

Evaluation: Pilot Programme at Frome Medical Practice

Delivered by Better Nature Ecotherapy CIC

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Summary

This short paper assesses the outcomes of the pilot programme 'Better Through Nature' which was developed and delivered by Better Nature Ecotherapy Community Interest Company (BNE CIC) in partnership with Frome Medical Practice. The six-week program was aimed at participants reporting low to moderate anxiety and depression and burnout. GPs were trained in the benefits of nature connection for mental wellbeing and were able to recommend and signpost participants to the program as a first line intervention. The Better Through Nature programme is underpinned by Natural Academy's NatureWell model, the Five Pathways to Nature Connection and Mindfulness.

The educational organisation Natural Academy's research branch, the Natural Institute (NI), was employed to carry out the evaluation. BNE CIC chose to use a shortened version of the Warwick–Edinburgh Mental Wellbeing Scale (SWEMWBS) in combination with the NI's Outcome Flower in the evaluation of their programme. Both tools were administered to participants before the programme began and after it had finished.

Aim

This paper aims to assess the effectiveness of the pilot programme as indicated by participants' responses to SWEMWBS and the Outcome Flower, paying particular attention to changes in reported levels of health and wellbeing across Natural Academy's three realms of the personal, social and ecological, which are picked up by the Outcome Flower.

Background and Methodology

The NI was employed by BNE CIC to carry out the evaluation of a pilot programme they had delivered through Frome Medical Practice. The NI exists to research, evidence, evaluate and advocate the best nature-based interventions (NBIs) that mitigate the interconnected crises of ecological and human health within the broad study of Applied Ecopsychology.

BNE CIC decided to use a shortened version of the Warwick–Edinburgh Mental Wellbeing Scale (SWEMWBS) in combination with the NI's Outcome Flower in the evaluation for their programme. The Warwick–Edinburgh Mental Wellbeing Scale (WEMWBS) was developed to enable the monitoring of mental wellbeing in the general population and the evaluation of projects, programmes and policies which aim to improve mental wellbeing, and has been widely adopted internationally.

The NI developed the Outcome Flower as a means of assessing holistic health and wellbeing outcomes in a way that could be useful for programme participants and practitioners alike. The tool uniquely assesses outcomes relating to personal, social and ecological relatedness, and is compatible with Natural Academy's Natural Self model © which encompasses three realms: personal, social and ecological. The tool considers levels of relatedness across these three areas as integral to human health and wellbeing and considers it important to monitor and evaluate them together. Natural Academy's NatureWell approach underpins BNE CIC's pilot programme, and thus the Outcome Flower is well-suited to assessing its outcomes, but the Outcome Flower is also compatible with and can be used to measure the outcomes of NBIs more broadly.

Since the completion of the pilot programme, the Outcome Flower has been superseded by the Daisy tool, but its application and outcomes remain a relevant and valid means of testing wellbeing, as verified by research carried out by Swansea University. Both the Outcome Flower and Daisy allow respondents to identify areas of their wellbeing they might wish to address and offer them an opportunity to assess their progression through a course or intervention.

The Outcome Flower has eight petals, each with an associated statement and scale from 1-10 which the participant ranks their level of agreement with. Four statements relate to relationship with self (personal), two to relationships with other humans (social) and two to relationships with the "more than human" or "nature" (ecological). Each of the statements has been sourced from a previously validated scale, such as WEMWBS, the Social Connectedness Scale and the Nature Connection Index. SWEMWBS asks participants to rate their experiences from 1-5. It would not have been possible to combine the scores from both scales for this evaluation, nor would it have been appropriate since it would have created imbalance in the weighting across the three realms - personal, social and ecological. It is however interesting to compare outcomes from SWMWBS to the Outcome Flower, as breaking the outcomes down can provide a more detailed view of which aspects of wellbeing were more or significantly impacted by an intervention, and which aspects were less impacted by an intervention.

BNE CIC asked participants to complete SWEMWBS before the programme began and after it had finished, allowing any differences in scores to be calculated and for any differences between the biological sexes and between the four programmes to be observed and explored.

Notes on the Outcome Flower

When the post-programme total score is higher than the pre-programme total for a participant, this is considered an overall improvement to health and wellbeing, even if their overall score within one of the realms has reduced. For example, an individual's score within the realm of the personal may have reduced by one point, but their score within the realm of the ecological may have increased by three points and their score within the realm of the social remained the same. This would equate to an overall increase of two points and would be viewed as an improvement.

