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A Population-Based Study of Knowledge About Tuberculosis Between Rural And Urban Area Among Women Aged 15-49 Years Old In Burkina Faso

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Abstract

Introduction

Knowledge about tuberculosis (TB) is generally insufficient in women with misconceptions and its consequences, particularly in rural setting. This study identified factors of TB knowledge, and its implications, among women aged 15-49 years-old in Burkina Faso, and the specificity rural versus urban area.

Methods

This scale-up population-based study used household survey with sampling method as for the 2006 General Census in Burkina Faso. Conducted from February to April 2008, this study enlisted women aged 15- 49 years-old from one health district of each 13 health-regions of Burkina Faso. Simple and multiple step-wise linear regression models have been used to identify predictors of total TB-knowledge index (total possible point from 0 to 15).

Results

This study included 5495 women (53.6% from rural setting) aged 15-49 years-old. The mean of total-TB-knowledge were 5.5±1.2 ranged 1 to 11 (rural 5.4±1.2 vs. urban 5.5±1.3, p<0.001).

Univariate analysis predictors for total TB-knowledge were: setting, information given by health worker, knowledge of where to diagnose TB, marital status, wealth index, and knowledge that TB can be cured.

Adjusted predictors of total-TB-knowledge consisted of: setting, know where to diagnose TB, marital status, know TB can be cured.

Conclusion

The study provided information about factors regarding knowledge of TB with statistic difference between rural and urban area among women. These influential factors are important considerations to be incorporated into TB program towards women, particularly in rural setting.

Keys words

Predictors, Large-Scale Study, Low Income Country, and Household Survey. MDG.

Introduction

Tuberculosis (TB), in all its forms, poses a serious, demonstrable threat to the health of countless individuals as well as to health as a public good [1]. TB is stated a disease of male sex in two third of cases and concerns in around 75% of cases the economically productive age group which is between 15 and 50 years old [2]. Several studies showed that the sex ratio is in favor of male among TB diagnosed patients [3-6]. Beyond this aspect, several studies are conducted and showed the gender difference among TB patients [7-13]. In the general population, it was the same finding from different authors [14-16]. World Health Organization (WHO) concluded that men are more likely to have latent TB, whilst women are more likely to develop active disease [7].

According to WHO, tuberculosis is the third leading cause of death for women worldwide [17], mainly in developing countries affecting women aged 15-49 year old [18].

In 2008, 3.6 million women have developed TB [18, 19], and approximately another 500,000-700,000 died from TB [19, 20], including 200 000 women with HIV [19].

A lot of misconceptions exist about TB [14, 16, 21-26]; these misconceptions are due to knowledge, attitude, perception and practices about TB at the patient level and in the community. Thus, there is heavy impact of the culture which increases the aspect of the gender that takes women are vulnerable and subject to stigma [17]. Consequently, concealment of disease is to avoid losing social status, fear for marital problems and hurtful behavior by the community [27]. TB in women can have serious repercussions for families and households [28].

Regarding knowledge about TB, men had a significantly higher knowledge score than women [16]. As well, men (38.7%) were more knowledgeable than females (31.4%) [29]. The same finding was observed in Pakistan, mainly in rural setting [14].

According to Wang et al, among the general population, women were less likely to learn information ab Shetty N out TB and share it with others on their own initiatives [15]. However, there is yet no study conducted within the restrictive and specific group such as women in Burkina Faso. Moreover, there is no information data about TB at the level of Demography and Health Survey (DHS). This study identified potential determinants of knowledge of TB among women aged 15-49 years-old in the general population of Burkina Faso, specifically looking for the comparison between rural and urban setting.

Materials and Methods

Type of study, setting and sample size calculation

The study was based on household survey using the sampling method of the General Census 2006 [30], applied for the Global Found Evaluation 2008 for TB, Malaria and HIV in Burkina Faso. Burkina Faso is made up of 13 health regions and 63 Health Districts (HD), with 80% of the population living in rural setting. One HD was selected from each health region to get a total of 13 HD included in this sample after rational choice based on the place of residence (rural vs. urban area) and exposure to the interventions under the evaluation (using high, middle and low scale). The unity was the cluster area. The first stage was to draw off 25 cluster areas using a proportional probability based on the population size for each HD. At the second stage, it was the draw of 25 households from the list of households gotten from the first stage. Any woman in these households that met the study criteria was included in the study.

