Results

The results are presented in following consequences:

Part I: Socio - demographic characteristics of the studied patients and their families' caregivers and present medical history. (Table 1 to 3)

Part II: Home environmental condition of the studied patients (Table 4)

Part III: Knowledge of patients and caregivers about disease and methods of prevention pre-post program. (Table 5 to 12)

Part V: Patients and caregiver's knowledge practice related to isolation, treatment, feeding of TB patient, and methods of preventing TB distribution pre-post program. (Table 13 to 17)

Part VI: Total knowledge and total practices of the studied subjects pre-post program. (Table 18 & figure 1, 2)

Part VII: Relation between total knowledge and total practices of the studied subjects and their socio- demographic. (Table 19 to 25)

Part (1): Socio-demographic characteristics of studied subjects

Table (1): Distribution of socio-demographic characteristics of studied patients.

Socio – demographic	Number(51)	Percentage (%)
Age /year		
18 –	2	3.92
20 –	17	33.33
30 –	10	19.61
40 –	22	43.14
Mean± S.D =	37.176 ± 13.535	
Gender		
Male	31	60.78
Female	20	39.22
Marital status		
Single	16	31.37
Married	34	66.67
Widowed	1	1.96
The number of family members		
3 -5	31	60.78
>5	20	39.22
Education		
Illiterate	5	9.80
Primary education	9	17.65
Secondary or equivalent	23	45.10
Intermediate certificate	10	19.61
University	4	7.84
Occupation		
Does not work	3	5.88
house wife	10	19.61
Officer	14	27.45
Pension	2	3.92
Free business	22	43.14
Family income		
Enough and can save	2	3092
Enough only	48	94.12
Not enough	1	1.96

Table (1) denotes that, more than one third 43.14% of studied patients aged 40 years with the mean age 37.177±13.535 years, and more 60.78% of them were males. 66.67% of studied patients were married and the number of family members 60.78% was ranged from 3-5 members. Regarding educational level of studied sample 45% of them had secondary or equivalent education. Most of the studied patients had free business or housewife (43.14% and 19.61%) respectively. The majority of them reported their income were enough 49.12%.

Table (2): Distribution of patients according to their history about present disease.

Disease history	Number (51)	Percentage (%)
Date of onset of disease / year		
<1	43	84.31
1-	7	13.73
2-3 years	1	1.96
Classification of patient for treatment:		
New	42	82.35
Retrograde	8	15.69
Failure	1	1.96
The symptoms in the onset of disease:		
Fatigue	12	23.53
Loss of appetite	36	70.59
Fever	44	86.27
Productive cough	50	98.04
Bloody sputum	15	29.41
Night sweat	24	47.06
Dyspnea	28	54.90
Chest Pain	47	92.16
Weight loss	51	100.00
Investigations that were conducted:		
Skin Test	51	100.00
Chest x-ray	51	100.00
Sputum culture	51	100.00
Blood Analysis	51	100.00
The treatment regime, which is followed:		
Short treatment	50	98.04
Re-treatment system	1	1.96
The number of times admitted to hospital:		
Not once	37	72.55
Once	13	25.49
Twice and more	1	1.96
Increase rest period and reduced daily activity after disease	51	100.00
Other health problems		
Hypertension	4	2.04
diabetes	6	3.06
Follow-up time		
Every two months	51	100.00

Table (2) portray the present medical history of the studied patients, 84.31% of the patients reported they suffer from TB since less than one year and 82.35% of them were classified as new cases. They complain from loss weight, productive cough, chest pain, fever and loss appetite at the onset of disease (100%, 98.04%, 92.16%, 86.27% and 70.59%) respectively. Concerning the investigations conducted to all patients were tuberculin test, sputum culture and blood analysis. 98.04% of patients were followed short treatment regime. Most of them were not admitted to the hospital and quarter of them 25.49% admitted once. All of patients mentioned they reduced their activities and prolonged the rest period. As regard the other health problems 2.04% of patients had hypertension and 30.06% had diabetes. All patients carried follow-up care every two months.

Table (3): Distribution of socio-demographic characteristics of study caregivers.

Socio – demographic (Caregiver)	Number(51)	Percentage (%)
Age /year		
20 –	7	13.73
30 –	19	37.25
40 –	25	49.02
Gender		
Male	3	5.88
Female	48	94.12
Marital status		
Single	1	1.96
Married	49	96.08
Widowed	1	1.96
Education		
Illiterate	17	33.33
Primary education	13	25.49
Secondary or equivalent	18	35.29
Intermediate certificate	3	5.88
Occupation		
Does not work	1	1.96
house wife	42	82.35
Officer	6	11.76
Free business	2	3.92
Place of residence		
with patient	51	100.00
Kinship relation		
husband/wife	26	50.98
daughter/son	5	9.80
mother	20	39.22

Table (3) revealed the socio- demographic characteristics of studied caregivers, 49.02% of caregivers were aged 40 years and more, 94.12% were females and 96.08% of them were married. Concerning the education 35.29% of them had secondary or equivalent education and 84.31% does not work/housewife. All caregivers residents with the patient in same place and 50.98% of them were husband/wife.

Part (II): Home Environmental Condition.

Table (4): The home environmental condition as reported by the patients.

