Re: Doesn't a t−test work here?

Source: http://sci.tech−archive.net/Archive/sci.stat.edu/2008−02/msg00074.html

- *From*: jgpowers@xxxxxxxxx
- *Date*: Thu, 21 Feb 2008 18:51:22 −0800 (PST)

On Feb 22, 11:14 am, Allen McIntosh <nos...@xxxxxxxxxxxxxxx> wrote:

> z wrote:
>
> > what they're getting act, i think, is that if a t−test is designed to
> > be significant or not at the .95 level, that means that 1 time out of
> > 20 it will show a significant difference when there is really no
> > difference between the treatments, out of random "noise". this is the
> > generally accepted level of error. however, what you are doing is
> > basically 10 t−tests simultaneously, so your chance of finding a
> > significant difference somewhere when in fact there are none at all is
> > 1−(.95)^10, or about .4, if you treat each t−test as though it were
> > alone and require a .95 confidence limit. this kind of error rate is
> > obviously a bit high.
>
> The 10 tests aren't independent, so you can't calculate the chance of
> finding a significant difference that way.

Okay I have done a bit of reading. Based on what I have read I still
feel like T−tests would be alright. Perhaps it would be more powerful
to run an ANOVA followed by a Dunnett's but I think for my purposes a
t−test would be okay. Here are a couple websites that I think support
my thoughts:

http://www.anselm.edu/homepage/jpitocch/biostats/keysmeans.html
Based on this webpage I think I need a 2 independent sample t−test 1 −
direction

http://www.aiaccess.net/e_t.htm
"3) The third form of the t−test, called the "Two Independent Samples
t−test", looks very similar to the previous one. We still have two
sets of measurements, and we are trying to figure out if the averages
of these two sets of measurements are significantly different. But
this time, we assume that there is no relationship whatsoever between
the two sets of measurements, because they were conducted on two, non
intersecting sets of individuals."

I think where everyone gets tripped up is the fact that I have like 9 different treatments all being compared to a control treatment. But those 9 treatments are all completely different and essentially unrelated. For all intents and purposes I am really only looking at two sets of data at any given time, one set of treated leaves vs. the set of control treatment leaves.

I know you guys are all statistics people so you will probably hate me when I say that based on my reading an ANOVA/Dunnett would be statistically more powerful, but being so late in the game with this paper I am hesitant to change my statistical analysis now.
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