The Outcome Flower can be used by different target groups and can generally be completed by participants with or without support from project staff, meaning that the results are generally self-reported and do not need to be justified beyond the quantitative data they generate. Results can therefore be considered to be bias-free. The tool can be administered at as many different time points as required to identify participants' progress. The minimum number of times the tool can be administered is twice - at the beginning and the end of a course or programme.

Results

The results show that outcomes improved significantly across all realms and both tools. The four-programme average change for SWEMWBS was an increase of 28.1%, and that of the Outcome Flower was 52.6%. The results suggest that outcomes for women were more significant than those of men. Interestingly, the change to men's scores was almost the same as measured by both tools, with increases of 16.1% (SWEMWBS) and 16.2% (Outcome Flower).

Participants showed statistically significant improvements from pre- to post-programme across all measures (see Appendix 1). On average, SWEMWBS scores increased by around 29% after taking part in the programme. This change was highly significant ($p < 0.001$). The size of this improvement was considered large ($d \approx 0.8$), showing a strong positive impact overall.

The wider outcomes measured by the Outcome Flower also improved by about 55%. This was a statistically significant change ($p \approx 0.01$), with a moderate effect size ($d \approx 0.5$), showing a clear

and meaningful overall benefit. The probability that these improvements occurred by chance is therefore very low (less than 1%).

The two tools show a very strong positive correlation ($r \approx 0.86$, $p < 0.001$). This suggests that both are capturing consistent and mutually supportive changes.

All seven SWEMWBS items showed positive mean changes, with several reaching statistical significance ($p < 0.05$). The most significant improvements were typically in *feeling useful*, *thinking clearly*, and *feeling close to others*. There were overall improvements across all eight Outcome Flower items. Results across each of the eight items showed significant improvement overall, particularly in *motivation*, *physical health*, *relationships*, and *connection to nature*.

Table 1 (below) shows the average change in percentage to participants' self-reported scores for both tools. The results are displayed by programme, by all programmes combined, and by biological sex. They are also broken down into the realms of the personal, social and ecological.

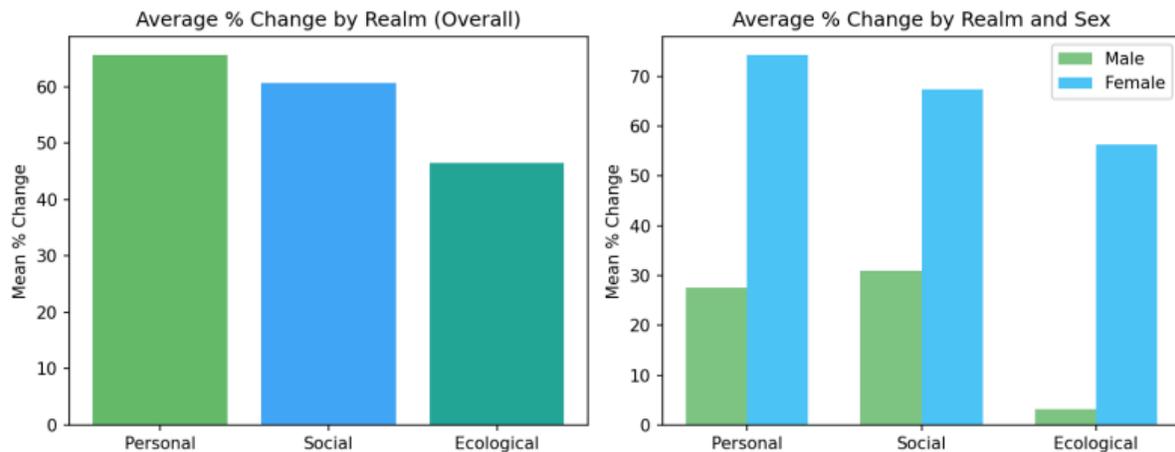
Table 1:

Average Percentage Change to scores across the four programmes and all programmes in total.

