



Making judgements between data sets

Learning Skills

Introduction:

To compare groups the means are considered in terms of how similar or different they may be. The means alone though do not necessarily tell the full story.

This sheet will teach you to:

- Consider within differences in groups as well as between differences.

1. Comparing groups

Consider the three following data sets:

Set A	Set B	Set C
55	47	2
54	63	99
52	69	45
58	42	8
53	55	3
51	79	45
57	35	16
52	52	78
60	53	137
58	55	117

The descriptive statistics summary for each set is shown

	Set A	Set B	Set C
Mean	55	55	55
Sample variance	9.56	164.67	2497.33
Sample standard deviation	3.09	12.83	49.97

Each set has a mean of 55. So based on mean alone the three sets could be considered the same as each other.

The amount of variation **within** each set is markedly different however as measured by each variance: 9.56 for Set A; 164.67 for Set B and 2497.33 for Set C.

Set A is very stable in that all the scores are quite similar whereas set C has a big difference in the scores from the mean throughout. Although Set A and Set C have the same mean clearly they are not the same.

So in comparing several groups the means are used to gauge the variation between the groups but as you can see from this example the variation within each group measured by the variance or standard deviation must be considered as well.

2. For more information

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