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RESEARCHER'S TUESDAY

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Effect of breathing at six cycles per minute on anxiety in adults

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Introduction

From the age of 60, anxiety symptoms affect 28% of the population (Shafiee et al., 2024). Beyond its impact on well-being, anxiety is a risk factor for cognitive impairment (Santabarbara et al., 2020).

In this context, the development of simple and accessible non-pharmacological interventions for anxiety management appears particularly relevant.

Among these approaches, guided slow breathing, used in cardiac coherence practice, is attracting growing interest. This technique involves adopting a breathing rhythm of six cycles per minute (five seconds of inhalation and five seconds of exhalation) for five minutes.

→ What are the effects of breathing at six cycles per minute on anxiety in adults aged 55 to 65?
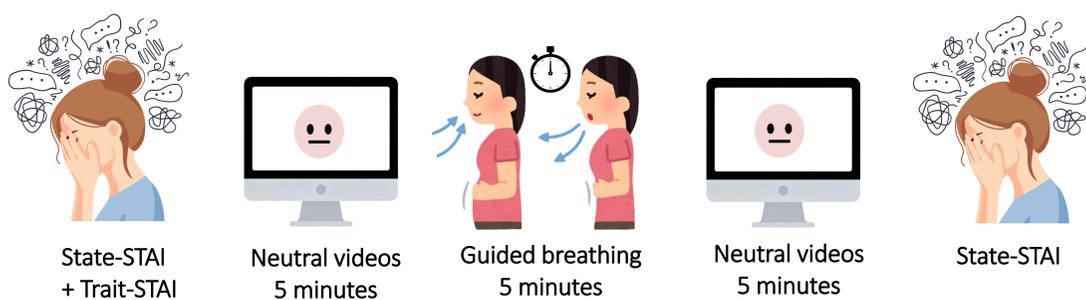
Methodology

POPULATION

34 Belgian people aged between 55 and 65 years old
(X = 60.5 ± 3 SD)
with a socio-cultural level between 1 and 3*

N = 10

N = 24
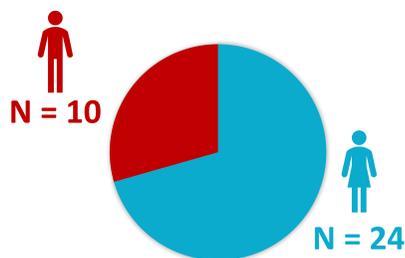
*1 = lower secondary education (N = 1)
2 = upper secondary education (N = 6)
3 = higher diploma (N = 27)

Inclusion criteria	Exclusion criteria
Age between 55 and 65	Neurological history
Stable state of health	Psychiatric history

MATERIAL AND PROCEDURE

State-STAI + Trait-STAI → Neutral videos 5 minutes → Guided breathing 5 minutes → Neutral videos 5 minutes → State-STAI

Assessment of current anxiety levels (State-STAI) and general anxiety traits (Trait-STAI) via a self-reported questionnaire

Guided breathing at six cycles per minute (five seconds of inhalation and five seconds of exhalation)

Results

Descriptive statistics

	All the subjects	Subjects with low anxiety trait (≤ 55)	Subjects with high anxiety trait (>55)
N	34	24	10
Age	60.53 ± 3	60.33 ± 3.23	61 ± 2.45
Gender	♀ 24 ; ♂ 10	♀ 18 ; ♂ 6	♀ 6 ; ♂ 4
Trait-STAI (mean and standard deviation)	47.03 ± 12.58	40.42 ± 7.43	62.90 ± 6.54
State-STAI before breathing (mean and standard deviation)	42/80* (8.50)	40.5/80* (6.25)	47.90/80 ± 8.81
State-STAI after breathing (mean and standard deviation)	38.5/80* (7.75)	37.5/80* (6.25)	44/80 ± 7.09

*median (interquartile range)

Comparison of State-STAI before and after breathing

	Wilcoxon	P
All the subjects	W = 307	<.001
Subjects with low anxiety trait (≤ 55)	W = 157	.006
Subjects with high anxiety trait (>55)	W = 28	.011

Comparison of variation of State-STAI between groups

	Mann-Whitney	P
State-STAI before breathing minus State-STAI after breathing	U = 96.5	.380

State anxiety decreases significantly after the guided breathing (six cycles/minute) for the entire sample and in both subjects with low anxiety trait (≤ 55/80) and high anxiety trait (>55/80). The extent of the decrease does not differ between the two groups.

Discussion

Guided breathing appears to be effective in reducing state anxiety, even five minutes after returning to natural breathing. This reduction is observed regardless of the individual's level of anxiety trait. These observations are consistent with the literature showing that slow and voluntary breathing techniques promote activation of the parasympathetic nervous system (Laborde et al., 2022), which is associated with relaxation (Gaertner et al., 2023).

These results should be interpreted with caution because the sample size remains modest, particularly for the group with high trait anxiety, there is no control group and the study relies on a self-reported measure of anxiety. Future studies could include physiological measures (e.g., heart rate variability) and assess longer-term effects.

Overall, these results support the value of guided breathing as a simple and easily accessible strategy for reducing anxiety, which could make it an effective technique for preventing cognitive disorders.

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