

Temporal trends in scrub typhus cases in Andhra Pradesh from 2023 to 2025

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Abstract

Scrub typhus is a vector-borne disease caused by *Orientia tsutsugamushi* and transmitted by larval trombiculid mites. The disease is reported from several parts of India including Andhra Pradesh. The present study examined the temporal pattern of scrub typhus cases in Andhra Pradesh during 2023–2025 using available surveillance data. During the study period 28,702 samples were tested and 5,058 cases were confirmed. The number of samples tested increased from 7,281 in 2023 to 10,150 in 2024 and 11,271 in 2025. Confirmed cases increased from 1,295 in 2023 to 1,613 in 2024 and 2,150 in 2025. The corresponding positivity was 17.8, 15.9 and 19.1 percent respectively with the highest positivity recorded in 2025. The increase in confirmed cases over the three-year period indicates continued scrub typhus activity in Andhra Pradesh. Transmission of the infection involves *O. tsutsugamushi*, trombiculid mite vectors and small mammal hosts with human infection occurring following exposure to infected mite habitats. The observed changes in case occurrence highlight the continued importance of scrub typhus as a vector-borne disease in the state. Regular monitoring of human cases together with attention to vector and environmental factors and the role of animal hosts is important for understanding changes in disease occurrence and strengthening One Health-based prevention and control measures.

Keywords: Scrub typhus, *Orientia tsutsugamushi*, trombiculid mites, vector-borne disease, Andhra Pradesh, temporal trends, One Health

Introduction

Scrub typhus is an important vector-borne disease caused by *Orientia tsutsugamushi* and transmitted by larval trombiculid mites. In India, the disease has been reported from several states including Andhra Pradesh, where scrub typhus has been documented among patients presenting with acute febrile illness (Ramyasree *et al.*, 2015; Varghese *et al.*, 2016) [4, 6]. Evidence from Chittoor district has also shown serological reactivity to scrub typhus among both human and rodent samples indicating the presence of the infection within the local transmission system (Prabhakaran *et al.*, 2010) [3].

The transmission of scrub typhus is associated with trombiculid mites and their small-mammal hosts. Studies from southern India have documented substantial trombiculid mite infestation among rodents and shrews and have demonstrated the presence of *O. tsutsugamushi* in mite-associated transmission systems (Sadanandane *et al.*, 2016; Govindarajan *et al.*, 2024) [2, 5]. The occurrence of human scrub typhus has also been associated with seasonal and environmental conditions, including rainfall, temperature and humidity (Varghese *et al.*, 2016; D'Cruz *et al.*, 2024) [1, 6].

Although scrub typhus is recognised in Andhra Pradesh, recent year-wise information on its occurrence in the state is limited. The present study was therefore undertaken to examine the temporal trends in scrub typhus cases in Andhra Pradesh during 2023–2025 based on available surveillance data.

Materials and Methods

1. Study design and data source

A retrospective analysis was carried out using scrub typhus surveillance data recorded in Andhra Pradesh during 2023–2025. The dataset comprised samples tested for scrub typhus

and laboratory-confirmed cases reported through primary health centres and district health centres during the study period. The annual number of samples tested, confirmed cases and corresponding positivity were compiled for analysis.

2. Data analysis

The data were grouped by year to assess changes in the number of samples tested and confirmed scrub typhus cases during the three-year period. Annual positivity was calculated as the proportion of confirmed cases among the samples tested. Descriptive statistics were used to summarise the yearly data, and the temporal pattern was presented using tables and graphical representation.

Results

During 2023–2025 a total of 28,702 samples were tested for scrub typhus in Andhra Pradesh of which 5,058 cases were laboratory confirmed. The number of samples tested increased each year, from 7,281 in 2023 to 10,150 in 2024 and 11,271 in 2025. The number of confirmed cases also increased from 1,295 in 2023 to 1,613 in 2024 and 2,150 in 2025. The annual positivity was 17.8% in 2023, 15.9% in 2024 and 19.1% in 2025. Thus, although positivity declined in 2024 it increased in 2025 and reached the highest level recorded during the study period. Overall, the three-year positivity was 17.6%.

