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IMPACT OF NURSE-LED HEALTH EDUCATION INTERVENTION ON COMPLIANCE LEVEL OF ANTI-TUBERCULOSIS DRUG TREATMENT AMONG TB PATIENTS IN HOSPITALS, NIGERIA.

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ABSTRACT

This study assessed the impact of nurse-led health education on the compliance level of anti-tuberculosis drugs among patients in referral hospitals in Nigeria. A quasi-experimental design involving a control group pre-test-post-test involving was employed, and a sample of 194 was drawn from the two total populations of 339 patients using purposive and simple random techniques. Self-developed questionnaires and checklists were the instruments for data collection. The pre-post-test were administered to both the intervention and control groups while only the intervention group received nurse-led health education. Descriptive and inferential statistics were used, inferential statistics were used to compare the groups and test the effects of the intervention on the compliance level of the participants. Baseline findings revealed that participants in both groups showed a very poor level of compliance [Control. (9.0%), Interventions. (6.0%). The compliance level with the PTB drug regimen was found to be significantly higher in the intervention group than in the control group post-intervention [int. (90.6%), con. (16.2%)] at $p < 0.05$. Nurse-Led health education had a significant effect on compliance with the TB drug regimen ($p < .001$). There was a statistically significant difference in the compliance level of the intervention group before and after the health education intervention ($t = 18.86$, $p = 0.000$ at $p < 0.05$). Health education has a significant impact on compliance levels. There is a need to provide psychological counselling and TB education strategies should be made available in each referral centre.

1. INTRODUCTION

Tuberculosis is a stern and lingering necrotizing contagious ailment caused by a type of bacterium known as Mycobacterium tuberculosis. Pathologically, TB is characterised by inflammatory alterations, caseation, tubercle development, and fibrosis [1]. It is rated the second most common infectious killer after COVID-19 and the 13th greatest cause of mortality globally [2]. Multidrug-resistant tuberculosis continues to be a public health emergency and a security danger in the life of patients living with TB [2]. Treatment compliance level

is a measure of how actively TB patients manage their own health as well as the degree of communication between them and their healthcare providers. The development of drug resistance to anti-TB medications is linked to ineffective treatment, which may be brought on by a number of factors including patient disobedience, a medical error, insufficient drug supply, drug malabsorption, and/or organisational failure [3].

Nigeria is the sixth in the world among countries with the most burden of Tb cases with a 4.4% infection rate followed by Bangladesh and the Republic of Congo [2], this rate become worrisome owing to the economic downdraught, cost of TB drug treatment, inequality in health care and health disparity of Nigeria. The biggest problem facing today's health practitioners managing TB patients is likely drug treatment compliance, which may be quite worrying and frustrating. According to a study in southwest Nigeria, the inability to access healthcare facilities and the difficulty of paying for treatment are the main causes of poor drug adherence [4], henceforth, a crucial aspect of the fight against TB remains health education on compliance to the treatment regimen. Nigeria has a 123/100 incidence rate for TB and a 76/100,000 mortality rate. This continues to be a significant issue for Nigeria and calls for action that can be effectively met with the help of Nurse-led health education regarding tuberculosis, [5].

Nurse-Led Health Education infers the health education given by Nurses to PTB patients with the aim of changing their attitudes and behaviour towards compliance with Tuberculosis drug regimens in order to ensure better treatment outcomes. To a significant part, nurses-led health education for TB patients helps them comprehend their health status, illnesses, duration, medications, and treatments, which will lead to improved compliance with the recommended treatment schedule [6]. More so, it is expected that TB patients comply and take the anti-tuberculosis medications as directed for the long-specified duration of six to nine months in order to successfully treat the infection, prevent mortality, eradicate the spread of TB infection and thereby reduce the economic burden of TB infections. In the literature, a number of reasons are discussed, including a lack of knowledge about TB information, poor income, travel time to the facility, and prescription adverse effects [7]. Consequently, patients with PTB may not be aware of the value of following the anti-TB regimen and the necessity of treatment, according to this. A nurse-led health education programme that is effective is needed to overcome this shortfall, which appears to be lacking in Nigeria's TB referral hospitals. This suggests that the patients with PTB do not understand the importance of compliance with the anti-TB regimen and the need for treatment. This deficit that seems to emanate from ignorance needs to be addressed through effective Nurse-Led health education which seems to be lacking in the referral hospital in Nigeria. Notwithstanding these known reasons, there is a paucity of empirical evidence on the impact of Nurse-led education on TB. Hence, the need for this study. The study was aimed at the impact of nurse-led health education intervention on the compliance level of anti-tuberculosis drug treatment among TB patients in hospitals, in Nigeria.