Home condition	Number(51)	Percentage (%)
House condition:		
Separate	48	94.12
Common	3	5.88
Quality of the building:		
Mud	2	3.92
Brick	49	96.08
Numbers of rooms:		
Two	33	64.71
Three and more	18	35.29
Types of the home ground:		
Mud	1	1.96
Court	48	94.12
Armed	2	3.92
Source of drinking water:		
Tap house	51	100.00
Water storage:		
Yes	9	17.65
No	42	82.35
Storage system:		
Covered container	9	100.00
Types of bath room:		
Balady bath room	18	35.29
Ordinary bath room	33	64.71
Sewage system:		
Governmental sewage network	25	49.02
Tanks	26	50.98
The degree of sun exposure:		
Good	21	41.18
Not good	30	58.82
Ventilation:		
Adequate	21	41.18
Not adequate	30	58.82
Garbage disposal:		
Every day	51	100.00

Table (4) illustrated the home environmental condition of the studied patients, 94.12% of the patients lived in separate house, 96.08% of them have brick buildings and 64.71% of them have two rooms. Regarding type of the home ground, 94.12% of the patients have court ground.17.65% of the patients been stored water in covered container and 64.71% of them have balady bath room. Concerning sewage system, almost half 50.98%, 49.02% of the patients had tanks and governmental sewage network. As regard the degree of sum exposure and ventilation were bad and inadequate in more than half of their house 58.82%. All of the studied patients disposed their garbage every day.

Part (III): Patients and caregivers knowledge about TB and methods of prevention pre-post program.

Table (5): Distribution of patient's knowledge about TB (causes, types, and mode of transmission) pre and post program.

Knowledge	Pre		Post		Chi-square	
	N(51)	%	N(51)	%	X^2	P-value
Causative agent of tuberculosis:						
Bacteria	8	15.69	43	84.31		
Virus	19	37.25	8	15.69		
Immunity	0	0.00	0	0.00	52.501	0.001
Idiopathic	1	1.96	0	0.00		
I do not know	23	45.10	0	0.00		
Tuberculosis is burden disease: Yes	38	74.51	47	92.16	5.718	0.017
Tuberculosis is contagious lung disease only: Yes	51	100.00	0	0.00	102.000	0.001
Other system affected by TB:						
Digestive system	0	0.00	51	100.00	102.000	
Urinary system	0	0.00	51	100.00	102.000	
Lymph nodes	0	0.00	50	98.04	98.077	0.001
Meanings	0	0.00	47	92.16	87.164	
Bone	0	0.00	48	94.12	90.667	
Skin	0	0.00	47	92.16	87.164	
Mode of transmission:						
-Inhalation of air loaded tuberculosis germs	4	7.84	51	100.00	87.164	
-Drinking contaminated milk	1	1.96	51	100.00	98.077	
- Use patient tools	14	27.45	48	94.12	47.545	0.001
- Touches the injured skin with the secretions of an infected person	0	0.00	50	98.04	98.077	

Table (5) shows that, at the pre test nearly all patients had poor knowledge about the disease, at post test the patients knowledge increased in all items of knowledge related to causative agent 84.31%, burden of disease 92.16% other system affected by disease 100% and mode of transmission. This improvement was statistically significant (P <0.01).

Table (6): Distribution of patient's knowledge about TB predisposing factors and clinical manifestation pre and post program.

Knowledge	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Predisposing factors						
Direct contact with patients infected with tuberculosis	10	19.61	51	100.00	68.557	0.001
Presence crowded places in homes or public places	0	0.00	50	98.04	98.077	
Malnutrition and lack of proteins and vitamins	24	47.06	51	100.00	36.720	
Some diseases such as HIV (AIDS)	0	0.00	47	92.16	87.164	
Drinking unpasteurized milk or not boiled from infected beef	2	3.92	51	100.00	94.302	
Bad habits such as spitting on the ground, coughing and sneezing in the face of others	8	15.69	47	92.16	60.016	
Clinical manifestations						
General weakness	22	43.14	48	94.12	30.782	0.001
Loss appetite	16	31.37	51	100.00	53.284	
Underweight	1	1.96	48	94.12	86.761	
Fever	40	78.43	51	100.00	12.330	
Night Sweats	3	5.88	48	94.12	79.412	
Cough for more than two weeks	40	78.43	51	100.00	12.330	
Cough with bloody sputum	5	9.80	48	94.12	72.621	
Chest pain	35	68.63	51	100.00	18.977	

Table (6) show that, at the pre-test the minority of the patients had knowledge about predisposing factors, except for malnutrition and lack of protein and vitamins were 47.06% had correct knowledge. Also patients had knowledge about clinical manifestations of disease pre program such as loss weight, cough for more than two weeks, and bloody sputum 78.43%, 78.43% and 68.63% respectively. Their both knowledge has shown statistically significance improvement for both predisposing factors and clinical manifestations of disease post program implementation ($P < 0.01$).

Table (7): Distribution of patient's knowledge about incubation period, vaccination and treatment of TB pre - post program.

Knowledge	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Incubation period						
From 4 - 12 weeks	0	0.00	43	84.31	102.000	0.001
From 6 – 8 weeks	0	0.00	8	15.69		
I do not know	51	100.00	0	0.00		
Vaccine against tuberculosis:						
Yes	26	50.98	51	100.00	33.117	0.001
I do not know	25	49.02	0	0.00		
The drugs used in the treatment of tuberculosis:						
Vitamins	0	0.00	0	0.00	9.871	0.001
Anti-inflammatory	8	15.69	0	0.00		
Antibiotics	42	82.35	51	100.00		
I do not know	1	1.96	0	0.00		

Table (7) presents the patient's knowledge about incubation period, vaccination and treatment of TB pre-post program. The finding showed pre program none of the patients know the incubation period of TB, half of them know their was a vaccine against the disease, also most of patients 82.35% reported antibiotic are the main methods of treatment. Post program implementation there was significance statistical differences in the patients knowledge than pre program about the above mentioned item ($P < 0.01$).

