

The Warwick Edinburgh Mental Wellbeing Scale compared to clinical observation made using the Association of University and College Counseling Scale (AUCC): a preliminary analysis of change scores occurring during counseling

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August 2013

Introduction

A data set gathered in the evaluation of a University Staff Counseling Service provided the opportunity to evaluate the Warwick Edinburgh Mental Wellbeing Scale (WEMWBS) performance with regard to sensitivity to change compared to clinical assessment of mental health.

The WEMWBS and the Association of University Counselors Clinical Checklist (AUCC) were administered at the beginning and end of a time-limited counseling service provided to one hundred and three staff who had referred themselves to the University Counseling Service at University of Cambridge (Collins, Gibson, Parkin, Parkinson, Shave, & Dyer 2012). The AUCC is a counselors' subjective assessment of initial problem severity and degree of counseling-induced change. It consists of a eight-point scale ranging from 'Very Mild' (0) to 'Incapacitating' (7). Its psychometric performance is still not formally assessed.

Counseling sessions of fifty minutes took place weekly and subjects received a median of seven sessions. Eight therapists were included in the study. The counseling staff was multi-disciplinary, offering Cognitive Behavioral, Cognitive Analytic Therapy (CAT), integrative, person-centred and psychodynamic therapy.

Results

WEMWBS and AUCC scores were approximately normally distributed before (T1) and after (T2) the counseling intervention (See below Table 1, Fig. 1 and Fig. 2).

Table 1: Mean, median, skewness, kurtosis, minimum and maximum score of WEMWBS and AUCC at both T1 and T2

		WEMWBS Total Score at T1	WEMWBS Total Score at T2	AUCC Severity T1	AUCC Severity T2
N	Valid	103	103	103	103
	Missing	0	0	0	0
Mean		39,88	49,29	4,17	2,13
Median		40,00	50,00	4,00	2,00
Skewness		,139	,009	-,009	,276
Std. Error of Skewness		,238	,238	,238	,238
Kurtosis		,940	,419	-,623	-,498
Std. Error of Kurtosis		,472	,472	,472	,472
Minimum		18	29	3	0
Maximum		61	70	6	5

Fig. 1: Score distributions for WEMWBS at both T1 and T2

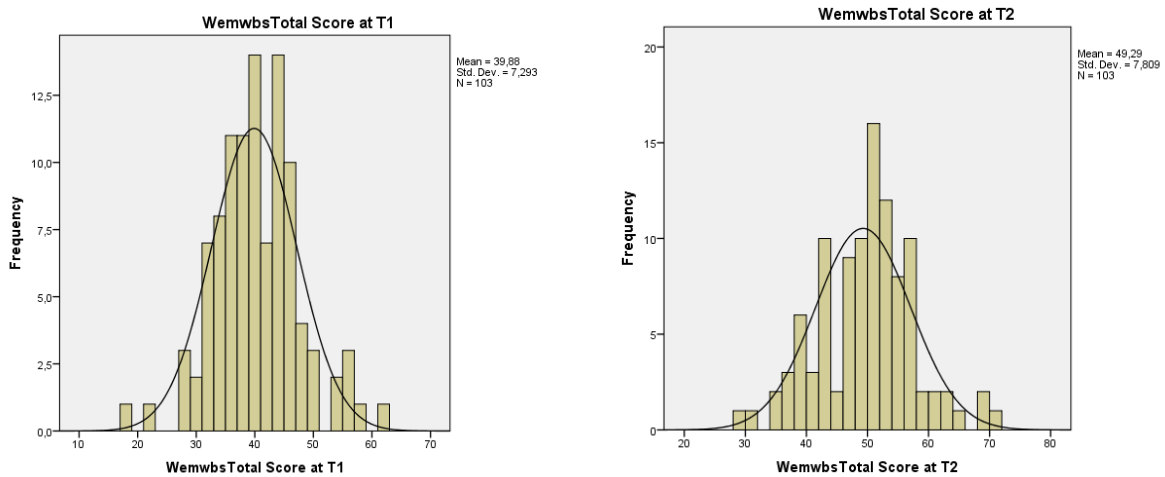
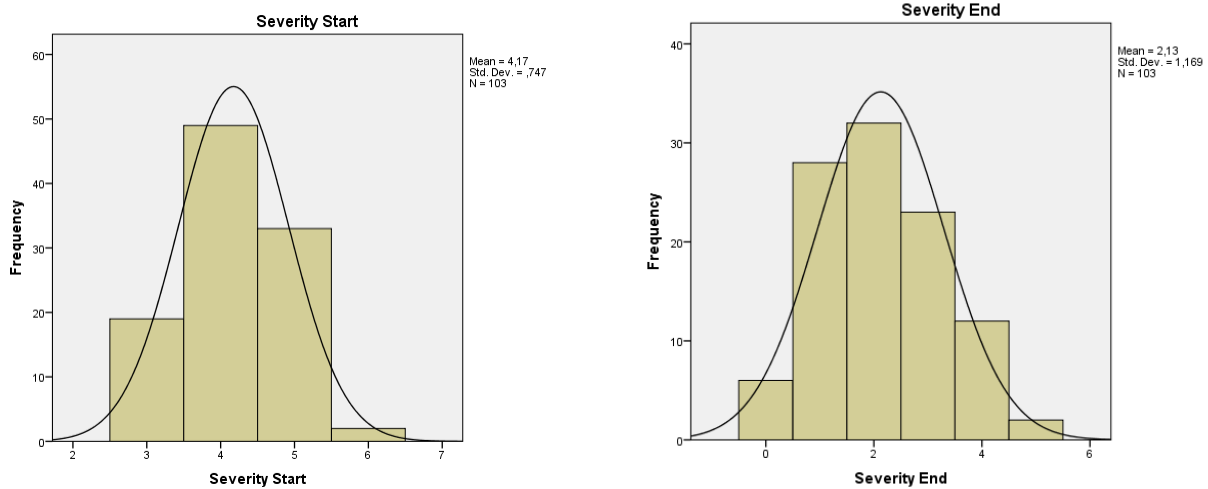


