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Inside The Policy Process: Results From A Web-Based Survey With Officials And Partners Involved In TB Policymaking

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EXECUTIVE SUMMARY

WHO has recently promoted a radical shift in TB prevention and control global strategy by recognizing and emphasizing the role of socio-economic policies and interventions in supporting TB control, encouraging a common people-centered approach and the engagement of non-state actors in the public health initiatives to fight TB. Within the research project ***"Love Matters in policymaking: The Stop TB partnering process[1]"***, third component, we intend to assess to what extent countries accessing to the Global Fund against HIV/Aids, Tuberculosis and Malaria are *i)* focused on person-centered policies in the elaboration of national plans for prevention, control and treatment of TB; *ii)* oriented toward a partnering approach to encompass community-based TB issues.
In order to get insights about such issues, we interviewed the protagonists involved in the elaboration a/o implementation of the National Strategic Plans (NSPs) – namely national TB Program Managers, officials of the Ministry of Health, local partners/health facilities, and, where relevant, the local StopTB Partnership executive secretary. The 25 collected questionnaires compose a homogenous *corpus* suitable to be explored through quantitative textual analysis means.

We identify variables possibly correlated to different approach to the design of strategies for TB prevention and control, in particular: *i)* having had experience of the StopTB Partnership initiative; *ii)* the role of respondent in the elaboration process of the NSP; *iii)* being a High Burden Country; *iv)* timeliness of the response. On the basis of these variables we re-organized the *corpus* in different *subcorpora*.

After having analyzed exclusive and over-used words for each group of respondents, we provide evidence about frequency and incidence of selected keywords aimed at capturing critical dimensions for effective TB strategy. These categories are labeled: *Mapping the problem*; *Policy Design*; *Social Actors and Norms*; *People-centered Approach*; *Improve effectiveness.*

Respondents in **countries with the StopTB Partnership experience/High Burden Countries**

- show a strong commitment towards social determinants such as ***education*** and ***information*****.** For these respondents, TB programs should improve education of health-care providers (both public and private), community members, public health officials, and policy makers on TB prevention and control. Improving easily accessible and understandable information for affected people and communities is recognized as key element;
- are more focused on two core dimensions we analyzed: ***Social Actors and Norms*** and ***People-centered Approach*** in the design of a public health policy, regardless respondent role. They put forward a vision for improving the performance of TB care and control strategies by strengthening core health system functions with renewed efforts to find people-centered solutions. This approach is found useful to design accessible and comprehensible services.

Based on respondent roles, **Partners:**

[1] The research project is financed by **The Fetzer Institute** and carried out by the **C**ognitive **S**cience and **C**ommunication Research **C**entre (**CSCC**) – at the Università Cattolica del Sacro Cuore, Milan.

- provide a perspective more related to **local mechanisms of diffusion**, whose prevention represents their major commitment, and to **socio-cultural barriers** to health access, including stigma and discrimination;
- focus their role of service providers on **specific patients' needs** and profiles, including a gender dimension, thus feeding a people-centered approach;
- show a higher incidence of keywords belonging to ***People-centered Approach*** and ***Social Actors and Norms*** categories respect to other respondents. In particular it is worth noting that Partners significantly use the word *community* with a higher frequency than Program Managers.

On the other hand, **Program Managers**

- are particularly concerned on designing and structuring strategies, using words such as **data, management, performance**. This reasonably derives from their professional responsibility; however the emphasis put on these components reveals the perception of being facing a challenge. A cross-cutting attention through all dimensions analyzed is on **accessing issues**;
- regularly make reference to **partners** roles and inclusion, suggesting a clear perception of the strategic utility of a partnering approach;
- provide a narrative strongly focused on "management" categories: ***Mapping the problem***, ***Policy Design*** and ***Improving effectiveness***. The second category in particular is designed to check whether an inclusive process of consultation and elaboration, also including civil society actors, is present. A community-based partnering approach indeed is a turning point for a holistic approach to TB: this category is particularly meant at capturing such perspective.

Finally, timeliness in the response does not seem really informative for the purposes of our research.

Overall, the recognition of non-material dimensions of human relations and a particular attention to people-centered approach is a component for an effective TB care and control strategy for a significant number of respondents, especially for Partners respondents. Furthermore, respondents working in countries where partnership experiences devoted to TB care and control have been already established (namely the StopTB Partnership) appear aware in their narrative of the role that local partners play, however they perceive less the necessity to explicitly refer to partners inclusion as core item. It is arguable that these respondents are likely to perceive partners' inclusion as taken for granted.
The main policy implication we can draw from the results obtained is that Whereas Program Managers are more inclined to recognize the relevance of a partnering approach, Partners are more close to communities and to a people-centered approach. Therefore **enhancing the partnering efforts** at country level may work as a strengthening tool for the inclusion for wider people-centered approach in the design of TB prevention and control strategies. The past experience of the StopTB Partnership appears as meaningful flywheel for this process.

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Inside the policy process: results from a web-based survey with officials and partners involved in TB policymaking

1. Composition of the *corpus*

This research report refers to a component of the broader research project "Love Matters in policymaking: The Stop TB partnering process". The main aim of this work is to assess to what extent countries accessing to the Global Fund facilities are *i)* focused on person-centered policies in the elaboration of national plans for prevention, control and treatment of TB; *ii)* oriented toward a partnering approach to encompass community-based TB issues. In order to get insights about such issues, we interviewed the protagonists involved in the elaboration a/o implementation of the National Strategic Plans (NSPs) – namely national TB Program Managers, officials of the Ministry of Health, local partners/health facilities, and, where relevant, the local StopTB Partnership executive secretary[2].

The interview is composed of three open questions regarding *i)* the description of the elaboration process of the NSP, including the request for positive and negative examples of events occurred during such process; *ii)* the evaluation about the key determinants of TB infection in own country; *iii)* the examination of the main obstacles existing in the country to achieve tangible results in the fight against TB. The questionnaire has been administrated through web services, requiring a written answer within a defined time span. Since English is a vehicular language for almost all interviewed people, we decide to adopt this method in order to facilitate free answers' development and review, by reducing the risk of unintended expressions.

Despite any effort, the challenging agenda of people to be interviewed and the occurrence of local emergencies made us able to collect almost 40% of filled questionnaires, resulting in 25 complete interviews[3]. Figure 1 provides a graphical representation of the geographical coverage, whereas Table 1 summarizes the list of respondent countries, including the role of interviewed people.

[2] We remind that the StopTB Partnership initiative has involved only a limited number of countries, thus not all countries host reference office.

[3] We contacted 37 countries in Sub-Saharan Africa and Asia and received complete answers from 18 countries. As explained, for each country we sent the questionnaire to multiple actors.

Figure 1 *Respondent countries*

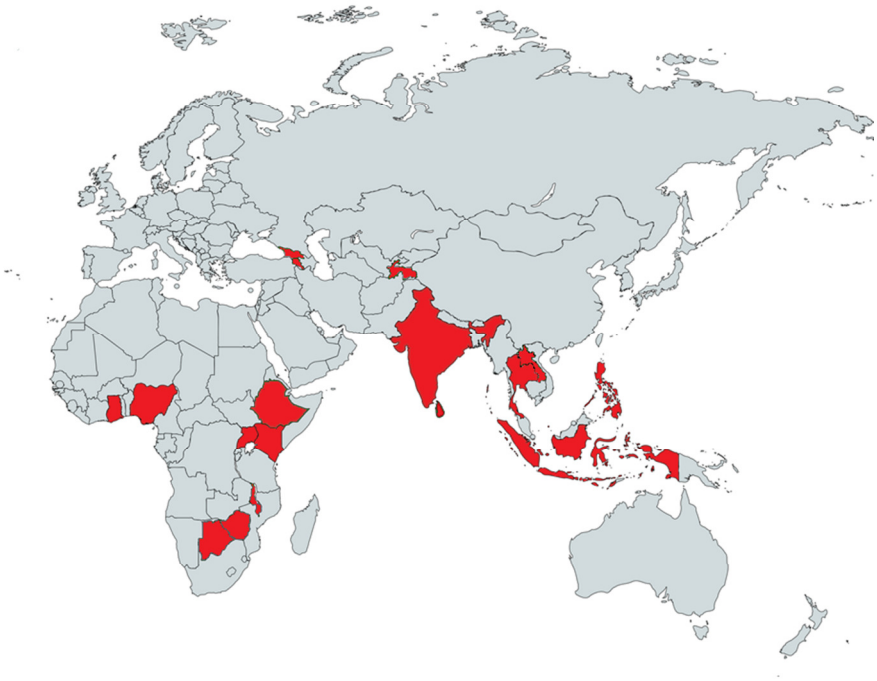


Table 1 *List of countries, including respondent role*

n.	ID	Country	Respondent Role
1	ARM01	Armenia	program manager
2	BTW01	Botswana	program manager
3	ETH01	Ethiopia	program manager
4	FIJ01	Fiji	program manager
5	GEO01	Georgia	program manager
6	GH01	Ghana	partner
7	GH02	Ghana	program manager
8	IN01	India	partner
9	IND01	Indonesia	partner
10	KEN01	Kenya	StopTB Partn. Secretary
11	LAO01	Laos	program manager
12	MAL01	Malawi	partner
13	MAL02	Malawi	program manager
14	NIG01	Nigeria	partner
15	NIG02	Nigeria	program manager
16	NIG03	Nigeria	StopTB Partn. Secretary
17	PHIL01	Philippine	partner
18	PHIL02	Philippine	partner
19	PHIL03	Philippine	program manager
20	PHIL04	Philippine	StopTB Partn. Secretary
21	SRL02	Sri Lanka	program manager
22	TAJ01	Tajikistan	program manager
23	THAI01	Thailand	official of MoH
24	UG01	Uganda	program manager
25	ZIM01	Zimbabwe	program manager

Beyond a scarce representation of respondents belonging to national Ministry of Health, National TB Program Managers and Partners are fairly distributed as expected. Among contacted countries, 14 have had the StopTB Partnership experience, thus only in that cases we had the possibility to interview a member of the national executive secretary.

For the purposes of this work, the collection of the answers provided by each respondent is labelled as a fragment of the whole *corpus*. Given the total dimension, it should be considered as a small *corpus*; however it holds specific characteristics which confirm the opportunity to perform a quantitative statistical analysis on it. Some manipulations have been carried out to increase homogeneity of the text, in particular plural and singular forms of the same word have been aggregated together, and the infinite form of verbs is applied for all conjugations at present tense. These marginal modifications helped in enhancing the consistency of the text, and only marginally affected the composition and the linguistic richness of the original material. After such interventions, the *corpus* is composed by 11,956 occurrences (*word token*) and 2,092 different words (*word types*), that means a *Type/Token Ratio* (which is a measure of linguistic richness) of 17.49%, compliant with the maximum threshold of 20% suggested by literature. The percentage of *hapax legomena* (words occurring only one time within the *corpus)* is quite high and corresponds to 50.6% of word types.

2. Methodology of analysis

The *corpus* is analyzed through automatized methods of quantitative textual analysis.
We mainly adopt a "*bag-of-words"* approach which is based on words' frequency in order to identify the essential and thematic traits of the texts, with special attention to characterizing elements of community-based and people-centered strategies for TB control. Such features – directly connected to the elaboration of partnering approaches to address TB issues in a more comprehensive way rather than a strictly medical provision of care – involve the recognition of the social determinants of TB and the call for social protection measures.
After having cleaned and normalized the text in order to proceed with the pre-treatment procedures, the analysis is based on:

- the verification of the homogeneity of the texts since it is critical to recognize the *corpus* as sufficiently homogenous in order to make it suitable for statistical analysis;
- the identification of the most frequent content words, in order to frame the conceptual approach to the issue;
- the analysis of specificity and words exclusively used by groups of respondents;
- the identification of keywords based on calculation of the TFIDF index that measures the strength of distinguishing power of content words, in order to assess the relative weight that each text reflects in terms of relevance of the topic.

In addition, the analysis is enriched by the results of a factorial analysis carried out through Reinert method (1987) aimed at identifying "lexical worlds" which may be useful to capture the inner conceptual dimensions of the *corpus*.

These procedures will enable the identification of *i)* keywords (by discriminating against those deemed most relevant for the potential transformative power of relations in health policy design and implementation) and then to differentiate between experiences, including having established partnering process for TB prevention and control, and *ii)* similarity / distance traits between countries experiences and characteristics.

We adopt a cross-cutting perspective based on attributional variables – namely, having experienced the StopTB Partnership initiative, the respondent professional role, the relevance of TB burden in the country and the timeliness of response – in order to encompass average trends between groups of respondents. We therefore perform the same analysis as described above using these attributional variables as cluster unit to frame a clearer picture of the ability

and perception of countries of implementing effective shared mechanisms of intervention on social determinants of TB.

3. Descriptive Statistics

A straightway to get a general idea of the major contents expressed in a text is to verify what are the most frequent words used (Table 2). Given the questions asked to respondents, it is perfectly expected that the three most (full) words used in the corpus are *TB*, *health* and *National Strategic Plan*. It is more interesting to see at the following words, with a prominent place occupied by terms such as *patient* and *care*, suggesting a centrality of these concepts in the interpretation of the core reason of the NSP elaboration.

