

□ Data-Driven Illusion

Data-driven illusion refers to the misleading impression that a study is scientifically robust or clinically meaningful solely because it uses large datasets or complex statistical methods, despite lacking relevant clinical context, biological plausibility, or methodological rigor.

□ Key Characteristics

Massive sample sizes that amplify statistical significance while masking clinical irrelevant.

Sophisticated analytics (e.g., SMR, APC, machine learning) applied to poorly defined or incomplete variables.

Apparent precision that gives undue confidence to fundamentally flawed or superficial conclusions.

Use of registry or administrative data without proper validation, adjustment for confounders, or stratified analysis.

△ Why It Matters

A data-driven illusion can inflate the credibility of findings that are not actionable, not causal, or even not real — undermining evidence-based practice by dressing speculation in statistical clothing.

□ Example Usage in Critique:

“This study suffers from a classic data-driven illusion: massive patient numbers and elegant modeling techniques give the appearance of depth, but in reality, it lacks the clinical resolution and methodological controls needed for meaningful interpretation.”

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