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Influence of Epidemiological Context on Knowledge, Attitudes and Practices Related to Plague in Population Living in Endemic Areas in the Central Highlands, Madagascar

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Introduction

- Plague is endemic in the central highlands of Madagascar. Sporadic human cases or outbreaks can occur annually in these areas. In Madagascar, the association between endemicity and the Knowledge, attitudes and practices (KAP) of population with regard to the disease remain poorly studied.
- The purpose of this study is
 - to assess KAP towards plague in central highland population
 - to determine links between KAP of population and reported cases in two districts of Central Highlands.

Materials and methods

- Study design:** Descriptive, exploratory cross-sectional study that concerned the general population from the municipalities of the Ambositra and Tsiroanomandidy, districts of central highland areas [Fig. 1].
- Population:** Municipalities randomly selected based on reported plague cases between 2006 and 2015 in the two study districts, registered at the Central Plague Laboratory. A sample of people aged over 15 years were investigated after obtaining informed consent.
- Data collection:** Administration of individuals KAP questionnaires on plague.
- KAP analysis:** Based on the proportion of correct answers provided by respondents, three categories of KAP score were considered: low ($< \text{Mean} - \text{SD}$) average ($\text{Mean} \pm \text{SD}$) and good ($> \text{Mean} + \text{SD}$). Multivariate analyses were conducted to determine the association of the different epidemiological and socio-demographic characteristics and KAP scores of the individuals investigated.
- Health professionals' perceptions on plague:** 4 interviews conducted in 4 municipalities (Ambositra: 2/Tsiroanomandidy: 2).
- Ethical Committee approval #50 MSANP/CE.

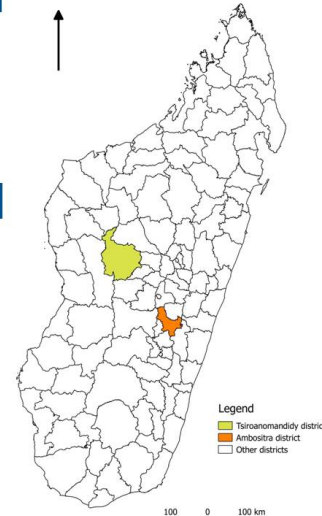


Figure 1. Study sites

Results

- A total of 597 individuals were investigated in the two study districts from June to August 2017.
- The KAP score showed 18.1% (n=108) participants had a poor KAP, 62% (n=370) an average KAP and 19.9% (n=119) a good KAP. For the individuals surveyed in Ambositra (n=325), 14.2% (n=46) had a poor KAP, 56.6% (n=184) an average KAP and 29.2% (n=95) had a good KAP. For the individuals interviewed at Tsiroanomandidy (n=272), about 23% (n=62) had a poor KAP level, nearly 68% (n=186) a medium KAP and 8.8% (n=24) had a good KAP [Fig.2].
- The possibility of having a medium or good KAP decreases for an individual without a telephone [Adjusted odds ratio (ORa) 0.64 (95% CI, 0.46-0.90; p=0.009)], who has never been in contact with a suspected case of plague [ORa, 0.42, (95% CI, 0.25-0.71; p= 0.001)] and lives in Tsiroanomandidy district [ORa, 0.37 (95% CI, 0.26-0.52; p<0.001)].
- Residing in municipalities which experienced plague epidemics between 2006 and 2015 increases an individual's chances of having a medium or good KAP [ORa, 2.13, (95% CI, 1.23-3.45; p=0.002)] [Table 1].
- According to health professionals, population residing in endemic areas have a good knowledge of the plague and know how to recognize the symptoms :

"People here already know [the plague] because many sensitizations have already been undertaken"

"We're in plague endemic areas. People know how to recognize the plague (...) as soon as people notice something suspicious, (...) they say : it is plague, doctor"

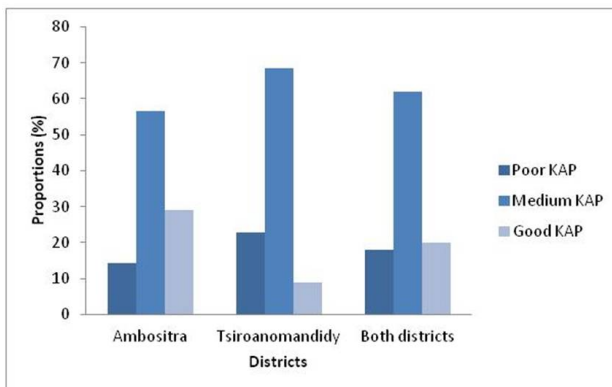


Figure 2. — Distribution of KAP levels by study district

Table 1. Associations between KAP scores with other variables (Multivariate analysis)

Variables	Modalities	p-value	OR adjusted	95% CI (Lower, Upper)
Phone possession	Yes	-	-	-
	No	0.009*	0.64	(0.46, 0.9)
Contact with plague case	Yes	-	-	-
	No	0.001*	0.42	(0.25, 0.71)
	Do not know	0.699	0.67	(0.05, 7.12)
Respondents' district of residence	Ambositra	-	-	-
	Tsiroanomandidy	<0.001*	0.37	(0.26, 0.52)
Reported plague cases between 2006 and 2015 in the respondents' municipalities	No	-	-	-
	Yes	0.002*	2.13	(1.32, 3.45)

* p-value < 0.05

Conclusion

- In the highland central areas, socio-spatial determinants and epidemiological contexts influenced KAP scores ; like phone ownership, contact with a former plague case, and residence in a municipality where plague epidemic has occurred , are linked to KAP related to plague of population.
- As part of plague awareness and information campaigns, taking into account the KAP of local populations according to the epidemiological contexts of localities can reduce the risk of delays in the patients care, one of the causes of death due to the plague in Madagascar. And on the other side, to improve results in plague control, especially in prevention, it is necessary to increase the level of beliefs, knowledge, attitudes and practices of the population.

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