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Influences of Education and Counselling on Prompt Initiation of Treatment Among People Living with Tuberculosis in the Volta Region, Ghana

Anthony Edward Boakye[1]* and Rita Tekpertey[2]

[1]Department of Health, Physical Education and Recreation, University of Cape Coast, Cape Coast, Ghana

[2]Department of Biostatistics and Epidemiology, University of Health and Allied Sciences, Ho, Ghana

ABSTRACT

Background: Education and counselling of people with TB play an important role by instilling an understanding of risk factors and the impact of bad habits, the skills necessary for a responsible attitude to one's health, self-preservation behaviour, and, thus, initiating prompt treatment to a successful completion — in other words, a cure.

Objective: This study attempts to investigate the influences of education and counselling on prompt initiation of treatment among people living with tuberculosis in the Volta Region, Ghana.

Methods: Descriptive cross-sectional design was employed with 400 participants. Frequency distribution, Pearson's chi-squared test of independence and binary logistic regression were used to analyse the data.

Results: Medication dosage was statistically significant related to prompt initiation of tuberculosis treatment at p=0.002, (OR=3.569, 95%CI ([1.604-7.942]). Appointment schedules and risk percentages was statistically significant at P=0.000, (OR=4.926, 95%CI [2.335-10.389]). Self-care, communication and advocacy skills was statistically significant at p=0.02, (OR=3.569, 95%CI [1.604-7.942]).

Conclusion: The study recommends that patients should endeavour to join the education that goes on during hospital visit for it supports their access to high-quality care, controls their overall healthcare spending and improves their literacy outcomes. It also allows them partner with their doctors in their healthcare journey.

***Corresponding author**
Anthony Edward Boakye, Department of Health, Physical Education and Recreation, University of Cape Coast, Ghana.
ORCID 0000-0002-4017-8351; (Anthony Edward Boakye), ORCID 0009-0008-0418-3496; (Rita Tekpertey).

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Abbreviations
TB: Tuberculosis
NTEP: National Tuberculosis Elimination Programme

Introduction

Tuberculosis (TB) is a deadly disease if not treated, but curable with the right treatment [1-3]. Therefore, prompt initiation of treatment of people with TB disease is recommended to reduce TB transmission to health workers, persons attending health care settings or other persons in settings with a high risk of transmission [4]. Patients Education plays a vital role in treatment of TB [5-8]. It is associated not only with communication and provision of information but also with the development and strengthening of motivation, skills, and confidence [self-efficacy] necessary for activities that improve health [9-11]. Education includes the communication of information concerning the underlying socioeconomic and environmental conditions that affect health, as well as individual risk factors, risk behaviours, and the use of the health system [12,13]. The global goal is to reduce the burden of TB in the world [14,15]. This is achieved primarily by curing people with TB [16].

Education and counselling of people with TB play an important role by instilling an understanding of risk factors and the impact of bad habits, the skills necessary for a responsible attitude to one's health, self-preservation behaviour, and, thus, initiating prompt treatment to a successful completion — in other words, a cure [17,18]. People on TB treatment do not always have good and sufficient information about their health status, what to expect during treatment, and how to take care of themselves. Further, people hear many myths about treatment and recovery [19]. To help people with TB promptly initiate the required therapy, it is important for them to receive evidence-based information [17].

Counselling aims at providing information, listening to, and supporting the patient so that, the patient is well informed, helped to make the necessary decisions and be able to promptly initiate treatment [20]. Counselling before initiating treatment for a patient is an important component of the National TB Elimination Programme [NTEP] [17,21,22]. An informed and counselled patient will be better able to initiate prompt treatment [23,24]. Hence, counselling plays a significant role in providing TB patients with complete and accurate knowledge about the nature of TB, its drugs' side effects etc. [17].