Table 1: Year-wise distribution of scrub typhus testing and confirmed cases in Andhra Pradesh during 2023–2025

Year	Samples tested	Confirmed cases	Positivity (%)
2023	7,281	1,295	17.8
2024	10,150	1,613	15.9
2025	11,271	2,150	19.1
Total	28,702	5,058	17.6

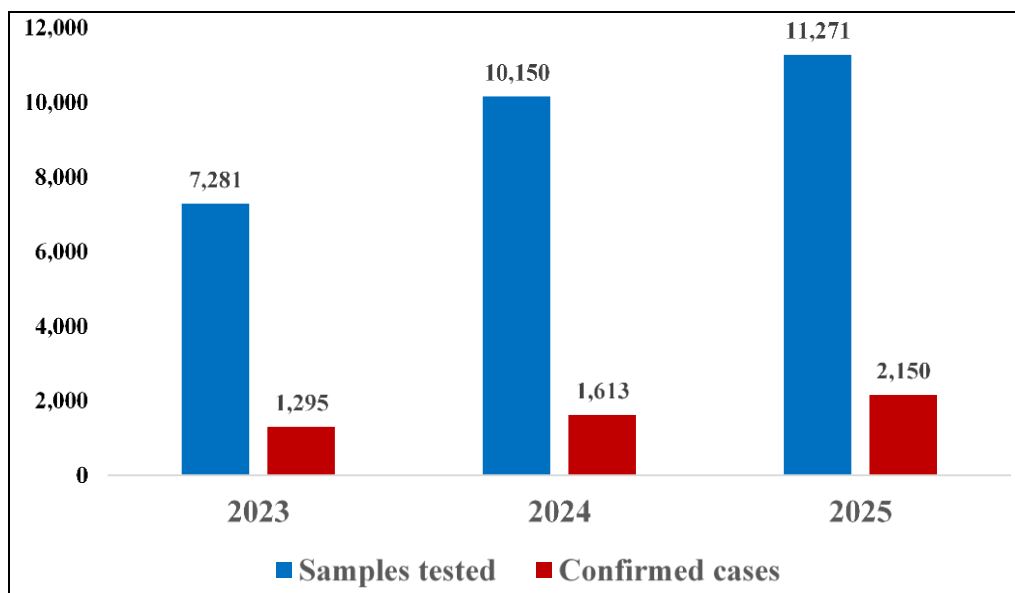


Fig 1: Year-wise Scrub Typhus Cases and Samples Tested in Andhra Pradesh, 2023–2025

Discussion

The present study showed an increase in confirmed scrub typhus cases in Andhra Pradesh from 1,295 in 2023 to 2,150 in 2025. Positivity declined slightly in 2024 but increased to 19.1% in 2025 the highest during the study period. Previous studies have documented scrub typhus in Andhra Pradesh and other parts of southern India, with seasonal variation and greater exposure among agricultural populations (Prabhakaran *et al.*, 2010; Ramyasree *et al.*, 2015; Varghese *et al.*, 2016)^[3, 4, 6].

The extensive paddy-growing areas of Andhra Pradesh, along with seasonal rainfall, humidity and agricultural activities, provide opportunities for human contact with mite-associated habitats. Such environmental and occupational exposure has been associated with scrub typhus transmission in southern India (Varghese *et al.*, 2016; D'Cruz *et al.*, 2024)^[1, 6]. The findings therefore support a One Health approach, in which human surveillance is considered alongside the roles of trombiculid mites, small-mammal hosts, agricultural environments and seasonal conditions in understanding scrub typhus occurrence.

Conclusion

Scrub typhus cases increased from 2023 to 2025, with the highest number of confirmed cases and positivity recorded in 2025. The findings confirm the continued occurrence of scrub typhus in Andhra Pradesh and highlight the importance of sustained attention to its seasonal, agricultural and environmental setting. A One Health approach integrating human case surveillance with information on animal hosts, trombiculid mite vectors and environmental conditions may improve understanding of scrub typhus occurrence and support its prevention and control.

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