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Explanatory factors for relapse of pulmonary tuberculosis in patients in tuberculosis health, diagnosis and treatment centers (TDCS)

Kazadi Mukendi André[1], B Ukasa Tshilonda Jean Christophe`[2], Ntumba Cilumba Robert[3], Kazadi Nsenda Marcel[4], Mutombo Kabamba André[5]

[1, 3] Higher Institute of Medical Techniques of Mbujimayi, DR Congo
[2] Provincial Coordination of Leprosy and Tuberculosis of Kasai Oriental, DR Congo
[4] Official University of Mbujimayi, DR Congo
[5] School of Public Health / University of Lubumbashi, DR Congo

Abstract
Introduction: The purpose of this study was to highlight the explanatory factors for patients' relapse in tuberculosis care and screening centers in the city of Mbujimayi in the Democratic Republic of Congo.
Method: In this study, we used the questionnaire survey method supported by the face type structured interview technique.
Results: After analyzing the data, the following results were obtained:
The explanatory factors for tuberculosis relapse cases in the city of Mbujimayi are:
- T he low level of study ($x^2 = 8.09$ P = 0, 000);
- Lack of sufficient explanations for the disease (tuberculosis) ($x^2 = 5.49\%$, P = 0.019);
- The long and difficult duration to respect ($x^2 = 9.18$ P = 0.002);
- The effect of eating without getting satiated;
- Skipping a day without eating, drinking alcohol during treatment; cigarette consumption; consumption of other toxic substances; and cohabitation with an infected person; positive HIV status; lack of knowledge of certain risk factors for tuberculosis; the household size of more than 5 people in a home are factors that are statistically associated with the relapse of TB.
- House hold size greater than 6 persons
- The number of birthing rooms below 3 and
- The history of tuberculosis in the household.
Conclusion: Indeed, despite all the prevention and management actions aimed at eradicating tuberculosis, it remains a major global public health problem. Reason for which we ask the political authorities sanitary and administrative: to encourage the patients affected by tuberculosis to observe and respect the duration of taking of drugs envisaged by the program; strengthen the follow-up and home visits of tuberculosis patients declared cured finally to avoid the relapse of this disease and continue to sensitize the population on the risk factors of the relapse of tuberculosis.

Keywords: tuberculosis, resistance, relapse, tuberculostatic, vaccination

1. Introduction

The tuberculosis is a disease curable which still kills every year milli ons of people in the country in d evelopment. The tuberculosis epidemic was considered to be under control and even on the way to eradication, but in recent years the number of people with the disease has been on the rise. The number of people infected with Koch's bacillus is on the rise due to the HIV / AIDS epidemic, of which tuberculosis is the leading opportunistic disease [1].

Tuberculosis is a major global public health problem. Each year, there are approximately 9 million new cases and nearly 2 million deaths from this disease [2].

However, it remains a cosmopolitan disease, but of endemic importance that plagues low-income countries. It is linked to poverty and mainly affects young adults at the age when they are most productive. It remains a major cause of death and the global scale of the disease is undeniable [3]. Without treatment, the death rate is very high (up to 70% death within 10 years of infection in uninfected patients with HIV with positive sputum on microscopic examination), but the combination of drugs anti-tuberculosis drugs since the 1950s have drastically reduced the death rates of tuberculosis [4].

In the DRC, by analyzing the report of the consultants of the International Union Against Tuberculosis and Respiratory Diseases (IUATLD) during the period from January 15 to 24, 2008, on the evolution of activities in the fight against tuberculosis, the success rate therapy for new TMP + cases was 85% out of 31266 for the cohort of patients screened in 2006 in the first semester, the dropout rate was 4% and 13% for relapse cases [5].

In Kasai Oriental, the preliminary results of the national survey on the prevalence of anti-tubujjjjjjerculosis drug resistance organized in July 2015 by the DRC, indicate that Mbujimayi is the site with the most cases of resistant tuberculosis with a rate of 37% and 17% of cases of patients having relapsed. This rate is higher than the national average rate for relapses in old diseases [6].

This study aimed to r essortir the explanatory factors for relapse in the s patients in centers S ante, D Diagnosis and treatment of tuberculosis in the city of Mbujimayi in the Democratic Republic of Congo.