2. Materials and method

2.1 Research Design

Quasi-experimental design involving a pretest-posttest-control group experimental design was conducted from May to September 2021. The before and after design involves treatment and a control group of participants is observed before and after the implementation of intervention groups. The research location was carried out in Delta State, Nigeria.

2.2 Population and Sample size

A sample size of 194 patients was drawn from the total population of 339 tuberculosis patients from the two referral Tb centres, using a population formula of power analysis [8]. Convenient and simple proportionate

sampling was used to select the TB referral centres and participants who were diagnosed with pulmonary tuberculosis and registered for treatment in the month of May to September 2021, within 15-65 years of age and who are physically and mentally stable.

2.3 Instrument for data collection

Data were gathered using an observation checklist and a self-developed validated questionnaire. The questions evaluated degrees of compliance to drug treatment and were both open-ended and closed-ended. The survey was divided into two parts: sections A and B, each of which had ten (10) questions on sociodemographic traits and seventeen (17) closed-ended questions on drug treatment compliance. Before collecting data, each participant provided their informed consent, which the research and ethics committee of the Ministry of Health Asaba, Delta State, approved.

2.4 Procedure/ Training/1ntervention

The instrument was administered to participants who met the inclusion criterion. A specific day in a week (Wednesday) was chosen for visiting the tuberculosis centre and the participants were accessed in between medical care. Information concerning the study was provided to the participants and written consent was also obtained. Those who met the inclusion criteria were recruited and the instrument was administered to both the intervention and control groups to serve as the baseline (pre-test) data. Clarifications were provided to participants who needed explanations and the completed questionnaire was collected on the spot. The intervention protocol was the administration of a Nurse-Led education package to the participants in the intervention group. The training was repeated after two weeks for emphasis to ensure that the participants understand the importance of the TB health information presented to them. One-month interval after the administration of the intervention package, the intervention and control groups were exposed to post-intervention evaluation to measure the effectiveness of the package. However, to increase and solidify learning, IEC materials such as projectors, posters, infographics, brochures, and role plays were utilised. Participants in the intervention group received the health education materials for four (4) consecutive weeks. The same instrument used to administer during the pre-intervention phase was used on both the intervention and control groups to measure the effectiveness of Nurse-Led health education on drug compliance if any

2.5 Data analysis

The data were analyzed using descriptive statistics such as means, standard deviations, frequencies, and percentages. The overall compliance level to drug treatment of pulmonary tuberculosis among the participants was measured by computing the average percentage of their responses to variables that measured good compliance (always) as against those that showed poor compliance (often, sometimes and never).

Inferential statistics were then used to compare the groups and test the impact of the intervention on the compliance level of the participants. An Independent sample t-test with Levene's test for equality of variances was used for comparison between the intervention and control group while paired sample t-test was used for comparison between the mean difference in the compliance level in the intervention group before and after the health education intervention. A probability value less than 0.05 was considered statistically significant.

