Traffic lights and how we calculate change

Measure	First	Last	+/-%
SRS	39.2	35.1	-513

Measure	First	Last	+/-%
ORS	7.0	23.6	+50

First of all, let us say, this provided us with a challenge. How could we come up with a system that could work regardless of which measure we used, what its numbers were and what its characteristics were, when we have so many measures (well over 100) available?

So, we came up with a very simple way of doing this. Let's give the analogy of a person wanting to lose weight. They start off at 100 kilos, shed 10 kilos to 90 kilos. They have lost 10% of their weight (10/100*100 = 10%). If they lose another 15 kilos they will be 75 kilos, so they will have lost 25 kilos from where they started from so they will have lost 25% of their starting weight (25/100*100 = 25%).

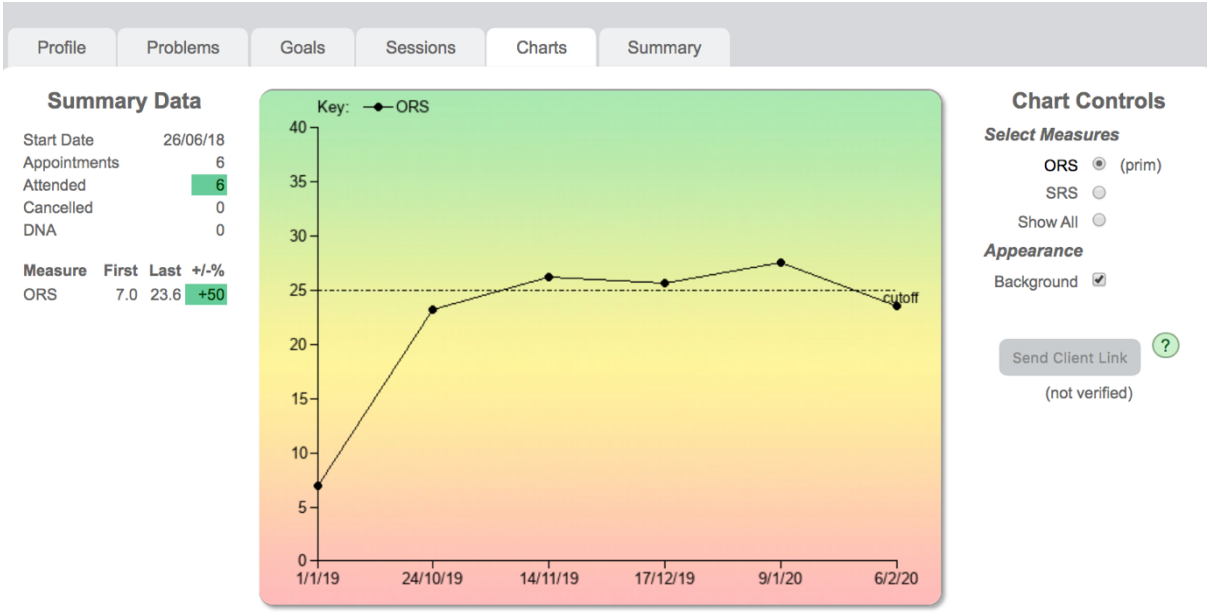
So, in our system, if, on any particular measure a client fails to improve by more than 5% or they get worse, they get a red signal, if they improve between 6% and 25% they get an amber signal, and if more than 25% they get a green signal.

HOWEVER, this didn't quite solve our problem. This works for measures where improving scores are GOOD when they REDUCE (as in the weight loss example). This is true for many measures where high scores are worse than low scores. But what about measures like ORS and SRS where high scores are GOOD and lower scores are BAD? So, in order to achieve consistency for all measures we needed to convert these sort of measure scores to reflect the same changes as the other types where decreasing scores are good. With these sorts of measures we work with the DIFFERENCE in score from the maximum score it could be. We know, it's tricky, but stay with us.

An ORS scores between '0' (worst) and '40' (best). So, with an ORS, what we do is we subtract the initial score (I) from 40 and we subtract the most recent score (R) from 40 and we look at the % change in the DIFFERENCE. So the formula is:

[(40-I) - (40-R)] / [(40-I) *100 = X%

So, let's look at a real example…



This client has an initial ORS score of 7 and a most recent score of 23.6

[(40-7) - (40-23.6)] / (40-7) *100 is the formula

So, (33-16.4) / 33 *100 = our answer

So, 16.6 / 33 * 100 = 50.3%

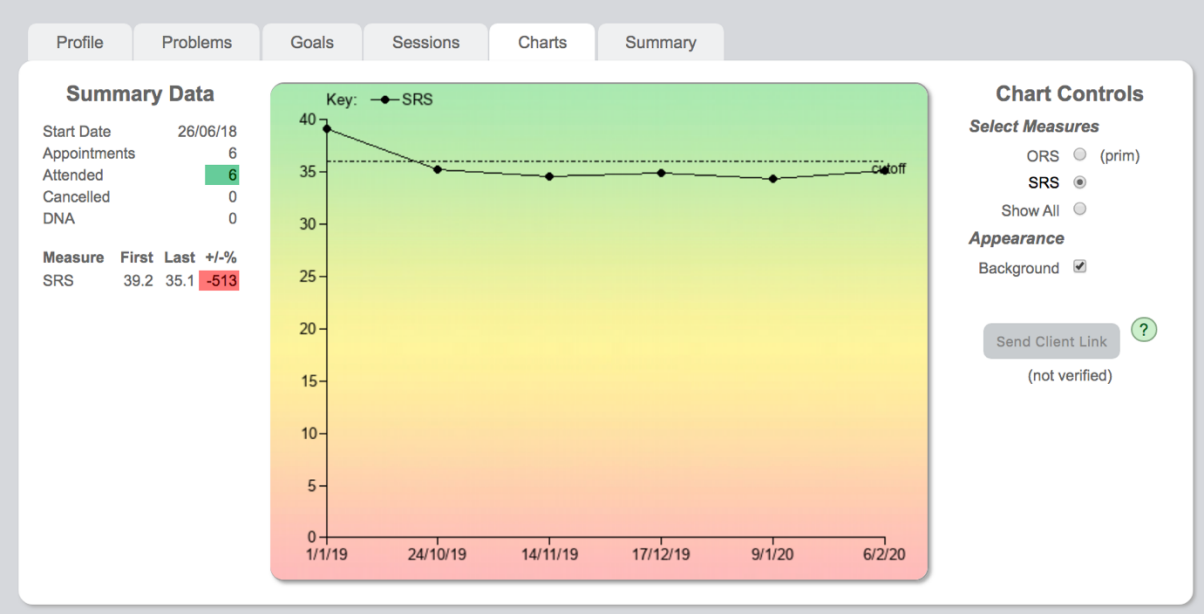
So 50.3% (an improvement greater than 25% so a green signal)

Remember, of course, with measures that GO DOWN with improvement the formula is much more simple. It's just the initial score 'I' minus the most recent score 'R' divided by the initial score 'I' and then multiplied by 100…just like the weight loss example earlier…

*(I-R) / I * 100*

So, measures like GAD-7, PHQ-9, CORE-10, IES all score this way.

Let's now look at the SRS for this client…



The initial SRS score is 39.2 and the most recent score is 35.1.

So, it works like this...

[(40-39.2) - (40-35.1)] / (40-39.2) * 100

0.8 - 4.9 / 0.8 * 100

-4.1 / 0.8 * 100

-5.125 * 100 = -512% (a deterioration in score so a red signal)

Now, clearly, a 512% deterioration is ridiculous but the point is that it doesn't really matter. The percentages work well with improvement and, let's face it, a score hardly changing at all in a positive direction or getting worse, well, we want to know the client is not improving, so a red signal is very helpful.

So, with this client, it's really interesting. He/she shows a really good improvement in the ORS score reflected by 50% but he/she shows deterioration in SRS. HOWEVER, an alliance measure works very differently to a typical outcome measure. It's counter-intuitive and this is a great example. Sometimes alliance scores like SRS score higher the 1st time. Clients are not sure what to do and don't really believe therapists want to hear the truth about what they think, but, as trust develops, and if the therapist is really keen to get the honest feedback the scores may often come down. This is NOT clearly a reflection of failure to progress (as this case shows with the ORS). But the red signal for the SRS should help to keep the therapist awake to be focused on how the therapeutic relationship is going with the client.

“These tools are not precision instruments. They are, in our language, 'conversation enhancement tools'.”

We hope that explains it properly. Our scoring system is what we call 'quick and dirty' but it actually works well and we cannot find a better generic system that is an improvement. We know the deterioration % in measures that go up with improvement are often silly numbers but obviously, as therapists we're far more interested in the % improvement our clients are making on outcome measures.

“The important thing is not to get hung up on the % scores but concentrate on the colour of the signal.”

Now, of course we have our critics. The scientific folk want to see algorithms of predicted trajectories of change, cut-offs, percentiles, different scoring mechanisms for measures with different change characteristics etc. However, we cannot have 100 different scoring systems for 100 different instruments. All data can be exported to excel for statistical calculation. But we want our system to make immediate and obvious sense to our clients, right there in the room on the chart screen. Our overwhelming feedback over the last decade has been very positive. It’s simple and straightforward…

Have I hardly improved or got worse?

Have I improved a bit?

Have I improved a lot?

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Bill and Tony

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