

METHODOLOGICAL QUALITY ASSESSMENT OF GASTRIC CANCER STUDIES: A STROBE - BASED REVIEW

Vanessa de Cássia Souza Ferreira¹, André Souza de Carvalho¹, David Borges Gonçalves¹, Laysa Martins Silva¹, Maria Luiza Bentivi Machado¹, Brenda Nazaré Gomes Andriolo¹

¹Universidade do Estado do Pará (UEPA)

Introduction: Gastric cancer (GC) is one of the leading causes of cancer-related mortality worldwide, with two predominant histological subtypes: the intestinal type, often associated with *Helicobacter pylori* infection, and the diffuse type, characterized by poorly cohesive cells, whose risk factors are endogenous (genetic) and exogenous (environmental). Given its etiological complexity and heterogeneous distribution across populations, numerous observational studies have investigated gastric cancer patterns. However, methodological variability among these studies may compromise result comparability and evidence consistency, underscoring the importance of the STROBE guidelines (Strengthening the Reporting of Observational Studies in Epidemiology), which provide a standardized checklist to enhance transparency, quality, and reproducibility in observational research. Assessing their application is crucial to strengthen available evidence and guide more effective clinical practices and public health policies.

Objectives: To evaluate the compliance of cross-sectional studies on gastric cancer from PubMed with the STROBE guidelines. **Methods:** This is an analytical cross-sectional study based on articles retrieved from PubMed using the following search descriptors: ("Stomach Neoplasms"[Mesh]) AND ("Cross-Sectional Studies"[Mesh]). Inclusion criteria: Original observational cross-sectional studies addressing clinical, epidemiological, or quality-of-life aspects of gastric cancer. Exclusion criteria: Reviews, letters, editorials, experimental studies, and studies with incomplete data. Screening and selection were performed by two independent reviewers in successive stages (title, abstract, and full-text reading). Methodological quality was assessed using the STROBE checklist, with studies meeting $\geq 80\%$ of the items classified as satisfactory. **Results:** The search analyzed 197 articles, with 127 studies (2014–2025) included in the final analysis. Most publications were from Asia (China, South Korea, Japan), with relevant contributions from Brazil, the United States, and Europe. The studies examined epidemiological patterns of gastric cancer and gastrointestinal diseases across populations, highlighting key risk factors such as *H. pylori*, family history, diagnostic strategies, and clinical management. The most frequent study design was cross-sectional (92.1%), followed by cohort studies, systematic reviews, economic analyses, and observational clinical trials. While most studies adequately described objectives and methodology, heterogeneity was observed in

reporting inclusion/exclusion criteria. Regarding STROBE compliance, only a minority of studies met >80% of the checklist items. The prevalence of gastric cancer ranged from 2.4% to 10%, while *H. pylori* infection rates varied between 11.3% and 87%, particularly in high-risk populations. Although statistical analyses were robust in some studies, common limitations included selection bias and small sample sizes. **Conclusion:** While scientific output on gastric cancer has grown in recent years—especially in Asian countries—methodological heterogeneity remains a concern. The predominance of cross-sectional designs and low adherence to STROBE criteria reveal weaknesses in reporting quality, affecting result comparability and applicability. Although risk factors like *H. pylori* and family history are consistently associated with gastric cancer, recurrent methodological limitations (selection bias, small samples) highlight the need for better-structured observational studies with greater transparency, standardization, and rigor in execution and reporting. Thus, systematic use of guidelines like STROBE is essential to improve evidence quality and support more effective clinical and public health policies.

Keywords: Gastric cancer; observational studies; STROBE guidelines; epidemiology.