Table (8): Distribution of patient's knowledge about nutrition and methods of prevention pre - post program.

Knowledge	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Types of foods must be eating during the period of illness						
The integrated meal contains (protein + carbohydrates + fats	21	41.18	47	92.16		
Boiled Food	4	7.84	0	0.00		
Increasing foods containing proteins	26	50.98	4	7.84	30.075	0.001
Methods of prevention						
BCG Vaccination	0	0.00	51	100.00	102.000	
Early detection of cases of tuberculosis and treatment and away from patients and to avoid mixing with them	0	0.00	47	92.16	87.164	
Good health habits such as not spitting on the ground and cover your mouth and nose when sneezing or coughing and to refrain from drinking smoking and shisha	3	5.88	50	98.04	86.761	
Early medical examination when you feel symptoms such as coughing for more than two weeks and the increase of temperature	1	1.96	47	92.16	83.269	0.001
Good ventilation of homes and places of work and exposure to the sun	9	17.65	51	100.00	71.400	
Healthy nutrition and exercise	37	72.55	51	100.00	16.227	
Personal hygiene and cleanliness of housing protects against infection	41	80.39	51	100.00	11.087	0.001

Table (8) indicated the patients reported answers about nutrition and methods of preventing TB pre-post program. The results revealed significance statistical difference in patients reported answers pre-post program ($P < 0.01$).

Table (9): Distribution of caregivers' knowledge about causes and mode of transmission of TB pre - post program.

Items	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Causative agent of tuberculosis						
Bacteria	4	7.84	47	92.16	74.810	0.001
Virus	14	27.45	4	7.84		
Immunity	0	0.00	0	0.00		
Idiopathic	2	3.92	0	0.00		
I do not know	31	60.78	0	0.00		
Tuberculosis is burden disease						
Yes	41	80.39	51	100.00	11.087	0.001
No	10	19.61	0	0.00		
Tuberculosis is contagious lung disease only						
Yes	51	100.00	0	0.00	102.000	0.001
No	0	0.00	51	100.00		
If no what are other system affected by TB						
Digestive system	0	0.00	51	100.00	102.000	0.001
Urinary system	0	0.00	48	94.12	90.667	
Lymph nodes	0	0.00	49	96.08	94.302	
Meanings	0	0.00	47	92.16	87.164	
Bone	0	0.00	51	100.00	102.000	
Skin	0	0.00	48	94.12	90.667	
Mode of transmission						
Inhalation of air loaded tuberculosis germs	9	17.65	51	100.00	71.400	0.001
Drinking milk contaminated with germs of tuberculosis	1	1.96	51	100.00	98.077	
The use of patient tools contaminated with infectious Sputum	12	23.53	51	100.00	63.143	
Touches the skin (with the presence of any injuries) with the tools or secretions of an infected person	0	0.00	48	94.12	90.667	

Table (9) shows the caregivers answers about causative agent, burden and effect of disease, the other system affected by TB and mode of transmission pre-post program. According he table nearly or above quarter of the caregivers reported correct answers 27.45% before program about causative agent of TB as well as the mode of transmission 23.53% and none of them reported correct answer about the other system affected by TB. The highest reported correct knowledge was reported after implementation of the program. This difference was statistically significance (P <0.01).

Table (10): Distribution of caregivers' knowledge about predisposing factors and clinical manifestation of TB pre - post program.

Knowledge	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Predisposing factors						
Direct contact with patients infected with tuberculosis	13	25.49	47	92.16	46.790	0.001
Presence crowded places in homes or public places	0	0.00	46	90.20	83.786	
Malnutrition and lack of proteins and vitamins	20	39.22	51	100.00	44.535	
Some diseases such as HIV (AIDS)	0	0.00	46	90.20	83.786	
Drinking unpasteurized milk or not boiled from infected beef	1	1.96	47	92.16	83.269	
Bad habits such as spitting on the ground, coughing and sneezing in the face of others	2	3.92	46	90.20	76.185	
Clinical manifestation						
General weakness	18	35.29	46	90.20	32.882	0.001
Loss appetite	4	7.84	51	100.00	87.164	
Underweight	2	3.92	46	90.20	76.185	
Fever	39	76.47	51	100.00	13.600	
Night Sweats	12	23.53	46	90.20	46.204	
Cough for more than two weeks	37	72.55	51	100.00	16.227	
Cough with bloody sputum	8	15.69	46	90.20	56.824	
Chest pain	20	39.22	50	98.04	40.982	

Table (10) shows the knowledge of the studied caregivers about predisposing factors and clinical manifestations, according to table all caregivers improving their knowledge in predisposing factors immediately after implementing the program as 100%, 92.16%, 92.16% 90.20%, and 90.20% respectively for malnutrition and lack of proteins and vitamins, direct contact with patients infected with TB, drinking contaminated milk from infected beef, crowded places in homes or public places and bad habits.