Table 2 *Most frequent (meaningful) words in the corpus*

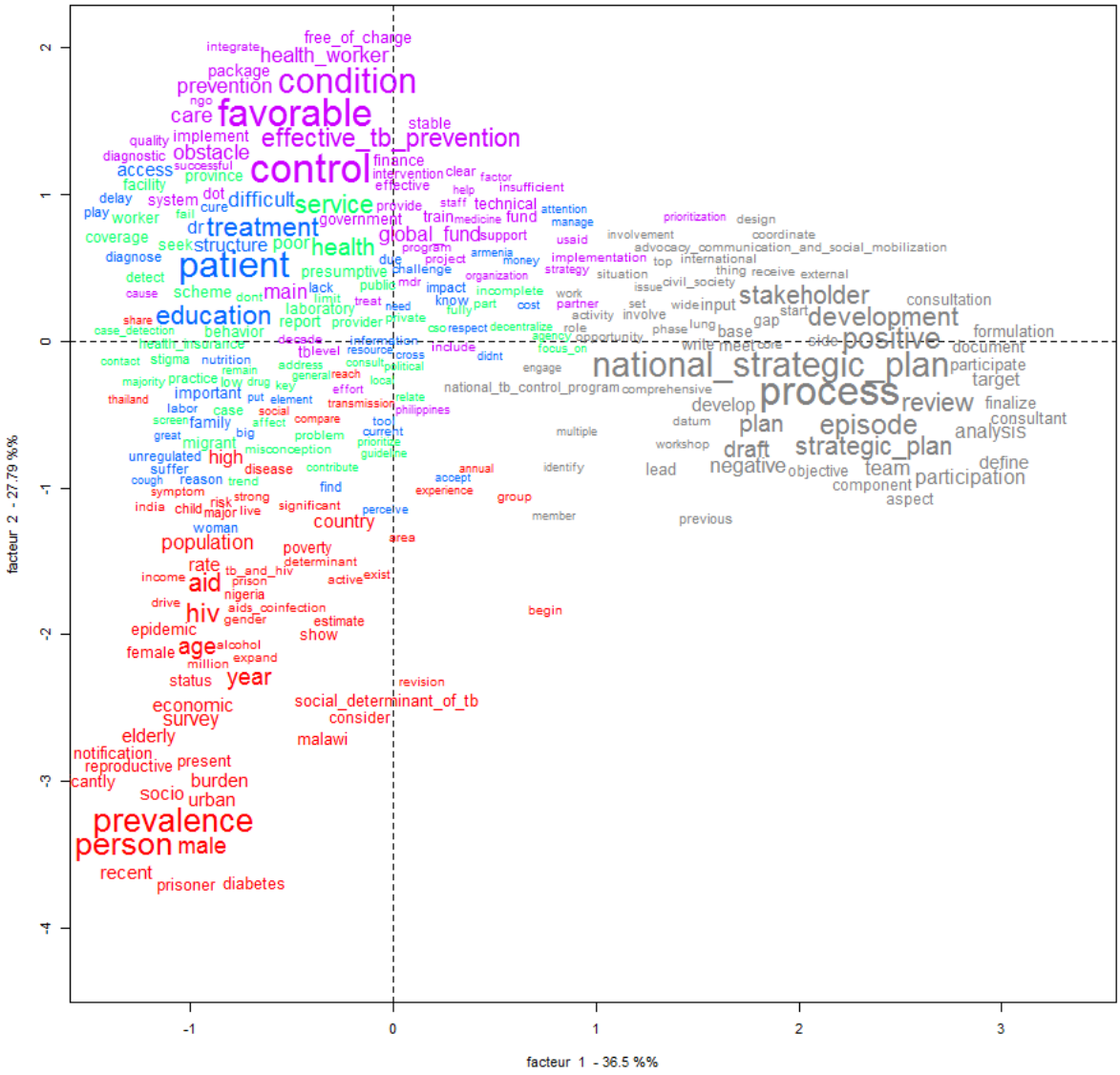
n.	Most frequent words	n. occurrences
1	TB	295
2	Health	100
3	National Strategic Plan	68
4	Control	58
5	Patient	55
6	Care	55
7	treatment	51
8	Plan	50
9	Country	46
10	Service	43
11	Process	41
12	Level	41
13	National TB Control Program	41
14	population	39
15	HIV/AIDS	37
16	Program	36
17	stakeholder	36
18	Poor	31
19	community	30
20	National	29

A clear reference to local conditions of implementation is present with words such as *plan*, *country* and *level*, recalling the national organization of the strategy and provision of services. It is worth noting the presence of the term *process* which encompasses the idea of interrelated activities that interact to achieve a result, including facing multiple actors.
Finally, respondents frequently refer to *community* to describe the relational environment where TB may be prevented, and use the adjective *poor*, suggesting a clear reference to a core social determinant of TB diffusion.

Through a statistical analysis of the text, it is possible to identify the main conceptual nuclei expressed in it. Following Reinert (1987) approach of "lexical worlds", that means classes of units that have similar lexical content, we found 5 main nuclei. Represented in a bi-dimensional space, each color refers to a different class and proximity reflects major similarity between words (Figure 2). The agglomeration process is meant to maximize the similarity of words within a class and maximize difference between classes. The higher

distance is found between class 1 (red) and class 2 (grey), developing their "cloud of words" along two different axes in opposite directions. On the other hand, almost 60% of the text belongs to the three central classes – namely class 3 (green), class 4 (blue) and class 5 (violet) – and shows similar contents with a high grade of overlapping on the space of representation. Table 3 summarizes the 20 most frequent words included in each class and allow us to briefly describe their contents. The first conceptual nucleus (red) clearly refers to **TB diffusion and determinants**, suggesting a rising awareness about the need of integrated social, economic and public health policies to prevent and control TB. The second conceptual nucleus (grey) is grounded on the **formal process of NSP elaboration**, characterized by terms as *stakeholder*, *plan*, *draft*, *target*.

Figure 2 *Graphical representation of main conceptual nuclei of the text*



The third class (green) refers to **institutional and social conditions for TB care**, including physical and structural infrastructures of service provision (among others, *facility*, *laboratory*,

provider, scheme) and social bodies, as *community*, which largely affect the creation of a link between people and care.
The factorial analysis allows us to identify two more conceptual nuclei. The fourth class (blue) mainly refers to an individual condition by concerning the **access to care and private relational dimension** (see for example words as *education*, *patient*, *family*, and *woman*).
Finally, the last nucleus grounds on a future perspective by providing favorable actions for TB care, with particular attention devoted to practical implementation of treatment strategies (*DOTS*, *free of charge*, *control*, *prevention*) and enhancement of effectiveness (*political commitment*, *finance*, *effective TB prevention*).

This clustering process is useful to identify the most important conceptual topics in the *corpus* and it will contribute to the definition of keywords able to synthetize the text (see Section 5).

Table 3 *List of the 20 most frequent words in each class*

class	1	2	3	4	5
label	TB diffusion and determinants	NSP elaboration process	Institutional and social conditions for TB care	Accessing care and relational dimension	Favorable actions for TB care
corpus coverage	*(16.5%)*	*(23.8%)*	*(21.8%)*	*(14.9%)*	*(23%)*
words	prevalence	process	service	patient	control
	person	national_strategic_plan	health	education	favorable
	hiv/aids	positive	poor	treatment	condition
	aid	episode	scheme	difficult	effective_tb_prevention
	age	development	report	structure	prevention
	year	strategic_plan	migrant	tranational_strategic_planortation	obstacle
	male	stakeholder	facility	access	health_worker
	population	review	seek	important	care
	survey	plan	laboratory	family	political_commitment
	country	draft	province	due	main
	high	negative	presumptive	find	global_fund
	urban	analysis	worker	diagnose	package
	socio-economic	team	coverage	delay	free_of_charge
	recent	participation	behavior	language	implement
	burden	develop	awareness	cure	finance
	elderly	target	community	woman	system
	reproductive	technical_assistance	public	lack	fund
	rate	define	low	follow	DOTS
	social_determinant_of_tb	input	provider	unregulated	government
	epidemic	meet	health_insurance	play	stable

4. Division in *subcorpora*

WHO has recently promoted a radical shift in TB prevention and control global strategy by recognizing and emphasizing the role of socio-economic policies and interventions in supporting TB control, encouraging a common people-centered approach and the engagement of non-state actors in the public health initiatives to fight TB. The main aim of this research is to assess the existence of significant differences in the interpretation of social determinants and partnering approach in the elaboration of the NSPs among countries accessing to the Global Fund.
We identify variables possibly correlated to different approach to the design of strategies for TB prevention and control, in particular:

1. having had experience of the **StopTB Partnership** initiative: to incorporate the new WHO approach to TB prevention and control, effective actions in the establishment of shared mechanisms of coordination in the control of the social determinants of TB – beyond promoting investments only in control programs, diagnostics and treatments – especially at community level, are required. These mechanisms closely recall the partnering process which characterized the Stop TB Partnership initiative.

2. the **role of respondent** in the elaboration process of the NSP: the drafting process has involved several stakeholders ranging from officials (especially from the Ministry of Health), Program Managers of the former NTP, local Partners representatives and – when relevant – the local StopTB Partnership secretary. It is arguable that given the different role of these actors, their perception of the opportunity of promoting a people-centered approach may be dissimilar.

3. being a **High Burden Country**: during the last 15 years "High Burden Country" (HBC) became familiar and widely used concept in the context of TB, aimed at targeting financial aid with the rationale that progress in such identified countries would translate into larger global impact. For this reason, it is arguable that the critical relevance of TB in a country and the need for international support would be reflected in a higher adherence to global strategies.

4. **timeliness** of the response: actors responsible for TB strategies implementation are likely to cyclically pass through under-pressure periods and face overwhelming tasks due to the nature of their role and the characteristics of TB epidemics. The collection of questionnaires has been characterized by a delayed deadline and a subsequent final recall. We use this variable to verify whether a postponed answer might be affected and come up as a hurried response to be compliant with a required task, rather than a thoughtful description on the process of NSP elaboration.

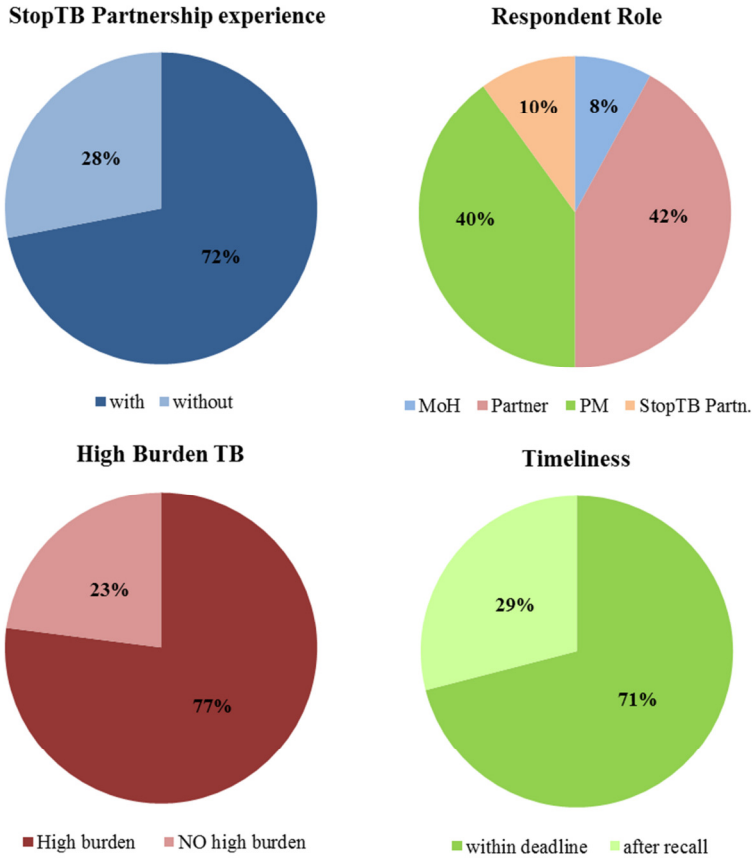
Based on these variables, we re-organize the text into different *subcorpora*. Table 4 summarizes some descriptive statistics, including the number of fragments (that is the number of complete questionnaires), their average length and the corresponding measure for the whole *corpus*.

Table 4 *Descriptive statistics, by subcorpora*

	Subcorpora	**name**	**n. fragments**	**length (average)**	***corpus* length (average)**
1	Stop TB Partnership experience	with	14	598.5	478.2
		without	11	308	
2	Respondent Role	MoH	1	982	478.2
		Partner	7	717.1	
		PM	14	340.7	
		Stop TB Partn.	3	394.6	
3	TB high burden	high burden	16	581.1	478.2
		No high burden	9	306.2	
4	Timeliness	within deadline	18	470.5	478.2
		after recall	7	498.1	
		total number of fragments	*25*		

Compliance with deadlines seems to have unaffected the inclination of respondents to express in a narrative way what has been the NSP elaboration process, at least in terms of average length of answers (*Subcorpora* 4). Differences arise when we consider only countries having experienced the StopTB Partnership initiative (*Subcorpora* 1) which describe the process with almost 25% more words than the average number used in each fragment of the whole *corpus*. A similar pattern is found in *Subcorpora* 3 where respondents working in High Burden Countries report a greater average length of fragments respect to NO-High Burden Countries. More nuanced considerations should be noted in regards to the respondent role variable (*Subcorpora* 2): whereas official actors (MoH) and local partners definitely tend towards a higher use of words to explain their contribution in the NSP elaboration, Program Managers as well as components of the StopTB Partnership secretary appear very concise and short in their answers. Figure 3 provides a graphical representation of the *corpus* as organized by the extension of each *subcorpora.*

Figure 3 *Composition of corpus, by subcorpora extension*



4.1 The StopTB Partnership experience *subcorpora*

The StopTB Partnership initiative encouraged a partnering approach built on the skills and competences of all involved partners within a country, with the final aim of increasing

efficiency by avoiding duplication of efforts and waste of resources[4]. This effort is meant to focus health service on the patient needs and to improve access to TB services at local level.
A key component of that strategy was the support to the efforts made by civil society and the TB-affected communities to fight TB, through a continued engagement of such actors into every action devoted to TB prevention and control. This approach should be built into, and complement, any public health intervention.
It closely recalls the current global strategy adopted by WHO and, therefore, countries with the StopTB Partnership experience would have had the possibility to use the lessons learnt through the partnering process and adopt this holistic approach into the elaboration of the NSP.

Table 5 *Descriptive statistics for the StopTB Partnership subcorpora*

			with		without	
		Corpus	***value***	***%corpus***	***value***	***%corpus***
Word Token	N	11956	8568	72%	3388	28%
Word Type	V	2092	1773	85%	977	47%
Type/Token Ratio (TTR)	V/N%	17.4%	20.6%	-	28.8%	-
% hapax	V1/V%	50.6%	53.6%	-	58.9%	-

Comparing the two groups, it is evident that respondents in countries with the StopTB Partnership experience tend to describe with more details the process of NSP elaboration, and they use also a good linguistic richness in doing that (TTR)[5]. Such linguistic richness is also characterized by the use of exclusive words, actually words not expressed by the other group. Among such exclusive words we found terms as ***education*** and ***information***, referring to a non-medical dimension of TB prevention and control.
In their words, "*in regards of **education**, it is related to the knowledge of patient rights and responsibilities, and about the disease. Most of patients don't even know the basic information about TB […], **information** is the key, **information** about TB in community friendly language with least medical terms. […] this **information** usually spread out by community workers, health cadres, deep into community and quite succeeds*" (Indonesia). Successful rate in diagnostic and timeliness treatments are fueled by an increasing access to education and information: *"inadequate access to **education** and **information** make [people] unaware of the fact about TB, and delay consulting health care provider or complete treatment due to lack of financial resource"* (Philippine). Therefore, one of the major challenge in the fight against TB is that *"structurally, current TB response by the government falls short in providing human-centric treatment, in **education** and advocacy, and in accounting for the unregulated private sector"* (India). As the mentioned excerpts suggest, the involvement of community members and the diffusion of information about TB is found as a powerful mean for TB prevention and control. In the StopTB Partnership approach indeed, the involvement of TB-affected communities is the key to support a people-centered approach, since within their communities the experiences, needs and concerns of TB patients are more frequently expressed and considered.
The role of all actors in the fight against TB is recognized as well. For example, a third exclusive word used by countries with the StopTB Partnership experience is ***CSOs*** (civil

[4] List of countries in the StopTB Partnership experience *subcorpora* is provided in Appendix 2.
[5] Given the different overall extension of the texts included in the two groups, it could be misleading to proceed towards a comparison in terms of descriptive statistics, since values as linguistic richness largely vary on the basis of the text length.

society organizations) whose role is clearly evaluated since it is encouraged to discuss about *"[…]input on the matters of key affected population firsthand experience and the effort of CSOs who strive to address TB care on a community level"*(Ghana). CSOs indeed are likely to be able to *reach "the unreached population and they also have a good understanding of community system"* (Ghana).