Study planning, research approval and recruitment of participants

The study was conducted from February to April 2008. The study was approved by the Research Ethics Committee from Burkina Faso. The inclusion criteria were met when the participant was woman aged 15-49 years-old and living in the study setting.

Formative research and data collection

After getting the informed consent from the participant, face to face interview was conducted using a structured questionnaire in two parts: household questionnaire and individual questionnaire. The present study has used the individual questionnaire which included: the characteristics of the participants, the section related to reproduction, the antenatal care and assisted delivery, the health of children including TB aspects, the marriage and sexual activities, and the HIV/AIDS section.

These questionnaires were those used during the DHS and adapted for the present evaluation. The focus of this study was on TB aspects.

The independent variables were socio-demographic and economic status, information given by health worker, know where it is possible to diagnose TB, TB can be cured, keep secret when family member gets TB, and the main source of information about TB (Table 2 and 4). The dependent variable was total TB knowledge (15 questions ranged 0 to 15) generated from TB knowledge transmission (5 questions ranged 0 to 5) and TB symptoms knowledge (10 questions ranged 0 to 10), in Table 3.

Before conducting the survey, the interviewers were selected based on their experience in conducting household survey, on their education level, and the language of each setting. Interviewers were trained on how to fill the questionnaire, how to use the Personal Digital Assistant (PDA) with the mobile software CSPro under the supervision of SERPRO expert. In addition, a pre-test has permitted to review the coherence and the internal control of the database in order to reduce bias effect.

Data entry and analysis

The data was directly entered on the spot during data gathering using the PDA equipped with the software CSPro. The fusion and validation of the data were done under the supervision of the SERPRO.

The dataset was analyzed by SPSS/PC statistical package, version 17.0. The cut-off point for continuous variables was the median. The level of significance was 0.05. The comparison of the variables between rural and urban participants used chi-square test for independent samples when it was categorical data and t-test for independent samples when it was continuous. Dummy variables were created for the regression models building about marital status, wealth status, keep secret when family member gets TB, and TB can be cured. Then, simple and multiple step-wise linear regression models have been used to identify predictors of total TB-knowledge.

Results

Participants and samples size of the study

A total of 325 clusters areas were taken from the 13 HD. Secondly, a total of 8 049 households were selected of which 7 938 (98.6%) were found during the data collection period. Among the 7 938 households, 99.2% were interviewed. From the 7 914 interviewed households, 9496 women aged 15-49 years-old were eligible for the interview using the structured questionnaire. Among them, 9 131 women were interviewed with a response rate of 96.0% (Table 1).

Results	Type of health districts and degree of exposure to the intervention																		
	Place of residence		High exposure to the intervention					Middle exposure to the intervention						Low exposure to the intervention					Total
	Urban	Rural	Ouaga-dougou	Dia-paga	Djibo	Ouar-gaye	S/ total	Bobo Dioula-sso	Bou-sse	Dieb ou-gou	Man ga	Sin-dou	S/ total	Ouahi-gouya	Kon-gousi	Leo	Nou-na	S/ total	
Household survey																			
Households selected	2906	5143	589	625	615	625	2454	623	625	622	624	624	3118	625	624	617	611	2477	8049
Households identified	2856	5082	569	624	601	625	2419	611	620	618	620	614	3083	616	607	610	603	2436	7938
Household interviewed	2837	5079	557	624	599	625	2405	609	619	618	620	614	3080	612	607	610	602	2431	7916
Response rate of households	99.3	99.9	97.9	100.0	99.7	100.0	99.4	99.7	99.8	100.0	100.0	100.0	99.9	99.4	100.0	100.0	99.8	99.8	99.7
Individual survey of women																			
Number of eligible women	3486	6010	704	726	643	764	2837	744	840	665	752	784	3785	782	685	788	619	2874	9496
Number of eligible and interviewed women	3359	5772	675	724	601	755	2755	720	795	622	723	771	3631	766	612	761	606	2745	9131
Response rate of eligible women	96.4	96.0	95.9	99.7	93.5	98.8	97.1	96.6	94.6	93.5	96.1	98.3	95.9	98.0	89.3	96.6	97.9	95.5	96.2

Table 1. The original sample size, sampling and setting of the Global Found evaluation (TB, Malaria, HIV)

From the Table 1, there were 9,131 participants entered in the dataset of the Global Fund Evaluation 2008 for TB, Malaria and HIV in Burkina Faso. After eligibility and enrollment criteria were met for the present study and missing data checked, the sample size under the study was 5,495 participants out of which 2,946 (53.6%) were from rural setting and 2,549 (46.4%) from urban setting (table 2, 3 and 4). All participants (100%) heard at least once about tuberculosis.