These patients require lot of psychological support as there is lot of stigma associated with TB which does prevents people with TB disease not to access treatment for the fear of being discriminated and isolated within their community [25-28]. TB patients and their families also need to be educated regarding consequences of incomplete or inadequate treatment [e.g., development of Drug-Resistant TB] [29,30] and require ongoing counselling to motivate them to strictly and promptly initiate and adhere to drug regimen [31]. Helping clients overcoming barriers to completion of TB treatment is the foundation of effective counselling. Patients who receive education or educational counselling might have better rates of treatment success, treatment completion, cure and treatment adherence, and lower rates of loss to follow-up [3]. While education aims to equip people with the right knowledge, counselling helps them to apply that knowledge by changing their attitude and behaviour [33,34].

Counselling is a two-way interaction between the patient and the health-care provider [35]. It is an interpersonal, dynamic communication process that involves a kind of contractual agreement between a patient and a healthcare provider who is trained in counselling skills and who is bound by a code of ethics and practice [36,37]. It requires understanding and concern for the patient without any moral or personal judgement. The goal is to make the patients feel strong enough to do what they need to do for treatment of their TB disease [36,37].

Education and counselling aim to ensure that people have sufficient knowledge and understanding to make informed choices and actively participate in their own health care [17]. To encourage the provision of high-quality care at the health systems level, proper counselling and education have been endorsed to be an essential element of evidence-based care [17,18]. Education and counselling strategies have been shown to improve treatment outcomes for certain conditions such as diabetes, obesity, and coronary and cerebrovascular disease [17]. However, their value for people with tuberculosis is unclear [17]. There is very low evidence among TB patients that both education and counselling promote prompt initiation of drug treatment [38].

Our search did not yield studies that have looked at how education and counselling had prompted initiation of drug treatment for TB. It is therefore important to investigate the influences of education and counselling on prompt initiation of treatment among people living with TB in the Volta Region, Ghana by specifically: (1) examining if educating people living with TB predicts prompt initiation of treatment in the Volta Region, Ghana; (2) assessing whether counselling of people living with TB influences prompt initiation of treatment in the Volta Region, Ghana. The study further hypothesised that education and counselling do not influence prompt initiation of treatment among people living with TB.

Methods

Study Site and Participants

The study took place in the Volta Region of Ghana. The TB statistics of the region qualifies it for the study. For instance, in 2013, 1763 TB cases were detected [39], out of which 1,340 are undergoing treatment. 344 of them have been completely cured. Moreover, TB is known to be one of the three top causes of death among women from 15-to-44years [39]. Further, records indicate that TB cases remain high, with about 60 and 58.2 TB cases per 100,000 population estimated in 2016 and 2017, respectively [40]. The study enrolled 400 TB patients.

Study Design and Data source

The study drew much on descriptive cross-sectional study design because it analyzes data from a population at a single point in time and does not follow individuals up over time [41]. Data were collected from 400 TB patients with questionnaire in the Volta Region, Ghana.

Inclusion Criteria

The study was open to all TB patients who were on treatment at Trafalgar (the regional and teaching hospital) at Ho in the Volta Region, Ghana while non-TB patients were excluded. However, TB patients who could not be traced via the address provided in the TB register were excluded were also excluded.

Sample and Sampling Procedure

A sample of 400 were recruited for the study with the help of Krejcie and Morgan's (1970) sample size determination formula. The Krejcie and Morgan's (1970) sample size determination formula purports that a finite population of 1700, an ideal sample should be 313. However, due to incomplete answering of questionnaire, a non-response rate of 28% was added making the sample (313×0.28) + 313=400.64. Therefore, the sample size for the study was 400.

To reach the participants, the study made used of systematic random sampling technique. This approach helped us to select the participants for the study. Hence, it is based on a systematic rule, using a fixed interval [42]. In the field, the rule permitted us to include the last patient from every 3 patients. Therefore, we included patients with the following numbers [3, 6, 9, 12, 15, ...etc.] [42].

Variable Constructs

Education constructs [include skills development education, skills-based education, life skills education, confidence, empowerment, numeracy skills, and communication [43]. Counselling indicators [includes information, advice, assistance, treatment adherence, and quality of life] [44]. Prompt initiation of TB treatment indicators [include: treat TB promptly; stimulant of timely TB treatment; initial phase; drug therapy] [45].

