)			Post- program (%)			X²	P-value
	Good	Average	Poor	Good	Average	Poor		
Definition of T.B	1.00	9.00	90.00	93.00	7.00	0.00	180.29	<0.000**
Causes	6.00	43.00	51.00	99.00	1.00	0.00	173.46	<0.000**
Types of T.B	12.00	21.00	67.00	100.00	0.00	0.00	157.14	<0.000**
Modes of transmission	5.00	22.00	73.00	96.00	4.00	0.00	167.45	<0.000**
BCG immunization	58.00	0.00	42.00	97.00	0.00	3.00	43.61	<0.000**
Symptoms	61.00	0.00	39.00	97.00	0.00	3.00	39.06	<0.000**
Treatment	11.00	35.00	54.00	99.00	1.00	0.00	156.51	<0.000**
Nutritional patterns	1.00	9.00	90.00	91.00	3.00	6.00	134.87	<0.000**
Complication	0.00	6.00	94.00	100.00	0.00	0.00	200.00	<0.000**
Clinical investigation	0.00	9.00	91.00	90.00	9.00	1.00	178.04	<0.000**
Contra indication drugs	0.00	2.00	98.00	88.00	12.00	0.00	193.14	<0.000**
Follow up	2.00	20.00	78.00	97.00	3.00	0.00	181.727	<0.000**
Health habits(smoking, shisha)	54.00	0.00	46.00	86.00	0.00	14.00	24.00	<0.000**
Common health symptom from disease as: *Productive bloody cough and sputum.	51.00	0.00	49.00	70.00	0.00	30.00	7.553	<0.006**
*Loss of weight and appetite.	6.00	15.00	79.00	90.00	10.00	0.00	153.500	<0.001**
Preventive methods	2.00	8.00	90.00	96.00	4.00	0.00	181.497	<0.001**
Total Knowledge	Mean ± SD		Range	Mean ± SD		Range	*Paired t- test*	*p-value*
	35.59 ±7.342		0 - 48	59.33 ± 2.731		48 - 63	30.712	<0.001**

** **Highly statistically significant difference (P ≤ 0.001)**

Table (3): Frequency of the studied sample practices pre/ post counseling implementation (n = 100)

Practice	Program (%)			X^2	P-value
	Pre		Post		
Isolation					
• Special and good ventilated room for T.B patient.	55.00		90.00	30.72	<0.001**
• Private personal utensils to control droplet infection, drinking and eating equipments (Spoons, plate, & bottles) clothes, towel bed linens, musk, thermometer, and tooth brush.	39.00		97.00	81.411	<0.001**
Prevention	8.00		63.00	68.946	<0.001**
• Hand washing after coughing or sneezing.	7.00		58.00	62.532	<0.001**
• Put face mask or paper tissue during coughing or sneezing.	6.00		56.00	58.913	<0.001**
• Remove the sputum discharge in special plastic container and despoiled it in waste basket.	10.00		53.00	52.105	<0.001**
• Follow good health habits (continue personal hygiene, change and wear clean cloths.	30.00		92.00	81.742	<0.001**
• Refrain on cigarette smoking or shisha.					
Nutrition					
Take balanced diet (protein, vitamins, carbohydrate, fat)	32.00		91.00	80.028	<0.001**
Increase protein intake	48.00		92.00	47.654	<0.001**
Increase number of meal/day	30.00		95.00	96.857	<0.001**
Treatment					
Taking regular ways and proportions.	51.00		90.00	36.567	<0.001**
Continuous follow up	46.00		95.00	57.723	<0.001**
Breathing exercise practice	21.00		89.00	93.414	<0.001**
Total Practice	Mean ± SD	Range	Mean ± SD	Range	Paired t- test	p-value
	15.59 ± 2.582	0 - 15	25.72±0.74	9 - 24	22.901	<0.001**

**Highly statistically significant difference ($P \le 0.001$)

Table (4): Frequency of the studied sample self-care management toward common physical symptoms pre /post counseling implementation (n = 100).

