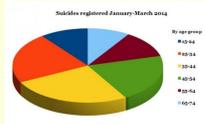
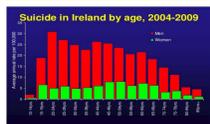


The effects of meditation and positivity training on school community members

Introduction

Teenage mental health is a major issue in Ireland. Studies show that 4.5% of 12-15 year olds suffer from depression, 3.7% suffer from anxiety and 1.9% experience suicidal thoughts. Ireland has the 4th highest rate of teen suicide in Europe. We believe that promotion of good mental health should be a priority in schools.



Hypothesis

There are quantifiable beneficial effects of meditation and positivity training on our school community.

Experimental Methods

Our project had 9 phases.

- 1) After-school meditation-26 teachers, 8 students. Happiness and Stress Questionnaire pre/post meditation.
- 2) Meditation detention - 36 students. Detention Questionnaire. Pulses taken pre/post meditation.
- 3) Random meditation sessions - 326 students. Happiness and Stress Questionnaire pre/post meditation.
- 4) Stroop Effect Experiment - 22 students and 22 controls. Students were timed when completing a simple task.
- 5) Long-Term Effects - 7 teachers, 12-70 meditation sessions.
- 6) 'PsychMeUp' app - 22 students. PsychMeUp Questionnaire pre/post app.
- 7) General Perception of Meditation - 100 students.
- 8) 2 teachers supervising detention meditation. Questionnaire about students' response.

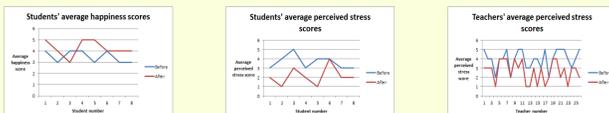


Meditation for teachers



Stroop Effect Experiment

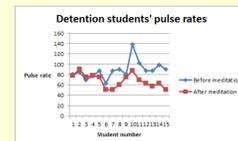
Results of after-school meditation



*All results shown are statistically significant i.e. t-test <0.05

Results of meditation on detention

There were improvements (not statistically significant) in average happiness, perceived stress, frustration with being on detention, concentration on study and current restlessness scores (t-test p-values of 0.203352, 0.352288, 0.117022, 0.548728, 0.276728). The average score for the students' determination to behave well remained the same and the average likelihood to reoffend score increased from 2.3 to 2.6, with a t-test of 0.249139, which was not statistically significant.

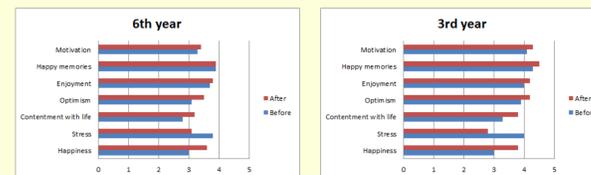


The average pulse rates of the students decreased after meditation with a statistically significant t-test value of 0.000391.

σ before = 16.95567
 σ after = 11.88465
 \bar{x} before = 105
 \bar{x} after = 81

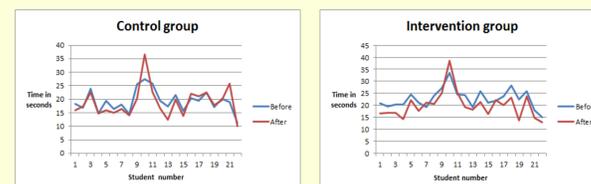
Results of random class meditations

There was a statistically significant improvement across all year groups in current happiness and perceived stress levels (3rd year average perceived stress score had a highly significant t-test value of 0.00000000541 in addition to a highly significant t-test value of 0.000000751 for current happiness levels). 6th years showed a statistically significant increase in optimism and contentment with life scores (0.043215, 0.019569), while 3rd years also showed a statistically significant improvement in average contentment with life scores (0.039885).