2. Material and Method

The study was conducted in 9 centers S ante, D Diagnosis and of treatment of tuberculosis of s Health Zones of Diulu, KANSELE and Dibindi City Mbujimayi which is che f instead of Kasai O Province riental in the Democratic Republic of Congo. This study is quantitative correlational type.

The sample was 334 patients who had developed relapse and who were drawn on the basis of the selection criteria set out below:

- Having relapsed and on anti-tuberculosis treatment in the 9 CSDTs of 3 Health Zones selected ;
- Be an adult;
- Voluntarily agree to participate in the study.

Any case that does not meet the inclusion criteria should not be included in this study.

The data were collected on the basis of a questionnaire addressed to tuberculosis diseases having developed a relapse and these collected data were entered into an Excel file and analyzed with the Epi Info software. Pearson's chi-square was the comparison test used in this study. The gold of the investigation written consent was obtained for each wrong has TB patients to participate in the study before collecting data.

3. Results

3.1. Univariate analysis

Table 1: Distribution of respondents according to socio-demographic characteristics

Characteristics	Modality	Workforce = 334	%
Sex	Male	1 7 7	52.9
	Feminine	1 5 7	47.1
Age	15 to 35 years old	24	7.2
	36 to 56 years old	228	68.2
	57 years old and over	82	24.6
Civil status	Married	184	55.1
	Single	6 8	20.3
	Widower	39	11.6
	Divorced	36	10.9
	free Union	7	2.2
Profession	Trader	75	22.5
	Housework	1 7	5.1
	Digger	5 1	15.2
	Driver	39	10.1
	Trafficker	7	2.2
	Farmer	29	8.7
	Unemployed	121	36.2
Study level	Without level	48	14.5
	Primary	53	15.9
	Secondary	201	60.1
	Superior	32	9.4
Religion	Christian	300	89.9
	Non christian	3 4	10.1
T go average household	Inf. or equal to 6 people Sup. or equal to 7 people	123	36.9
		211	63, 1
Number of bedrooms	Inf. or equal 2 bedrooms	155	46.4
	Sup. or equal to 3 bedrooms	179	53.6
Family type	Single parent	152	45.7
	Monogamous	182	54.3

With regard to this table, we see that among the tuberculosis diseases surveyed, 52.9 % are male; 68.2 % are between 36 and 56 years old with an average age of around 46 and the modal age is also 46. Married people are the most represented with 55.1% ; 36.1 % of them are unemployed (unemployed); 60.1% have a level seconda re ; 89.9% are Christians, 63.1 % of tubers owe live in a family of more than 6 people ; 53.6% live in a house with more than 2 rooms giving birth and finally 54.3% come from a monogamous family.

Table 2: Explanatory factors for relapse linked to therapy and factors for relapse linked to the patient's eating and environmental habits.

Characteristics	Modality	Workforce = 334	%
Have received sufficient explanations related to the disease	Yes	3 29	98.6
	No	5	1.4
Have required a family member for patient follow-up at CSDT by the caregiver	Yes	297	89.1
	No	37	10.9
Judgment of the duration of treatment	Very long Fair Difficult to respect	145	43.5
		13 6	40.6
		53	15.9
Location or must happens r treatment AT	At the CSDT	305	91.3

	Home S Center ante and Treatment	2 27	0.7 8.0
Have a special diet	Yes No	177 157	52.9 47.1
Basic food	Cereals and tubers Cereals and foods of animal origin Vegetables, fruits and legumes	145 104 87	43.5 31.2 25.4
Be satisfied with the way of eating	Yes No	261 73	73.9 26.1
Having gone a day without eating during illness	Yes No	262 72	78.4 21.6
Daily expenditure on food	Less than 3000 FC More than 3000FC	131 203	39.1 60.9
Consumption of toxic substances	1. Native alcohol Yes No 2. Cigarette Yes No 3. Other substances Yes No	 87 247 61 273 48 286	 26.1 73.9 18.1 81.9 14.5 85.5
Cohabitation with a person infected with Tuberculosis	Yes No	184 150	55.1 44.9

On analysis of these results, 98.6% of respondents declared having received sufficient explanations in relation to the disease; 89.1% were followed by a member of their family obliged by the caregiver; 43.5% consider the duration of treatment to be very long and 91.3% know the place where the anti-tuberculosis treatment should take place.