Physical Symptoms	Pre-program (%)			Post- program (%)			X^2	P-value
	Always	Sometimes	Rarely	Always	Sometimes	Rarely		
Headache	69.00	26.00	5.00	0.00	5.00	95.00	164.226	<0.001**
Pain in the muscles	70.00	11.00	19.00	0.00	4.00	96.00	124.823	<0.001**
Pain in the joints	80.00	7.00	13.00	0.00	0.00	100.00	153.982	<0.001**
Weight loss	85.00	8.00	7.00	0.00	0.00	100.00	173.832	<0.001**
Productive and bloody cough	87.00	6.00	7.00	0.00	3.00	97.00	165.885	<0.001**
General weakness	10.00	12.00	78.00	0.00	1.00	99.00	21.799	<0.001**
Yellowish, bluish or bloody sputum	43.00	0.00	57.00	0.00	6.00	94.00	58.066	<0.001**
Loss of appetite	87.00	0.00	13.00	0.00	0.00	100.00	153.982	<0.001**
Fever	87.00	2.00	11.00	0.00	2.00	98.00	156.440	<0.001**
Nausea	43.00	0.00	57.00	0.00	0.00	100.00	54.777	<0.001**
Vomiting	75.00	12.00	13.00	0.00	7.00	93.00	136.693	<0.001**
Constipation	11.00	12.00	77.00	0.00	0.00	100.00	25.989	<0.001**
Diarrhea	87.00	0.00	13.00	0.00	5.00	95.00	154.259	<0.001**
Dyspnea	69.00	0.00	31.00	0.00	6.00	94.00	106.752	<0.001**
Night sweats	75.00	2.00	23.00	0.00	2.00	98.00	121.488	<0.001**
Itching	87.00	7.00	6.00	0.00	0.00	100.00	177.358	<0.001**
Chest pain	75.00	0.00	25.00	0.00	1.00	99.00	120.161	<0.001**
Skin irritation	70.00	11.00	19.00	0.00	0.00	100.00	136.134	<0.001**
Influenza	75.00	11.00	14.00	0.00	2.00	98.00	144.231	<0.001**
Slow heart beat	85.00	8.00	7.00	0.00	0.00	100.00	173.832	<0.001**
Drowsy	70.00	12.00	18.00	0.00	3.00	97.00	129.670	<0.001**
Total Physical Symptoms Level	Mean ± SD		Range	Mean ± SD		Range	Paired t- test	p-value
	68.413±14.735		32 - 89	28.626 ± 3.250		69 - 82	24.637	<0.001**

**Highly statistically significant difference (P ≤ 0.001)

Table (5): Frequency of the studied sample according to self-care management regarding their social condition pre / post counseling implementation (n =100).

Social Symptoms	Pre-program (%)		Post-program (%)		X²	P-value
	Yes	No	Yes	No		
Change the work's relationship	47.00	53.00	49.00	51.00	0.080	>0.05
Improvement in social relations	7.00	93.00	56.00	44.00	55.637	<0.001**
Loneliness	8.00	92.00	28.00	72.00	13.550	0.001**
Insecurity	0.00	100.00	2.00	98.00	2.020	>0.05
Difficulty in confrontation	94.00	6.00	28.00	72.00	17.151	<0.001**
Total Social Symptoms Level	Mean ± SD	Range	Mean± SD	Range	Paired t- test	p-value
	10.01± 1.352	6 - 12	7.560±1.713	4 - 12	8.769	<0.001**

Highly statistically significant difference ($P \le 0.001$)

Table (6): Frequency of the studied sample regarding self-care management toward their psychological stress pre / post counselling implementation (n = 100).

Psychological stress symptoms	Pre-program (%)			Post program (%)			X²	P-value
	Always	Sometimes	Rarely	Always	Sometimes	Rarely		
Feeling confused	0.00	8.00	55.00	0.00	28.00	25.00	21.660	<0.001**
Feeling worried	85.00	5.00	2.00	0.00	24.00	2.00	88.092	<0.001**
Feeling anger	87.00	8.00	0.00	0.00	44.00	7.00	116.218	<0.001**
Feeling lazy and tired	5.00	2.00	44.00	0.00	12.00	32.00	13.596	<0.001**
Constantly frustrated	75.00	0.00	20.00	0.00	30.00	31.00	104.947	<0.001**
Feeling depressed	87.00	2.00	6.00	0.00	12.00	26.00	100.713	<0.001**
Feeling stress	82.00	11.00	0.00	0.00	56.00	0.00	109.807	<0.001**
Total Psychological Stress Symptoms Level	Mean ± SD		Range	Mean ± SD		Range	Paired t-test	p-value
	67.760±13.238		26 - 77	33.900±7.096		23 - 43	23.749	<0.001**

Highly statistically significant difference ($P \le 0.001$)

Table (7): Relationship between total mean score of studied sample knowledge, practice &self-care management, and their characteristics (n=100).

