Data acquisition and sources

The data for this study were obtained from the Global Burden of Disease (GBD) 2021 dataset(http://ghdx.healthdata.org/gbd-results-tool). Specifically, data on MSMI were extracted, including prevalence, incidence, mortality, and disability-adjusted life years (DALYs).

Definition of key measurements

MSMI consist of two different components. Maternal sepsis is characterized by deviations in body temperature (> 38°C or < 36°C) and clinical indicators of shock, such as tachycardia (>120 beats per minute (bpm)) and systolic blood pressure (< 90 mm of mercury pressure (mmHg)). Other maternal infections include any non-sexually transmitted or non-HIV infections, which do not have epidemiological associations with pregnancy. This category encompasses conditions including mastitis, urinary tract infections, bacterial vaginosis, and candidiasis during pregnancy.

We obtained annual data on its incident cases, incident rate (per 100,000), deaths (mortality), DALYs (per 100,000) between 1990 and 2021. The DALYs, a composite metric encompassing years lived with disability and years of life lost, is an important indicator of population health. Specific definition of these measures was shown in **Table S1**. Socio-demographic index (SDI) was utilized for representing the impact of economic and social conditions on patients' outcomes.

Global and regional burden analysis

To analyze the global distribution and regional differences in the burden of MSMI, we generated global maps and regional comparative analyses. The data were aggregated

by geographical regions as defined by the GBD study, and maps were created using R software with the "ggplot2" and "sf" packages to visualize the distribution of disease burden.

Temporal trend analysis

Temporal trends in the incidence, prevalence, mortality, and DALYs of MSMI between 1990 and 2021 were assessed using Joinpoint regression analysis based on the "Joinpoint" R package. The annual percentage change (APC) was evaluated, with 95% confidence intervals (CIs) used to identify the statistical significance of the trends.

Population analysis

Population-level analyses were performed to investigate the distribution of MSMI across different demographic groups, such as age and specific subpopulations. The data were stratified by seven age groups (e.g., 65-69 years, 70-74 years, etc.) for females.

Analysis of regions by SDI

The relationship between SDI and the burden of MSMI was analyzed by calculating SDI-specific disease rates. The "dplyr" and "ggplot2" R packages were used for data manipulation and visualization.

Patient and public involvement

Patients and/or the public were not involved in our study design, manuscript drafting, data interpretation, and dissemination plans of the present study.

Statistical analysis

The Bayesian-based tool DisMod-MR2.1 was utilized to provide a 95% uncertainty interval (95% UI) for each estimate. The evolutional trends of the ASRs were revealed using estimated annual percentage change (EAPC). The EAPC was explored using a linear regression mode of the ASRs, and we also calculated the 95% confidence interval (95% CI) for EAPC. Correlation analyses were performed by utilizing the Spearman rank order correlation methods. A p value <0.05 was considered statistically significant.