Fig. 2: Score distributions for AUCC at both T1 and T2



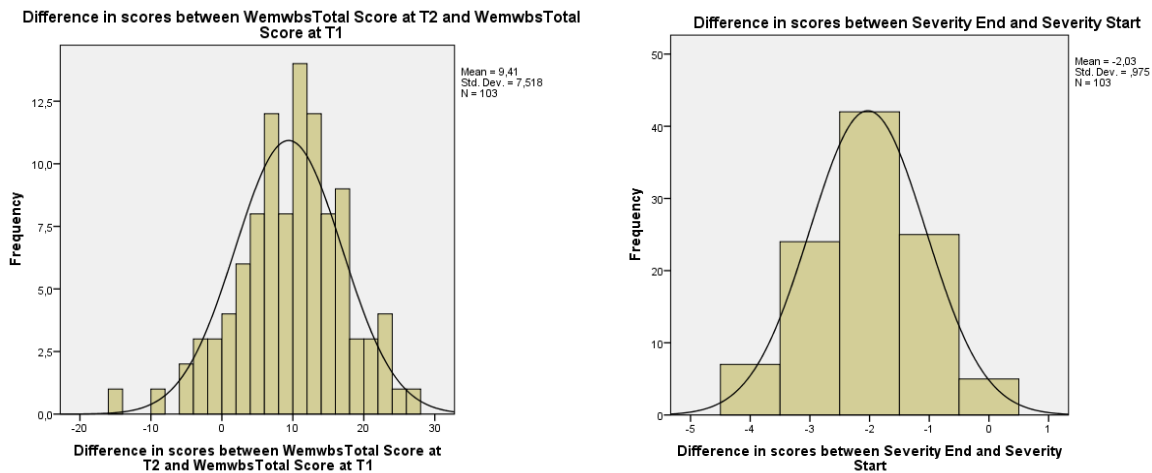
Mean scores before (T1) and after (T2) the intervention on both scales (WEMWBS, M = 39.88 at T1 and 49.29 at T2 and AUCC M = 4.17 at T1 and M = 2.13 at T2) indicate an improvement in mental health. The WEMWBS maximum and minimum scores at T1 were 18 and 61, and 29 and 71 at T2. The AUCC scores range from 3 to 6 at T1 and 0 to 5 at T2.

Change scores from T1 to T2 were examined for both scales (See below Table 2, Fig. 3).