	Area			X^2 or t-test	p
	Rural n=2946	Urban n=2549	Total n=5495		
Age group					
More than or equal 28.2	1564 (53.1)	1059 (41.5)	2623 (47.7)	72.525	<0.001
Less than 28.2	1382 (49.9)	1490 (58.5)	2872 (52.3)		
Ever attend school					
No	2612 (88.7)	1584 (62.1)	4196 (76.4)	530.997	<0.001
Yes	334 (11.3)	965 (37.9)	1299 (23.6)		
Marital status					
Yes, currently married	1953 (66.3)	1587 (62.3)	3540 (64.4)	216.282	<0.001
Yes, living with a man	587 (19.9)	259 (10.2)	846 (15.4)		
Single	406 (13.8)	703 (27.6)	1109 (20.2)		
Ethnic group					
Mossi	1196 (40.6)	1443 (56.6)	2639 (48.0)	139.744	<0.001
Other ethnic groups	1750 (59.4)	1106 (43.4)	2856 (52.0)		
Religion					
Muslim	1527 (51.8)	1772 (69.5)	3299 (60.0)	177.395	<0.001
Other religion and without religion	1419 (48.2)	777 (30.5)	2196 (40.0)		
Wealth index factor					
Poor	1336 (45.3)	777 (30.5)	2113 (38.5)	154.106	<0.001
Middle	523 (17.8)	437 (17.1)	960 (17.5)		
Rich	1087 (36.9)	1335 (52.4)	2422 (44.1)		
Mean of wealth status ±SD	6.2±4.6	8.6±6.7	7.3±5.8	15.215	<0.001

Table 2. Socio-economic characteristics of the participants by urban and rural area

Knowledge characteristics		Area			X2 or *t*-test	p
		Rural	Urban	Total		
		n=2946	n=2549	n=5495		
Knowledge transmission components about TB						
1.Through air when coughing or sneezing	*No*	2032 (69.0)	1152 (45.2)	3184 (57.9)	316.161	<0.001
	Yes	914 (31.0)	1397 (54.8)	2311 (42.1)		
2.Through sharing utensils	*No*	1604 (54.4)	1397 (54.8)	3001 (54.6)	0.057	0.811
	Yes	1342 (45.6)	1152 (45.2)	2494 (45.4)		
3.Through touching a person with TB	*No*	2591 (87.9)	2197 (86.2)	4788 (87.1)	3.617	0.057
	Yes	355 (12.1)	352 (13.8)	707 (12.9)		
Through food	*No*	1917 (65.1)	1633 (64.1)	3550 (64.6)	0.563	0.453
	Yes	1029 (34.9)	916 (35.9)	1945 (35.4)		
4.Through sexual contact	*No*	2847 (96.6)	2493 (97.8)	5340 (97.2)	6.332	0.012
	Yes	99 (3.4)	56 (2.2)	155 (2.8)		
5.Through mosquito bites	*No*	2936 (99.7)	2541 (99.7)	5477 (99.7)	0.027	0.868
	Yes	10 (0.3)	8 (0.3)	18 (0.3)		
Sum Knowledge transmission	>5	217 (7.4)	464 (18.2)	681 (12.4)	146.832	<0.001
	<=5	2729 (92.6)	2085 (81.8)	4814 (87.6)		
Mean ± SD		4.4±1.0	4.6±1.0	4.5±1.0	8.505	<0.001
Knowledge symptoms components about TB						
1.Coughing for several weeks	*No*	1887 (64.1)	1584 (62.1)	3471 (63.2)	2.064	0.151
	Yes	1059 (35.9)	965 (37.9)	2024 (36.8)		
2.Fever	*No*	2761 (93.7)	2416 (94.8)	5177 (94.2)	2.635	0.105
	Yes	185 (6.3)	133 (5.2)	318 (5.8)		
3.Blood in sputum	*No*	2571 (87.3)	2175 (85.3)	4746 (86.4)	4.22	0.04
	Yes	375 (12.7)	374 (14.7)	749 (13.6)		
4.Loss of appetite	*No*	2764 (93.8)	2361 (92.6)	5125 (93.3)	2.933	0.087
	Yes	182 (6.2)	188 (7.4)	370 (6.7)		
5.Night sweating	*No*	2928 (99.4)	2534 (99.4)	5462 (99.4)	0.012	0.914
	Yes	18 (0.6)	15 (0.6)	33 (0.6)		
6.Chest pain	*No*	2504 (85.0)	2341 (91.8)	4845 (88.2)	60.707	<0.001
	Yes	442 (15.0)	208 (8.2)	650 (11.2)		
7.Tiredness /fatigue	*No*	2728 (92.6)	2414 (94.7)	5142 (93.6)	9.714	0.002
	Yes	218 (7.4)	135 (5.3)	353 (6.4)		
8. Loss of weight	*No*	2445 (83.0)	2142 (84.0)	4587 (83.5)	0.996	0.318
	Yes	501 (17.0)	407 (16.0)	908 (16.5)		
9.Lethargy	*No*	2929 (99.4)	2535 (99.5)	5464 (99.4)	0.019	0.891
	Yes	17 (0.6)	14 (0.5)	31 (0.6)		
10.Large swelling in the neck	*No*	2926 (99.3)	2538 (99.6)	5464 (99.4)	1.082	0.298
	Yes	20 (0.7)	11 (0.4)	31 (0.6)		
Sum Knowledge symptoms *<1*		1146 (38.9)	1023 (40.1)	2169 (39.5)	0.819	0.365
>=1		1800 (61.1)	1526 (59.9)	3326 (60.5)		
Mean ± SD		0.96±1.0	1.0±1.1	0.99±1.1	-2.187	0.029
Total TB Knowledge *>5*		1203 (40.8)	1258 (49.4)	2461 (44.8)	39.751	<0.001
<=5		1743 (59.20	1291 (50.6)	3034 (55.2)		
Mean ± SD		5.4±1.2	5.5±1.3	5.5±1.2	4.82	<0.001