Data Collection Procedure

Data were collected in the field with the help of two research assistants using a standardized research questionnaire designed in a Kobo Collect software. The fieldwork commenced on 20th of May to 25th of May 2022. In all, six days were used to collect the data.

Data Processing and Analysis

Data collected from the field were cross checked for accuracy after which we transferred it to SPSS version 27 for processing. The analysis was done with frequency distribution, Pearson's chi-squared test of independence and binary logistic regression. The frequency distribution was used to summarise participants socio-demographic characteristics, education responses, counselling responses and prompt initiation of TB treatment responses.

Ethical Consideration

Data collection commenced after the University of Health and Allied Sciences Ethical Review Committee had approved the research protocol and granted ethical clearance (with ID number UHAS-REC A./111/21-22). In the field, participants were reliably informed that participation was voluntary. Additionally, for a participant to take part in the study, the aims, significance, benefits and risks involved in the study were explained to them and those agreed to participate were made to sign an informed consent form to demonstrate their voluntary participation. Further, anonymity was ensured by assigning codes and numbers to the questionnaire instead of using participants names. The participants were assured that the information they provide was for the purposes of academic and nothing else.

Results

Socio-Demographic Characteristics of Participants

Table 1 presents the socio-demographic characteristics of participants. The participants comprised 62.3% males and 37.8% females. Fifty-six per cent (56.0%) of the participants in the sample were within 35-44 age group while 12.5% were in the 45-54age group. Nearly fifty-seven per cent (56.5%) of the participants had tertiary education compared to 12.3% who had basic education. Whereas self-employed dominated constituting 69.0% of employment status the least category was unemployed 12.8%. In terms of place of residence, rural area dominated (68.8%). Concerning religious affiliation, a little above fifty-six per cent (56.3%) of the participants are Christians while 19.0% are traditionalist.

Table 1: Socio-Demographic Characteristics of Participants

Variable	Frequency	Percentage
Sex		
Male	249	62.3
Female	151	37.8
Age		
15-24	51	12.8
25-34	75	18.8
35-44	224	56.0
45-54	50	12.5
Education		
Basic	49	12.3
Secondary	125	31.3
Tertiary	226	56.5
Employment status		
Employed	73	18.3
Unemployed	51	12.8
Self-employed	276	69.0
Place of residence		
Rural	275	68.8
Urban	125	31.3
Religion		
Christianity	225	56.3
Islamic	99	24.8
Traditionalist	76	19.0
Total	400	100.0

Source: Fieldwork (2022).

In our pursuit to analyse whether patients' education predicts prompt initiation of TB treatment prompted us to ask several questions spanning from skills development education, skills-based education, life skills education, confidence, empowerment, numeracy skills, and communication. The results are shown in Table 2.

Table 2: Patients' Education and Prompt Initiation of Tuberculosis Treatment

Variable	Frequency	Percentage
The skill development that education has helped patient to acquire		
Decision-making, critical thinking and problem-solving skills	99	24.8
Self-care practices, communication strategies and advocacy skills	49	12.3
Advocacy and self-care skills	127	31.8
Problem-solving, selfcare and communication	125	31.3
The skill-based that education has helped patient to acquire		
Like taking vital signs	148	37.0
Assisting with hygiene	50	12.5
adhering to medications	202	50.5
Life Skills education can help patient acquire		
Understanding medical conditions and knowing when to seek medical attention	49	12.3
Taking medications correctly	100	25.0
Monitoring vital signs when necessary and recognizing emergency symptoms	251	62.7
How education boost patient confidence		
Use positive self-talk	24	6.0
Surround self with encouraging people	76	19.0
Observe how others have been successful, then set and achieve goals	300	75.0
How education empower patients		
Understand ill-health condition and exploring treatment options	99	24.8
Exploring treatment options	75	18.8
Collaborating with healthcare providers to make informed choices about care	201	50.2
Shared decision-making and self-management abilities	25	6.3
How education help develop patients' numeracy skills		
Interpreting medical data like blood pressure readings	150	37.5
Know medication dosages	74	18.5
Remember appointment schedules and risk percentages	50	12.5
Making informed healthcare decisions based on numerical information	126	31.5
Total	400	100.0

Source: Fieldwork (2022).