3. Results

Table 1 presents the socio-demographic characteristics of the participants. The mean age of the participants was 42 years (SD±15.7) and 36 years (SD±12.3) for the control and intervention groups respectively. There were more males in the control group than in the intervention group (64.4% and 40.5% respectively) while those who were married were in the majority in both groups (56.7% and 50.0% respectively). They were predominantly Urhobos and Christians in both groups [Urhobo: control (74.4%) and intervention (46.4%);

Christian: control (94.4%) and intervention (92.8%)]. A greater proportion had secondary education as the highest educational attainment in both groups (55.6% and 50.0% for control and intervention groups respectively). The proportion of those who were self-employed was higher in the control group than in the intervention group (54.4% and 45.6% respectively). The majority of those in the control group lived far from the referral centre as compared to those in the intervention group (71.1% and 48.9%). There was a preponderance of those who were living with their family members in both groups (70.0% and 77.8% respectively.

Table 1: Socio-demographic Characteristics of the Participants

Variables	Options	Control (n = 90)	Intervention (n = 84)
Age	≤ 20	9 (10.0)	9 (10.7)
	21 – 30	14 (15.6)	22 (26.2)
	31 – 40	23 (25.6)	27 (32.1)
	41 – 50	17 (18.9)	11 (13.1)
	≥ 51	27 (30.0)	15 (17.9)
Mean (±SD) age		***42 ± 15.7***	***36 ± 12.3***
Gender	Male	58 (64.4)	34 (40.5)
	Female	32 (35.6)	50 (59.5)
Marital status	Single	34 (37.8)	34 (40.4)
	Married	51 (56.7)	42 (50.0)
	Separated	3 (3.3)	4 (4.8)
	Divorce	2 (2.2)	4 (4.8)
Tribe	Urhobo	67 (74.4)	39 (46.4)
	Itsekiri	4 (4.4)	14 (16.7)
	Igbo	7 (7.8)	8 (9.5)
	Yoruba	1 (1.1)	4 (4.8)
	Hausa	0 (0)	4 (4.8)
	Others*	11 (12.2)	15 (17.9)
Religion	Christianity	85 (94.4)	78 (92.8)
	Islam	2 (2.2)	5 (6.0)
	African traditional religion	3 (3.3)	1 (1.2)
Education	Primary	23 (25.6)	16 (19.0)
	Secondary	50 (55.6)	42 (50.0)
	Tertiary	11 (12.2)	19 (22.6)
	None	6 (6.7)	7 (8.3)
Occupation	Employed	14 (15.6)	24 (28.5)
	Self-employed	49 (54.4)	35 (41.7)
	Unemployed	15 (16.7)	11 (13.1)
	Student	12 (13.3)	14 (16.7)
Place of residence	Close to the referral centre	26 (28.9)	43 (51.2)
	Far from the referral centre	64 (71.1)	41 (48.8)
Living situation	Living alone	27 (30.0)	20 (23.8)
	Living with family	63 (70.0)	64 (76.2)

* Others - Ukwuani, Isoko, Anang, Agbor, Okpe (control)/ Ijaw, Izon, Edo, Isoko, Isan (intervention)

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Table 2, findings showed that the overall compliance level to the PTB drug regimen among the participants was generally low before the health education intervention in both groups. Those whose TB drugs were always available were lower in the control group than in the intervention group [con. (8.9%), int. (5.6%)]. A greater proportion of those in the intervention group was revealed to take the correct dosage of medication as prescribed even though this was low in both groups [con. (8.9%), int. (5.6%)]. The intervention group showed greater compliance to taking the tuberculosis drugs at the appropriate time than those in the control group [con. (2.2%), int. (5.6%)]. However, the level of compliance in both groups was found to be significantly low. A low proportion of the participants were found to strictly comply with the tuberculosis treatment regimen due to the desire to stay alive [con. (3.3%), int. (5.6%)]. Those who were found to discontinue medication because of the feeling of side effects were more in the intervention group than in the control group [con. (2.2%), int. (5.6%)]. However, it was found to be significantly low in both groups. Generally, a greater proportion of those in the intervention group was observed to exhibit poor compliance to the drug treatment of pulmonary tuberculosis than those in the control group at the pre-intervention phase [Poor compliance: con. (9.0%), int. (6.0%) at $P < 0.01$].

