Small Sample Size

A small sample size refers to:

A study population that is too limited in number to provide reliable, generalizable, or statistically robust conclusions.

Key consequences of small sample size:

Low statistical power – increased risk of type II error (false negatives)

Inflated effect sizes – due to random variation or outliers

Wide confidence intervals – low precision in estimating effect

Limited subgroup analysis – cannot control for confounders

Greater impact of missing data – one dropout can skew results

Reduced external validity – findings may not apply to broader populations

⚠ Clinical interpretation:

Even if a small study finds statistically significant results, they may be:

Unstable across repeated samples

Not replicable in larger trials

Misleading if underpowered and selective in reporting