Participants were asked to indicate the kind of skill development patient education has helped them to acquire (see Table 2). The results revealed that 31.8% of the participants reported advocacy and self-care skills while 12.3% indicated self-care, communication and advocacy skills (see Table 2). When participants were asked to state the kind of skill-based experience patients' education has helped them to acquire revealed that 50.5% of the participants indicated adhering to medications while 12.5% intimated assisting with hygiene (see Table 2). Concerning the life skills patients' education has helped participants to acquire revealed that 62.7% intimated monitoring vital signs when necessary and recognizing emergency symptoms while 12.3% said understanding medical conditions and knowing when to seek medical attention (see Table 2).

When participants were asked to indicate how patients' education has boosted their confidence revealed that 75.0% said it has helped them to observe how others have been successful and then set and achieve goals while 6.0% intimated use of positive self-talk (see Table 2). Regarding how patients' education has empowered participants revealed that 50.2% said they collaborate with healthcare providers to make informed choices about care while 18.8% said they explore treatment options (see Table 2). On how patients' education has helped participants to develop numeracy skills revealed that 37.5% said they are enabled to interpret medical data like blood pressure readings while 12.5% indicated they are enabled to remember appointment schedules and risk percentages (see Table 2).

To identify the proportion of participants that initiate prompt TB treatment instigated the authors to ask a number of questions ranging from: treat TB promptly; stimulant of timely TB treatment; initial phase; and drug therapy. The results are presented in Table 3.

Table 3: Initiate Prompt Tuberculosis Treatment

Variable	Frequency	Percentage
Promptly initiated TB treatment		
Yes	325	81.3
No	75	18.8
Total	400	100.0

Source: Fieldwork (2022)

When participants were asked to indicate whether they promptly initiated TB treatment or not, the results revealed that 81.3% of the participants said they initiated TB treatment promptly while 18.8% reported that they did not initiate TB treatment promptly (see Table 3). The 325 participants that responded in affirmative were further asked to indicate what prompted their timely TB treatment. The results revealed that 46.5% said it was to minimize complications from the infection, 30.5% indicated that it was to significantly reduce the spread of the disease by quickly rendering an infected individual non-infectious, 15.4% reported that the longer the delay between the onset of illness and treatment the higher the risk of an unsuccessful outcome while 7.7% said it has to do with the risk of an unsuccessful outcome if treatment delays. On whether the initial phase is administered for three months or not, the results revealed that 92.3% of the participants answered in affirmative. When participants were asked to indicate the initial empiric treatment of TB revealed that all (100.0%) the participants said patient starts on a 5-drug regimen: rifampicin, isoniazid, pyrazinamide, ethambutol and streptomycin. Participants were asked whether three drugs are given in the continuation phase of TB treatment or not, the results revealed that all (100.0%) the participants answered in affirmative. Participants were asked if the TB treatment continuation phase drug is administered for five months, daily or intermittently, three times a week or not, the results revealed that all (100.0%) the participants answered in affirmative.

In Table 4 has the Pearson's chi-squared test of independence results on the relationship between patients' education and prompt initiation of TB treatment. This analysis was run to test the hypothesis there is no statistically significant relationship between patients' education and prompt initiation of TB treatment. Statistically significant relationships were found between all the variables studied under patients' education thus: skill development [p=0.001]; skills-based experience [p=0.001]; life skills [p=0.001]; confidence [p=0.001]; patient empowerment [p=0.001]as well as numeracy skills [p=0.001] and prompt initiation of TB treatment.