Table 2: Compliance Level to Drug Treatment of Pulmonary Tuberculosis at Referral Hospital Before Health Education Intervention (n = 90)

Characteristics	Control (n = 90)				Intervention (n = 90)			
	Always	Often	sometimes	Never	Always	Often	sometimes	Neve
always available	2 (2.2)	0 (0)	80 (88.9)	8 (8.9)	7 (7.8)	6 (6.7)	20 (22.2)	57 (63
losis medication daily as prescribed	8 (8.9)	0 (0)	81 (90.0)	1 (1.1)	5 (5.6)	9 (10.0)	68 (75.6)	8 (8.9
ect dosage of my medication as	2(2.2)	0 (0)	87 (96.7)	1(1.1)	5 (5.6)	9 (10.0)	69 (76.7)	7 (7.8
s drugs at the appropriate time	3 (3.3)	0 (0)	86 (95.6)	1 (1.1)	5 (5.6)	5 (5.6)	70 (77.8)	10 (11
with the Tuberculosis treatment e desire to stay alive	2(2.2)	1(1.1)	84 (93.3)	3 (3.3)	5 (5.6)	7 (7.8)	68 (75.6)	10 (11
doctors' appointments because I tment	4 (4.4)	3 (3.3)	72 (80.0)	11 (12.2)	9 (10.0)	4 (4.4)	71 (78.9)	6 (6.7
fficulty remembering to take my	17 (18.9)	7 (7.8)	44 (48.9)	22 (24.4)	34 (37.8)	0 (0)	49 (54.4)	7 (7.8
loses of the medications due to	9 (10.0)	7 (7.8)	58 (64.4)	16 (17.8)	56 (62.2)	0 (0)	29 (32.2)	5 (5.6
ped taking my TB drug when I feel lief*	4 (4.4)	6 (6.7)	64 (71.1)	16 (17.8)	64 (71.1)	0 (0)	20 (22.2)	6 (6.7
ed about Tuberculosis on the ground y on its own with time*	5 (5.6)	3 (3.3)	74 (82.2)	8 (8.9)	65 (72.2)	1 (1.1)	19 (21.1)	5 (5.6
rug administration due to non-visible	4 (4.4)	4 (4.4)	76 (84.4)	6 (6.7)	68 (75.6)	0 (0)	16 (17.8)	6 (6.7
medication because of the feeling of as hearing problems e.g. a tingling	3 (3.3)	3 (3.3)	82 (91.1)	2 (2.2)	69 (76.7)	1 (1.1)	15 (16.7)	5 (5.6
tration of Traditional Drugs*	3 (3.3)	4 (4.4)	81 (90.0)	2 (2.2)	70 (77.8)	1 (1.1)	15 (16.7)	4 (4.4
duled Doctor's appointment when I	3 (3.3)	4 (4.4)	69 (76.7)	14 (15.6)	71 (78.9)	0 (0)	16 (17.8)	3 (3.3
Overall compliance	***Good compliance (9.0%)*** ***Poor compliance (91.0%)***				***Good compliance (6.0%)*** ***Poor compliance (94.0%)***			

* Variables analysed in reversed form; Overall compliance- an average of all variables that measure compliance (always) and non-compliance a – Paired samples test (level of significance at $p < 0.05$)

From Table 3, there was an observed increase in compliance with the availability of TB drugs among

participants in the intervention group than for those in the control group after the health education intervention [con. (5.6%), int. (94.0%)]. Those who took their tuberculosis medication daily as prescribed were found to be higher in the intervention group than in the control group [con. (8.9%), int. (95.2%)]. The intervention group showed higher compliance with taking the correct dosage of my medication as prescribed [con. (7.8%), int. (92.9%)]. However, both groups showed increased compliance levels in strictly complying with the tuberculosis treatment regimen due to the desire to stay alive [con. (83.3%), int. (95.2%)] as well as keeping scheduled doctors' appointments because they believed in the treatment [con. (87.8%), int. (92.9%)].