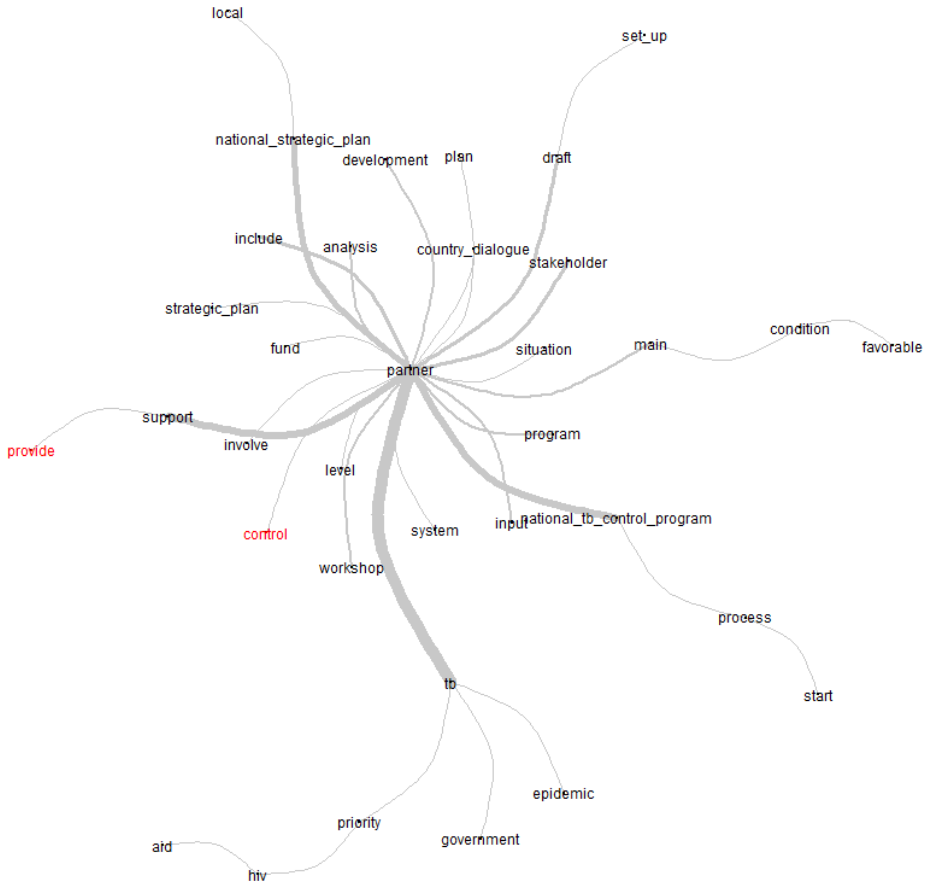
We go further into the analysis of these *subcorpora* by identifying any specificity. "Specificity" defines as characteristic of a text each word or expression over/under used with respect to a reference standard (for example the average value in a reference model). In this case, it is not possible to make a comparison on the specific use of a word respect to a reference vocabulary, given the exceptionality of the collected text. However, it is possible to verify if specific groups show a different use of words, thus characterizing traits of expression, by searching within the same *corpus*. In particular, each positive specificity (over- use) of a word is equivalent to a higher use to that "expected" in the group's answers, with respect to its average use in the whole *corpus* that have produced the groups' partition. This gap is evaluated in probabilistic terms. The model is based on the hypergeometric law, asymptotically approximated to a Gaussian distribution, if the frequency of words in the corpus and size of sub-texts are sufficiently large[6].
As far as regards the group composed by respondents working in countries with the StopTB Partnership experience, it is worth noting that it is characterized by the over-use of the active forms ***patient*** (p-value: 0.013), and ***information*** (p-value: 0.013). While the use of the second term has been already illustrated in this paragraph, the actual use of the form *patient* deserves to be better explored. Indeed, it represents a meaningful word in relation to the final aim of this research since it underlines the attention devoted to TB-affected people as active subject to define a national strategy of intervention. Respondents working in countries with the StopTB Partnership experience use 47 times (out of the total 55 occurrences in the whole *corpus*) the word *patient*, recognizing specific characteristics (*"TB patient are often economic and social outcasts, with poor emotional support and quality of life, low self-esteem"*, India) and the potential role to be played against TB epidemic *("TB has become too medicalized while patient can play important role for their treatment to get cured. Even now, many don't understand what and how to empower patient"*, Indonesia).

On the other hand, respondents in countries without the StopTB Partnership experience are characterized by other positive specificity, in particular the use of ***partner*** (p-value:0.000) and ***care*** (p-value:0.022) forms.
As regards the first one, with few exceptions such as Laos, it seems that the term partner is particularly used by countries without StopTB Partnership experience in describing the process of NSP elaboration (for example, *"expert group that has been set up from the National Strategic Plan, Ministry of Health agencies and partner to draft the revised strategic plan*", Ethiopia), rather than powerful actors to be involved in the provision of health care.
Figure 4 provides a graphical representation of the (full) co-occurrences of the term *partner:* that means all the words that systematically precede a/o follow it. The thickness of links proxies the frequency of concurrence, whereas the spatial location of words is randomly determined. Looking in that way at the context of use, we found that both groups refer to a ***partner*** in its "functional" presence (see for example *strategic_plan; country_dialogue; workshop*…); however, only respondents in countries with the StopTB Partnership experience associate ***partner*** with the terms ***provide*** and ***control*** (labelled in red). These

[6] Statistical significance of over/under use is tested at p-value<0.025

terms, more related to the ability of bringing a service, are never used by respondents in countries without the StopTB Partnership experience in association to the term ***partner***.

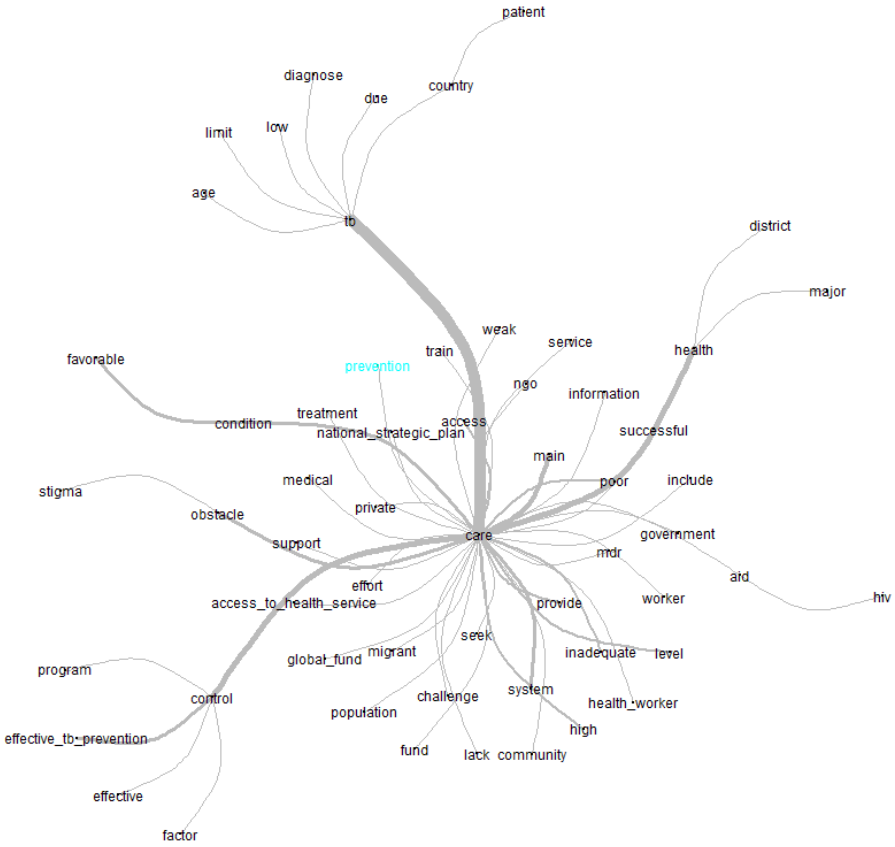
Figure 4 *(full) Co-occurrences of the term partner*



Note*: words in red refer to words only expressed by countries with the StopTB Partnership experience in association with the term partner.*

The word ***care***, instead, underlines a specific attention of respondents in countries without the StopTB Partnership experience to such dimension and to the associated concept of *prevention*, exclusively used by them (Figure 5). Given the fact that one third of the world's population is estimated to have latent TB infection (Global TB Report, 2015) and preventive care represents a global priority target for the current WHO End TB strategy, this focus suggests a substantial assimilation of (or compliance to) international guidelines for the design of the national policy.

Figure 5 *(full) Co-occurrences of the term care*



Note*: word in light blue refers to words only expressed by countries without the StopTB Partnership experience in association with the term care.*

4.2 The Respondent Role *subcorpora*

It is reasonable to expect that the functional role of respondents in participating to the elaboration of the NSP matters to define their perception of key issues such as the role of communities. A Partner indeed, may even overstate their role and call for a substantial integration of local organizations in the management of health policies at local level, given the nature of its commitment. On the other hand, an official of the MoH may be more inclined to underline the relevance of coordination system and overall management, for example. For this reason, we analyzed the *corpus* as divided into groups based on roles (Table 6).

Table 6 *Descriptive statistics for the Respondent Role subcorpora*

			MoH		Partner		PM		Stop TB Partn.	
		Corpus	***value***	***%corpus***	***value***	***%corpus***	***value***	***%corpus***	***value***	***%corpus***
Word Token	*N*	11956	982	8%	5020	42%	4770	40%	1184	10%
Word Type	*V*	2092	449	21%	1319	63%	1180	56%	438	21%
Type/Token Ratio	*V/N%*	17.4%	45.7%	-	26.2%	-	24.7%	-	36.9%	-
% hapax	*V1/V%*	50.6%	70.8%	-	56.5%	-	57.3%	-	60.9%	-

It would be misleading to comparatively interpreter descriptive values for the MoH group and StopTB Partnership *subcorpora* since they are, respectively, composed by only 1 and 3 fragments, thus they represent a very small portion of the whole text. Conversely, the Partner and Program manager (PM) groups offer the opportunity for an interesting comparison given their similar length and number of fragmnets. In particular, it is worthy to detect the existence of word used in an exclusively way by one of the two *subcorpora* in order to identify possible different approach to the NSP elaboration.

Tables 7 and 8 provides a summary of most frequent exclusive words applied by respectively PM and Partner *subcorpora*. From the first table, it is quite clear that a major focus of Program Managers is on the process of functioning of the NSP, described through the use of words as ***data***, ***management***, ***committee*** and ***performance***. This attention is confirmed by taking into consideration words used by Program Managers and MoH officials only: in this case, an additional powerful term emerges: ***country_dialogue***. Again, the functional organization of the NSP to fight TB appears as a major concern. A second theme comes to light also: words as ***migrant*** and ***prison*** suggest a specific attention to national policies' subjects, underling specific needs associated to particular populations who are likely to be affected by TB. Finally, when we consider words exclusively used by Program Managers and representatives of the StopTB Partnership secretary a third issue captured our attention: ***access_to_health_service*** highlights the relevance of such an issue in designing the contents of the NSP. Poor people with TB, indeed, face huge barriers in accessing TB testing and treatment services; and if TB control wants to be effective, quicker diagnosis and treatment options as close as possible to their homes are required. Several kind of barriers may prevent poor people from having access to TB prevention and treatment facilities, ranging from economic obstacles, to geographical (for example, distance from services providing TB diagnosis and treatment), socio-cultural (stigma and lack of knowledge of TB) till health system barriers (lack of health system responsiveness). Whatever are the obstacles, having a specific focus on the access issue appears significant, especially taking into consideration that such attention is shared with StopTB Partnership representatives. For all respondents, limited access to health services is a major determinant of the TB diffusion at local level, in particular in remote areas and for more vulnerable people.

Table 7 *Exclusive word used by Program Manager (PM) subcorpus*

PM subcorpus - exclusive words
data
management
committee
performance
used by PM and StopTB Partn. respondents only:
access_to_health_service
used by PM and MoH respondents only:
country_dialogue
migrant
prison

Instead, words exclusively used in the Partner *subcorpus* suggest a perspective more related to diffusion mechanisms at local level, whose prevention indeed represents the major commitment of local partners (Table 8). In this regard, Ghana, Nigeria and Philippine repeatedly underline that *"poor **health seeking behavior** of TB patient is also a problem, and stigma is a major cause"* (Philippine). The attention is devoted to the willingness to be treated – that means to make public of having been affected by TB – and awareness about the disease and connected health care. The term ***drug*** refers both to specific TB medicines, and thus to some extent to availability of health care, and to addiction.

Table 8 *Exclusive word used by Partner subcorpus*

Partner *subcorpus* - exclusive words
drug
spread
practice
reason
health_seeking_behavior
used by Partner and StopTB Partn. respondents only:
stigma_and_discrimination
Education
Participate
used by Partner and MoH respondents only:
CSO
Language

As before, we verify what are the full words exclusively used by the Partner and StopTB Partnership *subcorpora*, meant at identify possible shared perspectives by these two groups of respondents. Partners and representatives of the StopTB Partnership experience appear particularly focused on socio-cultural barriers to health access, namely ***stigma_and_discrimination***, which work as major determinant for TB diffusion at local level. They are also concerned on the impact that investments in ***education*** would have in terms of more effective TB prevention (see also paragraph 4.1), thinking that *"the overall structure also need to be reinforced with proactive campaign in **education** and advocacy to become a more holistic TB care system"* (India).
Once we perform the same analysis on respondents belonging to the Partner and MoH *subcorpora*, we find again this particular attention to local conditions, but with a more detailed focus on policy functioning. Words exclusively used by these groups refer indeed to the role of ***CSOs*** inclusion (see also paragraph 4.1), and to the burden represented by insufficient linguistic understanding due to the fact that information about TB should be *"delivered in appropriate **language** through appropriate channels"* (Nigeria) and in *"community friendly language with least medical terms"* (Indonesia).