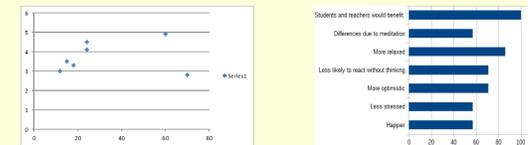


Results of Stroop Effect Experiment

The stroop effect experiment showed an improved performance in a processing speed task post-meditation (mean decreased from 16.5 seconds to 13.8 seconds, t-test close to statistical significance, 0.065158). The control group's mean performance worsened post-10 minutes of class (increased from 15.1 seconds to 17.9 seconds, t-test of 0.712985).



Results of long term effects

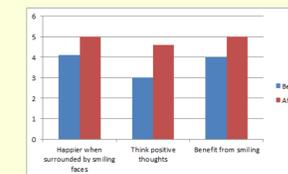


* Scatter diagram above left shows the link between the number of meditation sessions attended and the average scores of that teachers on the long-term effects questionnaire. X axis - number of meditation sessions attended, y axis - average score on questionnaire. There is a weak relationship between the number of meditation sessions attended and a higher average score on the long term effects questionnaire. There is a non-linear trend for the teachers attending less meditation sessions, but there is one outlier. As the sample size was very small the results appear to be skewed.

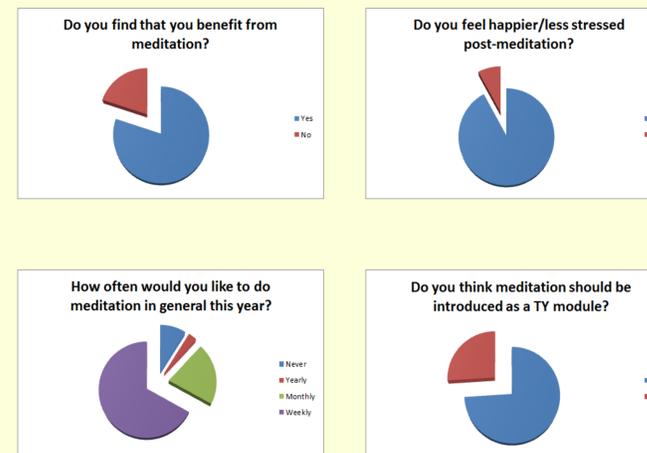
Results of the PsychMeUp app

Our results showed a statistically significant improvement in 3 areas for the intervention group post- app usage:

- 1) The students reported feeling happier when surrounded by smiling faces (t-test 0.009301)
- 2) The students felt that they thought mostly positive thoughts (t-test 0.038265)
- 3) The students felt that they benefitted from smiling (t-test 0.00262)



Results of General Perception Survey



Results of teachers' questionnaire

The 2 teachers who supervised meditation on detention sessions revealed that while they felt that the students enjoyed and were happier after the sessions, neither felt that the students learned anything of value from the sessions.

Margin of error

We conducted two-tailed t-tests on our results. To be statistically significant, the p value of the t-test had to be <0.05, meaning a less than 5% probability of occurring by chance alone.

Conclusions / recommendations

Our results support our hypothesis. This enabled us to reject our null hypothesis that there are no beneficial effects of meditation and positivity training on our school community. From our statistically significant results, we discovered that meditation increases students' happiness levels and reduces students' stress levels, 3rd and 6th years in particular. We found that there are long-term effects of meditation for teachers. Pulse rate analysis post-meditation showed a statistically significant reduction in average rates, suggesting a more relaxed physiological state. The Stroop Effect Experiment showed that meditation improves students' focus and concentration levels while the PsychMeUp app encourages positivity.

Limitations to our project include a heavy reliance on questionnaires, short meditation on detention sessions due to time constraints and small study populations.

We plan to revisit our students in 6 months to assess potential long-term benefits. We will also forward our results to Minister Jan O'Sullivan as requested.

References

- 1) 'Rainy Brain, Sunny Brain.' Prof. E. Fox
- 2) J. Denninger et al 'PLoS one' 2013