

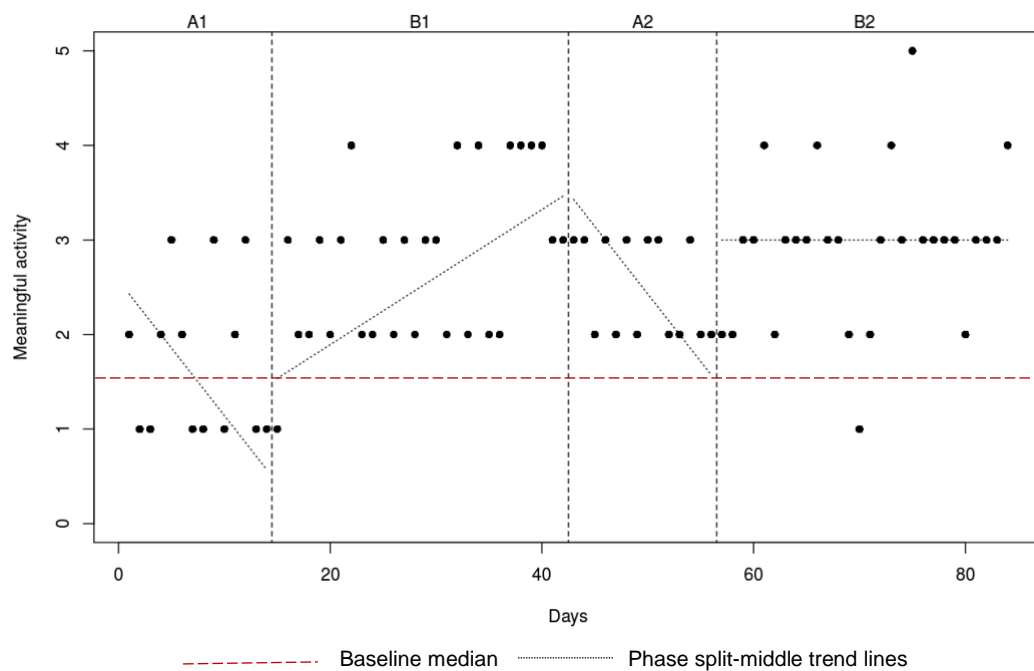
ABAB design

Setting	Older adults
Design	ABAB
Length of baseline (A1)	14
Length of Intervention (B1)	28
Length of withdrawal (A2)	14
Length of Intervention (B2)	28
Idiographic measures	Scale
Engaging with meaningful activity	0-5
Feeling happy	0-5
Feeling isolated	0-5
Eating quality (control)	0-5
Nomothetic measures	Outcome
GDS	Geriatric depression scale