Table 3. Knowledge variables by urban and rural area

	Area			X2 or *t*-test	p
	Rural n=2946	Urban n=2549	Total n=5495		
Information given by health worker					
Yes	668 (22.7)	637 (25.0)	1305 (23.7)	3,919	0.048
No	2278 (77.3)	1912 (75.0)	4190 (76.3)		
Knows where it is possible to diagnose TB					
Yes	1741 (59.1)	1926 (75.6)	3667 (66.7)	166.079	<0.001
No	1205 (40.9)	623 (24.4)	1828 (33.3)		
TB can be cured					
Yes	1957 (66.4)	1924 (75.5)	3881 (70.6)	60.883	<0.001
No	342 (11.6)	176 (6.9)	518 (9.4)		
Don't know	647 (22.0)	449 (17.6)	1096 (19.9)		
Keep secret when family member gets TB					
Yes, remain a secret	99 (3.4)	101 (4.0)	200 (3.6)	3.148	0.207
No	2793 (94.8)	2413 (94.7)	5206 (94.7)		
Don't know / not sure / depends on	54 (1.8)	35 (1.4)	89 (1.6)		
Main source of information about TB					
Radio	559 (19.0)	611 (24.0)	1170 (21.3)	682.53	<0.001
Television	26 (0.9)	297 (11.7)	323 (5.9)		
Discussion sessions	560 (19.0)	410 (16.1)	970 (17.7)		
Association/NGO	13 (0.4)	19 (0.7)	32 (0.6)		
Friends	1038 (35.2)	429 (16.8)	1467 (26.7)		
Health centers	382 (13.0)	308 (12.1)	690 (12.6)		
Schools	132 (4.5)	387 (15.2)	519 (9.4)		
Others	236 (8.0)	88 (3.5)	324 (5.9)		

Table 4. Other factors by urban and rural area

Knowledge on TB among women aged 15-49 years-old

The mean total TB knowledge was 5.5±1.2 (ranged 1 to 11). Significantly, participants from urban setting had better mean total TB knowledge than those from rural setting (rural5.4±1.2 vs. urban 5.5±1.3, p<0.001).

Participants answered that TB can be caught through air when coughing or sneezing (urban 54.8% vs. rural 31.0%, p<0.001), the most known symptom; through sexual contact (urban 2.2% vs. rural 3.4%, p=0.012). Moreover, participants thought that TB can be contagious through utensils sharing (urban 45.2% vs. rural 45.6%, p=0.881); through food (urban 35.9% vs. rural 34.9%, p=0.453); through touching a person infected with TB (urban 13.8% vs. rural 12.1%, p=0.453); and through mosquito bites (urban 0.3% vs. rural 0.3%, p=0.868). The mean knowledge index of TB transmission was significantly higher in urban setting than rural setting (urban 4.6±1.0 vs. rural 4.4±1.0, p<0.001).

