Appendix J. Summary of findings for trial of the Buteyko method for anxiety disorder

Following completion of the systematic review, a registered trial of the Buteyko Method for anxiety was identified as having been published[1]. The trial did not include the word Buteyko in the title, abstract or keywords. The trial has not been integrated in the results of the review, but the evidence was of very low certainty and therefore did not change the overall conclusion of the review. A summary of findings table reporting the results and assessment of certainty follows.

The Buteyko method compared to inactive control for stress, anxiety or mood disorders

Patient or population: stress, anxiety or mood disorders - the single study involved people with anxiety and dysfunctional breathing (eligibility based on unspecified cutoff on Beck Anxiety Inventory and score >23 on Nijmegan questionnaire)
Intervention: the Buteyko Method (standard techniques were taught; participants were encouraged to practise at least 4 x per week over 1 month)
Comparator: inactive control (a co-intervention offered to both groups: medication and routine counselling)

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with inactive control (no intervention, sham, placebo, co-intervention given to both groups, or continuation of usual care)	**Risk with Buteyko**				
Emotional functioning and mental health - anxiety (adults with anxiety) (follow up 4 weeks)[a,b]	-	SMD **0.12 SD higher** (0.5 lower to 0.73 higher)	-	41 (1 RCT)	⨁◯◯◯ Very low[c,d,e]	The evidence is very uncertain about the effect of the Buteyko Method on emotional functioning and mental health for people with anxiety and dysfunctional breathing.
Breathing patterns - dysfunctional breathing (adults with anxiety) (follow up 4 weeks)[f]	-	SMD **0.33 SD lower** (0.94 lower to 0.3 higher)	-	41 (1 RCT)	⨁◯◯◯ Very low[d,g,h]	The evidence is very uncertain about the effect of the Buteyko Method on breathing patterns (dysfunctional breathing) for people with anxiety and dysfunctional breathing.
Other outcomes - not reported	-	-	-	-	-	No studies reported on HR-QoL for people with generalised anxiety disorder.

***The risk in the intervention group** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI). **CI:** confidence interval; **SMD:** standardised mean difference

The threshold for an important difference was an SMD of 0.2 (used for interpreting point estimates and confidence intervals). The resulting interpretations are as follows.

- For emotional functioning and mental health (anxiety): < -0.2 is beneficial, -0.2 to 0.2 is trivial or unimportant ("little or no difference" between treatments), > 0.2 is harmful
- For breathing patterns: < -0.2 is beneficial, -0.2 to 0.2 is trivial or unimportant ("little or no difference" between treatments), > 0.2 is harmful

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

Explanations are provided for domains for which there is a downgrade or a borderline judgment. In line with GRADE guidance, we not explain that there are no limitations unless the judgment was challenging (https://pubmed.ncbi.nlm.nih.gov/26796947/)

Explanations

a. Emotional functioning and mental health measure. Beck Anxiety Inventory
b. To be eligible for the trial participants had to have a respiratory hyperventilation pattern (Nijmegen score of 23 out of 64) and a BDI score indicating anxiety (score range not reported).
c. Serious risk of bias (-1). Some concerns about bias due to deviations from the intended intervention (a naive per protocol analysis may have been used - excluding trial participants who did not receive their assigned treatment); and missing outcome data (data appear to be missing for participants who did not complete Buteyko, which means the actual treatment effect may be smaller if non-completion was due to perceived lack of treatment effect).

[1] Maleki A, Ravanbakhsh M, Saadat M, Bargard MS, Latifi SM. Effect of breathing exercises on respiratory indices and anxiety level in individuals with generalized anxiety disorder: a randomized double-blind clinical trial. J Phys Ther Sci. 2022;34:247-51.

d. Serious indirectness (-1): Evidence from one small study among people with generalised anxiety disorder. Uncertain if results could be generalisable to others with an anxiety disorder, or other stress, anxiety or mood disorders.
e. Very serious imprecision (-2). The 95% confidence interval crosses two thresholds for a small but important effect (SMD of 0.2 and -0.2), so the result is compatible with important benefit (SMD 0.73 higher) and important harm (SMD 0.50 lower).
f. Breathing patterns measure. Nijmegan questionnaire (NQ)
g. Serious risk of bias (-1). Bias due to deviations from the intended intervention (a naïve per protocol analysis may have been used - excluding trial participants who did not receive their assigned treatment); and missing outcome data (data appear to be missing for participants who did not complete Buteyko). It was judged that there was a high risk that the estimate of effect on breathing patterns could be biased in favour of Buteyko if the participants who were excluded because they did not complete the Buteyko treatment dropped out due to perceived lack of treatment effect.
h. Very serious imprecision (-2). The 95% confidence interval crosses two thresholds for a small but important effect (SMD of 0.2 and -0.2), so the result is compatible with important benefit (SMD 0.30 higher) and important harm (SMD 0.94 lower).