

Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

- | | |
|-------------------------------------|--|
| n/a | Confirmed |
| ☐ | ☒ The exact sample size (<i>n</i>) for each experimental group/condition, given as a discrete number and unit of measurement |
| ☐ | ☒ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly |
| ☐ | ☒ The statistical test(s) used AND whether they are one- or two-sided
<i>Only common tests should be described solely by name; describe more complex techniques in the Methods section.</i> |
| ☒ | ☐ A description of all covariates tested |
| ☐ | ☒ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons |
| ☐ | ☒ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals) |
| ☐ | ☒ For null hypothesis testing, the test statistic (e.g. <i>F</i> , <i>t</i> , <i>r</i>) with confidence intervals, effect sizes, degrees of freedom and <i>P</i> value noted
<i>Give P values as exact values whenever suitable.</i> |
| ☐ | ☒ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings |
| ☒ | ☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes |
| ☒ | ☐ Estimates of effect sizes (e.g. Cohen's <i>d</i> , Pearson's <i>r</i>), indicating how they were calculated |

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

Data collection	This study collected information on SFTS cases in Anhui Province from January 1, 2019, to December 31, 2023. The data were sourced from the Anhui Provincial Center for Disease Control and Prevention and included all SFTS cases within the province reported through the "China Center for Disease Control and Prevention Information System." Cases were diagnosed according to the national diagnosis and treatment guidelines for SFTS published by China's Ministry of Health. The SFTS case information included sex, age, occupation, residential address, and date of onset. Population data, as well as birth and death rates for relevant municipalities, were obtained from the annual statistical yearbooks of the Anhui Provincial Bureau of Statistics.
Data analysis	Data were described and analyzed using Excel 2016, Python 3.10.13, and ArcGIS 10.8. The code used for data processing, model implementation, and figure generation is publicly available on GitHub (https://github.com/WEiHJ404/Escalating-Transmissibility-and-Spatiotemporal-Dynamics-of-SFTS-China) and archived on Zenodo (https://doi.org/10.5281/zenodo.19161888).

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

The raw case-level data are protected and are not publicly available due to data privacy restrictions, as they contain potentially sensitive personal information. The processed data generated in this study have been deposited in the Zenodo database under accession code <https://doi.org/10.5281/zenodo.19186048>.

Research involving human participants, their data, or biological material

Policy information about studies with [human participants or human data](#). See also policy information about [sex, gender \(identity/presentation\), and sexual orientation](#) and [race, ethnicity and racism](#).

Reporting on sex and gender

The term "sex" in this study refers to biological sex as recorded in the China Center for Disease Control and Prevention Information System. In our analysis, we statistically described and compared the distribution of SFTS cases between different sexes. As this study utilized aggregated secondary data from an official surveillance system, further information regarding gender or gender identity was not available.

Reporting on race, ethnicity, or other socially relevant groupings

The data for this study was sourced from an official disease surveillance system in China, which does not collect information on the race or ethnicity of the reported cases. Our analysis focused on demographic characteristics such as sex, age, and occupation, and did not involve any groupings based on race or ethnicity.

Population characteristics

This study analyzed all diagnosed SFTS cases reported in Anhui Province through the "China Center for Disease Control and Prevention Information System" for the specified period. We described and analyzed the demographic characteristics of these cases, primarily focusing on their distribution by age, sex, and occupation. This is an epidemiological study and does not involve behavioral or social science research designs. Detailed baseline characteristics of the population are presented in the supplemental material.

Recruitment

This study did not involve direct recruitment of participants. Cases were identified through a province-wide, statutory infectious disease reporting system. This system aims to capture all diagnosed SFTS cases. While any passive surveillance system may have potential limitations such as underreporting or misreporting, this data source represents the most comprehensive collection of cases available for this study, thereby minimizing selection bias to the greatest extent possible.

Ethics oversight

The ethical approval for this study has been waived by the Medical Ethics Committee of Anhui Center for Disease Control and Prevention, which waived the requirement for verbal or written informed consent on the following grounds: (1) only anonymized records (devoid of personal identifiers) were used; (2) no medical interventions or biological samples were involved; (3) the study procedures and findings would not affect the clinical management of patients in any manner, nor pose additional risks to individuals.

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☒ Life sciences ☐ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/documents/nr-reporting-summary-flat.pdf](https://www.nature.com/documents/nr-reporting-summary-flat.pdf)

Life sciences study design

All studies must disclose on these points even when the disclosure is negative.

Sample size

This study was a retrospective analysis of all reported cases from a surveillance system over a defined period. Therefore, a formal sample-size calculation was not performed beforehand. The sample size was determined by the total number of SFTS cases (N = 3,883) reported in Anhui Province from January 1, 2019, to December 31, 2023. This sample is considered sufficient and representative as it includes the entire population of diagnosed and reported cases within the specified timeframe and geographical area, thus providing the most comprehensive data available for describing the epidemiology of SFTS in this region.

Data exclusions

No data were excluded from the analyses. All 3,883 cases of SFTS reported in Anhui Province during the study period were included in the final dataset.

Replication

This study used an observational dataset from an official governmental surveillance system and did not involve experimental replication. Replication in this study refers to repeated analytical runs for the sensitivity analyses, for which 5,000 Monte Carlo draws were performed for each analysis.

Randomization Randomization is not relevant to this study design.

Blinding The concept of blinding is not applicable to this study design.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☐	☒ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Animals and other research organisms

Policy information about [studies involving animals](#); [ARRIVE guidelines](#) recommended for reporting animal research, and [Sex and Gender in Research](#)

Laboratory animals This study did not involve laboratory animals.

Wild animals This study includes ticks (primarily *Haemaphysalis longicornis*) and animal hosts in the transmission framework. However, no field capture, observation, or handling of wild animals or ticks was conducted by the authors. The analysis was based on aggregated surveillance data from routine governmental monitoring activities.

Reporting on sex Sex-based information was not collected for ticks or other organisms in the present study because this work was a secondary analysis based on aggregated surveillance data. For human cases, sex information was included in the source data and is reported in the manuscript where appropriate.

Field-collected samples This study did not involve laboratory work with field-collected samples conducted by the authors. Any tick-related information used in this study was obtained from aggregated data generated through routine governmental surveillance activities.

Ethics oversight No specific animal ethics approval was required for this study because it was a secondary analysis based on aggregated data obtained from routine governmental surveillance activities. The authors did not conduct animal experiments, tick collection, or animal handling.

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Plants

Seed stocks Not applicable.

Novel plant genotypes Not applicable.

Authentication Not applicable.