A lesser proportion of those who were in the intervention group was found to experience difficulty in remembering to take medication than those in the control group [con. (96.7%), int. (20.2%)] and were less likely to skip some doses of the medications due to forgetfulness [con. (96.7%), int. (11.9%)]. Those who stopped taking their TB drug when they felt their condition was relieved were more in the control group than in the intervention group [con. (94.4%), int. (11.9%)].

The tendency to discontinue drug administration due to non-visible improvement as well as due to feeling of side effects was lower in the intervention group than in the control group post-intervention [non-visible improvement: con. (100.0%), int. (9.6%); side effects: con. (94.4%), int. (10.7%)]. Preference for the administration of traditional drugs was higher among those in the control group than those in the intervention group [con. (96.7%), int. (9.3%)]. A greater proportion of those in the control group was found to skip scheduled doctor's appointments when they felt better than those in the intervention group after the health education intervention [con. (97.8%), int. (9.5%)]. Generally, the compliance level to the PTB drug regimen among the participants was found to be significantly higher in the intervention group than in the control group after the health education intervention [int. (90.6%), con. (16.2%)] at $P < 0.01$.

Table 3: Compliance Level to Drug Treatment of Pulmonary Tuberculosis at Referral Hospital After Health Education Intervention

Characteristics	Control (n = 90)				Intervention (n = 84)			
	Always	Often	Sometimes	Never	Always	Often	Sometimes	N
lways available	5(5.6)	81 (91.1)	5(5.6)	1 (1.1)	79 (94.0)	3 (3.6)	1 (1.2)	1 (
osis medication daily as prescribed	8 (8.9)	84 (93.3)	6 (6.7)	0 (0)	80 (95.2)	1 (1.2)	2 (2.4)	1 (
osage of my medication as prescribed	7 (7.8)	77 (85.6)	3 (3.3)	3 (3.3)	78 (92.9)	2 (2.4)	2 (2.4)	2 (
drugs at the appropriate time	7 (7.8)	77 (85.6)	3 (3.3)	3 (3.3)	80 (95.2)	0 (0)	2 (2.4)	2 (
with the tuberculosis treatment desire to stay alive	75 (83.3)	2 (2.2)	3 (3.3)	10 (11.1)	80 (95.2)	1(1.2)	1 (1.2)	2 (
doctors' appointments because I ment	79 (87.8)	1 (1.1)	4 (4.4)	6 (6.7)	78 (92.9)	3 (3.6)	1 (1.2)	2 (
fficulty remembering to take my	16 (17.8)	70 (77.8)	1 (1.1)	3 (3.3)	8 (9.6)	4 (4.8)	5 (6.0)	67 (
oses of the medications due to	5 (5.6)	74 (82.2)	8 (8.9)	3 (3.3)	4 (4.8)	4 (4.8)	2 (2.4)	74 (
ed taking my TB drug when I feel my	7 (7.8)	77 (85.6)	1 (1.1)	5 (5.6)	4 (4.8)	4 (4.8)	2 (2.4)	74 (
d about tuberculosis on the ground y on its own with time*	4 (4.4)	78 (86.7)	3 (3.3)	5 (5.6)	5 (6.0)	5 (6.0)	3 (3.6)	71 (
ug administration due to non-visible	3 (3.3)	83 (92.2)	4 (4.4)	0 (0)	4 (4.8)	2 (2.4)	2 (2.4)	76 (
medication because of the feeling of as hearing problems e.g. Tingling	3 (3.3)	82 (91.1)	3 (3.3)	2 (2.2)	2 (2.4)	2 (2.4)	5 (6.0)	75 (
ration of traditional drugs*	3 (3.3)	80 (88.9)	4 (4.4)	3 (3.3)	3 (3.6)	2 (2.4)	2 (2.4)	77 (

d doctor's appointments when I am	3 (3.3)	79 (87.8)	6 (6.7)	2 (2.2)	2 (2.4)	4 (4.8)	2 (2.4)	76 (
Overall compliance		***Good compliance (16.2%)***				***Good compliance (90.6%)***		
		Poor compliance (83.8%)				***Poor compliance (9.4%)***		