Table 4: Relationship between Patients' Education and Prompt Initiation of TB Treatment

Variable	Yes (%)	No (%)	Total n (%)	Chi-square	P. value
Skill Development				61.234	0.001
Decision-making, critical thinking and problem-solving skills	74.7	25.3	99(100.0)		
Self-care, communication and advocacy skills	51.0	49.0	49(100.0)		
Advocacy and self-care skills	79.5	20.5	127(100.0)		
Problem-solving, selfcare and communication skills	100.0	0.0	125(100.0)		
Skills-Based Experience				17.760	0.001

Like taking vital signs	83.8	16.2	148(100.0)		
assisting with hygiene	100.0	0.0	50(100.0)		
Adhering medications	74.8	25.2	202(100.0)		
Life skills				14.097	0.001
Understanding their medical conditions and knowing when to seek medical attention	100.0	0.0	49(100.0)		
Taking medications correctly	75.0	25.0	100(100.0)		
Monitoring vital signs when necessary and recognizing emergency symptoms,	80.1	19.9	251(100.0)		
Confidence				18.613	0.001
Use positive self-talk	100.0	0.0	24(100.0)		
Surround with encouraging people	65.8	34.2	76(100.0)		
Observe how others have been successful, then set and achieve goals	83.7	16.3	300(100.0)		
Patient empowerment				88.965	0.001
Understanding their condition and explore treatment options	50.5	49.5	99(100.0)		
Exploring treatment options	100.0	0.0	75(100.0)		
Collaborating with their healthcare providers to make informed choices about their care	87.1	12.9	201(100.0)		
Shared decision-making, and self-management abilities	100.0	0.0	25(100.0)		
Numeracy skills				70.419	0.001
Interpreting medical data like blood pressure readings,	82.7	17.3	150(100.0)		
Medication dosages	67.6	32.4	74(100.0)		
Appointment schedules, and risk percentages	50.0	50.0	50(100.0)		
Allowing them to make informed healthcare decisions based on numerical information.	100.0	0.0	126(100.0)		

Note: Row percentages in parenthesis, Chi-square significant at (0.01), (0.05), (0.10)
Source: Fieldwork (2022).

Table 5 has binary logistic regression analysis results on patients' education and prompt initiation of TB treatment. This analysis became prudent hence, the authors aimed at identifying the factors studied under patients' education those that predict prompt initiation of TB treatment and those that do not.

Table 5: Binary Logistic Regression Results on Patients' Education and Prompt Initiation of Tuberculosis Treatment

Variable	Odds ratio	P. value	95 CI	
Patients' numeracy skills (interpreting medical data like blood pressure readings=1.0)				
Medication dosages	3.569	0.002	1.604	7.942
Appointment schedules and risk percentages	4.926	0.000	2.335	10.389
Allowing them to make informed healthcare decisions based on numerical information.	0.000	0.995	0.000	0.000
Ways patients' education fosters skill development (decision-making, critical thinking and problem-solving skills =1.0)				
Self-care, communication and advocacy skills	3.569	0.002	1.604	7.942
Advocacy and self-care skills	1.994	0.068	0.951	4.181
Problem-solving, selfcare and communication	0.000	0.995	0.000	0.000
Constant	0.144	0.000		

Source: Fieldwork (2022), significant at (0.05)

It emerged in Table 5 that medication dosage was statistically significant related to prompt initiation of tuberculosis treatment at p=0.002, (OR=3.569, 95%CI ([1.604-7.942]). This variable categorizes participants to have 3.6times more likely to engage in prompt initiation of TB treatment compared with participants that intimated interpreting medical data like blood pressure readings. Again, the study revealed appointment schedules and risk percentages as statistically significant at P=0.000, (OR=4.926, 95%CI [2.335-10.389]). This variable described those patients to have 4.9times more likely to initiate TB treatment promptly compared to patients that reported interpreting medical data like blood pressure readings (see Table 5).

Nonetheless, the study revealed self-care, communication and advocacy skills as statistically significant to prompt initiation of TB treatment at p=0.02, (OR=3.569, 95%CI [1.604-7.942]). This classifies patients to have 3.6times more likely to engage in prompt initiation of TB treatment compared with patients that stated decision-making, critical thinking and problem-solving skills (see Table 5). Moreover, statistically significant relationship was not found in the rest of the variables which could be as a result of chance.