1. Visual analysis

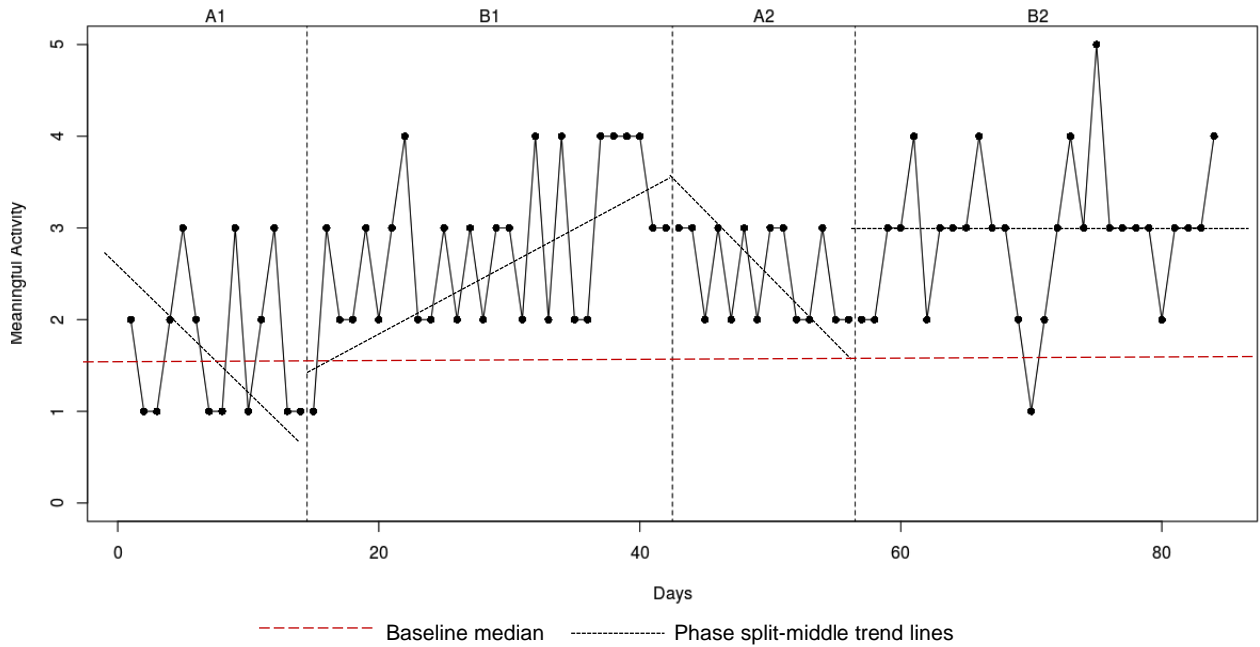
Idiographic measure 1: Meaningful activity (split-middle trend lines)

- **Example 1:** Split middle trend line plot manually customised using text boxes and shapes in Microsoft Word to add baseline median line and legend. See [Box 1](#) in the Analysis Guide for tips.



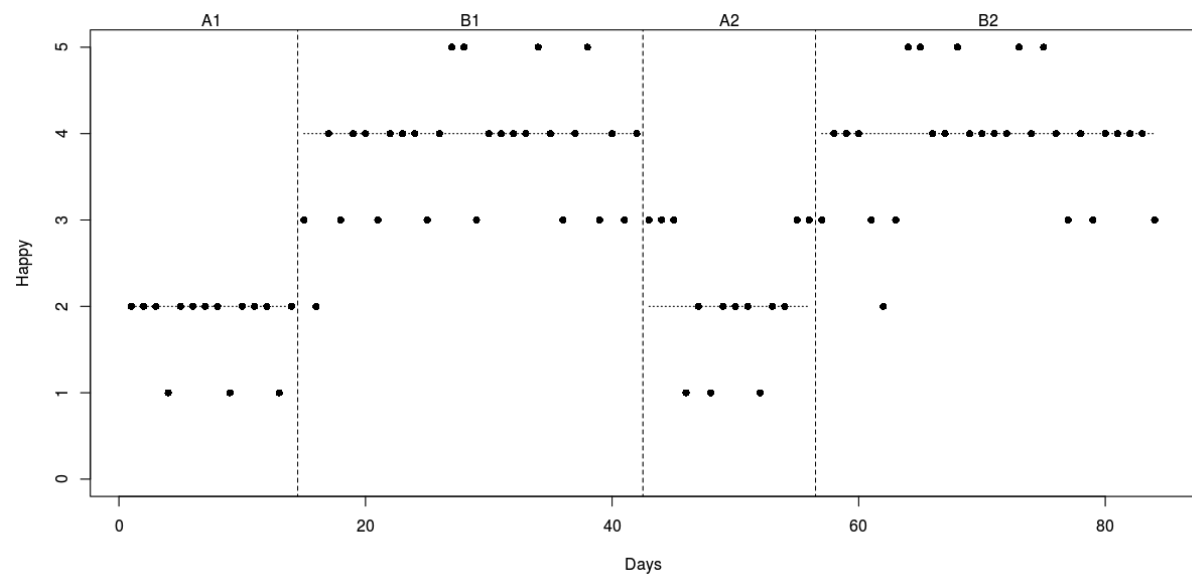
Idiographic measure 1: Meaningful activity (split-middle trend lines)

- **Example 2:** Observed data plot manually customised using text boxes (legend) and shapes (lines) in Microsoft Word to draw trend lines at the split-middle median of each phase and to add a baseline median line. See Box 1 in the Analysis Guide for tips.