* Variables analysed in reversed form

* Overall compliance- average percentage of all variables that measure compliance (always) and non-compliance a – Paired samples test (level of significance at $p < 0.05$)

Table 4 showed the difference in the compliance level to drug regimen to PTB drug regimen between the control and intervention groups after the health education intervention. Findings from the independent sample difference showed that the mean compliance level for participants in the intervention group was higher than for those in the control group [con. (1.14±0.49), int. (1.89±0.35). This suggests that there was a greater compliance level to drug regimen among participants in the intervention group after the health education intervention. Further findings showed that there was a significant difference in the compliance level to drug regimen to the PTB drug regimen between the two groups after the health education intervention (t = -7.853, P = 0.000 at $P < 0.05$).

Table 4: Difference in the Compliance Level to Drug Regimen to PTB Drug Regimen Between the Two Groups After Health Education Intervention

	Group	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Compliance level	Control group	90	1.14	0.49	0.05
	Intervention group	84	1.89	0.35	0.03

* Group Statistics

Independent Samples Test

		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Diff.	95% C.I. Lower	95% C.I. Upper
Compliance level	Equal variances assumed	82.909	.000	-7.853	178	.000	-0.49	0.06	-0.61	-0.37
	Equal variances not assumed			-7.853	155.75	.000	-0.49	0.06	-0.61	-0.37

* Independent sample t-test at $P < 0.05$

Table 5 showed the variation in the compliance level to drug regimen to PTB drug regimen in the intervention group before and after the intervention. Findings from the paired difference of the mean of the pre-test and post-test compliance level in the intervention group revealed that the compliance level for respondents in the intervention group at the post-intervention phase was higher than for those at the pre-intervention phase [Pre-test: int. (1.07±0.25); Post-test: int. (1.87±0.34). Further findings showed that there was a significant variation in the compliance level to the PTB drug regimen in the intervention group before and after the health education intervention (t = 18.86, P = 0.000 at $P < 0.05$).

Table 5: Difference in the Compliance Level to PTB Drug Regimen in the Intervention Group before and After Health Education Intervention (n = 90)

Outcome variable	*Mean*	*N*	*SD*	*Paired differences*					
				Mean	*SD*	*95% C.1*	*t*	*df*	*P-value*
Compliance (pre-test)	1.07	90	0.25	-0.80	0.42	0.88 – 0.72	-18.86	89	.000*
Compliance (post-test)	1.87	84	0.34						

* Paired sample t-test at P < 0.05

4. Discussion

4.1 Compliances Level to Drug Treatment of Pulmonary Tuberculosis Before and After.

The baseline compliance level in the present study showed that participants displayed very poor compliance levels in both groups although, there was a lesser compliance level in the intervention group than in the control group, this is because the intervention group showed only a six per cent compliance level while the control group demonstrated nine percentage compliance level before Nurse-led health education intervention. The control group showed a greater percentage of compliance by taking the correct dose of their medication as prescribed, taking medication at the appropriate time and complying due to the desire to stay alive, while the intervention demonstrated their compliance level by taking their drugs at the appropriate time, taking the correct dose of medication as prescribed and complying due to the desire to stay alive. The intervention demonstrated non-compliance to the treatment regimen by always skipping scheduled doctor's appointments when feeling better, discontinuing medication because of side effects, discontinuing due to non-invisible improvement, believing that tuberculosis will go away with time and discontinuing drugs when feeling better. Additionally, more than half of the participants in the intervention group affirmed that their drugs are never available while only two per cent of the control affirmed that their drugs are never available. The explanation for the above baseline findings could be that the control group referral centre had nurses or health care personnel that often educate them on the importance of compliance to their drug regimen each time they visit on their clinic days while the intervention centre may have health care professional who does not reinforce the importance of compliance, or it could be personal issues or other unseen factors that are affecting their compliance. Hence, intervention should be tailored to both health practitioners and patients. Findings were similarly observed by studies done in Lagos Nigeria, Ababa Ethiopia and china by [9- 11], which reported a poor level of adherence between intervention and control at baseline.