The assessment of whether counselling influences prompt initiation of treatment among patients with TB requested the authors to ask questions that span from information, advice, assistance, treatment adherence, and quality of life. The results are presented in Table 6.

Table 6: Counselling and Prompt Initiation of Treatment

Variable	Frequency	Percentage
Information acquired from Counselling		
Providing medication information orally or in written on direction to use	24	6.0
Provide a form on medication to the patient or their representatives on direction of use	50	12.5
Provide advice and information to patients regarding their health management and medication usage	49	12.3
Clarifying any doubts patient may have about their treatment	150	37.5
Understand their condition and encourages proactive participation in their health management	127	31.8
Advice on medication		
Advice on medication side effects	74	18.5
Advice on medication precautions	25	6.3
Advice on medication storage	176	44.0

Advice on diet and life style modifications	125	31.3
Counselling assistance ever received		
Empowering patients to make informed decisions about their care	49	12.3
Guides patients to adhere to treatment plan	227	56.8
Increased satisfaction with care	124	31.0
Benefits gain from counselling on treatment adherence		
Patient actively follows a prescribed treatment plan	100	25.0
Taking medications as directed	25	6.0
Attending appointments	74	18.5
Understanding the importance of medication adherence	201	50.2
How counselling significantly improves a patient's quality of life		
Reduced psychological distress	24	6.0
Addressing emotional and psychological issues	149	37.3
Encourages or leads to better coping mechanisms	75	18.8
Helping individuals manage challenges and live more fulfilling lives	152	38.0

Source: Fieldwork (2022).

When participants were asked to indicate the kind of information counselling has helped them to acquire revealed that 37.5% of the participants reported clarifying any doubts patient may have about their treatment while 6.0% intimated providing medication information orally or in written on direction to use (see Table 6). Concerning the advice patients received on medication revealed that 44.0% of the participants received advice on how to store the medication while 6.3% of the participants reported they received advice on medication precautions (see Table 6). When participants were asked to indicate the counselling assistance, they ever received revealed that 56.8% of the participants reported it was a guide to patients to adhere to treatment plan while 12.3% of the participants said it was for empowering patients to make informed decisions about their care (see Table 6).

When participants were asked to indicate the benefits counselling on treatment adherence has helped them to achieve revealed that 50.2% said it was understanding the importance of medication adherence while 6.0% of the participants said it was taking medications as directed (see Table 6). On how counselling significantly improves a patient's quality of life revealed that 38.0% of the participants reported that it has helped individuals manage challenges and live more fulfilling lives while 6.0% of the participants said it was to reduce psychological distress (see Table 6).

Table 7 has Pearson's chi-squared test of independence results on the relationship between patients' counselling and prompt initiation of TB treatment. This analysis was conducted to test the hypothesis there is no statistically significant relationship between patients' counselling and prompt initiation of TB treatment. Statistically significant relationships were found among all the variables studied under patients' counselling and prompt initiation of TB treatment namely: information acquired from counselling [p=0.001]; advice on medication [p=0.002]; counselling assistance ever received [p=0.001]; benefits gained from counselling on treatment adherence [p=0.001]; how counselling significantly improves a patient's quality of life [p=0.001] and prompt initiation of TB treatment.

Table 7: Relationship between Patients' Counselling and Prompt Initiation of Tuberculosis Treatment

Variable	Yes	No	Total n(%)	Chi-square	P. value
Information acquired from counselling				119.289	0.001
Providing medication information orally or in written on direction to use	100.0	0.0	24(100.0)		
Provide a form on medication to the patient or their representatives on direction of use	100.0	0.0	50(100.0)		
provide advice and information to patients regarding their health management and medication usage	51.0	49.0	49(100.0)		
Clarifying any doubts, the patient may have about their treatment	100.0	0.0	150(100.0)		