As regard the clinical manifestation, all caregivers mentioned loss appetite, fever, cough for more than two weeks and they mentioned chest pain, general weakness, loss weight, night sweat, and cough with bloody sputum as 89.04%, 90.20%, 90.20% and 90.20% immediately after implementing the program.

It can be generally notice that there was an improvement of caregiver knowledge in post testing all items related to predisposing factors and clinical manifestations of the disease. This difference was statistically significance ($P < 0.01$).

Table (11): Distribution of caregivers' knowledge about incubation period, vaccination and treatment of TB pre - post program.

Knowledge	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Incubation period						
From 4-12 weeks	0	0.00	46	90.20	102.000	0.001
From 6-8 weeks	0	0.00	5	9.80		
I do not know	51	100.00	0	0.00		
Vaccine against tuberculosis:						
Yes	21	41.18	51	100.00	42.500	0.001
No	0	0.00	0	0.00		
I do not know	30	58.82	0	0.00		
The drugs used in the treatment of tuberculosis:						
Vitamins	2	3.92	0	0.00	18.977	0.001
Anti-inflammatory	10	19.61	0	0.00		
Antibiotics	35	68.63	51	100.00		
I do not know	4	7.84	0	0.00		

Table (11) illustrated the caregivers knowledge about incubation period, vaccination and treatment of TB. according table all caregivers preprogram don't know the incubation period of TB, 41.18% reported presented of vaccine against TB, and more than two third 68.63% mentioned the main treatment was antibiotic. Post implementation of hoe health care program, all of the caregivers reported correct answers about the above mentioned items. The results showed the difference in caregiver knowledge pre-post program was statistically significance ($P < 0.01$).

Table (12): Distribution of caregivers' knowledge about nutrition and methods of prevention of TB pre - post program.

Knowledge	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Types of foods must be eating during the period of illness						
The integrated meal contains (protein + carbohydrates + fats	15	29.41	46	90.20		
Boiled Food	7	13.73	0	0.00		
Increasing foods containing proteins	29	56.86	5	9.80	39.695	0.001
Methods of prevention						
BCG Vaccination	0	0.00	36	70.59	17.586	0.001
Early detection of cases of tuberculosis and treatment and away from patients and to avoid mixing with them	1	1.96	36	70.59	14.529	0.001
Good health habits such as not spitting on the ground and cover your mouth and nose when sneezing or coughing and to refrain from drinking smoking and shisha	2	3.92	34	66.67	14.553	0.001
Early medical examination when you feel symptoms such as coughing for more than two weeks and the increase of temperature	2	3.92	36	70.59	11.929	0.001
Good ventilation of homes and places of work and exposure to the sun	8	15.69	34	66.67	4.292	0.038
Healthy nutrition and exercise	27	52.94	31	60.78	1.933	0.164
Personal hygiene and cleanliness of housing protects against infection	32	62.75	37	72.55	12.829	0.001

Table (12) shows the knowledge about nutrition and methods of preventing TB as reported by the caregivers pre-post program. According to table, a low level of knowledge was reported to nutrition and methods of prevention of TB before implementation of the program. The highest level of knowledge was reported after implementation the program. Among the different items of prevention, caregivers reported their highest knowledge level in preprogram stage 62.75% & 52.95% related to personal hygiene and clean house environment and healthy nutrition as most preventive measures. There was statistically a significance increase of knowledge at the post test (72.55%& 7 60.78%),conversely the lowest knowledge in preprogram test was related to meal should contain protein, carbohydrate and fat 29.41%. this percentage increased in the post test 90.20%, this difference was statistically significance (P<0.001).

Part (IV): Patients and caregivers practice related to TB and methods of prevention pre – post program.

Table (13): Distribution of the practices related to isolation and treatment of TB as reported by the patients pre - post program.

Practices	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Isolation						
There is a private room for patient	34	66.67	34	66.67	0.000	1.000
There are window for ventilation and the entry of the sun room	50	98.04	51	100.00	1.010	0.315
There is a private bathroom for patient	0	0.00	0	0.00		
There is a private equipments for patient:	47	92.16	51	100.00	4.163	0.041
• a special bottle or cup to drink water	47	92.16	51	100.00	4.163	
• eating utensils (plates, spoons)	51	100.00	51	100.00		
• tissue paper	51	100.00	51	100.00		
• private towel for patient	5	9.80	42	82.35	54.019	0.001
• alcohol for cleansing hand	10	19.61	49	96.08	61.152	
• thermometer	8	15.69	42	82.35	45.351	
• face masks						
Wastebasket with cover + plastic bags of garbage	49	96.08	51	100.00	2.040	0.153
Patient's Practice toward treatment system						
The patient taking treatment at the proper time:	50	98.04	51	100.00	1.010	0.315
If No (why):Forget	1	100.00	0	0.00		
The patient finds it difficult to access to medications for tuberculosis	0	0.00	0	0.00		
the patient sometimes absent from the days of his specific follow-up:	17	33.33	9	17.65	3.304	0.069
If yes (why):						
• forget	1	5.88	0	0.00		
• Does not like the days of follow-up	16	94.12	9	100.00	0.551	0.458
The patient follows breathing exercises to reduce the incidence of shortness of breath	1	1.96	43	84.31	70.505	0.001

Table (13) shows the practice of isolation and treatment of TB as observed among the patients pre-post program. According to table, the low level of observed practice related to clean hand with alcohol and follow up breathing exercise 9.80% & 1.905 before implementation of program. The highest level percentage of practice was these observed after program implementation 82.35% & 84.31% this difference was statistically significance (P <0.001).