With the same approach adopted in the previous paragraph, we go further into the analysis of these *subcorpora* by identifying any specificity that means any over-use (positive specificity) of full words respect to average values in the whole *corpus*.
We first consider the Partner *subcorpus*. Respondents belonging to the Partner group over-use words recalling people-centered approach as ***patient*** (p-value: 0.000) and ***women*** (p-

value: 0.000), as well as words more referred to effective access to health care as ***treatment*** (p-value: 0.001) and ***information*** (p-value: 0.002). It results particularly interesting the raising of a clear reflection on gender issues since *"TB affects women in their reproductive years, [and it] is the third highest cause of morbidity and mortality, which lead to more deaths in women than maternal mortality*" (India) and *"access to health care remain the biggest challenge where women have greater inequity in relation to family"* (Laos). Respondents belonging to the Partner group appear strongly focused on beneficiaries' characteristics and local conditions of health service provision, supporting the idea that their practical role in the field consistently reflects the way they think about their role in the elaboration of a health public policy.

Program Managers, instead, are specifically focused on the design of practical functioning of the strategy against TB: they over-use words as ***program*** (p-value: 0.000), ***draft*** (p-value: 0.001), and ***district*** (p-value: 0.001) highlighting in that way their role of coordinators. There is a clear understanding about the relevance of a partnering approach in order to territorially reach more people as possible through the provision of TB care and prevention services. The word ***partner***, indeed, is over-used by Program Managers (p-value: 0.000). Effective TB prevention, care and control require a *"strong partnership and well-coordinated response to the TB epidemic by all partners and stakeholders"* (Ethiopia), including the resolution of *"coordination challenges between partners and government"* (Uganda). At the same time, where the links between partners and local authorities is not well established, a major obstacle to fight against TB is exactly found in the fact that *"few partners [are] involved in TB strategies"* (Malawi). This result is particularly worthy once we consider that we collected questionnaires' answers by Program Managers from 13 countries, and only 3 of them have experienced the StopTB Partnership initiative. In other words, countries where a former partnering experience devoted to TB prevention, care and control did not occur clearly underline (with a significant over-use of *partner* word) how an effective inclusion of partners in the elaboration and implementation of public health strategy is highly desirable.

4.3 The High Burden *subcorpora*

During the period 1998 to 2015, the concept of a "High Burden Country" (HBC) became familiar and widely used in the context of TB[7]. The rationale for creating the HBC list was to highlight the scale of the epidemic, with a focus on a small set of countries with the largest number of TB cases. In this way, there were selected 22 countries in order to prioritize interventions and advocacy actions by WHO and its partners for policies, funding and action to improve TB control for both national and global impact.

[7] Despite a recent update, as far as regards this research report, we refer to the HBC list valid till 2015, since the NSP elaboration has been carried out within this date.

Table 9 *List of High Burden and NO High Burden countries in the sample*

High Burden	NO High Burden
Ethiopia	Armenia
Ghana	Botswana
India	Fiji
Indonesia	Georgia
Kenya	Laos
Nigeria	Malawi
Philippine	Sri Lanka
Thailand	Tajikistan
Uganda	
Zimbabwe	

For the purposes of this research, it is arguable that countries belonging to the HBC list may encourage a particular attention to local determinants of TB epidemic given its large incidence. Thus, we reorganized the text into two *subcorpora* defined on the basis of being a HBC or not, and we verified significant differences between these two groups of respondents (Table 10). It is worth noting that, with the exception of Ethiopia and Zimbabwe, all HBC in the sample have experienced the StopTB Partnership initiative.

Table 10 *Descriptive statistics for the High Burden Countries subcorpora*

			High Burden		NO High Burden	
		Corpus	***value***	***%corpus***	***value***	***%corpus***
Word Token	N	11956	9200	77%	2756	23%
Word Type	V	2092	1841	88%	850	41%
Type/Token Ratio (TTR)	V/N%	17.4%	20%	-	30.8%	-
% hapax	V1/V%	50.6%	53.1%	-	58.8%	-

In our sample, 16 questionnaires (out of 25) refer to HBC and the resulting *subcorpus* is definitely larger (more than three times) than the NO HBC one: as already stated in the previous section, respondents from HBC tend to elaborate, on average, more detailed and longer answers.

Through a similar strategy of analysis used in sections 4.1 and 4.2, we firstly detected the existence of words exclusively used by one group respect to the other, and subsequently, of any specificity.
As regards exclusive words, many differences raise. Respondents in HBC indeed show a very different linguistic register respect to respondents in NO-HBC; we therefore analyze the most significant ones. Our attention is immediately captured by words as ***information*** and ***education***, whose presence could be explained by the substantial presence of StopTB Partnership experiences among HBC (see section 3.1). A second dimension is the clear attention paid to actors to be involved: ***CSOs***, ***private sector***, ***Department*** *(or* ***Ministry****)* ***of Health*** are expressions exclusively used by HBC respondents. In particular, it seems that the role of private care providers is taken into account as potential key actors in the fight against TB, since *"favorable conditions for effective TB prevention, care and control [is] successful and effective* ***engagement*** *of the private care provider in TB care"* (Ethiopia) and bottlenecks are found where *"weakness with community* ***engagement****, and insufficient engagement of private health care provider"* (Kenya) occur. A third dimension refers to specific

characteristics of TB-vulnerable people who share a general difficulty to afford the treatment ***cost***, suffer from ***stigma_and_discrimination*** and often live in ***slums***. The second point deserves to be better explored since it directly touches social and cultural perspectives of communities. Social stigma is frequently pointed out as a significant barrier to access to services, and "*there are still bigger challenges of integrating patients under ambulatory supervision back to their community due to stigma and discrimination*" (Ghana). It should be mentioned that TB is often associated with factors that can themselves create stigma: HIV, poverty, drug and alcohol misuse, homelessness, a history of prison and refugee status. Fear of discrimination can mean people with TB symptoms delay seeking help, making it much more likely that they will become seriously ill and infect others within families.

On the other hand, respondents from NO-HBC appear focused on very specific country challenges which concern hallmarks of TB epidemic in such countries. Expressions as ***labor migration***, ***low salary*** and ***ethnic minority***, indeed, describe common traits of TB challenge and put attention on national priorities. Labor migrations, in particular, pose major obstacles to effective TB prevention and control since among migrant workers with a legal status, their access to TB diagnosis and care is subject to contracts, work permits and ability to access health care services or insurance from the State or the employer; whereas undocumented migrants face challenges such as fear of deportation or imprisonment that limit their access to diagnostic and treatment services. In Armenia, for example, *"the main factor is related to outgoing labor migration, mainly to Russia, with often patient defaulting treatment for work outside of the country"*.

A further step is represented by the analysis of positive specificity in the text. Respondents from HBC report few words which are over-used respect to NO-HBC respondents, and they recall again the relevance of sustaining the commitment of multiple actors involved in TB fight. ***Engagement*** and ***private***, indeed, explicitly refer to such dimension and call for increasing participation from private sector and communities. This approach reflects the recent WHO-End TB Strategy which includes the engagement of communities, civil society organizations and all public and private care providers as one of its core components and principles.
In terms of specificity, respondents in NO-HBC show a higher variance: they over-refer to territorial and local conditions (with words as ***district***, ***urban***, ***population***) and to the problem mapping (with words as ***rate***, ***prevalence***, ***high incidence***) which suggest a specific attention to survey the local diffusion, probably understated by countries with general high rate of TB impact among national population (HBC).

4.4 The Timeliness *subcorpora*

The questionnaire has been submitted through web-services to potential respondents in 37 countries, with the request of being filled within a reasonable deadline. Not all respondents respected such deadline and repeated recalls have been necessary to receive some answers.
For this reason, we decided to control also for timeliness in the response: respondents are likely to have a periodically crowded agenda given the dynamic of TB epidemic and offering own time to respond to a survey may require an extra effort of gratuitousness. It is arguable that such availability to share limited time (probably spare time, also) is an indirect indicator of commitment. In addition, controlling for timeliness of the response is a good strategy to isolate the impact of a potential priming effect, if any.

The *subcorpus* of respondents who respected the deadline is definitely larger than the other, been composed of 18 fragments (out of the total 25), so a direct comparison between the two is not straight.

Table 11 *Descriptive statistics for the Timeliness subcorpora*

			within deadline		after recall	
		Corpus	***values***	***%corpus***	***values***	***%corpus***
Word Token	N	11956	8469	71%	3487	29%
Word Type	V	2092	1704	81%	1060	51%
Type/Token Ratio (TTR)	V/N%	17.4%	20.1%	-	30.3%	-
% hapax	V1/V%	50.6%	52.6%	-	58.6%	-

What is interesting is that the two vocabularies are quite different and respondents within the deadline use in an exclusive way a lot of meaningful words as ***budget***, ***phase***, ***project*** and ***report***, suggesting a particular attention to the functional design of the strategy.
A second set of exclusive words refer to actors involved to TB care and control, such as ***private sector***, and ***health worker*** who sustain critical role at local level for service provision: "*the general population at the village and ward level shared that often there was no doctor available and that they receive help of pharmacists, health worker or private nursing at home. Very few of these health service providers are formally qualified medical doctor and most them are female health workers*" (India). Their relevance is underlined referring to a chronic shortage of medical staff in multiple countries and to their systematic relation with TB-affected people at local level. A third exclusive word is represented by the expression ***stigma and discrimination***, which has been already explored as exclusive word for Partner respondents (Section 4.2).
On the other hand, respondents which send their answers after the recall show a minor number of exclusive words, which appear strongly related to country specific needs: for example Thailand calls for particular attention to be devoted to ***prisoners*** and their living conditions and the effects produced by a remarkable ageing of its population *"since there is* ***consistent*** *evidence that TB rate rise with age and are significantly higher among the over 65s compared to all other age*".

As far as regards positive specificity, in other words a significant over-use of a word respect to the other group, respondents within the deadline appear focused on mapping the problem of TB diffusion and implementing a strategy, by over-using terms such as ***private*** (p-value: 0.006), ***support*** (p-value:0.015), ***survey*** (p-value:0.018) and ***treatment*** (p-value:0.020).

The other group confirms a specific emphasis on country dynamics related to TB diffusion, over-using words as ***migrants*** (p-value: 0.000) who are largely uninsured and *"have* ***limited*** (p-value: 0.018) *access to TB care"*(Thailand), and general obstacle to policy effectiveness due to *"****limited*** *investments for TB care and control; inadequate human resource technical capacity;* ***limited*** *program facilitation to provide leadership and coordination"* (Uganda).

5. Keywords analysis

A final step in the analysis we propose, is based on the identification of keywords and verification of their distribution among the text. The choice of keywords is a complex phase of analysis – since we try to identify the most relevant dimensions we are looking at through single specific words – and partially rely on discretional choices of researchers.
We firstly selected relevant words through an endogenous process of analysis of the *corpus*, subsequently we apply clear criteria to select the final keywords, namely:

1- Only words with TFIDF index greater than 0.5 have been selected in order to keep their high distinguishing power (see the following paragraph for details);
2- Words selected on the basis of TFIDF index have been compared with words significant in the analysis carried out in Section 3, to preserve the logical organization of the *corpus* in different meaningful dimensions;
3- Words largely used by practitioners within TB field have been avoided since their specificity may derive from the use of a technical language not informative for the purposes of our analysis;
4- After these steps, we selected the first five words in order to maintain a congruous number of keywords for the analysis.

As mentioned, to select the relevant language in a *corpus*, we firstly base our analysis on the calculation of the TFIDF index. The TFIDF index is based on a weight attributed to each *type* (word) on the basis of its frequency and its distribution within the collection of documents, and that weight is the reference value taken into account for sorting the results. The *types* that best distinguish the content of a document (or a fragment, as in our case) will, therefore, those able to bring out that specific fragment with respect to the entire *corpus*, as they are very common, but only in one or in a few fragments. Thus, TFIDF index is the product of each *type* frequency TF (that is the number of occurrences of specific term) times the logarithm of the ratio of the number of fragments constituting a corpus (N) and the number of fragments that hold this specific *type* (inverse document frequency - IDF).

Table 12 summarizes the selected keywords and the dimensions they refer to. Through the analysis of their occurrences among the *corpus*, we aim at distinguishing how respondents – grouped on different *subcorpora* – focus on different dimensions of TB policy design, namely on:

1) **mapping the problem**, through consideration of local conditions of affected people;
2) **policy design**, through a participatory and partnering approach;
3) **social actors and norms**, through references to organizations and socially structured pattern of behavior at local level;
4) **people-centered approach**, through a specific attention to patients and their profile;
5) **improving effectiveness**, through inclusive processes of prevention and care enhancing.

Table 12 *List of selected keywords*

n	Keyword	Category
1	group	mapping the problem
2	population	
3	epidemic	
4	urban	
5	poverty	
1	consultation	policy design
2	participation	
3	civil society	
4	process	
5	involvement	
1	community	social actors and norms
2	local	
3	public	
4	private	
5	stigma	
1	patient	people-centered approach
2	access	
3	information	
4	family	
5	woman	
1	include	improving effectiveness
2	prevention	
3	implementation	
4	care	
5	political commitment	

5.1 *Mapping the problem*

The frequency of keywords' occurrence represents a good indicator to check to what extent an issue is meaningfully included in the approach proposed by any respondent in the elaboration of the National Strategic Plan. The first issue we selected refers to the ability of mapping the diffusion of TB, taking into consideration local conditions and social determinant of TB.

Figure 6 provides a snapshot of keywords incidence throughout the four *subcorpora* analyzed. We calculated the absolute frequency of each selected keyword in every *subcorpus*, and then, in order to take into consideration the fact that *subcorpora* largely differ in terms of extension, we normalized such value by the total number of *token* in each *subcorpus*. In this way, we obtained an incidence measure which is comparable across groups. Table 13 summarizes a total incidence of all keywords and the average value of occurrence (that means frequency) in each fragment (in other words, in each complete questionnaire).
Respondents working in countries having experienced the StopTB Partnership initiative as well as in HBC report a higher average value of occurrence, result driven by the higher use of ***population*** and ***poverty*** keywords which suggest a significant attention to such elements. However, once we control for the total extension of the *subcorpora*, and thus we look at incidence rate, the final figure changes: the incidence of selected keywords is higher in countries without the StopTB Partnership experience, except for *poverty* keyword. Indeed, as

the StopTB Partnership initiative states: *"A symbiotic relationship exists between TB and poverty. New TB infection is not just the product of poverty, but also creates poverty. Understanding the connection between TB and poverty is a powerful first step towards breaking this vicious cycle. Fighting TB and poverty together is necessary to accelerate economic and social growth and consequently reduce the global burden of TB*[8]*"*. This approach perfectly fits the idea that addressing the underlying social determinants of TB (among others, reducing poverty, ensuring food security, and improving living and working conditions) sustain a wider and more effective approach to TB prevention and control.