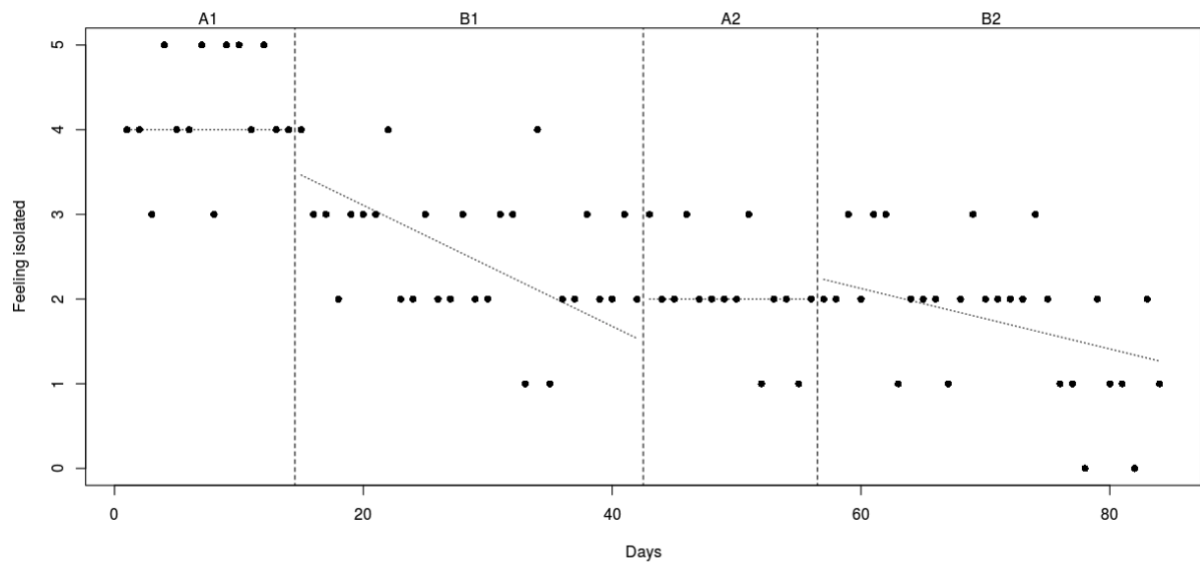


Idiographic measure 2: Happy (split-middle trend lines)

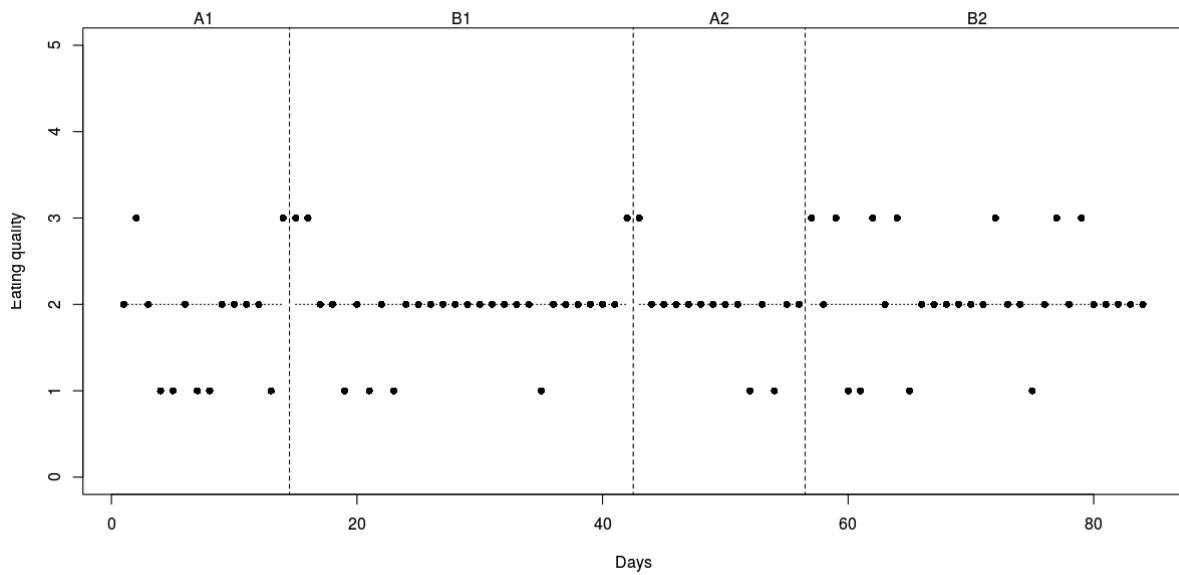
- Cut directly from app with no customisation.