Table 2: Mean, median, skewness, kurtosis, minimum and maximum score of WEMWBS and AUCC change scores at both T1 and T2

		WEMWBS change scores (difference in scores between WEMWBS Total Score at T2 and WEMWBS Total Score at T1)	AUCC change scores (difference in scores between AUCC Severity at T2 and AUCC Severity at T1)
N	Valid	103	103
	Missing	0	0
Mean		9,41	-2,03
Median		10,00	-2,00
Skewness		-,363	-,070
Std. Error of Skewness		,238	,238
Kurtosis		,561	-,329
Std. Error of Kurtosis		,472	,472
Minimum		-15	-4
Maximum		26	0

Fig. 3: Score distributions for WEMWBS and AUCC change scores



Improvements in WEMWBS scores are indicated by positive numbers, in contrast improvements in AUCC scores are shown by negative numbers. Differences in WEMWBS and AUCC scores were approximately normally distributed. The differences in WEMWBS scores range from -15 to 26 and differences in AUCC scores range from 0 to -4.

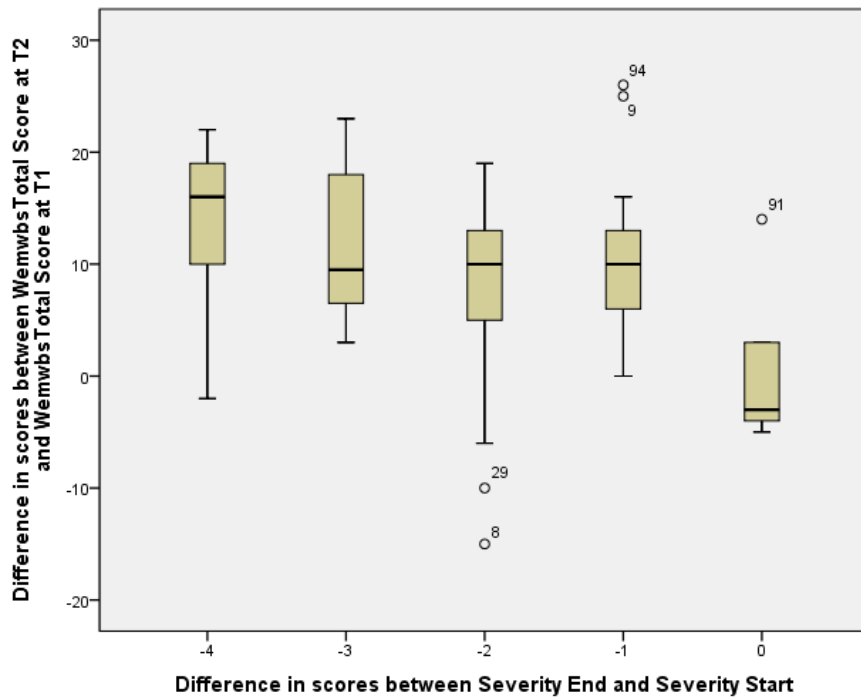
Table 3: Frequency of AUCC change scores

	Frequency	Percent	Valid Percent	Cumulative Percent
-4	7	6,8	6,8	6,8
-3	24	23,3	23,3	30,1
-2	42	40,8	40,8	70,9
-1	25	24,3	24,3	95,1
0	5	4,9	4,9	100,0
Total	103	100,0	100,0	

Table . 4: Mean and minimum and maximum scores of WEMWBS for each category of AUCC change scores

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
-4	7	13,43	8,304	3,139	5,75	21,11	-2	22
-3	24	11,71	6,843	1,397	8,82	14,60	3	23
-2	42	8,07	7,566	1,167	5,71	10,43	-15	19
-1	25	10,00	6,455	1,291	7,34	12,66	0	26
0	5	1,00	7,906	3,536	-8,82	10,82	-5	14
Total	103	9,41	7,518	,741	7,94	10,88	-15	26

Fig. 4: Box plot of WEMWBS change scores against AUCC change scores



A correlation is evident with those who registered a clear improvement (-4) or no improvement (0) on the AUCC scale and the WEMWBS. There was little difference in change scores on WEMWBS for those improving by 1, 2 or 3 points on the AUCC scale.

Table 5: ANOVA of WEMWBS change scores against AUCC change scores and its test of homogeneity of variances (Levene Statistic)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	677,415	4	169,354	3,262	,015
Within Groups	5087,458	98	51,913		
Total	5764,874	102			

Levene Statistic	df1	df2	Sig.
,410	4	98	,801

The homogeneity of variance assumption for ANOVA test may be reasonably satisfied (See Levene Statistic in Fig. 5). There is sufficient evidence that the variances are not equal (p value is .801).