understand their condition and encourages proactive participation in their health management	59.8	40.2	127(127)		
Advice on medication				33.753	0.001
Advice on medication side effects	100.0	0.0	74(100.0)		
Advice on medication precautions	100.0	0.0	25(100.0)		
Advice on medication storage	71.6	28.4	176(100.0)		
Advice on diet and life style modifications.	80.0	20.0	125(100.0)		
Counselling assistance ever received				54.340	0.001
Empowering patients to make informed decisions about their care	100.0	0.0	49(100.0)		
Guide patients to adhere to their treatment plan	88.5	11.5	227(100.0)		
Increased satisfaction with care	60.5	39.5	124(100.0)		
Benefits gained from counselling on treatment adherence				23.570	0.001
Patient actively follows a prescribed treatment plan	74.0	26.0	100(100.0)		
Taking medications as directed	100.0	0.0	25(100.0)		
Attending appointments	67.6	32.4	74(100.0)		
Making lifestyle changes	87.6	12.4	201(100.0)		
How counselling significantly improves a patients' quality of life				45.392	0.001
Reduced psychological distress	100.0	0.0	24(100.0)		
Addressing emotional and psychological issues	83.9	16.1	149(100.0)		
Encourages or leads to better coping mechanisms	100.0	0.0	75(100.0)		
Helping individuals manage challenges and live more fulfilling lives.	66.4	33.6	152(100.0)		

Note: Row percentages in parenthesis, Chi-square significant at (0.01), (0.10), (0.05)
Source: Fieldwork (2020).

Discussion

Participants demonstrated high level of knowledge on education. For instance, they cited advocacy, self-care and communication skills as the development skills they acquired from education they received at the hospital. For skill-based experience, participants reported adhering to medications, assisting with hygiene; monitoring vital signs when necessary, recognising emergency symptoms and understanding medical conditions; and knowing when to seek medical attention. This finding is in line with a study by Aremu, Oluwole, Adeyinka and Schommer (2022) that the healthcare providers' education can influence the patients' ability to adhere to prescribed therapies and medications [46].

Education is noted to boost the confidence in people to take control over their actions. Hence, self-efficacy. As a result of this, majority of the participants cited that education at the hospital has helped them observe how others have been successful, set and achieve goals for themselves. The reason for this finding could be that people adore education to be the medium through which they can unlock the mystery of longevity. Others also, cited that patients' education at the hospital has helped them to adopt positive self-talk. Further, some of the participants cited that patients' education has empowered them to collaborate with healthcare providers to make informed choices about care and a few of them also reported being able to explore treatment options. The reason for these findings could probably be that these participants were earlier timid but with the help of the education, they became empowered to take control over and manage their health. This finding corroborates to Fereidouni, Sabet Sarvestani, Hariri, Kuhpaye, Amirkhani, and Kalyani's (2019) study that well-educated patients are better able to understand and manage their own health and medical care throughout their lives [47].

Participants highlighted that the education healthcare providers provide to them has helped them develop numeracy skills in the aspects of interpreting medical data like blood pressure readings and remembering appointment schedules and risk percentages. The reason for this finding could be that participants have formal education and that whatever they are taught during TB clinic visit they are able to understand and apply it. The finding is in line with Zikmund-Fisher, Exe and Witteman's (2014) study that numeracy predicts people's ability to read nutrition labels, calculate medication dosages, and maintain anticoagulation control [48].

The study revealed statistically significant relationship between patients' education and prompt initiation of TB treatment. Therefore, the null hypothesis was not confirmed. This finding has revealed that the more and more patients are educated, it is the more and more they become confident and empowered to collaborate with healthcare providers to make informed choices about their health care and feel enhanced to explore treatment options available to them. This finding confirms Ruhid Hossain, Safiqul Islam, Samina Akter, Anisuzzaman, Abdullah-Al-Maruf, and Noor's (2023) study that in the context of TB, educated individuals are more likely to seek medical attention when experiencing symptoms, leading to earlier diagnosis [49].

The statistically significant relationship found between medication dosages and prompt initiation of TB treatment revealed that patients take absolute control over their medication. Further, the variable is noted to have influenced patients to initiate TB treatment promptly. Moreover, appointment schedules and risk percentages brought to the fore that the more and more patients are enlightened about their appointment schedules and risk percentages, it is the more and more they embark on prompt initiation of TB treatment. Self-care, communication and advocacy skills emerged in the study to influence patients to initiate TB treatment promptly. This signifies that when patients know about self-care, and are endowed with communication and advocacy skills it goes a long way to empower them initiate TB treatment promptly.

