B

Bell Curve

Ericka L. Wodka
Center for Autism and Related Disorders,
Kennedy Krieger Institute and The Johns Hopkins
University School of Medicine, Baltimore, MD,
USA

Synonyms

Gaussian distribution; Normal curve; Normal distribution

Definition

A normal distribution of observations/scores is shaped like a “bell,” with the majority of observations/scores occurring around the mean and increasingly fewer observations/scores occurring farther (above/below) from the mean (68.26% of observations/scores fall within one standard deviation of the mean; 95.44% fall within two standard deviations of the mean). A normal distribution of observations is typical in large samples acting additively and independently and is assumed in parametric statistics (e.g., t-tests, ANOVA). Standardized scores derived from neuropsychological measures are based upon (assume) normal distribution of the standardization sample. While this assumption provides a

common metric that allows for direct comparison of performance between different measures, it is important to note that score distributions for a number of neuropsychological tests are non-normal (e.g., Boston Naming Test, Wisconsin Card Sorting Test, Mini-Mental Status Exam, Test of Memory Malinger). For this reason, selection of measures and interpretation of test findings must include consideration of score distributions (Strauss et al. 2006).

Cross-References

- Base Rate (Population)
- Cut Off Scores, Cutting Scores
- Intelligence Quotient
- Mental Age
- Percentiles
- Standard Scores

References and Readings

- Lezak, M. D., Howieson, D. B., Bigler, E. D., & Tranel, D. (2012). *Neuropsychological assessment* (5th ed.). New York: Oxford University Press.
- Sattler, J. M. (2001). *Assessment of children: Cognitive foundations* (5th ed.). La Mesa: Jerome M. Sattler.
- Strauss, E., Sherman, E. M. S., & Spreen, O. (2006). *A compendium of neuropsychological tests: Administration, norms, and commentary* (3rd ed., pp. 3–43). New York: Oxford University Press.