Item PersonalCharacteristics	Knowledge Mean ±SD	Practice Mean ±SD	Self-Care Management Mean ±SD	ANOVA	
				F	P-value
Age :					
20-	37.00±6.06	11.75±2.22	54.17±7.55	1.075	0.345
30-	37.10±6.82	13.07±2.61	53.89±7.52	2.294	0.106
40 +	34.82 ±7.61	13.49±2.54	48.39±7.91	4.29	0.021*
Educational level :					
Illiterate	32.83 ± 6.95	10.31±0.81	46.36±3.20	6.644	<0.001**
Read and write	30.10±10.12	10.00±1.41	51.50±8.12	10.009	<0.001**
Basic education	35.08±5.66	9.77±1.69	52.50±4.44	8.66	0.04*
Secondary/Diploma	38.10±6.37	9.93±1.46	52.37±8.79	9.45	0.03
University education	39.43±6.21	9.57±1.90	55.88±5.33	10.63	<0.001**
Income :					
Enough and saving	37.86±5.40	6.86±2.85	48.64 ± 8.02	0.809	0.448
Enough	35.14±7.50	8.64±2.56	52.66 ± 7.97	5.395	0.007*
Insufficient	35.75±8.35	11.00±2.56	53.00±5.20	1.684	0.191

* Statistically significant difference (p≤ 0.05)
**Highly statistically significant difference (P ≤ 0.001)

Table (8): Correlation between total practice of the studied sample and their total self-care management.

Items	Self-Care Management	
	r	*P*-value
Total Practices	0.731	< 0.001**

**Highly statistically significant difference ($P \leq 0.001$)

Table (9): Correlation between total knowledge, practice and self-care management of the studied sample and their home environment condition.

Items	Environmental condition	
	r	*P*-value
Knowledge	0.804	<0.001**
Practice	0.775	<0.001**
Self-care management	0.77	< 0.001**

**Highly statistically significant difference ($P \leq 0.001$)

4. Discussion:

The aim of the current study was to evaluate the counseling about self-care management of adult patients with pulmonary tuberculosis. This aim was achieved through; assessing the health needs (knowledge and practice) related to their self- care management, designing, implementing and evaluating the outcome of self-care management improvement after counseling implementation. The study sample was 100 (T.B) patients, the mean age was 41.20±5.646 years; this finding can be referred to the high prevalence of smoking especially shisha among males. This finding was supported by ***Bam study*** [15] ***,*** which found that the mean age of the studied group was 41.06±931.on the same context, a recent study carried out by ***Yadav and Bhatt et al.,*** [16] also showed that the majority of T.B patients were in the age group of 15-45 years. This finding suggests that T.B is common among economically active group and this lead to direct impact to the family economic status. And most of them married and the majority of them have got secondary diploma. As regards sex, the present study results showed that slightly less than three fifth of the T.B patients were males, this finding was consistent with, ***Darwish et al., (2008)*** who reported that the prevalence of T.B patients was higher among males than females and among low educated patients, also residents in rural and industry areas and also among low income patients.

According to studied sample knowledge related to tuberculosis (definition, causes, types, and mode of transmission, immunization, symptoms, treatment, complications, investigations, follow-up nutrition patterns, drug contraindications, preventive methods and common health symptoms from disease) improved after the counseling implementation. This agrees with the study conducted by ***Hashim, et al.,*** [18]who reported that the majority of T.B patients, knew most knowledge about their disease as causes, mode of transmission, predisposing factors, common

symptoms, nutritional needs and methods of prevention.

On the other hand, regarding the study sample practices related to isolation technique, the findings of the current study revealed that most of the T.B patients had special and good ventilated room and personal utensils after the counseling intervention. Regarding to practice toward methods of prevention, the finding of the study demonstrated that, more than half of T.B patients were using paper tissue or face mask, to cover mouth and nose during coughing and sneezing, put the sputum in special plastic container and despoiled it in waste basket or in the trash, wearing washed and clean clothes continuously, while more than half of the T.B patients were washing hands after coughing or sneezing while most of the study sample were refraining on cigarette smoking or shisha after counseling implementation.