Table (14): Distribution of the practices related to feeding design as reported by patients pre - post program.

Practices	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Practice toward feeding design						
The number of meals a day:						
two meals	19	37.25	9	17.65	14.885	0.001
three meals	25	49.02	42	82.35		
four meals	7	13.73	0	0.00		
The patient is eating meals at regular intervals:						
Yes	18	35.29	45	88.24	30.264	0.001
Types of food consumed during the period of the disease:						
The integrated meal contains (protein + carbohydrates + fats)	5	9.80	42	82.35	54.128	0.001
Boiled Food	12	23.53	3	5.88		
Increasing foods containing proteins	34	66.67	6	11.76		
Increasing foods containing vitamins	0	0.00	0	0.00		
Increasing foods containing carbohydrates	0	0.00	0	0.00		
Increasing foods containing fats	0	0.00	0	0.00		
Patient eats from the family food:						
Yes	18	35.29	45	88.24	30.264	0.001

Table (14) illustrated the practices about feeding design of studied patients, according to table 82.35% of the patients eating three meals per day, 88.24% eating meals at regular intervals, 82.35% eating the integrated meal contains (protein, carbohydrates and fats) and 88.24% eating from the family food after implementing the program. The results were a statistically significance differences regarding patient's practice toward feeding design before and after implementing the program ($P<0.001$).

Table (15): Distribution of the practices related to methods of prevention as reported by patients pre - post program.

Practices	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Methods of prevention						
The use of tissue to cover mouth and nose during coughing and sneezing						
Yes	51	100.00	51	100.00		
Get rid of the spit correctly in a Container or Plastic bag						
Yes	48	94.12	51	100.00	3.091	0.079
Put of tissues, or disposed of immediately after use in plastic container and put it in the trash						
Yes	51	100.00	51	100.00		
Wash hands after coughing or sneezing						
Yes	6	11.76	43	84.31	53.769	0.001
Wear clothes washed and clean continuously						
Yes	51	100.00	51	100.00		
Get rid of all discharges and waste in the toilet						
Yes	24	47.06	44	86.27	17.647	0.001

Table (15) showed the practices about methods of prevention among the observed patients, according to table all patients get rid of the spit correctly in a container or plastic bag, 84.31% wash hands after cough or sneeze and 86.27% get rid of all discharges and waste in the toilet after implementing the program. The difference in pre-post program about preventive measures of TB was a statistically significance (P <0.001).

Table (16): Distribution of the practices related to isolation, treatment and nutrition as reported by caregivers pre - post program.

Practices	Pre		Post		Chi-square	
	N(51)	(%)	N(51)	(%)	X^2	P-value
Use of face masks and respiratory system when dealing with the patient						
Yes	9	17.65	42	82.35	42.706	0.001
Open the window or use a fan to keep the flow of fresh air and ventilate the house						
Yes	51	100.00	51	100.00		
Work to reduce congestion and the rest of the family members contact with the patient						
Yes	30	58.82	46	90.20	13.215	0.001
Helping the patient in the implementation of the treatment system						
Yes	50	98.04	51	100.00	1.010	0.315
Encourage the patient and go with him days of follow-up						
Yes	50	98.04	51	100.00	1.010	0.315
Attention to nutrition and the application of diet prescribed for the patient						
Yes	20	39.22	45	88.24	26.507	0.001
IF No (Why):						
Diet costly	31	100.00	6	100.00		
Prevent the patient from bad habits (smoking – drinking water pipe)						
Yes	43	84.31	51	100.00	8.681	0.003

Table (16) portray the practices related to isolation, treatment and nutrition among the observed caregivers, according to table all caregivers improving their practices immediately after implementing the program as 100%, 100%, 100%, 90.20%, 82.24% and 82.35% respectively for helping the patient in the implementation of the treatment system, encourage the patient and go with him days for follow-up care, preventing the patient from bad habits (smoking- drinking water pipe) using face masks when dealing

with the patient, working to reduce congestion, and the rest of the family members contact with the patient, attention to nutrition and the application of diet prescribed for the patient and using face masks and respiratory system when dealing with the patient. The difference in pre-post program related to all the above items was statistically significance ($P < 0.001$).

Table (17): Distribution of the practices related to methods of prevention as reported by caregivers pre - post program.

Practices	Pre		Post		Chi-square	
	N(51)	%	N(51)	%	X^2	P-value
Not to participate in the use of patient tools						
Yes	22	43.14	51	100.00	40.521	0.001
Wearing gloves when dealing with respiratory secretions and waste, and when cleaning the home						
Yes	5	9.80	42	82.35	54.019	0.001
Washing the hands before and after dealing with patient:						
Water only	0	0.00	0	0.00	60.563	0.001
With soap and water	51	100.00	13	25.49		
Alcohol cleansing only	0	0.00	38	74.51		
Towel especially for the patient and each family member						
Yes	51	100.00	51	100.00		
Cleaning and washing patient's utensils separate far from the family's Tools						
Yes	20	39.22	45	88.24	26.507	0.001
Cleaned hard surfaces with soap and water or use a common household detergent						
Yes	1	1.96	42	82.35	67.585	0.001
Wash bed sheets, towels and the patient's clothing separate far from family's clothes						
Yes	20	39.22	42	82.35	19.906	0.001
Collecting garbage or waste and disposed every day:						
Used wastebasket and burned it	0	0.00	45	88.24	0.703	0.402
throw rubbish collected in front of the house	42	82.35	0	0.00		
Throw rubbish collected in the canal water	9	17.65	6	11.76		
Cleaning the house and the bathroom is used by the patient daily						
Yes	49	96.08	51	100.00	2.040	0.153
When cleaning the home used:						
Disinfectants as Pfennig and chlorine	36	70.59	51	100.00	17.586	0.001
Water only	13	25.49	0	0.00		
With soap and water	2	3.92	0	0.00		