In the light of this table, we note that 52.9% of our respondents declared having a special diet during illness, the consumption of foods made from cereals occurs in 43.5% of cases; 73.9% are satisfied with the way they eat; on the other hand 78.3% declared to have skipped a day without eating during the illness, 60.9% of the respondents spend more than 3000 FC per day for their food, with an average daily expenditure of 3000 FC. In relation to the consumption of toxic substances: 26.1% consume alcohol; 18.1% consume cigarettes; 14.5% consume other toxic substances such as hemp and 55.1% of respondents cohabit with a person infected with Tuberculosis.

Table 3: Explanatory factors for relapse linked to the patient's medical history and factors for relapse linked to the organization of the health system

Characteristics	Modality	Effective	%
Individual history of tuberculosis	Yes No	334 0	100 0
History of tuberculosis in the household	Yes No	257 77	76.8 23.2
Knowledge of your HIV status	Yes No	278 56	83.3 16.7
Being PLWHIV	Yes No	104 230	31.2 68.8
Being on ARVs	Yes No	104 230	31.2 68.8
Having difficulty receiving medication at the CSDT	Yes No	6 8 266	20.3 79.7
Be satisfied with the treatment schedule	Yes No	269 65	80.4 19.6
Have confidence in the treatment	Yes No	283 5 1	84.8 15.2
Be supported by a member of the family	Yes No	297 37	89.1 10.9
The presence of the caregiver at each drug intake	Yes No	315 19	94.2 5.8
Have discussions with staff about the disease	Yes No	317 17	95 5
Distance between the CSDT and the house	Less than 5 km More than 5 km	332 2	99.4 0.6
Having difficulty communicating with the caregiver	Yes No	25 309	8.5 92.5

This table reveals that 100% of respondents have an individual history of tuberculosis, 76.8% of them have a history of tuberculosis in their household, 83.3% know their serological status among which 31.2 % are PVV HI and on

ARVs. 20.3% of respondents have difficulty receiving drugs at the CSDT; 80.4% are satisfied with the treatment schedule; 84.8% have confidence in established treatment, 74.6% are supported s by someone in their family, 94.2% take toujour product s in the presence of the caregiver, 95 % discussed nt easily av ec caregiver about the disease 99.4 % of these courses less than 5km to reach the TDSB and 92.5 % n ' have not to s difficult to communicate with the caregiver.

Table 4: Factors related to knowledge of the disease and Socio-economic factors

Characteristics	Modality	Workforce = 334	%
Know her about curing tuberculosis	Yes No	305 29	91.3 8.7
Knowledge about the transmission of tuberculosis	Yes No	152 82	75.4 24.6
Have knowledge about the relapse of the disease	Yes No	307 27	92.0 8.0
Have knowledge about the risk factors for tuberculosis	Yes No	206 128	61.6 38.4
Household size	Less than 5 people More than 5 people	196 138	58.7 41.3
Number of households in the plot	A household Two households Three households	41 95 198	12.3 28.4 59, 3
Number of bedrooms in the house	Room Two rooms Three and more	22 174 138	6.6 52.1 41.3
Monthly income	Less than 50,000FC More than 50000FC	232 102	69.5 30, 5
Type of habitat and accommodation	Cement block Stew brick Clay	114 174 46	34.1 52.2 13.7

This table shows that 91.3% say that tuberculosis is curable; 75.4% know how the transmission of CT is done; 92.0% of them know that a tuberculosis patient can relapse after being declared cured and 61.6% know certain risk factors linked to tuberculosis.

With regard to this table, 58.7% of our respondents live in the household of less than 5 people with an average size of 5 people per household ; 59.3 % live in the plot where there are more than three households, 52.1 % live in a two-bedroom house with an average of 2 bedrooms per household. However, 69.5 % receive 50,000Fc per month and 52.2% live in a house built in stew bricks.

