



Global Medicinal Use of Bats: A Systematic Literature and Social Media Review



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Introduction

- Bats are exploited for bushmeat and medicine¹.
- Written records of medicinal use dates to at least ~3400 BC²
- Yet research underreports bat exploitation¹.
- We quantified the medicinal uses of bats, including geographical and taxonomic variation in food and medicinal practices.

Methods

- Scientific Literature
 - Papers cited in IUCN Red List assessments of species threatened by hunting.
 - Systematic Web of Science search.
 - Gathered 198 papers from 1974-2021.
- Social Media
 - Manual keyword search of 17 social media platforms in 23 languages.
 - 1063 social media posts from 2007-2021.

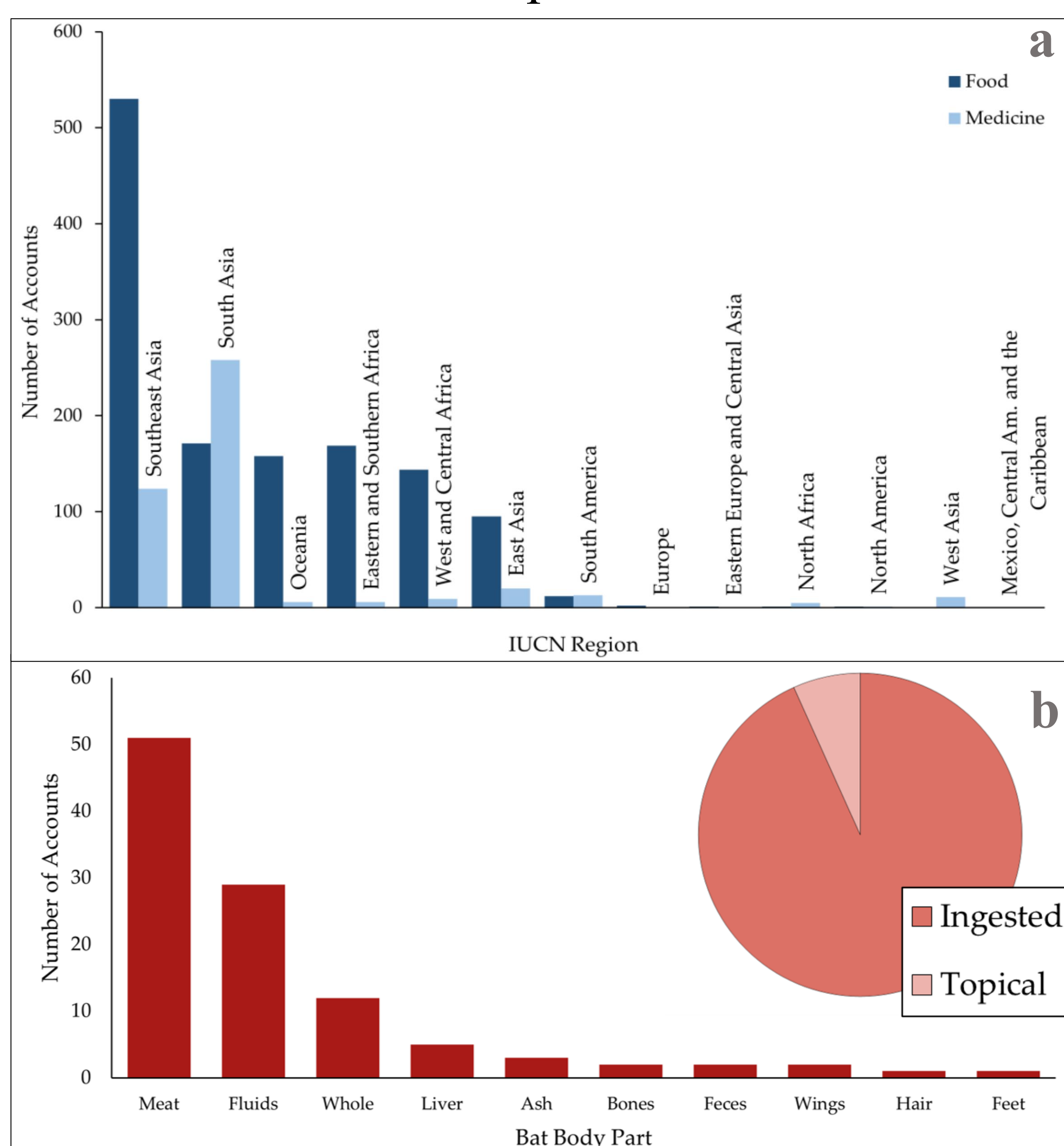


Figure 1. **a)** Comparison of bat usage for food (dark blue, $n = 1284$) and medicine (light blue, $n = 453$). Regions and subregions follow the IUCN classification system. **b)** Body part of bats used in medicine $n = 108$, and route of administration of bats used in medicine $n = 104$, measured as unique accounts reported in the literature (1974–2021) and social media (September 2007–October 2021).