Average % Change	SWEMWBS	Personal	Social	Ecological	Outcome Flower Total
Phase 1	40.1	42.6	44.8	27.2	37.2
Phase 2A	16.0	52.5	52.2	42.2	45.6
Phase 2B	40.4	126.2	111.0	84.9	104.1
Phase 2C	15.7	29.5	19.2	22.9	23.5
4-Programme Average	28.1	62.7	56.8	44.3	52.6
Female 4-Programme Average	31.4	71.1	65.0	54.1	62.0
Male 4-Programme Average	16.1	29.8	36.0	3.9	16.2

Figure 1:

Average percentage change by Outcome Flower realms and by biological sex, including statistical significance.



Realm	Mean % Change	Significance	Effect Size
Personal (self-esteem, mood, motivation, physical health)	+65.6%	$p = 0.009$	$d \approx 0.55$ (medium effect)
Social (relationships, community)	+60.6%	$p = 0.001$	$d \approx 0.71$ (medium–large effect)
Ecological (connection to and care for nature)	+46.5%	$p = 0.037$	$d \approx 0.42$ (small–medium effect)

Results across all three realms demonstrated significant improvement. The Social realm showed the strongest relative gains, while the Personal realm showed the most consistent improvement across participants. The Ecological realm also improved significantly, suggesting participants felt more connected to the “more than human” or nature after taking part in the programme.

The highest overall average improvement to outcomes took place in the Personal realm, with an overall average increase of 62.7% across the four programmes (Fig.1). Interestingly, the change to SWEMWBS scores was much lower overall than the change to Outcome Flower scores, and this was consistent across all programmes and biological sexes. The outlier to this trend was

observed within the Ecological realm, where in Phase 1, Ecological outcomes improved less than SWEMWBS outcomes. This meant that the average change to SWEMWBS was greater than the average change to the Outcome Flower total. The SWEMWBS outcomes correlate more closely with Personal and Social outcomes in Phase 1, which makes sense to some degree, since SWEMWBS captures information that relates more to people's relationships with themselves and with other people, and does not tend to evoke a questioning of a sense of one's relationship with the "more than human" or nature. This trend was, however, not observed in Phase 2B, where Ecological outcomes and outcomes observed by the Outcome Flower in general were much greater.

The other outlier to the overall trend of the change to SWEMWBS scores being much lower than that of Outcome Flower scores can be observed in the four-programme average change to Ecological scores for men. While there was still an increase, 3.9%, is much lower than the 16.1% change to outcomes as captured by SWEMWBS.

When comparing across the four programme phases, there were no statistically significant differences ($p \geq 0.3$). This means that outcomes were broadly similar across all groups, showing that the programme was consistently effective regardless of phase or format. Phases 2A and 2B showed slightly higher average improvements and stronger links between outcomes as captured by the two tools, suggesting that these formats may have provided particularly supportive experiences, though all phases produced clear positive outcomes.

Both female and male participants showed positive changes across all measures. On average, female participants showed slightly higher improvements, though most of these differences were not statistically significant due to the smaller number of male participants (five men compared with twenty-two women). The largest appeared in areas like *motivation* and *dealing with problems well*, where females improved more ($p \approx 0.02-0.03$). For the overall realm totals, the Ecological realm came close to a statistically significant difference between biological sexes ($p \approx 0.06$), again with females showing higher average gains. Overall, both groups benefitted, but the pattern suggests that female participants may have experienced stronger perceived improvements on average.

Evaluation

The results show that outcomes improved significantly across all realms and both tools, SWEMWBS and the Outcome Flower. The statistical significance of the improvements across all measures indicates that factors such as participants' wellbeing, motivation, relationships and sense of connection was improved by taking part in the programmes.

The results also suggest that outcomes were more significant for females than for males. Since the sample size of males was just 5 out of the overall total of 27 participants, it is difficult to draw any solid conclusions from the data as to why overall outcomes for males were significantly lower overall. It could be interesting in future studies and as the amount of data from these programmes increases and more reliable trends begin to emerge to carry out interviews with participants and to begin to draw information from the experiences of males which may provide some explanation as to why there may be differences in average outcomes as experienced by biological sex, and which may help the development of more targeted interventions for females and males as distinct groups.

Carrying out interviews with participants may also help to reveal why nuances observed within the data may have occurred, such as the overall much higher improvements to outcomes captured by the Outcome Flower in Phase 2B. BNE CIC noted a desire to capture data relating to the potential effect of location on outcomes, and it would be interesting to note whether there were any environmental factors or group dynamics which had made Phase 2B particularly effective.