As already mentioned, we compare only Partner and Program Manager actors, given the limited number of complete questionnaires we received from the other professional figures. However, for completeness of information, Table 13 provides data also on respondents from MoH and StopTB Partnership secretary.
Partners show a higher average value of occurrences, mainly due to a larger use of ***population*** and ***urban*** keywords. This importance remains significant when we control also for the total extension of the *subcorpus*, confirming a relevant presence of these terms in Partners' narrative. On the other hand, Program Managers perform better (in terms of keywords presence) in relation to the other keywords, suggesting a particular emphasis on the whole issue.

Finally, as regards the last *subcorpora* division, we observed that respondents who submit the complete questionnaire after recall perform on average better both in terms of occurrences and incidence (with the exception of *group* keyword).

[8] StopTB Partnership, World TB Day 24 March 2002 Stop TB, fight poverty.

Figure 6 *Keywords incidence for category "Mapping the problem", by subcorpora*

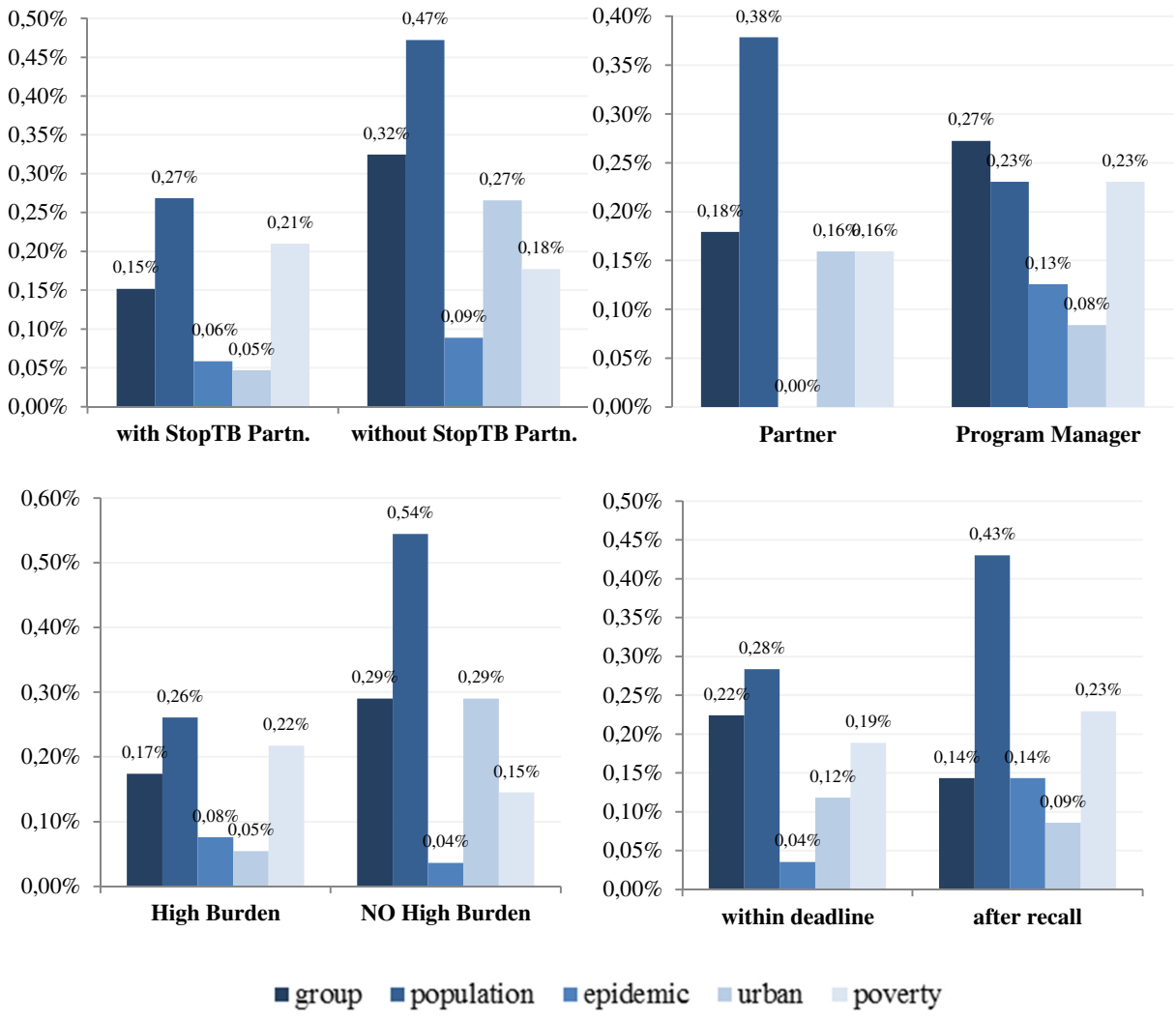


Table 13 *Keywords incidence and average occurrence for category "Mapping the problem", by subcorpora*

n	*Subcorpus*	n. occurrences	*token*	keywords incidence	n. fragments	average by fragment
1	**with**	63	8568	0,735%	14	4,50
	without	45	3388	1,328%	11	4,09
2	**MoH**	7	982	0,713%	1	7,00
	Partner	44	5020	0,876%	7	6,29
	PM	45	4770	0,943%	14	3,21
	StopTB Partn.	12	1184	1,014%	3	4,00
3	**High Burden**	72	9200	0,783%	16	4,50
	NO High Burden	36	2756	1,306%	9	4,00
4	**within deadline**	72	8469	0,850%	18	4,00
	after recall	36	3487	1,032%	7	5,14

5.2 *Policy Design*

The second selected category refers to the design of a public health policy: we are particularly interested in checking whether an inclusive process of consultation and elaboration, also including civil society actors, is present. A community-based partnering approach indeed is a turning point for a holistic approach to TB: this category is particularly meant at capturing such perspective.

Following the same procedure explained in the previous paragraph, keywords incidence (Figure 7) and average values of occurrence per fragment (Table 14) are shown.
Although respondents working in countries with the StopTB Partnership experience, as well as HBC, report a higher average value of occurrences for almost all keywords in this category, the total number of *token* of the two *subcorpora* show a significant difference. Once we control for this element, we observed that respondents in countries without the Stop TB Partnership experience, and analogously in NO-HBC, reach higher incidence levels. Just one keyword – ***consultation*** – steadily remains more relevant for respondents in countries with the StopTB Partnership. This is an important outcome since in this countries, given their past policy experience, a close participation of multiple actors represents an established routine. As in Philippine, where *"one positive episode during the implementation of the plan was the consultation done with the different sectors and different levels of the health system. There were representations from the private sector, academia and other government agencies as well as from the local government unit that are implementing the program. With this consultation, we were able to incorporate, not just the concerns of Department of Health but of other sector as well"*.

A similar pattern is found in the second set of *subcorpora*. On average, Partners report higher value of total occurrence, however in relative terms Program Managers are definitely more focused on the components of this category. This attention can be partially explained by their tasks; nevertheless such a specific emphasis on partnering approach elements should not be taken for granted, contrary it deserves to be highlighted.

Finally, whereas respondents in the "after recall" group perform better with higher incidence rate in almost all keywords, one component – ***participation*** – denotes a specific sector of action for respondent in the "within deadline" group. This result is not driven by other characteristics such as having had the StopTB Partnership experience since in the subsample 50% of respondents (9) work in a country with such experience, whereas the remaining 50% (9) do not.

Figure 7 *Keywords incidence for category "Policy Design", by subcorpora*

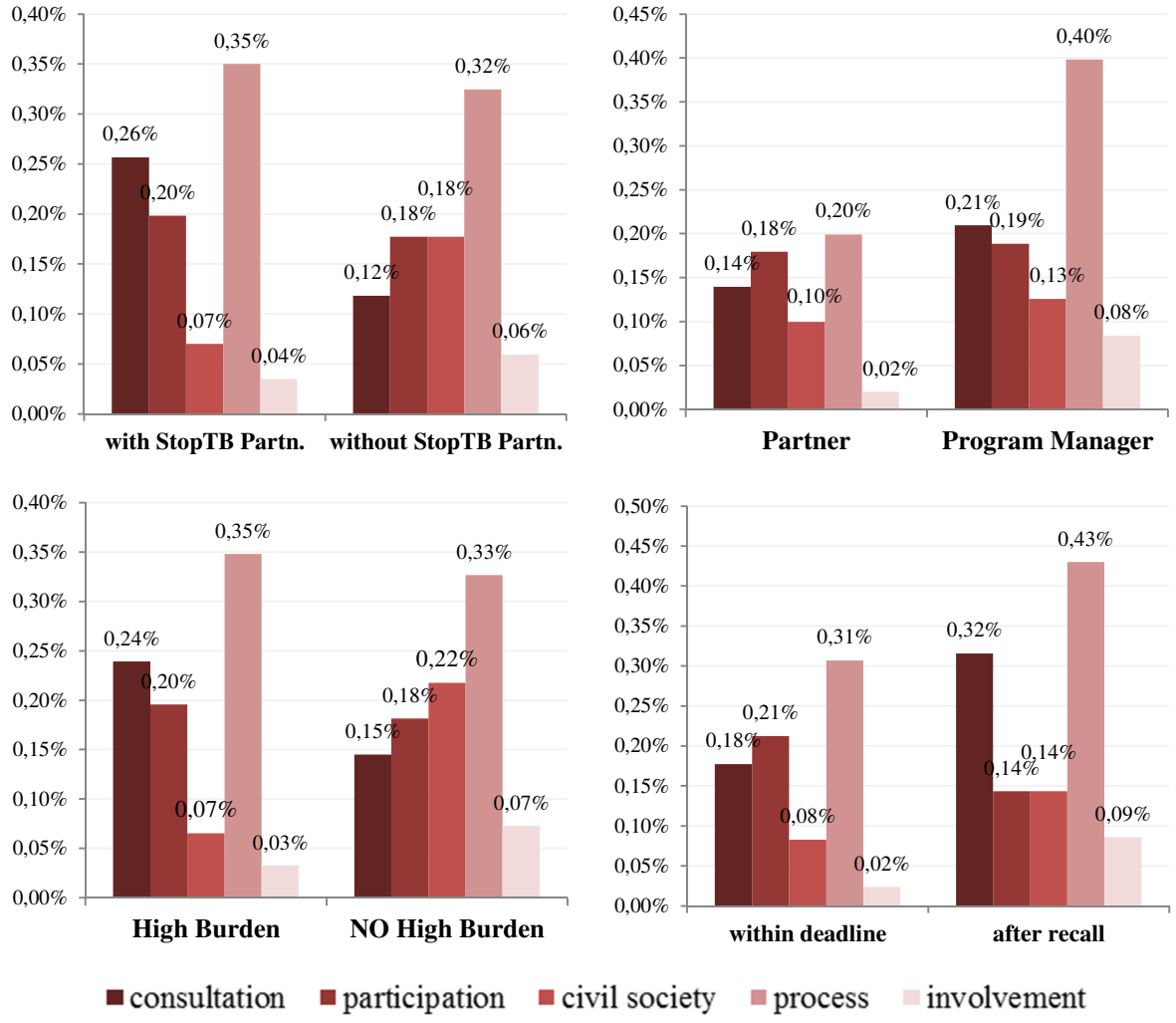


Table 14 *Keywords incidence and average occurrence for category "Policy Design", by subcorpora*

n	*Subcorpus*	n. occurrences	*token*	keywords incidence	n. fragments	average by fragment
1	**with**	80	8568	0,934%	14	5,71
	without	20	3388	0,590%	11	1,82
2	**MoH**	2	982	0,204%	1	2,00
	Partner	50	5020	0,996%	7	7,14
	PM	37	4770	0,776%	14	2,64
	StopTB Partn.	11	1184	0,929%	3	3,67
3	**High Burden**	85	9200	0,924%	16	5,31
	NO High Burden	15	2756	0,544%	9	1,67
4	**within deadline**	79	8469	0,933%	18	4,39
	after recall	21	3487	0,602%	7	3,00

5.3 *Social Actors and Norms*

This category is meant at drawing common traits between groups of respondents with specific reference to the recognition of organizations and social bodies to be included in service provision and socially structured pattern of behavior – working as impediment for effective TB care – at local level. Keywords such as ***public*** and ***private***, for example, refer to the need of engaging all relevant health care providers in TB care and control through public-private mixed approaches, which is an essential component of WHO's End TB Strategy. The adoption of multiple collaborative strategies at local level to include all involved care providers is strongly suggested by international guidelines.

We expected that countries with a partnering experience would have been more oriented to underline these components. Respondents working in a country with The StopTB Partnership experience – and HBC – are definitely more committed on these elements, indeed. For example, *"offering cost free service alone cannot address the problem without creation of demand for the service through raising awareness and sensitizing the* ***community*** *of the disease and its effect on the affected population"* (India).

Following the same reasoning, also Partners appear more oriented than Program Managers on this category. The only keyword with higher incidence rate in Program Managers respondents is ***public***, suggesting a close relationship of these actors with Ministries and other public offices in charge of health public policy implementation.

As before, the last groups' division is based on timeliness of response. In this case, respondents who submit their questionnaire within the deadline show a higher commitment on these components, both in absolute (average) values and incidence rate. As in the previous sections, Figure 8 offers a snapshot of incidence rate of each selected keyword for this category, for every *subcorpus*. Complementary, Table 15 summarizes total incidence rate and average values of total occurrences for each fragment.