Table (17) revealed the practices about methods of prevention of the studied caregivers, according to table all caregivers improving their practices

immediately after implementing the program as 100%, 88.24%, 88.24%, 82.35%, 82.35% and 82.35% respectively for avoid use of patient tools, cleaning the house and bathroom used by the patient daily by using disinfectants as pfennig and chlorine, cleaning and washing patient's utensils separate far from the family's tools and collecting garbage or waste and disposed of every day in wastebasket and burned it, wearing gloves when dealing with respiratory secretions and waste, and when cleaning the home, cleaned hard surfaces with soap and water or use a common household detergent and wash bed sheets, towels and the patient's clothing separate far from family's clothes. The difference in pre-post program in caregivers observed the practices of preventive measures when deal with patient was statistically significance ($P < 0.001$).

Figure (1) The total knowledge of the study subjects pre-post program.

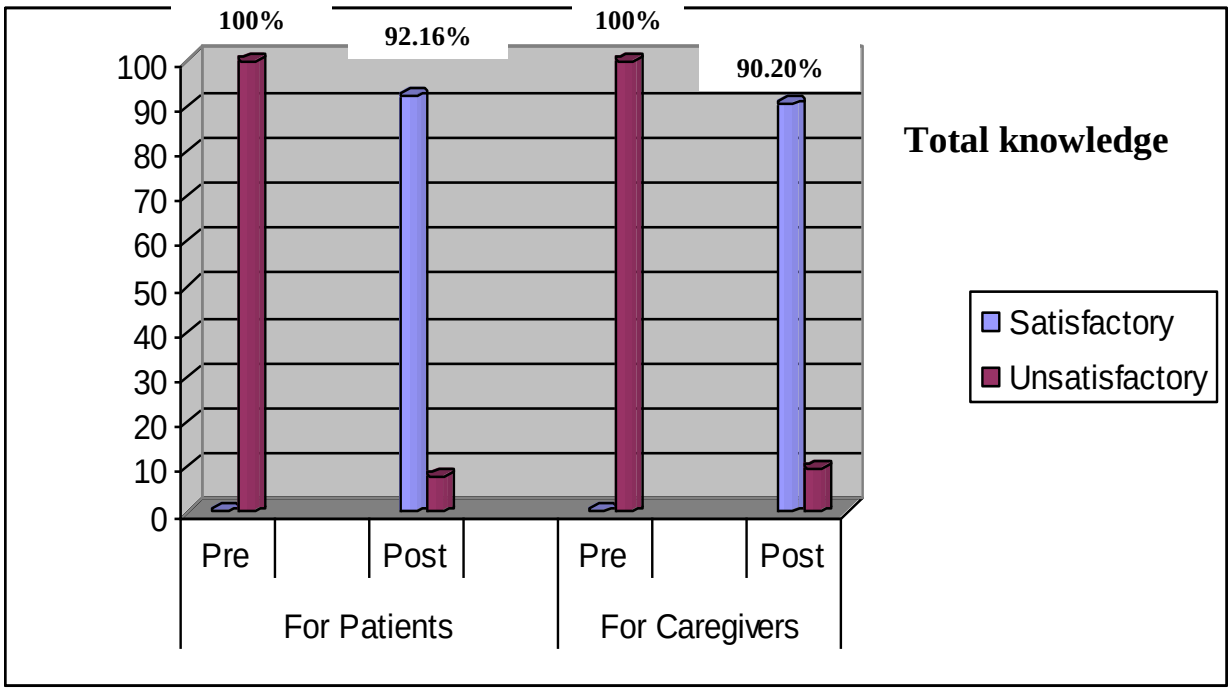

Figure (1) illustrated the total study subjects knowledge about TB pre-post program. The figure revealed that non of the study subjects had satisfactory total knowledge about TB pre program. The study subjects total satisfactory knowledge increased to reach 92.16% for the patient and 90.20% for caregivers pos program. This improvement was statistically significant difference in total caregivers practice pre-post program P = 0.001.

Table (18): Total knowledge as reported by the studied patients pre - post program.

Total practices		Adequate		Inadequate		Chi-square	
		N	%	N	%	X^2	P-value
Pre	isolation and	33	64.71	18	35.29	0.961	0.327
	treatment system	34	66.67	17	33.33	0.176	0.674
	feeding design	29	56.86	22	43.14	32.961	<0.001*
	Methods of prevention	46	90.20	5	9.80	24.020	<0.001*
Post	isolation and	47	92.16	4	7.84	32.961	<0.001*
	treatment system	43	84.31	8	15.69	36.255	<0.001*
	feeding design	48	94.12	3	5.88	36.255	<0.001*
	Methods of prevention	50	98.04	1	1.96	39.706	<0.001*

Table (18) portray the total patients practices in TB management and preventive methods pre-post program. It can be notice that there was a statistically significance differences between pre and post program in patient's total practices (P <0.001).

Figure (2) The total practice of the caregivers pre-post program.