Idiographic measure 3: Feeling isolated (split-middle trend lines)
 - Cut directly from app with no customisation.



Idiographic measure 3: Eating quality (split-middle trend lines)
 - Cut directly from app with no customisation.



2. Statistical analysis

Table 1: Nonoverlap effect and Tau-u statistics for ideographic measures between specific phases of SCED

Baseline (A1) vs. 1 st Intervention phase (B1)							
Idiographic measure	Baseline trend (τ^{trendA})	¹ Tau (τ^{AvsB}) ² Tau-U ($\tau^{\text{AvsB} - \text{trendA}}$)	PEM	NAP	PND	PAND	IRD
Activity	-0.040	¹ 0.467*	96.43	79.85	25.00	80.95	57.14
Happy	-0.128	¹ 0.753*	98.21	98.60	96.43	97.62	94.64
Isolated	0.150	¹ -0.662*	94.64	92.98	50.00	88.10	73.21
Eating quality	0.041	¹ 0.152	48.21	58.04	0.00	69.05	30.36
<i>Interpretation:</i>	Higher τ^{trendA} value indicates more evidence of phase trend – positive or negative values indicate direction of trend (increasing/decreasing). Larger ($\tau^{\text{AvsB}} / \tau^{\text{AvsB} - \text{trendA}}$) values indicate larger differences between phases. Where improvement = increased scores, larger positive Tau values reflect improvement due to intervention. Where improvement = decreased scores, larger negative Tau values reflect improvement due to intervention.		Higher scores reflect improvement due to 1 st intervention phase.				
Baseline (A1) vs. 2 nd Intervention phase (B2)							
Idiographic measure	Baseline trend (τ^{trendA})	¹ Tau (τ^{AvsB}) ² Tau-U ($\tau^{\text{AvsB} - \text{trendA}}$)	PEM	NAP	PND	PAND	IRD
Activity	-0.040	¹ 0.537*	96.43	83.55	17.86	80.95	57.14
Happy	-0.128	¹ 0.757*	98.21	98.60	96.43	97.62	94.64
Isolated	0.150	¹ -0.731*	100	98.72	82.14	95.24	89.29
Eating quality	0.041	¹ 0.221	55.36	62.63	0.00	69.05	30.36
<i>Interpretation:</i>	Higher τ^{trendA} value indicates more evidence of phase trend – positive or negative values indicate direction of trend (increasing/decreasing). Larger ($\tau^{\text{AvsB}} / \tau^{\text{AvsB} - \text{trendA}}$) values indicate larger differences between phases. Where improvement = increased scores, larger positive Tau values reflect improvement due to intervention. Where improvement = decreased scores, larger negative Tau values reflect improvement due to intervention.		Higher scores reflect improvement or sustained improvement due to 2 nd intervention phase.				

1st Intervention phase (B1) vs. Withdrawal (A2)							
Idiographic measure	Baseline trend (τ^{trendA})	¹Tau (τ^{AvsB}) ²Tau-U ($\tau^{\text{AvsB} - \text{trendA}}$)	PEM	NAP	PND	PAND	IRD
Activity	n/a	n/a	25.00	41.07	0.00	66.67	25.00
Happy	n/a	n/a	0.00	7.14	0.00	66.67	25.00
Isolated	n/a	n/a	78.57	66.20	0.00	66.67	25.00
Eating quality	n/a	n/a	46.43	48.47	0.00	66.67	25.00

Interpretation:

Higher scores reflect deterioration during withdrawal

Withdrawal (A2) vs. 2nd Intervention phase (B2)

Idiographic measure	Baseline trend (τ^{trendA})	¹Tau (τ^{AvsB}) ²Tau-U ($\tau^{\text{AvsB} - \text{trendA}}$)	PEM	NAP	PND	PAND	IRD
Activity	n/a	n/a	75.00	66.07	17.86	66.67	25.00
Happy	n/a	n/a	98.21	94.13	75.00	85.71	67.86
Isolated	n/a	n/a	57.14	59.06	7.14	66.67	25.00
Eating quality	n/a	n/a	55.36	57.65	0.00	66.67	25.00

Interpretation:

Higher scores reflect improvement after withdrawal due to 2nd intervention phase.

* = Significant at $p < .05$. ¹If baseline trend is not significant, Tau between phase effect size is reported (τ^{AvsB}). ²If baseline trend is not significant, Tau-U between phase effect size is reported ($\tau^{\text{AvsB} - \text{trendA}}$).

3. Descriptive analysis

Table 2: Means and Standard deviations of each phase

Idiographic measure	Means (SD)			
	Baseline (A1) (14 days)	Intervention (B1) (28 days)	Withdrawal (A2) (14 days)	Intervention (B2) (28 days)
Activity	1.71 (0.83)	2.79 (0.88)	2.50 (0.52)	2.93 (0.81)
Happy	1.79 (0.43)	3.79 (0.74)	2.14 (0.77)	3.89 (0.74)
Isolated	4.21 (0.70)	2.54 (0.79)	2.07 (0.62)	1.79 (0.83)
Eating quality	1.79 (0.70)	1.96 (0.51)	1.93 (0.47)	2.11 (0.63)

4. Nomothetic measures

Table 3: Nomothetic measures and reliable and clinically significant change analysis

Nomothetic measure	Outcomes				Norms		RCSI analysis (Pre-baseline A1 to post-intervention B2)			
	Pre-baseline (A1)	Post-intervention (B1)	Post-withdrawal (A2)	Post-intervention (B2)	Community / non-clinical	Clinical	Clinical cut-off	Clinical change (Y/N)	Reliable change criteria	Reliable change (Y/N)
GDS	11	5	7	6			>5	N	>4.14	Y

GDS – reliable change criteria based on Cronbach alpha value of 0.749 and sample SD=2.98. Clinically significant change criteria based on scale cut-off >5 indicates probable depression.

Summary of findings

Visually – The plots indicate that the intervention was effective for the outcomes engaging in meaningful activity, feeling happy and feeling isolated. All three outcomes showed improvement in the first intervention phase (A1) with some deterioration or plateauing when treatment was withdrawn (A2). When the intervention was reintroduced (B2), outcomes showed some indication of improving again, however it was not as much as in the first intervention phase. The control variable (Eating quality) did not show any changes during intervention and withdrawal phases indicating it was not affected by the intervention as was expected.

Statistics – The baselines of all outcomes appeared to be stable (Tau^{trendA} was not significant). Comparisons between the baseline and the first intervention phase indicated significant improvements in engaging in meaningful activity, feeling happy and feeling isolated (significant Tau^{AvsB}). There was no between phase change in eating quality (the control variable) supporting the visual interpretation. The same pattern was seen in the non-overlap effect sizes, with larger treatment effects for meaningful activity, feeling happy and feeling isolated and minimal effects of the intervention on eating quality. In general, the different non-overlap effect sizes were relatively similar, although PND (is known to have limitations) and IRD were more variable. The same pattern was seen for the comparison of the baseline with the 2nd intervention phase. The non-overlap effect sizes for the comparison of the withdrawal phase with the 2nd intervention phase suggested that the intervention continued to produce improvements in happiness (Moderate to high PEM, NAP, PAND, PND & IRD). The effect for the other variables was less clear with smaller and more variable indications of symptom improvement.

Nomothetic – GDS showed reliable change from baseline to postintervention, however the criteria for and clinically significant change was not met indicating that the client had experienced improvement in their depression symptoms, but that they still had some depression symptoms when treatment ended.