About knowledge of TB symptoms, participants cited symptoms with significant difference between rural and urban setting: blood in sputum (urban 14.7% vs. rural 12.7%, p=0.040), chest pain (urban 15.0% vs. rural 8.2%, p<0.001), and fatigue (urban 7.4% vs. rural 5.3%, p=0.002). However, the other symptoms were not significantly different between rural and urban areas: coughing for several weeks (urban 35.9% vs. rural 37.9%, p=0.151), fever (urban 6.3% vs. rural 5.2%, p=0.105), loss of appetite (urban 6.2% vs. rural 7.4%, p=0.087), night sweating (urban 0.6% vs. rural 0.6%, p=0.914), weight loss (urban 17.0% vs. rural 16.0%, p=0.318), lethargy (urban 0.6% vs. rural 0.5%, p=0.891), and large swelling in the neck (urban 0.7% vs. rural 0.4%, p=0.298). The mean knowledge index of TB symptoms was significantly higher in urban setting than rural setting (rural 0.96±1.0 vs. urban 1.0±1.1, p=0.029).

Study results showed that the "information was given by health worker" was significantly different between rural and urban areas (p=0.048).

They knew where it is possible to diagnose TB with better proportion in rural setting than urban setting (p<0.001). As well, they answered that they will not keep secret when family member gets TB at 94.8% in rural setting and 94.7% in urban setting (p=0.207). Moreover, 66.4% participants from rural and 75.5% from urban setting knew that "TB can be cured" (p<0.001).

The main source of information about TB was radio broadcasting (21.3%) in urban setting and friends (35.2%) in rural setting.

Mean and proportion differences of other factors between rural and urban setting

From the tables 2, 3 and 4, the determinants of difference between rural and urban setting were: age group, educational status, religion, marital status, wealth index factor, "information given by health worker", "know where it is possible to diagnose TB", "TB can be cured", and the "main source of information on TB".

Predictive factors of total TB knowledge using linear regression models

From the univariate analysis stage (Table 5), the predictors of total TB knowledge were: area, marital status (currently in union vs. living in union and single), wealth factor in index, "information given by health worker", "know where it is possible to diagnose TB", and "TB can be cured". Some factors were not predictors of total TB knowledge such as age group, education status, religion, and "keep secret when family member gets TB".

Regarding adjusted analysis (Table 5), the total TB knowledge was positively correlated with the setting (β: 0.094; 95%CI: 0.021 to 0.166) and with "TB can be cured" (β: 0.277; 95%CI: 0.188 to 0.366). In contrary, TB knowledge was negatively correlated with marital status (β: -0.224; 95%CI: -0.323 to -0.125), and with "know where it is possible to diagnose TB" (β: -0.192; 95%CI: -0.268 to -0.116). It was not correlated with "information given by health worker" and wealth index.

	Unadjusted analysis				Adjusted analysis			
Independent variables	**β**	**Lower Bound**	**Upper Bound**	**p**	**β**	**Lower Bound**	**Upper Bound**	**p**
Area (ref: rural)	0.163	0.097	0.229	<0.001*	0.094	0.021	0.166	0.011*
Age group (ref: less than 28.2)	0.036	-0.03	0.102	0.291				
Religion (ref: Muslim)	-0.046	-0.113	0.021	0.18				
Ethnic group (ref: other ethnic group)	-0.063	-0.13	0.003	0.06				
Ever attend school (ref: No)	0.072	-0.005	0.15	0.068				
Information given by health worker (ref: Yes)	-0.119	-0.196	-0.041	0.003*	-0.048	-0.126	0.03	0.229
Knows where it is possible to diagnose TB (ref: Yes)	-0.296	-0.366	-0.226	<0.001*	-0.192	-0.268	-0.116	<0.001*
Marital status								
Not in union vs. currently in union or living with (ref: currently in union or living in union)	0.026	-0.056	0.109	0.531				
Currently in union vs. Living in union and single (ref: currently in union)	0.137	-0.206	-0.068	<0.001*	-0.224	-0.323	-0.125	<0.001*
Wealth index factor	0.009	0.003	0.014	0.003*	0.004	-0.001	0.01	0.13
Wealth status								
Poorest vs. Middle and richest (ref: Poorest)	0.063	-0.005	0.131	0.07				
Wealth status								
Poorest and middle vs. Richest (ref: Poorest and middle)	0.058	-0.009	0.124	0.089				
Keep secret when family member gets TB								
No and unknown vs. Yes (ref: No and unknown)	-0.008	-0.184	0.168	0.931				
Yes and unknown vs. No (ref: No)	-0.074	-0.222	0.074	0.325				
TB can be cured								
No and unknown vs. Yes (ref: No and unknown)	0.311	0.239	0.383	<0.001*	0.277	0.188	0.366	<0.001*
Yes and unknown vs. No (ref: No)	0.095	-0.017	0.208	0.097				

Table 5. Linear regression analysis results with total tuberculosis knowledge as dependent variable.