3.2 Bivariate analyzes

Table 5: Link between the socio-demographic characteristics of the subjects and the relapse of tuberculosis

Characteristics	Modality	Relapse (n = 334)		X2	P	S
		Yes	No			
Sex	Male Feminine	138 92	46 58	2.44	0.118	S
Age	Inf. or equal to 35 years Sup. or equal to 36 years	121 112	65 36	1.76	0.184	NS
Civil status	Married Single	102 131	48 53	0.17	0.674	NS
Average household size	Inf. or equal to 6 Pers. Sup. or equal to 7 Pers.	126 106	85 17	10.66	0.001	S
Number of bedrooms	Inf. or equal to 2 bedrooms Sup. or equal to 3 bedrooms	160 73	19 82	29.02	0.000	S
Study level	Without level and Primary Secondary and higher	129 105	76 24	8.09	0.004	S
Religion	Christian Non christian	211 21	90 12	0.20	0.650	NS

On analyzing this table, we see that gender, education level, household size greater than 6 people and the number of bedrooms less than 3 are associated with relapse to tuberculosis in our environment.

Table 6: Relationship between factors related to therapy, factors related to therapy and tuberculosis relapse

Factors	Modality	Relapse (n = 334)		X2	P	S
		Yes	No			
Have received sufficient explanations related to the disease	Yes No	238 3	91 2	**5.49**	**0.019**	S

Have required a family member for patient follow-up at CSDT by the caregiver	Yes No	211 19	86 18	0.72	0.393	NS
Judgment of the duration of treatment	Very long and difficult to respect Fair	112 115	86 21	9.18	0.002	S
Place where AT treatment should take place	At the CSDT Other place	178 12	127 17	0.78	0.376	NS
Have received sufficient explanations related to the disease	Yes No	238 3	91 2	5.49	0.019	S
Have required a family member for patient follow-up at CSDT by the caregiver	Yes No	211 19	86 18	0.72	0.393	NS
Judgment of the duration of treatment	Very long and difficult to respect Fair	112 115	86 21	9.18	0.002	S
Place where AT treatment should take place	At the CSDT Other place	178 12	127 17	0.78	0.376	NS

This table shows that the lack of sufficient explanations related to the disease (tuberculosis) (x^2 = 5.49%, P = 0.019) ; the long and difficult duration (x^2 = 9.18 P = 0.002) influence relapse of tuberculosis that the lack of sufficient explanations related to the disease (tuberculosis) (x^2 = 5.49%, P = 0.019) ; the long and difficult duration (x^2 = 9.18 P = 0.002) influence relapse of tuberculosis

Table 7: Link between the factors linked to the patient's eating and environmental habits and the relapse of tuberculosis

Factor	Modalité	Relapse (n = 334)		X2	P	S
		Yes	No			
Have a special diet	Yes No	126 109	51 48	0.20	0.651	NS
Basic food	Cereals, Tubers and food of animal origin Vegetables and fruits	174 60	75 27	3.66	0.160	NS
Be satisfied with the way of eating	Yes No	198 48	63 25	6.48	0.010	S
Having gone a day without eating during illness	Yes No	196 45	66 27	4.77	0.028	S
Daily expenditure on food	Less than 3000 FC More than 3000FC	85 148	46 55	0.35	0.552	NS
Consumption of toxic substances	1. Native alcohol Yes No 2. Cigarette Yes No 1. Other substances Yes No	 36 186 26 204 21 211	 51 61 35 69 27 75	 11.48 6.70 6.66	 0.000 0.009 0.009	 S S S
Cohabitation with an infected person	Yes No	131 87	53 63	13.19	0.000	S

In the light of this table, factors such as the effect of eating without being full, the effect of having skipped a day without eating, alcohol consumption, cigarette consumption, consumption of other toxic substances and cohabitation with an infected person are associated with relapse of tuberculosis.

4. Discussion

4.1. Related to socio-demographic characteristics

Considering the age of our respondents, the results of our study also showed that 73.2% of our respondents are between 18 and 45 years old. These data are attested by Sambou Soumare [7], although repair slice s age is more less different to ours but, in his study, the most affected age group was the 25- 34 years with 34.1%, followed by that of 15-24 years and 35-44 years. This could be explained by the fact that these three age groups represent the most active and productive layers of the population. These results are comparable with those of Dagnoko S [8], who also recorded a predominance in the age groups of 25-34 years with 33.5%, of 35-44 years with 23.3% and of 15- 24 years with 16.5%. And for Dembele Jean P [5], the age group of 25-34 years varies between 47.9.