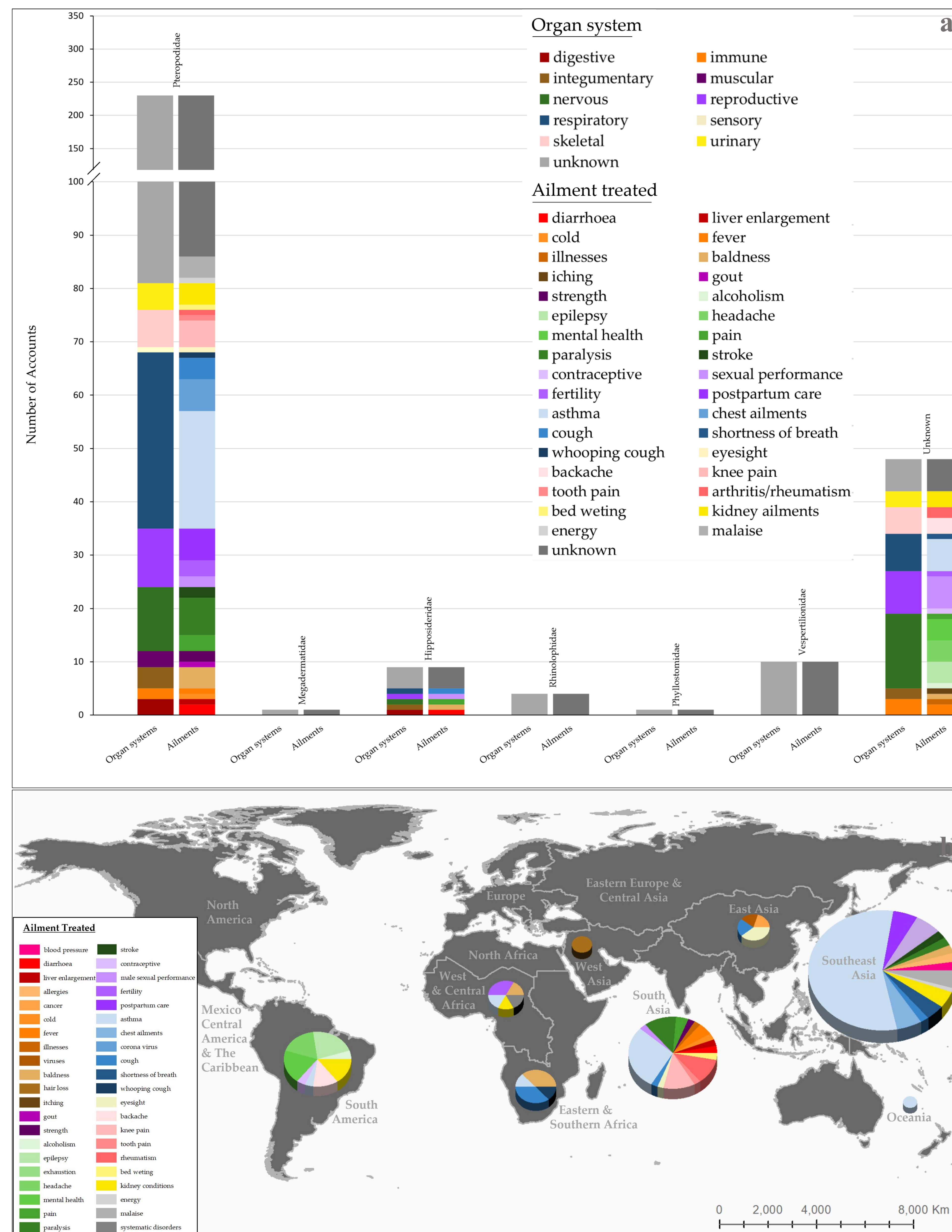


Figure 2. **a)** Medicinal use of bats by family. Human organ systems (left bar) aligned with the specific ailments that comprise them (right bar, $n = 303$). Data measured as unique accounts reported in the literature (1974–2021). **b)** Global variation in type and quantity of ailments treated with bats ($n = 188$), measured as unique accounts reported in the literature (1974–2021). Size of pie charts reflect the number of data points in that region. Regions and subregions follow the IUCN classification system.

Results

- More IUCN regions use bats for food than medicine (Fig. 1a).
- 83 countries use bats for food or medicine.
- Bats are used to treat 42 ailments of 11 human organ systems across 37 countries.**
- Ingestion of bat meat was the main method of administration (Fig. 1b).
- We identified 36 bat species from six families, located in 14 countries used for medicine (Fig. 2a).
- Bats are exploited for medicine in 8 out of 13 IUCN regions/subregions (Fig. 2b).
- Exploitation for respiratory ailments was common throughout Asia (Fig. 2b).
- Asthma was the most common ailment (Fig. 3).
- Southeast Asia had the most reports of medicinal use and treated the greatest number of ailments (Fig. 2b).



Figure 3. Bat organs, cooked bats, and caged bat all used to treat asthma. Images from publicly available social media posts.

Conclusions

- We found evidence that people from 83 countries and territories use bats for food and/or medicine.
- Better scientific documentation of bat hunting for medicinal use is needed.
- Understanding the beliefs behind the medicinal use of bats deserves further research.

Read our paper

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¹ Mildenstein, T.; Tanshi, I.; Racey, P.A. *Exploitation of Bats for Bushmeat and Medicine. Bats in the Anthropocene: Conservation of Bats in a Changing World*; Springer: Berlin/Heidelberg, Germany, 2016; pp. 325–375.

² Riccucci, M. Bats as materia medica: An ethnomedical review and implications for conservation. *Vespertilio* 2012, 16, 249–270.