Psychology 610: -- Outliers Handout #5.5
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(Notes from R. Wilcox. (2001). *Fundamentals of modern statistical methods*. Springer-Verlag.)

Three methods of defining outliers (Chapter 3):

I. Assuming the normal curve, a score is an outlier if it is 2 s.d.'s above or below the mean.

--But the sample mean itself is yanked by the outlier, and so is the s.d. even more!
--Therefore, the + or – 2 s.d. method of finding outliers is not recommended.

II. Median absolute deviation, or MAD

1. Take absolute deviation of scores from median, and find their median.
   -- If distribution is normal, MAD/.6745 = σ.

2. Outliers are defined as $|X - \text{Median}| > 2(\text{MAD}/.6745)$.

III. Box plots and interquartile range

1. Find upper and lower quartiles (cutoffs that capture 50% of sample).

2. Upper and lower whiskers are 1.5 times the upper and lower quartiles.

3. Anything beyond the whiskers is an outlier.