However, The Nurse-led TB health education interventions had a significant effect on the intervention group ($p < .001$), the intervention showed an appreciative compliance level of ninety per cent(90.6%), by demonstrating higher positive behaviours toward drug regimen than the control group ($p < .001$), such as by always taking TB medication as prescribed, strictly complying with the treatment regimen with the desire to stay alive, keeping doctor's appointment and taking the correct dose of drugs at the right time although the control group showed little upsurge of compliance from nine per cent to sixteen per cent, they still demonstrated negative behaviours toward their drug regimen, such as always discontinue medication due to non-visible improvement, discontinue due to feeling of side effects like hearing problem, not bothering and believing that TB will go away with time and skipping some doses of medications due to forgetfulness.

The present finding revealed the change in the level of compliance from pre-intervention to post-intervention by Nurse-led health education intervention which shows improved positive behaviours in the participants that

received the intervention than those participants that did not receive TB education intervention. The level of compliance to taking anti-TB medication in the study was quite impressive (90.6%) hence Nurse-led TB education remains a critical factor to promote medication adherence among the TB patient. The finding is in agreement with studies done in Kenya, Bangladesh and China [13], [14], [11], that reported that medication adherence significantly improved among the intervention group than the control group. There is an enormous connection between the present study with that of the previous studies that showed that health education intervention has an impact on changing patients' behaviours towards compliance with medication regimens. Hence, continuous TB education training should be provided to the doctors, nurses and other health care professionals emphasising the need for nonstop patient TB teaching in the clinic days.

4.2 Comparing the difference in the Compliance Level to Drug Regimen to PTB Drug Regimen Between the intervention and control groups After Health Education Intervention.

Findings from the independent sample difference showed that the mean compliance level for participants in the intervention group was higher than for those in the control group. This proposes that there was a greater compliance level to drug regimen among participants in the intervention group after the health education intervention.

Additionally, there was a statistically significant relationship between the level of compliance to drug regimen to PTB drug regimen between the control and intervention groups after the health education intervention ($t = -7.853$, $P = 0.000$ at $P < 0.05$). Findings imply that the level of compliance to treatment regimen was significant between the two groups, hence the predicted null hypothesis in the study could not stand rather, the alternative hypothesis stands. The findings are in agreement with the discoveries of Nigerian and Bangladesh studies [9], [14] that observed a significant association between the intervention and control groups and greater compliance to medication regimen among the intervention than the control groups.

4.3 Comparing the difference in the Compliance Level to PTB Drug Regimen in the Intervention Group before and After Health Education Intervention.

Findings from the paired difference of the mean between the pre-test and post-test compliance levels of the intervention group revealed that the compliance level of the participants in the intervention group in the post-intervention phase was greater than the compliance levels in the pre-intervention phase. Moreso, there was a statistically significant difference in the compliance level with the PTB drug regimen of the intervention group before and after the health education intervention ($t = 18.86$, $P = 0.000$ at $P < 0.05$). Hence, the null hypothesis could not hold, and the alternative hypothesis stands.

The present study findings entail there is a substantial relationship between the intervention pretest and post-test. PTB education should be a compulsory morning activity at each referral Centre. Continuous teaching of PTB will re-enforce learning, as well as promote adherence to medication adherence among TB patients. Findings are in correspondence with the findings of a study done in Bangladesh by [14] that find out that increasing adherence to medication was significantly more advanced after post-intervention than pre-intervention. It is also similar to reports of [10] that reported that PTB education resulted in significant differences before and after the intervention. The present study findings showed that improving access to quality healthcare services should be enhanced through the capacity of human resources, and continuous training of TB healthcare workers to be able to train their patients at the referral centres.

5. Conclusion

Nurse-Led health education had a significant effect on compliance with the TB drug regimen. There was a statistically significant difference in the compliance level of the intervention group before and after the health

education intervention. Health education has a significant impact on compliance levels. There is a need to provide psychological counselling and TB education strategies should be made available in each referral centre.

6. References

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