By analyzing the data on marital status, our investigations showed that 52.3% are married. This agrees with the results of Sambou Soumare [7], which report e that during his study 84 cases were 68.3% married and 36 unmarried or 29.3%.

Regarding the level of education, our results showed that 60.1% of the respondents had a secondary education level. For Sambou Soumare [7], the illiterate are have the biggest representation with a staff of 46 or 37.4% of the study population, followed by the primary and secondary levels. This could be explained by not only the promiscuity in the illiterate environment, but also by the ignorance of the mode of transmission of tuberculosis. This result is lower than that of Golub JE *et al*. [8], who found the same order of representation with illiterates in the lead, ie 70.5%, followed by primary and secondary levels. This also confirms the data from PNLT / MALI [9].

4.2. Findings Related to Factors Related to Relapse of Tuberculosis

The results show that the low level (X2 = 8.09 P = 0, 000), the lack of sufficient explanations related to tuberculosis (x^2 = 5.49%, P = 0.019), the long and difficult duration to be respected (x^2 = 9.18 P = 0.002), the effect of eating without being full, the effect of having skipped a day without eating, the consumption of alcohol, the consumption of cigarettes, the consumption of other toxic substances, the cohousing ion with an infected person, st positive serological atus (HIV), the lack of knowledge of certain factors risk of tuberculosis, household size of more than 5 people in a house are factors that are statistically associated with relapse of tuberculosis.

These results have been confirmed in some studies carried out before ours. Let us quote here the results of the study carried out by Mishra P *et al*, [6], he had found that alcohol, drugs, human migrations, neglect are factors explaining the relapses of tuberculosis.

Co-infection with HIV is the most important risk factor for relapse. The association between HIV co-infection and relapse of tuberculosis is well known, although the reasons are far from well understood [10].

5. Conclusion

Despite the effective results of the DOTS (Directly Observed Treatment Short) strategy, some countries around the world are noting high rates of relapse and drug resistance of this disease. As a result, the global targets for this disease are still difficult to achieve, especially in some developing countries. Also, despite all the prevention and care actions aimed at eradicating tuberculosis, it remains a major global public health problem.

This is why we are asking the political, health and administrative authorities: to encourage patients with tuberculosis to observe and respect the duration of medication prescribed by the program; to reinforce the monitoring and home visits of tuberculosis patients declared cured, finally to avoid the relapse of this disease and to continue to sensitize the population on the risk factors of the relapse of tuberculosis.

6. Références

1. Bogni F, *et al*. Tuberculosis cases reported in France in 2010. Weekly Epidemiological Bulletin. 2012; (24-25), 2011.
2. Buchillet D0. Tuberculosis and public health: the multiple factors involved in adherence to treatment. Somewhere else, 2001; 19:71-90.
3. Dagnoko S. Specific immune-based diagnosis of tuberculosis. Lancet. 2000 Sep 23; 356 (9235): 1099-1104, 2000.
4. PATI 5. Guide for the management of tuberculosis, Kinshasa, Congo, 2014, p 10.
5. Dembele Jean P. PNT evaluation report n ° 10 national tuberculosis control program of the democratic republic of the Congo international union against tuberculosis and respiratory diseases, Kinshasa, Congo, 2010.
6. Mishra P, Hansen EH, Sabroe S, Katie KK. Socio-economic status and adherence to tuberculosis treatment: a case-control study in district of Nepal. Int. J Tuberc. Lung Dis. 2005; 9(10):1134-1139.
7. Sambou Soumare, Oumar Guindo, Somita Keita. Study of the problem of the directly observed treatment of tuberculosis patients by positive microscopy in commune IV of the district of Bamako, 2009.
8. Golub JE, Bur S, Cronin WA, Gange S, Baruch N, Comstock GW, *et al*. Delayed tuberculosis diagnosis and tuberculosis transmission. Int. J. Tuberc. Lung Dis. 2006; 10(1):24.
9. PNLT / MALI. Technical guide for health personnel. Bamako, 2006,76 p.
10. Vanina Meyssonnier. Epidemiology of tuberculosis and anti-tuberculosis drug resistance, 2013.