As regards T.B patients nutritional practice, the study results revealed that, less than half of patients were eating three meals/day and at regular intervals while regarding the types of food during the period of disease less than half were eating integrated meals, this ratio was improved considerably after counseling implementation to be followed by most of them.

Regarding to practice toward treatment systems before counseling, almost half of T.B patients were taking treatment regularly, more than two fifth continue for follow up, and also one fifth of patients were practicing breathing exercises to reduce shortness of breath. All these ratios increased after counseling implementation to reach most of them.

According to T.B patients self-care management toward common physical symptoms as general weakness, underweight, loss of appetite; pain (chest, abdomen, muscles, joints), digestive disorders (vomits – nausea- vomiting and constipation) sweat, dyspnea and coughing. diet, preventive methods as (hand wash- isolate sputum), there were highly statistically significant improvements, in all the previous items after implementation of counseling. This findings are

in agreement with **Hashim, et al.,**[18]and **Mangesho, et al.,**[19]who reported that more than three quarters of T.B patients presented with cough, fever, chest pain and weight loss as main complains of T.B, this condition improved post health education intervention.

Patients with T.B had social effect on their relation pre intervention but post counseling, results revealed that, there were highly statistically significant improvement in all items of the social complaints after counseling except for the items of change the work's relationship, and insecurity, were statistically insignificant differences pre/ post counseling were detected. This insignificant difference in improvement can be explained by the competitive nature of the work environment, official and rigid rules that regulate work but cannot be easily changed. The same can be said about patients insecurity as, patients security is a complex issue that has multifactor patterns not only the home security can affect the patients but also the community security can do. This result supported by **Zacks et al.,** [20].Who concluded in cross- sectional study that, the majority of T.B subjects reported financial insecurity, internalized shame, and social rejection, regardless of method of T.B acquisition or socioeconomic status?

Considering psychological stress, **levensone et al.,** [21]and **Wright** [22].Highlighted that chronic health problems are associated with psychological stress and depression. The present study finding was inconsistent with them. The majority of patients before implementation of self-care management counseling were complaining from many psychological symptoms like feeling worried, anger, difficult to relax, difficult to concentrate during work, constantly frustrated, feeling stressed and feeling depressed. However, after implementation of the counseling there were significant improvements in all items of the psychological aspects. This was due to an increase in patients' moral spirit and there was decrease in patient's stress symptoms. In relation to personal characteristics of the studied sample and their knowledge, practices on self-care management, results revealed that highly statistically significant relationships were detected between patients' total knowledge and their educational level; however insignificant relationship were found between patients' total knowledge and their age and income.

There was highly statistically significant relationship between patients' total practice and their educational level and income but not for their age. As regards total self –care management, the same table shows that significant relationships with both age and educational level but for patient's income it shows an insignificant relationship. On the other hand, the current study result showed highly statistically significant positive correlation between self-care management and the total practices. This result can clearly answer the stated research hypothesis in that when the counseling was conducted, it led to increase patient's awareness about their practices.

As regards correlations between patients total knowledge related practice and self-care management and their home environmental condition, results showed positive statistically significant correlations between knowledge, practice, self-care management and the patients home environmental condition after counseling intervention. This might be due to that the majority of studied sample were having a private and hygienic room, good ventilations and cleaning houses, good kitchens and proper collection of garbage refuse in special boxes.

Conclusion

The implemented counseling revealed significant improvements of patient's knowledge about T.B as (definition, causes, modes of transmission and preventive methods); practice as (isolation technique and prevention, nutrition pattern and treatment); and self-care management about T.B .There were highly statistically significant relationships between patients' total knowledge, practice, self-care management and their educational level. Significant improvements were detected for patient's physical, social and psychological symptoms after counseling implementation. as well, there were positive correlation between patient's knowledge, practice and self-care management.

Recommendations

- Based on the study finding, the following recommendation are suggest conducting health intervention counseling to all newly diagnosed T.B cases who attend the chest hospital.
- Continuous educational program to all patients and their families about T.B during the follow up visits to upgrade their knowledge and practices.
- Further researches are needed in other areas especially rural areas to implement intervention program about management and preventive measures of T.B.

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