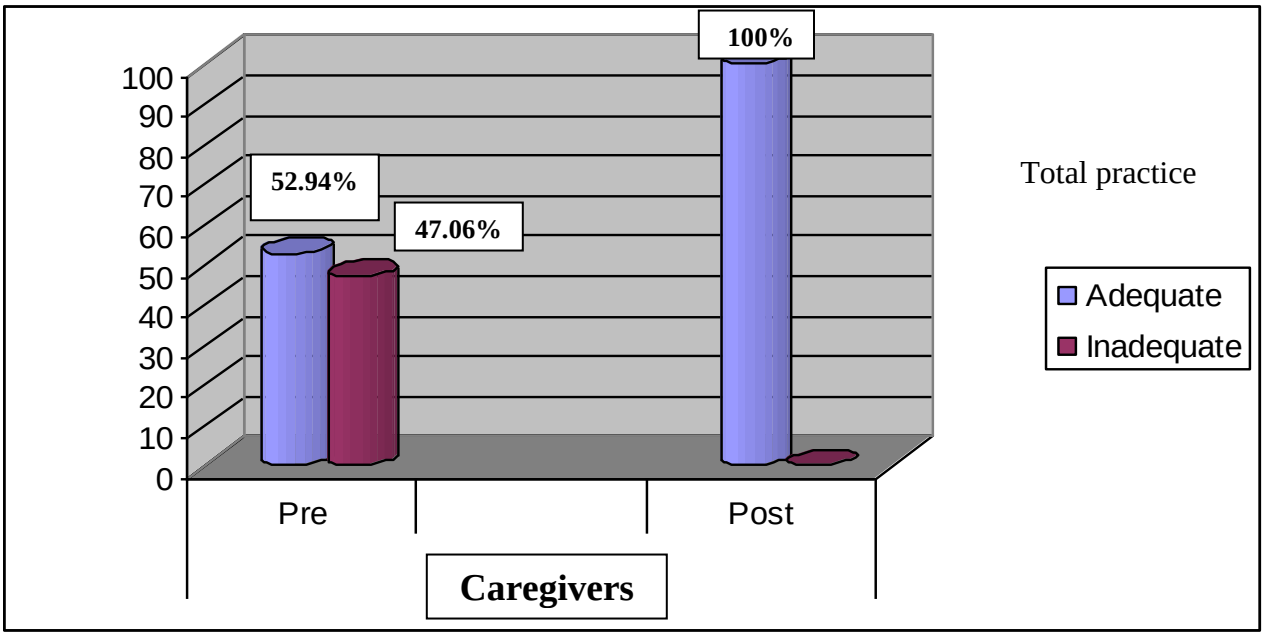

Figure (2) Portray the caregivers total practice pre-post program. The results revealed a significance statistical difference in total caregivers practice pre-post program P =<0.001.

Table (19): Relation between total knowledge and socio-demographics characteristics of the studied patients .

Socio- demographics characteristics	Knowledge				Chi-square	
	Satisfactory		Unsatisfactory			
	N	%	N	%	X^2	P-value
Gender:					2.332	0.127
Male	30	63.83	1	25.00		
Female	17	36.17	3	75.00		
Marital status					0.746	0.689
Single	14	29.79	2	50.00		
Married	32	68.09	2	50.00		
Widowed	1	2.13	0	0.00		
Educational level:					8.713	0.069
illiterate	5	10.64	0	0.00		
primary education	9	19.15	0	0.00		
secondary or equivalent education	22	46.81	1	25.00		
intermediate certificate	7	14.89	3	75.00		
Qualified high	4	8.51	0	0.00		
Occupation:					0.547	0.969
Does not work	3	6.38	0	0.00		
house wife	9	19.15	1	25.00		
officer	13	27.66	1	25.00		
pension	2	4.26	0	0.00		
free business	20	42.55	2	50.00		

Table (19) illustrated that no relation between patient's total knowledge and their socio-demographic characteristics, pre-post program (P <0.005).

Table (20): Relation between total knowledge and socio- demographics characteristics of the studied caregivers.

Socio-demographics characteristics	Knowledge					
	Satisfactory		Unsatisfactory		Chi-square	
	N	%	N	%	X^2	P-value
Gender:						
Male	2	4.35	1	20.00	1.996	0.158
Female	44	95.65	4	80.00		
Marital status:						
Single	1	2.17	0	0.00	0.226	0.893
Married	44	95.65	5	100.00		
Widowed	1	2.17	0	0.00		
Educational level:						
Illiterate	16	34.78	1	20.00	1.646	0.649
primary education	12	26.09	1	20.00		
secondary or equivalent education	15	32.61	3	60.00		
intermediate certificate	3	6.52	0	0.00		
Occupation:						
Does not work	1	2.17	0	0.00	4.419	0.220
house wife	39	84.78	3	60.00		
Officer	5	10.87	1	20.00		
free business	1	2.17	1	20.00		

Table (20) showed that their no statistically significance relation between caregiver's knowledge and their socio-demographic characteristics (P >0.001).

Table (21): Relation between practices about isolation and socio-demographics characteristics of the studied patients.