Figure 8 *Keywords incidence for category "Social actors and Norms", by subcorpora*

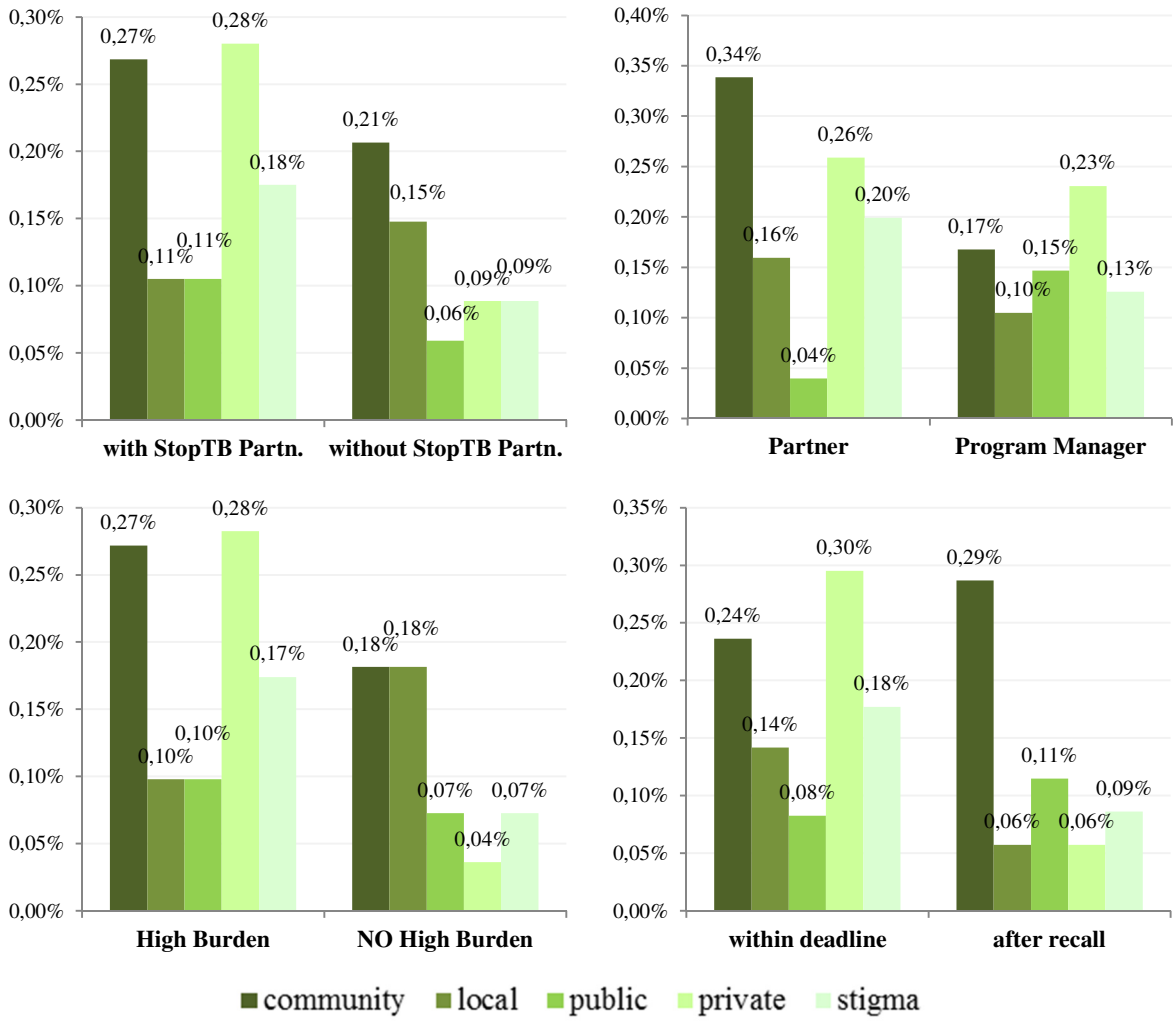


Table 15 *Keywords incidence and average occurrence for category "Social Actors and Norms", by subcorpora*

n	*Subcorpus*	n. occurrences	*token*	keywords incidence	n. fragments	average by fragment
1	**with**	80	8568	0,934%	14	5,71
	without	20	3388	0,590%	11	1,82
2	**MoH**	2	982	0,204%	1	2,00
	Partner	50	5020	0,996%	7	7,14
	PM	37	4770	0,776%	14	2,64
	StopTB Partn.	11	1184	0,929%	3	3,67
3	**High Burden**	85	9200	0,924%	16	5,31
	NO High Burden	15	2756	0,544%	9	1,67
4	**within deadline**	79	8469	0,933%	18	4,39
	after recall	21	3487	0,602%	7	3,00

5.4 *People-centered approach*

This category refers to a core issue of the research project. Since TB care requires a long and intensive course of treatment frequently inaccessible (for multiple reasons) by poor and vulnerable people, various approaches – including patient empowerment, education and counselling sessions, and involvement of family members and community workers – have been suggested for improving treatment adherence and outcome.
To what extent respondents are focused on such people-centered approach which overcome a pure clinical consideration of TB care and control is what we intend to measure with this category of keywords.

The results are consistent and easily interpretable. Respondents working in countries with the StopTB Partnership experience perform definitely better, both in terms of average value of occurrence and incidence rate, of respondents in countries without the same experience. A special emphasis on patient is clearly outlined and casts light on the need to improve their centrality in TB care and to remove social obstacles: *"structurally, current TB response by the government falls short in providing human-centric treatment, in education and advocacy, and in accounting for the unregulated private sector. The medical division needs to be more considerate of the* ***patient*** *needs"* (India).
The same pattern characterizes also respondents working in High Burden Countries and Partners respondents. In this last case the prominence given to a people-centered approach is even more evident.

It should be mentioned that among the selected keywords, *access* keyword follows a different trajectory: it seems that respondents working in countries without the StopTB Partnership experience, No-HBC and especially if Program Managers are more concerned on accessibility issues than the other reference group.

Timeliness is less discriminative as distinguishing factor. As in other categories, minor differences can be kept between the two groups, for example although *patient* keyword appear sharply discriminative in the other *subcorpora*, here we found same incidence rate between groups. However, in general terms, we can state that respondents who did not respect the temporal deadline show a slightly higher attention on people-centered components.

As usual, we summarize results in Figure 9 as an overall picture of incidence rate of each selected keyword in every *subcorpus*, and in Table 16 where information on total incidence rate and average value of occurrence per fragment are provided.

Figure 9 *Keywords incidence for category "People-centered approach", by subcorpora*

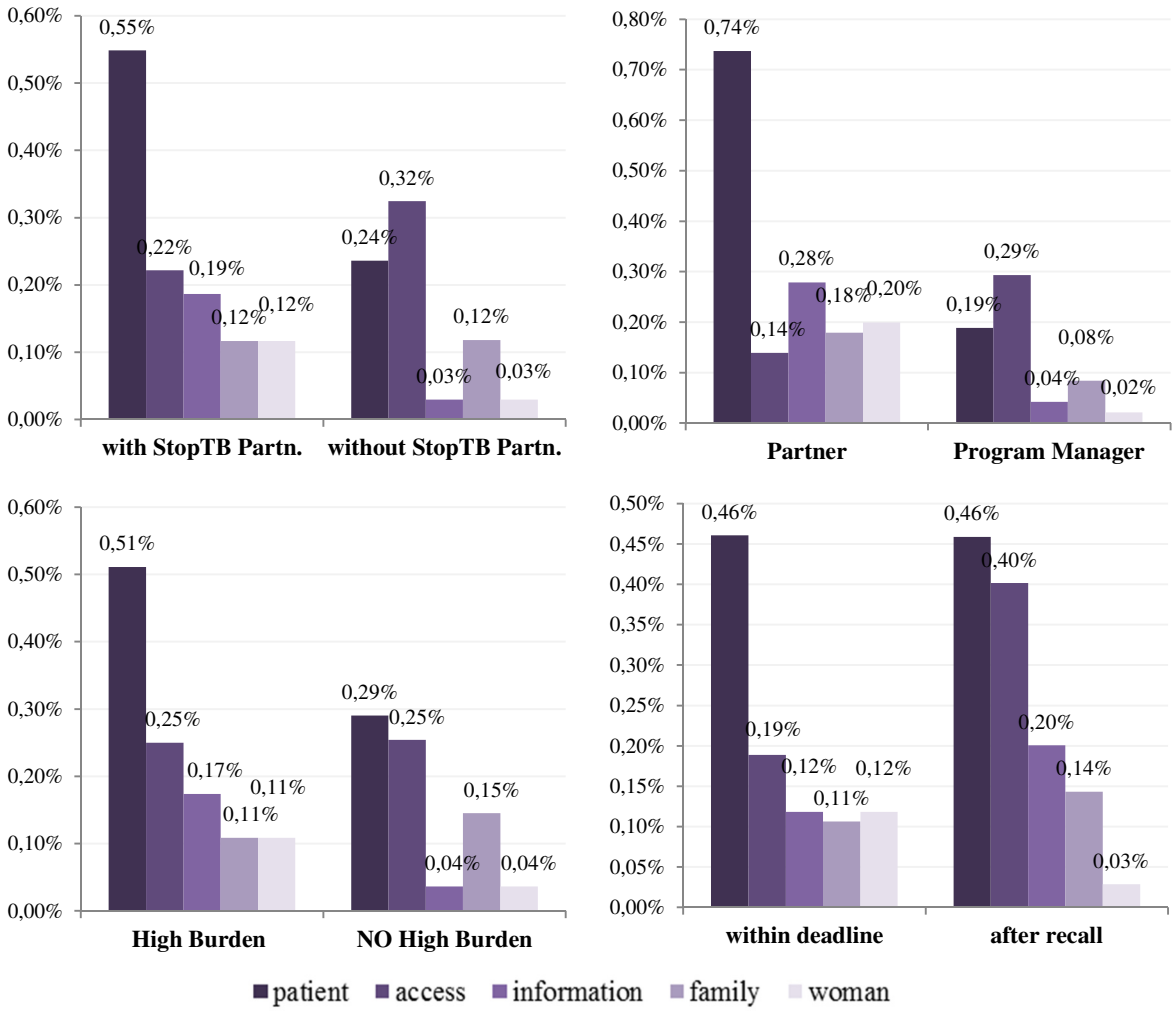


Table 16 *Keywords incidence and average occurrence for category "People-centered approach", by subcorpora*

n	*Subcorpus*	n. occurrences	*token*	keywords incidence	n. fragments	average by fragment
1	**with**	102	8568	1,190%	14	7,29
	without	25	3388	0,738%	11	2,27
2	**MoH**	7	982	0,713%	1	7,00
	Partner	77	5020	1,534%	7	11,00
	PM	30	4770	0,629%	14	2,14
	StopTB Partn.	13	1184	1,098%	3	4,33
3	**High Burden**	106	9200	1,152%	16	6,63
	NO High Burden	21	2756	0,762%	9	2,33
4	**within deadline**	84	8469	0,992%	18	4,67
	after recall	43	3487	1,233%	7	6,14

5.5 *Improve effectiveness*

The fifth category of keywords is meant at giving a measure of forward perspective on TB planning, in particular to what extent respondents are focused on inclusive processes of prevention and enhancing of care provision.

Somehow the results are unexpected: looking at Figure 10 and Table 17, indeed, it is quite clear that respondents more concerned on this dimensions are those who haven't experienced the StopTB Partnership initiative and work in a NO-High Burden Country respect to reference groups. Although alternative groups of respondents report a higher average value of occurrence of keywords per fragment (meaning a significant presence of the issue in their narrative), these respondents reveal a major focus with higher incidence rate for each keyword. This result is particularly driven by the keyword ***care***.

As expected, Program Managers report a higher commitment on this dimension: this result confirms their awareness about the responsibility they hold in planning and making effective TB strategies.

The last division in *subcorpora* produced again a less informative result with closer performances for each indicator. Respondents who submit the questionnaire within the deadline seem to be more focused on two components, namely ***inclusion*** and ***implementation***; whereas the other group of respondents appears more concerned about two other components, namely ***care*** and ***political commitment***. However, any interpretation would be highly discretional: in general terms we can affirm that respondents compliant with the deadline perform marginally better than the other in this category.

Figure 10 *Keywords incidence for category "Improving effectiveness", by subcorpora*

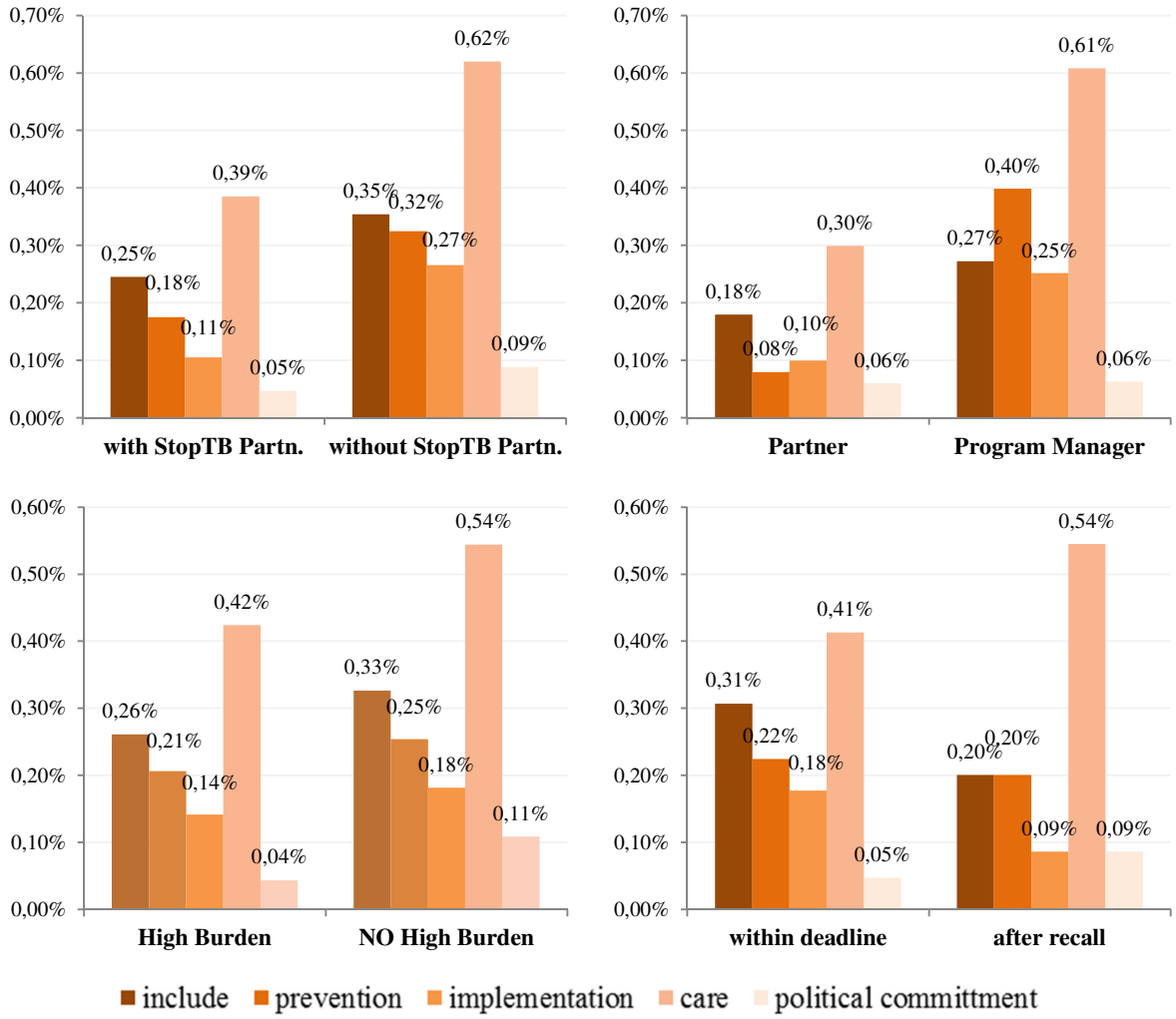


Table 17 *Keywords incidence and average occurrence for category "Improving effectiveness", by subcorpora*