Discussion

The objective of the present study was to identify predictive factors of knowledge about tuberculosis from group of women aged 15-49 years old in Burkina Faso, specifically the comparison between rural and urban setting. For that, the study has used a large scale-up, in restrictive group based on women aged 15-49 years old, a first study in this field. It was not looking for the health seeking behaviors.

The present study has shown that all participants (100%) heard about TB. The same trend was found in a study done in rural area of China with 92% of cases from community [15].

The mean of total TB knowledge was lower in both rural and urban settings in the present study. A study done on knowledge about pulmonary tuberculosis and choice of treatment supervisors among community from northern Ethiopia, has observed that knowledge score of pulmonary TB was lower among women, illiterate and rural residents [31].

About the transmission, the mode of transmission by airborne route was known at 65.7% in Vietnam [16]. In the present study, 12.4% of the participants had a high knowledge score about TB transmission. In China and Vietnam, respectively 91.6% and 87.1% of women said that TB was transmissible.

Among women, the knowledge of symptoms of pulmonary TB (cough=33.1%, fever=33.1%, chest pain=7.3%, loss of weight=17.4% and haemoptysis=17.3%) from a study done in Vietnam [16] was the same as the present study. In a study done in Iraq, the cough blood was the most noted symptom followed by fever for men and women in general population [32]; it was chronic cough followed by loss of weight in this study and in Tanzania [33].

A study done in Tanzania found that TB is treatable at 72% in the population including men and women [34]. The present study shown that 70.6% of participants thought TB can be cured. As well, women thought that TB was treatable for 69.6% of women in Vietnam [16].

With regards to place for TB diagnosis and treatment, 57.8% of women in China correctly answered [15]. It was 66.6% of participants in the present but only related to the place for TB diagnosis.

The main sources of TB information were friends followed by radio broadcasting in the present study. It was television (59.9%) followed by friends/relatives (46.2%) among women in Vietnam [16]. In Tanzania, friends and relatives were the main source of TB information in the community [33].

Some factors were identified as predictors of TB knowledge. In Vietnam, sex, age, occupation, economic classification, education, and marital status were found as predictors of TB knowledge [16]. In the present study, total TB knowledge was predicted by the setting, marital status (currently in union vs. living in union and single), "know where it is possible to diagnose TB" and "TB can be cured". It was not correlated with education, "information given by health worker" and wealth factor in index. Among the general population comprising men and women of Metro Manila (Philippines), a higher score of general knowledge was independently associated with college education: OR= 4.35; 95%CI 2.87–6.60 with P< 0.001 [34]

Conclusion

Through household survey method, the study provided information about factors regarding knowledge of TB with statistic difference between rural and urban area among women.

As well, the study identified factors regarding knowledge of TB: setting, know where to diagnose TB, marital status, know TB can be cured. According to Dale et al., there is a need of more effective tuberculosis control interventions which requires novel methods of accessing women and less educated people [35]. Focus on women, the knowledge score of TB was lower group of Women 15-49 years old, specifically in rural setting in the present study. As said by Mangesho et al, an intensive appropriate community health education is required for a positive behavioral change in tuberculosis control [33].

The identified influential factors are important considerations to be incorporated into TB program towards women, particularly in rural setting. That must be taken in account when reviewing the Millennium Development Goals about women.

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Author contribution

Ziemlé Clément Méda participated in the planning of the study, data analysis and drafting and writing of the manuscript. Issiaka Sombié participated in the conception of the study idea, literature review, general supervision of the study and revision of the manuscript. Maurice Yaogo and Henri Somé participated in the data analysis, and revision of the manuscript. Rasmané Ganaba participated in the design of the study, general supervision of the study and revision of manuscript. Moctar Ouédraogo and Nicolas Méda participated in drafting and critical revision of the manuscript. All authors revised and approved the final version manuscript.

Competing interests

The authors declare no competing interests.

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