Research currently being carried out by Swansea University into the validity of the Outcome Flower which incorporates WEMWBS in the process of validation may reveal explanations for any differences that can be observed in the results of SWEMWBS and the Outcome Flower.

Conclusions

- People's wellbeing and broader life outcomes improved clearly and significantly after taking part in the programmes.
- These changes were large enough to be meaningful, not just statistically significant.
- Personal, Social, and Ecological outcomes all improved, showing that the programme supports change across the whole person and their wider connection and demonstrating the usefulness of using a holistic outcomes tool such as the Outcome Flower/Daisy.
- Female participants tended to report slightly stronger gains, though both sexes benefitted.
- More data would be needed to assess any statistical significance in differences between average outcomes experienced by females and males.
- The programme's impact was consistent across all phases, demonstrating reliability over time.
- The strong link between the two measurement tools shows that wellbeing and wider life outcomes go hand in hand. The correlation and nuance revealed by exploring the realms demonstrates that progress in both personal health and wellbeing and broader life outcomes go hand-in-hand, but that there are nuances which are worth exploring, revealing the significance and usefulness of using and refining holistic outcomes tools such as the Outcome Flower and its latest iteration, the Daisy.

Appendix 1:

Full Statistical Findings

Measure	Mean %Δ	t	p	d	n
SWEMWBS – Total	28.5%	t=4.40	p=0.0002	d=0.85	27
Outcome Flower – Total	55.3%	t=2.75	p=0.0107	d=0.53	27

Alignment between measures (correlations)

Overall SWEMWBS vs Outcome Flower totals: $r=0.864$, $p=6.47e-09$, $n=27$.

By sex: M: $r=0.113$, $p=8.56e-01$, $n=5$; F: $r=0.887$, $p=3.96e-08$, $n=22$

By phase: Phase 1: $r=-0.256$, $p=5.80e-01$, $n=7$; Phase 2 - A: $r=0.720$, $p=2.87e-02$, $n=9$; Phase 2 - B: $r=0.966$, $p=4.02e-04$, $n=7$; Phase 2 - C: $r=0.692$, $p=3.08e-01$, $n=4$

SWEMWBS – Item Results

Category	Mean %Δ	t	p	d	n
I've been able to make up my own mind about things	17.4%	t=2.71	p=0.0117	d=0.52	27
I've been dealing with problems well	49.1%	t=2.54	p=0.0176	d=0.49	27
I've been feeling close to other people	32.8%	t=3.65	p=0.0012	d=0.70	27
I've been feeling optimistic about the future	43.4%	t=3.49	p=0.0018	d=0.67	27
I've been feeling relaxed	59.0%	t=3.48	p=0.0018	d=0.67	27
I've been feeling useful	51.2%	t=2.98	p=0.0062	d=0.57	27
I've been thinking clearly	31.8%	t=5.13	p=0.0000	d=0.99	27
Total	28.5%	t=4.40	p=0.0002	d=0.85	27

Outcome Flower – Domain Results

Domain	Mean %Δ	t	p	d	n
Community_T1	106.0%	t=4.18	p=0.0003	d=0.80	27
Connection to Nature_T1	53.8%	t=2.39	p=0.0242	d=0.46	27
Ecological	46.5%	t=2.20	p=0.0365	d=0.42	27
Motivation_T1	93.0%	t=2.72	p=0.0114	d=0.52	27
Personal	65.6%	t=2.84	p=0.0085	d=0.55	27
Relationships_T1	56.9%	t=3.21	p=0.0035	d=0.62	27
Self Esteem_T1	102.5%	t=2.72	p=0.0115	d=0.52	27
Social	60.6%	t=3.66	p=0.0011	d=0.70	27
Total	55.3%	t=2.75	p=0.0107	d=0.53	27
Wider Nature_T1	59.0%	t=1.78	p=0.0871	d=0.34	27

Outcome Flower – Realm Totals (Personal, Social, Ecological)

Realm	Mean %Δ	SD	t	p	d	n	Mean %Δ (M)	Mean %Δ (F)	ANOVA F	ANOVA p
Personal	65.6%	119.9	2.84	0.0085	0.55	27	27.7%	74.3%	0.82	0.4957
Social	60.6%	86.1	3.66	0.0011	0.70	27	31.0%	67.4%	1.25	0.3140
Ecological	46.5%	109.7	2.20	0.0365	0.42	27	3.1%	56.4%	0.39	0.7579