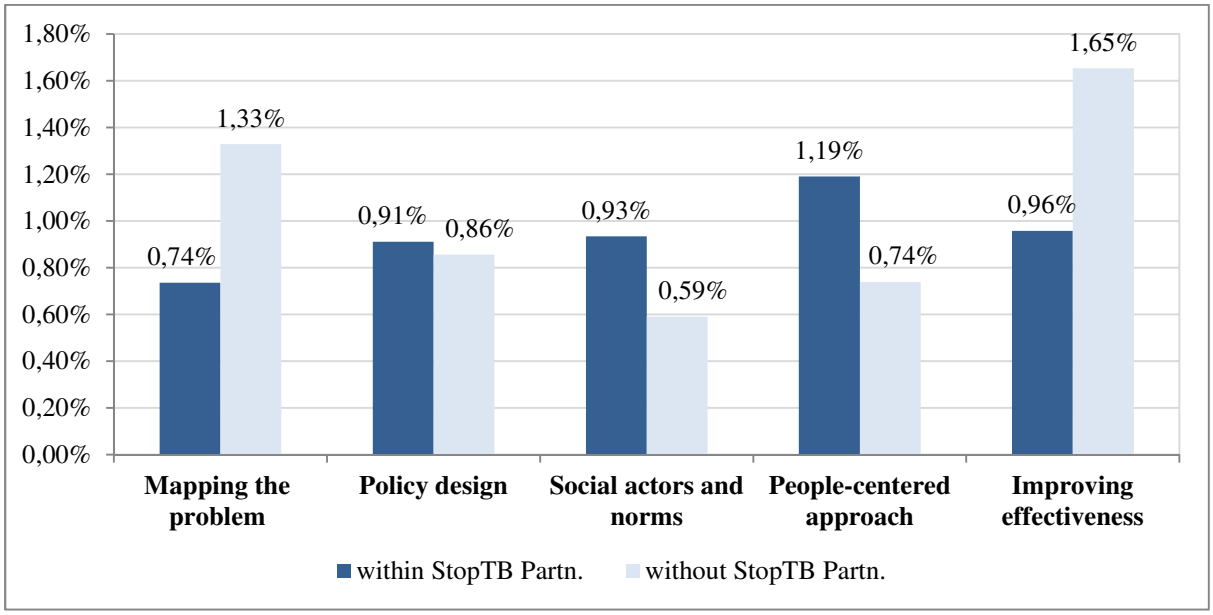
n	*Subcorpus*	n. occurrences	*token*	keywords incidence	n. fragments	average by fragment
1	**with**	82	8568	0,957%	14	5,86
	without	56	3388	1,653%	11	5,09
2	**MoH**	6	982	0,611%	1	6,00
	Partner	36	5020	0,717%	7	5,14
	PM	76	4770	1,593%	14	5,43
	StopTB Partn.	20	1184	1,689%	3	6,67
3	**High Burden**	99	9200	1,076%	16	6,19
	NO High Burden	39	2756	1,415%	9	4,33
4	**within deadline**	99	8469	1,169%	18	5,50
	after recall	39	3487	1,118%	7	5,57

5.6 Synthesis of keywords' categories by *subcorpora*

To get a complete picture of differences between the groups we selected for the analysis, it is useful to reorganize the results obtained so far by *subcorpora*. This section provides a synthesis of how respondents, as belonging to a specific group, perform in terms of *i)* having a clear focus on person-centered policies in the elaboration of national plans for prevention, control and treatment of TB; *ii)* being oriented towards a partnering approach to encompass community-based TB issues.
These dimensions, as explained in the previous paragraphs, are measured by the incidence of selected keywords[9].

The first *subcorpora* are identified on the basis of having experienced the **StopTB Partnership initiative** (Figure 11). As the graph illustrates, respondents working in countries with the StopTB Partnership show a major emphasis on the existence of *Social Actors and Norms* which influence TB service provision, and a significant higher attention on *People-Centered Approach* respect to respondents working in countries without the same experience of partnership. In terms of *Policy Design* (the dimension which mainly refers to a partnering approach) there are no major differences between the two groups, although respondents working in countries with the StopTB Partnership perform slightly better than the others. As regards the first dimension (namely *Mapping the problem*, and the last one (*Improving effectiveness*), our analysis offers a reversed perspective: respondents working in countries without the StopTB Partnership experience appear definitely more focused on such issues.

Figure 11 *Total keywords incidence, by StopTB Partnership subcorpora*

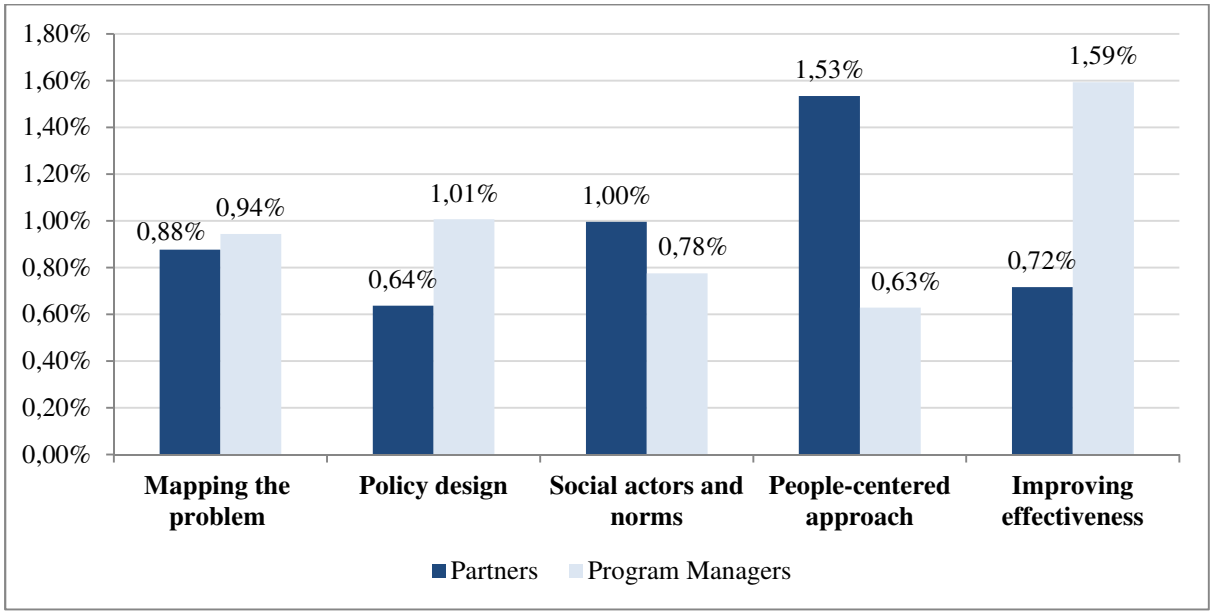


The second variable we used to distinguish between respondents' characteristics is represented by their **professional role**. Figure 12 provides the synthesis of keywords incidence for Partner and Program Manager respondents.

[9] We remind that all values are calculated as absolute frequency of selected keywords by each dimension, normalized by the total extension of referring *subcorpus* (*token*).

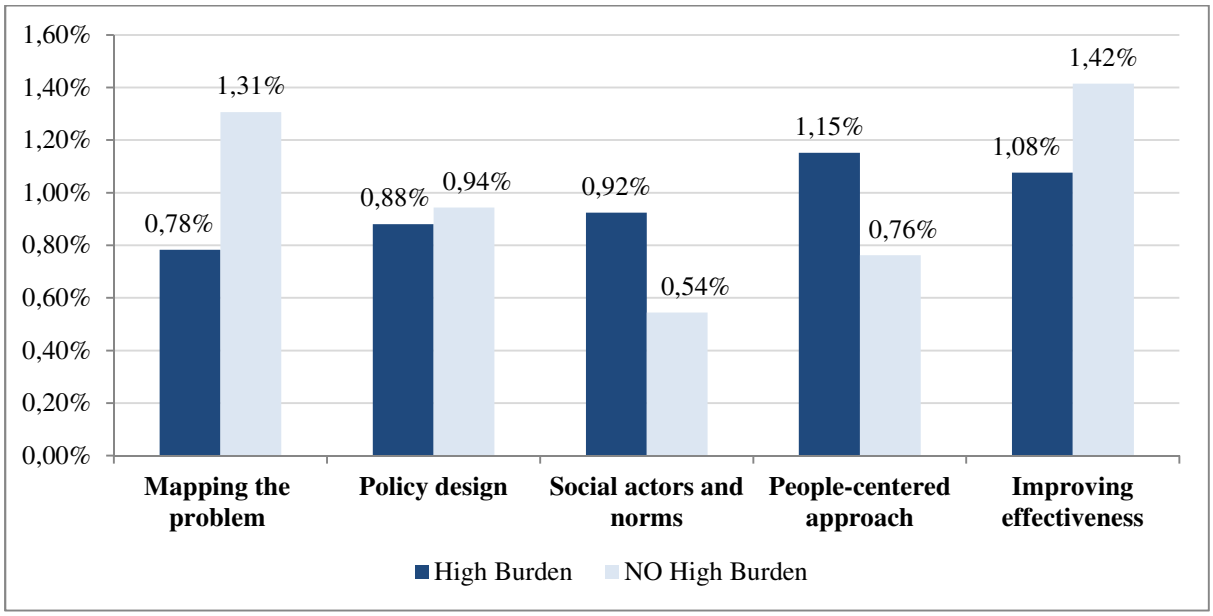
As expected, Partners appear particularly committed in two categories: *Social Actors and Norms* and *People-Centered Approach.* This result does not surprise given the day-by-day work carried out by these organizations, rather it confirms the significant attention that local partners devote to centrality of patients and their relational environments. Both groups of respondents show similar results in terms of *Mapping the Problem* dimension, with a marginally better result of Program Managers. This second group of respondents positively distinguishes their approach respect to Partners' one in relation to *Policy Design* and *Improving Effectiveness* dimensions. In these cases, Program Managers appear more focused and committed to the planning, including participatory approach, and implementation of strategies to fight TB.

Figure 12 *Total keywords incidence, by Respondent Role subcorpora*



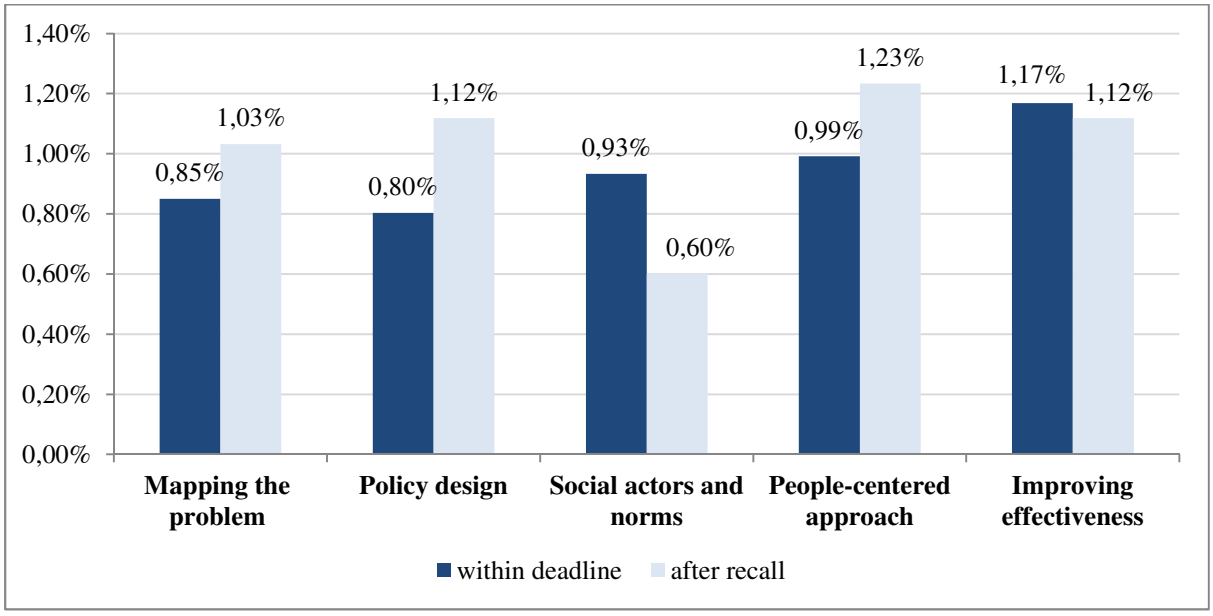
Proceeding with the same approach of analysis, Figure 13 reports the results of keywords incidence in each dimension for the third group we considered: respondents working in **High Burden Countries** or not. We remind that in our sample there is a substantial overlapping between HBC and countries with experience of the StopTB Partnership initiative, therefore the results are very close. Also in this case, indeed, respondents in HBC put a higher emphasis on *Social Actors and Norms* contents and *People-centered approach* categories, suggesting that in these countries TB is correctly perceived as something more than a disease to be treated by medical means, it is driven by social determinants and reflects a problem of weaknesses in health systems. Whereas major differences in Policy Design dimension do not emerge between the two groups, respondents in NO-HBC appear particularly devoted in *Mapping the Problem* and organizing service provision in a perspective of *Improving Effectiveness*.

Figure 13 *Total keywords incidence, by High Burden Countries subcorpora*



The last control we applied to explore the *corpus* is related to compliance with the **temporal deadline** for questionnaire's completion (Timeliness). Here the differences between the two groups are thinner and describe similar patterns of overall performance. Nevertheless, it is worth mentioning that compliant respondents appear more focused on *Social Actors and Norms* category, whereas the 7 respondents who did not respect the deadline show a major emphasis on both *Policy Design* and *People-centered approach*.