Counselling provides a safe and regular space for individuals to talk and explore difficult feelings. It can be a great relief for people to share their worries and fears with someone who acknowledges their feelings and is able to help them reach a positive solution. In view of this, participants relayed that counselling has helped them to be able to clarify doubts they go through about TB treatment. The reason for this finding could probably be that the counsellor during counselling session encourages clients to express their feelings and emotions. This finding is in line with Jops et al.'s (2024) study that combined education and counselling can contribute to person-centred care for tuberculosis, improving uptake, adherence, and outcomes of treatment for TB disease and TB infection [50].

Counselling at times involves talking about sensitive issues and revealing personal thoughts and feelings. Therefore, some participants cited that counselling provides for them medication information orally or in written on direction to use. The reason for this finding could be that participants are always provided with information relating to treatment defaulters and TB drug resistant stress. This finding corroborates to Tadesse, Sendekie, Mekonnen, Denberu and Kassaw's (2023) study that the information may be provided orally or in written form to clients or their caregiver with instructions on use, advice on side effects of medication [51].

Advice goes a long way to guide patients with regard to prudent action. Most of the time, patients are being advised on how to improve upon medication adherence by addressing their concerns, clarifying doubts, and explaining the importance of taking medications, as prescribed by a Physician. So, with this, the participants reported that advice on medication has helped them to understand how to store their medication as well as knowing some precautions about the medications.

Per the study results, counselling assistance has helped patients to adhere to treatment plan, empowered to make informed decisions about care, managed challenges and live more fulfilling life and have been able to reduce psychological distress. This signifies that, to enhance treatment, there is a need to counsel the patients the prepare him or her for the task ahead of him or her to ensure proper treatment. This finding has demonstrated that counselling before treatment is a major prerequisite activity that needs to be carried out before commencement of treatment. Hence, it keeps patients on their toes to adhere to treatment.

The study identified a statistically significant relationship between patients' counselling and prompt initiation of TB treatment. Therefore, the null hypothesis was nullified. This relationship indicates that when patients are through counselling before commencement of treatment, it propels them to initiate treatment promptly [52,53].

Conclusion

The study attempted to unravel the influences of education and counselling on prompt initiation of treatment among people living with TB. A cross-sectional descriptive design was used with 400 participants. In the field, we applied systematic sampling technique to select the participants. It was revealed that counselling helps patients clarify any doubts they encounter about their treatment. It appeared advice enables patients to understand how to store their medication. The study brought to light that counselling assistance guided patients to adhere to treatment plan.

It appeared education enables patients to acquire advocacy and self-care skills and being able to monitor their vital signs when necessary and recognise emergency symptoms. It emerged that education empowered patients to collaborate with healthcare providers to make informed choices about care and are able to interpret medical data like blood pressure readings. Association was found between all the two hypotheses postulated in the study. Namely, education as well as counselling and prompt initiation of TB treatment.

Recommendation

The study recommends that healthcare workers should motivate TB patients to continue to undergo counselling services before commencement of treatment for it increases their knowledge and understanding of their health condition.

Also, the study recommends that healthcare providers should endeavour to encourage TB patients to participate in the education that goes on during hospital visit for it supports their access to high-quality care, controls their overall healthcare spending and improves their literacy outcomes. It also allows them partner with their doctors in their healthcare journey.

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Declaration

Ethical Approval

Ethical approval (with ID number UHAS-RCE A./10/111/21-22) to conduct the study was taken from the Research Ethics Committee of the University of Health and Allied Sciences, Ho, Ghana.

Consent to participate in the Study

In the field, verbal consent was taken before a participant was allowed to take part in the study.

Consent to Publish

Participants were told that the study was strictly for academic and that the results would be published for the purposes of contributing to building academic literature.

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