Socio- demographics	Practices about isolation				Chi-square	
	adequate		Inadequate			
	N	%	N	%	X^2	P-value
gender :						
Male	21	63.64	10	55.56	0.319	0.572
Female	12	36.36	8	44.44		
Marital status:						
single	2	6.06	14	77.78	27.883	<0.001*
married	30	90.91	4	22.22		
Widowed	1	3.03	0	0.00		
Educational level:						
illiterate	5	15.15	0	0.00	4.071	0.397
primary education	6	18.18	3	16.67		
secondary or equivalent education	15	45.45	8	44.44		
intermediate certificate	5	15.15	5	27.78		
Qualified high	2	6.06	2	11.11		
Occupation:						
Does not work	1	3.03	2	11.11	9.684	0.046*
house wife	8	24.24	2	11.11		
officer	12	36.36	2	11.11		
pension	2	6.06	0	0.00		
free business	10	30.30	12	66.67		

Table (21) presents the relation between the patient's practices related to isolation measures during TB pre-post program. It can be notice present of statistically significance relation between isolation practices of patients and their marital status and occupation only (P<0.005).

Table (22): Relation between practices about treatment system and socio-demographics characteristics of the studied patients.

Socio-demographics characteristics	Practices about treatment system				Chi-square	
	adequate		inadequate			
	N	%	N	%	X^2	P-value
Gender:					2.015	0.156
Male	23	67.65	8	47.06		
Female	11	32.35	9	52.94		
Marital status					0.590	0.745
single	11	32.35	5	29.41		
married	22	64.71	12	70.59		
Widowed	1	2.94	0	0.00		
Educational level					6.324	0.176
illiterate	3	8.82	2	11.76		
primary education	8	23.53	1	5.88		
secondary or equivalent education	12	35.29	11	64.71		
intermediate certificate	7	20.59	3	17.65		
Qualified high	4	11.76	0	0.00		
Occupation					0.616	0.961
Does not work	2	5.88	1	5.88		
house wife	6	17.65	4	23.53		
officer	10	29.41	4	23.53		
pension	1	2.94	1	5.88		
Free business	15	44.12	7	41.18		

Table (22) illustrated the relation between the patient's practices related to TB treatment and their socio-demographic characteristics. The results revealed no relation between the patient's practices related to treatment and their socio-demographic characteristics (P >0.005).

Table (23): Relation between practices about feeding design and socio-demographics characteristics of the studied patients.

Socio-demographics characteristics	Feeding design				Chi-square	
	Adequate		Inadequate			
	N	%	N	%	X^2	P-value
Gender Male Female	15	51.72	16	72.73	2.315	0.128
	14	48.28	6	27.27		
Marital status single married Widowed	8	27.59	8	36.36	1.119	0.571
	20	68.97	14	63.64		
	1	3.45	0	0.00		
Educational level Illiterate primary education secondary or equivalent education intermediate certificate Qualified high	5	17.24	0	0.00	7.988	0.092
	4	13.79	5	22.73		
	14	48.28	9	40.91		
	3	10.34	7	31.82		
	3	10.34	1	4.55		
Occupation Does not work house wife Officer Pension Free business	2	6.90	1	4.55	8.398	0.078
	9	31.03	1	4.55		
	6	20.69	8	36.36		
	2	6.90	0	0.00		
	10	34.48	12	54.55		

Table (23) showed there was no statistical relation between patient's nutrition practice their socio-demographic characteristics (P >0.005).

Table (24): Relation between practices about methods of prevention and socio- demographics characteristics of the studied patients.

socio- demographics characteristics	Methods of prevention					
	adequate		inadequate		Chi-square	
	N	%	N	%	X^2	P-value
Gender:						
Male	28	60.87	3	60.00	0.001	0.970
Female	18	39.13	2	40.00		
Marital status:						
Single	14	30.43	2	40.00	0.277	0.871
Married	31	67.39	3	60.00		
Widowed	1	2.17	0	0.00		
Educational level:						
illiterate	4	8.70	1	20.00	3.711	0.447
primary education	7	15.22	2	40.00		
secondary or equivalent education	21	45.65	2	40.00		
intermediate certificate	10	21.74	0	0.00		
Qualified high	4	8.70	0	0.00		
Occupation						
Does not work	2	4.35	1	20.00	6.744	0.150
house wife	10	21.74	0	0.00		
officer	13	28.26	1	20.00		
pension	1	2.17	1	20.00		
Free business	20	43.48	2	40.00		

Table (24) stressed on there was no statistical significant relation between socio-demographic characteristics and their practice related to preventive measures in TB (P >0.005).

Table (25): Relation between total practices and socio- demographics characteristics of the studied caregivers.

Socio- demographics characteristics	Practices					
	adequate		inadequate		Chi-square	
	N	%	N	%	X^2	P-value
Gender:						
Male	2	7.41	1	4.17	0.241	0.623
Female	25	92.59	23	95.83		
Marital status:						
single	0	0.00	1	4.17	2.342	0.310
married	27	100.00	22	91.67		
Widowed	0	0.00	1	4.17		
Educational level:						
illiterate	9	33.33	8	33.33	3.862	0.277
primary education	7	25.93	6	25.00		
secondary or equivalent education	11	40.74	7	29.17		
intermediate certificate	0	0.00	3	12.50		
Occupation:						
Does not work	0	0.00	1	4.17	3.502	0.320
house wife	21	77.78	21	87.50		
officer	4	14.81	2	8.33		
free business	2	7.41	0	0.00		

Table (25) presents the relation between caregiver's socio-demographic characteristics and their total practices when dealing with TB patients. It is noticed that there was significant statistical relation between the caregiver's socio-demographic characteristics and their total practices (P>0.001).