Figure 14 *Total keywords incidence, by Timeliness subcorpora*



5.7 Keywords suggested by respondents: some insights

At the end of the questionnaire, we ask respondents to list seven keywords to describe and characterize their daily professional activity. The main aim is to verify whether they perceive the key elements of their tasks accomplishment as related to implementation of formal activities rather than to non-material dimensions of relations. Assuming that the elaboration of a NSP is the result of a negotiating process between diverse agents, we are particularly interested in detecting elements of awareness about partnering process and people-centered approach to TB policy design.

Thus, respondents provided a list of seven keywords to describe their daily activities. Most of them decided to use locutions, instead of single words, that we analyzed anyway[10]. Figure 15 offers a visual representation as word cloud generated by the keywords frequency: larger dimension of characters reflects higher frequency (random colors) of the word.
Beyond the identification of professional profile – *clinician*, *TB specialist*, *national chair*, *genexpert*, *physician* – used by several respondents to describe their role, the most frequent suggested keywords may be divided into five categories, to some extent recalling what defined in Section 5.

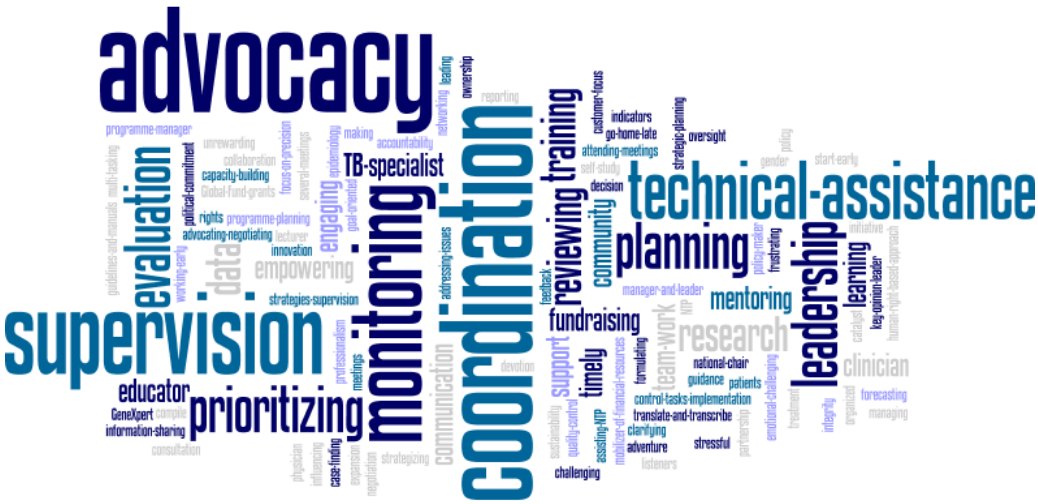
The first category refers to **operative functions**. Respondents are particularly committed in *advocacy* activities, *supervision* and *technical assistance* tasks, and *monitoring* activities which figure among the most frequent words. Looking at the respondent roles, such keywords are more frequently expressed by Program Managers. More detailed functions are described by expression such as *guidelines and manuals*, *addressing issues*, *assisting NTP*. Attending *meetings* is also provided as key activity carried out by respondents.
This category responds to the main question asked to respondents, and it perfectly describes the formal accomplishment of their professional task, however it is less informative in terms of non-material dimension of relations.

The second category, instead, exactly captures the **personal commitment** of respondents in executing formal tasks: 8 respondents (out of 25) have chosen keywords which imply motivations a/o emotions to describe their daily activity, particularly underlying the existence of a stressful burden which touches their ability to accomplish tasks. Philippines and Malawi's respondents appear more affected by such dimension, using keywords such as *start-early, go home late, challenging, working-early, stressful, unrewarding, frustrating, emotional challenging*. A clear personal commitment is expressed by respondents of Botswana, Ethiopia and Indonesia who feel their work as *engaging* and requiring *integrity* and *devotion*.

The third category encompasses one of the main issues analyzed in this research project, namely the relevance of a **people-centered approach** in public health policy provision and community-based perspective, and underlines the perception of respondents in this regards.
Partner respondents are the ones more concerned on this dimension, especially in Indonesia and, to less extent, in India and Nigeria. They use words as *rights*, *patients*, *community*, *human rights based approach* to describe their professional role, thus suggesting a close interaction with people and their local relational environments.

[10] To improve homogeneity and make interpretation of results easier, we applied some manipulation to original keywords, giving priority to the idea of action. For example, the original keywords *monitoring, monitor, monitoring-visits, monitoring-progress, monitor-or-track* have been imputed as the single entry "*monitoring*".

Figure 15 *Word cloud of keywords suggested by respondents*



The fourth category is ideally close to the previous one, stressing the role of a **partnering approach**. We include in this category words as *consultation*, *team-work*, *partnership* and *networking* which clearly describe the existence of an operative dialogue between different actors oriented to same goals. In this case, both Partners and Program Managers appear equally concerned on the issue, with a particular attention to *coordination* mechanism, one of the most recurrent keywords. It should be noted that respondent of the StopTB Partnership initiative in Nigeria provided the list of keywords more focused on this category.

The last category refers to a **forward looking perspective** of respondents: 9 of them (out of 25), associate their professional role to activities as *strategic planning*, *prioritizing*, *strategizing* and *forecasting*. It should be noted that, apart Partners in Ghana and Philippine, only Program Managers perceive these activities as distinguishing tasks of their professional role. This is explainable by considering the inner nature of the Program Managers' activities; however, a major attention by all actors on strategic planning and thus on future perspective would have been desirable.

Although it would be misleading to draw general assessments from a list of keywords provided by respondents, this part of the questionnaire allows us to outline some insights. Beyond a common perception of key elements of respondents' tasks accomplishment as related to implementation of formal activities, we found support to main findings of this research, in particular a clear connection to non-material dimensions of human relations and a special attention to people-centered approach. Whereas Program Managers are more inclined to recognize the relevance of a partnering approach, Partners are more close to communities and to a people-centered approach. Therefore enhancing the partnering efforts at country level may work as a strengthening tool for the inclusion for wider people-centered approach in the design of TB prevention and control strategies.

6. Conclusions and policy implications

WHO has recently promoted a radical shift in TB prevention and control global strategy by recognizing and emphasizing the role of socio-economic policies and interventions in supporting TB control, encouraging a common people-centered approach and the engagement of non-state actors in the public health initiatives to fight TB. Within the research project "Love Matters in policymaking: The Stop TB partnering process", we assess to what extent countries accessing to the Global Fund for HIV/Aids, Tuberculosis and Malaria are *i)* focused on person-centered policies in the elaboration of national plans for prevention, control and treatment of TB; *ii)* oriented toward a partnering approach to encompass community-based TB issues.
In order to get insights about such issues, we interviewed the protagonists involved in the elaboration a/o implementation of the National Strategic Plans (NSPs) – namely national TB Program Managers, officials of the Ministry of Health, local partners/health facilities, and, where relevant, the local StopTB Partnership executive secretary. The 25 collected questionnaires compose a homogenous *corpus* suitable to be explored through quantitative textual analysis means.

We identify variables possibly correlated to different approach to the design of strategies for TB prevention and control, in particular: *i)* having had experience of the StopTB Partnership initiative; *ii)* the role of respondent in the elaboration process of the NSP; *iii)* being in a TB High Burden Country; *iv)* timeliness of the response. On the basis of these variables we re-organized the *corpus* in different *subcorpora*.

After having analyzed exclusive and over-used words for each group of respondents, we provide evidence about frequency and incidence of selected keywords aimed at capturing critical dimensions for effective TB strategies. These categories are labeled: *Mapping the problem*; *Policy Design*; *Social Actors and Norms*; *People-centered Approach*; *Improve effectiveness.*

The analysis supports the following conclusions.

A significant overlapping in the sample between the number of countries having experienced the StopTB Partnership initiative and being categorized as High Burden Country make these two groups very close in their attitude towards NSP elaboration. Respondents working in **countries with the StopTB Partnership experience/High Burden Countries**

- show a strong commitment towards social determinants such as ***education*** and ***information*****.** For such countries, TB programs should improve education of health-care providers (both public and private), community members, public health officials, and policy makers on TB prevention and control. Improving easily accessible and understandable information for affected people and communities is recognized as key element;
- are more focused on two core dimensions we analyzed: ***Social Actors and Norms*** and ***People-centered Approach*** in the design of a public health policy, regardless respondent role. They put forward a vision for improving the performance of TB care and control strategies by strengthening core health system functions with renewed efforts to find people-centred solutions. This approach is found useful to design accessible and comprehensible services.

Given the substantial unbalance between the number of fragments in each *subcorpus* organized by respondent role, it would be misleading to compare MoH and StopTB Partnership secretary respondents to other roles (namely Partners and Program Managers). We provide insights by comparing only Partner and Program Managers categories which, in turn, are comparable. Based on respondent roles, **Partners**

- provide a perspective more related to **local mechanisms of diffusion**, whose prevention represents their major commitment, and to **socio-cultural barriers** to health access, including stigma and discrimination;
- focus their role of service providers on **specific patients' needs** and profiles, including a gender dimension, thus feeding a people-centered approach;
- show a higher incidence of keywords belonging to ***People-centered Approach*** and ***Social Actors and Norms*** categories respect to other respondents. In particular it is worth noting that Partners significantly use the word *community* with a higher frequency than Program Managers.

On the other hand, **Program Managers**

- are particularly concerned on designing and structuring strategies, using words such as ***data***, ***management***, ***performance***. This reasonably derives from their professional responsibilities, however the emphasis put on these components reveal the perception of being facing a challenge. A cross-cutting attention through all dimensions analyzed is on ***accessing*** issues;
- regularly make reference to **partners** roles and inclusion, suggesting a clear perception of the strategic utility of a partnering approach;
- provide a narrative strongly focused on "management" categories: *Mapping the problem*, *Policy Design* and *Improving effectiveness*. The second category in particular is designed to check whether an inclusive process of consultation and elaboration, also including civil society actors, is present. A community-based partnering approach indeed is a turning point for a holistic approach to TB: this category is particularly meant at capturing such perspective.

Finally, timeliness in the response does not seem really informative for the purposes of our research.

Overall, the recognition of non-material dimensions of human relations and a particular attention to people-centered approach is a component for an effective TB care and control strategy for a significant number of respondents, especially for Partners respondents. Furthermore, respondents working in countries where partnership experiences devoted to TB care and control have been already established (namely the StopTB Partnership) appear aware in their narrative of the role that local partners play, however they perceive less the necessity to explicitly refer to partners inclusion as core item. It is arguable that these respondents are likely to perceive partners' inclusion as taken for granted.
The main policy implication we can draw from the results obtained is that Whereas Program Managers are more inclined to recognize the relevance of a partnering approach, Partners are more close to communities and to a people-centered approach. Therefore **enhancing the partnering efforts** at country level may work as a strengthening tool for the inclusion for wider people-centered approach in the design of TB prevention and control strategies. The past experience of the StopTB Partnership appears as meaningful flywheel for this process.

APPENDIX 1

This section provides the questionnaire text, as submitted to respondents.

Mr/Mrs ……. , *[Respondent Role], [Country]*

Dear Mr/Mrs…… ,
we received your name and contact from Dr Giuliano Gargioni, WHO Global TB Programme, in charge of Technical Support Coordination**.**
Our research team, based at Università Cattolica del Sacro Cuore, Milano - Italy, is studying the process of practical implementation of national TB prevention, care and control policies for countries accessing grants from the Global Fund to fight AIDS, TB and Malaria.

We will work on official documents and a qualitative survey (see the text below) with people involved at various title in policy making and policy implementation.

The survey consists of a very short questionnaire with the following questions:

QUESTIONNAIRE
We kindly ask you NOT to insert Tables, Flow-Charts, Bullet points in your answer

On the basis of your experience, please answer these questions in a narrative form:

1. Please describe how you participated in the process of drafting the 2015 TB National Strategic Plan for your country. Provide at least one positive episode and one negative episode that occurred during such process.
2. Please describe, with reference to your country, what are the main social determinants of TB. Please provide specific examples.
3. Please describe, with reference to your country, the main obstacles and the main favorable conditions for effective TB prevention, care and control.
4. Please provide 7 key-words which describe/characterize your daily professional activity

In each country we would like to interview:

- the national TB Program Manager;
- the relevant Ministry of Health official (e.g. Commissioner for Public Health, or analogous position);
- one or more significant partners / local health facilities involved in NSP drafting/implementation;
- where relevant, the local TB Partnership executive secretary.

We would be very grateful if you could **contribute with your personal answer** to the questionnaire by *[deadline]*.

The survey is meant to highlight personal experiences of people contributing to the preparation of the NSP for TB, in view of better understanding the whole process of TB policy making.
The results of the research will be shared with the WHO Global TB Program.

Thank you very much for your help.

APPENDIX 2

This section provides the full list of respondents, with indication of the variables used in the analysis for the *subcorpora* construction, namely:

- having had the StopTB Partnership experience
- Respondent Role
- being a High Burden Country
- having submitted the answers within the deadline.

Table 18 *List of respondents, with variables*

n.	ID	Country	StopTB Partnership	Respondent Role	HBC	timeliness
1	ARM01	Armenia	without	PM	NO High Burden	within deadline
2	BTW01	Botswana	without	PM	NO High Burden	within deadline
3	ETH01	Ethiopia	without	PM	HBC	within deadline
4	FIJ01	Fiji	without	PM	NO High Burden	after recall
5	GEO01	Georgia	without	PM	NO High Burden	within deadline
6	GH01	Ghana	with	Partner	HBC	within deadline
7	GH02	Ghana	with	PM	HBC	after recall
8	IN01	India	with	Partner	HBC	within deadline
9	IND01	Indonesia	with	Partner	HBC	after recall
10	KEN01	Kenya	with	StopTB Partn	HBC	after recall
11	LAO01	Laos	without	PM	NO High Burden	after recall
12	MAL01	Malawi	without	Partner	NO High Burden	within deadline
13	MAL02	Malawi	without	PM	NO High Burden	within deadline
14	NIG01	Nigeria	with	Partner	HBC	within deadline
15	NIG02	Nigeria	with	PM	HBC	within deadline
16	NIG03	Nigeria	with	StopTB Partn	HBC	within deadline
17	PHIL01	Philippine	with	Partner	HBC	within deadline
18	PHIL02	Philippine	with	Partner	HBC	within deadline
19	PHIL03	Philippine	with	PM	HBC	within deadline
20	PHIL04	Philippine	with	StopTB Partn	HBC	within deadline
21	SRL02	Sri Lanka	without	PM	NO High Burden	within deadline
22	TAJ01	Tajikistan	without	PM	NO High Burden	within deadline
23	THAI01	Thailand	with	MoH	HBC	after recall
24	UG01	Uganda	with	PM	HBC	after recall
25	ZIM01	Zimbabwe	without	PM	HBC	within deadline