The one-way, between-subjects analysis of variance reveals a reliable effect of the levels of "AUCC change scores" on "WEMWBS change scores", $F(4, 98) = 3.262$, $p = .015$, $MS_{error} = 51.913$, $\alpha = .05$ (Fig. 5).

Table . 6: Multiple comparisons between WEMWBS change scores and AUCC change scores, Bonferroni post-hoc test

Dependent Variable: WEMWBS change scores						
(I) AUCC change scores	(J) AUCC change scores	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
-4	-3	1,720	3,095	1,000	-7,17	10,61
	-2	5,357	2,941	,716	-3,09	13,80
	-1	3,429	3,081	1,000	-5,42	12,28
	0	12,429*	4,219	,040	,31	24,55
-3	-4	-1,720	3,095	1,000	-10,61	7,17
	-2	3,637	1,844	,514	-1,66	8,93
	-1	1,708	2,059	1,000	-4,21	7,62
	0	10,708*	3,542	,032	,54	20,88
-2	-4	-5,357	2,941	,716	-13,80	3,09
	-3	-3,637	1,844	,514	-8,93	1,66
	-1	-1,929	1,820	1,000	-7,16	3,30
	0	7,071	3,409	,406	-2,72	16,86
-1	-4	-3,429	3,081	1,000	-12,28	5,42
	-3	-1,708	2,059	1,000	-7,62	4,21
	-2	1,929	1,820	1,000	-3,30	7,16
	0	9,000	3,530	,123	-1,14	19,14
0	-4	-12,429*	4,219	,040	-24,55	-,31
	-3	-10,708*	3,542	,032	-20,88	-,54
	-2	-7,071	3,409	,406	-16,86	2,72
	-1	-9,000	3,530	,123	-19,14	1,14

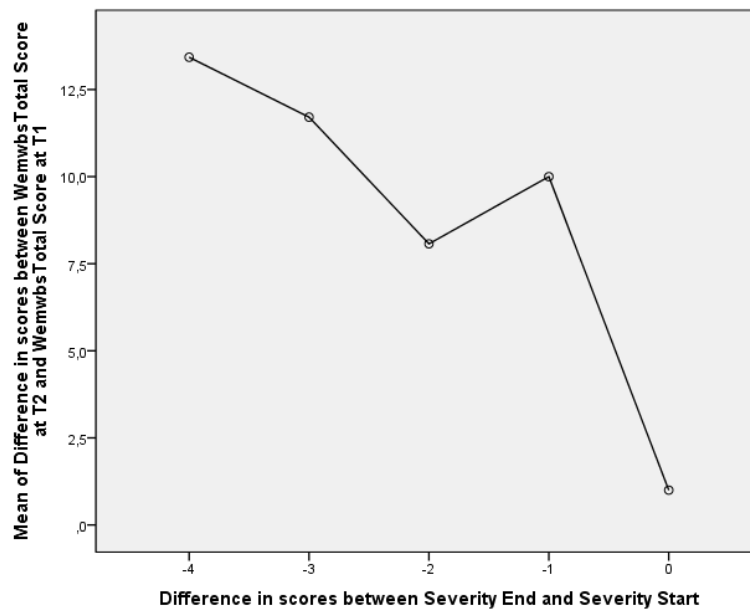
*. The mean difference is significant at the 0.05 level.

Multiple comparisons show only two statistically different comparisons (-4 and 0; -3 and 0). This is likely to be due to wide confidence intervals because of the relatively small sample size, rather than differences in means (see the underlined column on the right-hand-side in the pairwise differences tables) (Fig. 6).

Except for the comparison -2 vs -1, the data reported above show a trend where improvements in AUCC scale correspond to improvements in WEMWBS scale.

This is illustrated in a graph showing WEMWBS change on the Y axis and AUCC change on the X axis (See the graph below).

Figure 5: Change on WEMWBS score and change in AUCC severity score



Conclusions

These analyses suggest WEMWBS is sensitive to improvements in mental wellbeing as observed by clinicians but not to differences between small and moderate clinically detectable change. The analyses need repeating in a larger sample to substantiate these findings

Acknowledgements

We are very grateful to Jill Collins and Colin Dyer for allowing further analysis of their dataset and to all the clinicians and their clients who collected the data.