

Psychological distress after Subarachnoid Haemorrhage: A systematic review and meta-analysis

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1. Background

Subarachnoid haemorrhage (SAH) is a devastating condition, most often caused by the rupture of a small berry-like swelling on one of the arteries in the brain.

Alongside high rates of death and disability, psychological distress is a common, long-term complication of SAH.

Despite this, the prevalence rates of the condition vary widely across studies and there has been no systematic review and meta-analysis conducted to evaluate available evidence.

2. Aims

- Primary:** determine the pooled prevalence of psychological distress including anxiety and depression in patients after SAH.
- Secondary:** evaluate risk factors for psychological distress after SAH.

3. Methods

Multiple databases including *EMBASE*, *Medline*, *PsychInfo*, and *Web of Science* were searched for publications before 1st December 2019.

The PICOSS framework was used to guide the search strategy.

Screening (Figures 2 & 3 below), data extraction, and quality assessment were undertaken following the PRISMA guidelines for preferred reporting of systematic reviews and meta-analysis.

Data for anxiety and depression was extracted and analysed separately, at short and long term time points.

A random-effects model was used to calculate pooled prevalence rates. Meta-analysis was conducted using Comprehensive Meta-analysis software.

The review protocol was registered on PROSPERO (ref: CRD42020182594).

4. Results

Primary aim

Anxiety:

42 studies involving 5,950 patients reporting anxiety were included in this review.

The pooled short term (<3 years) prevalence rates of anxiety were **31.4%** (95% CI: 23.6%, 40.4%).

The pooled long term (≥3 years) prevalence rates of anxiety were **40.4%** (95% CI: 31.6%, 49.8%).

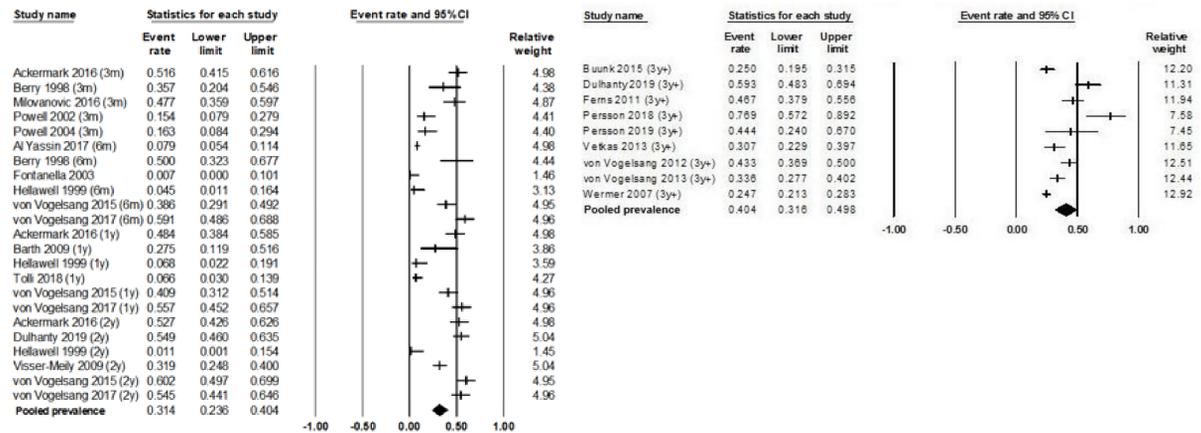


Figure 3a: Short term prevalence anxiety

Figure 3b: Long term prevalence anxiety

Depression:

64 studies involving 8,834 patients reporting depression were included in this review.

The pooled short term prevalence rate of depression was **25.2%** (95% CI: 17.8%, 34.5%).

The pooled long term prevalence rate of depression was **35.8%** (95% CI: 28.6%, 43.6%).

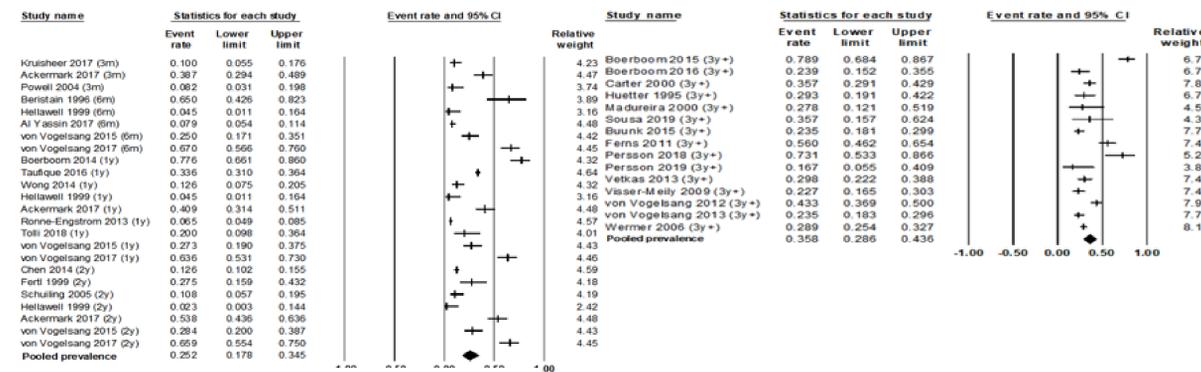


Figure 4a: Short term prevalence depression

Figure 4b: Long term prevalence depression

Secondary aim

Potential risk factors for psychological distress were identified:

- * Female gender
- * Pre-existing psychiatric conditions

5. Conclusions

This review provides precise estimates of the prevalence rates of anxiety and depression in the short and long term after SAH.

The findings highlight the need for **appropriate assessment and management** of these comorbid conditions in individuals after SAH.

Further research is warranted to examine:

- Underlying mechanisms including the **neuroinflammatory hypothesis**.
- Identify **modifiable risk factors** which may offer new intervention approaches.

Future implications:

- Development of more **robust, holistic intervention** programmes with understanding of the biological and psychological impact of SAH on prognosis.
- Helping patients regain their independence, improving overall health and quality of life.

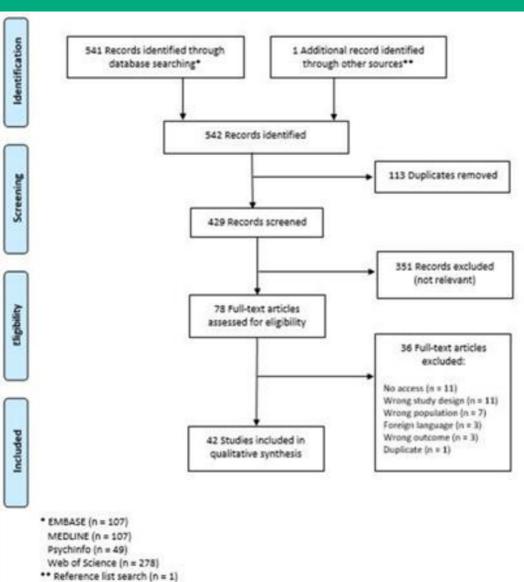


Figure 2: PRISMA flow chart for studies reporting anxiety

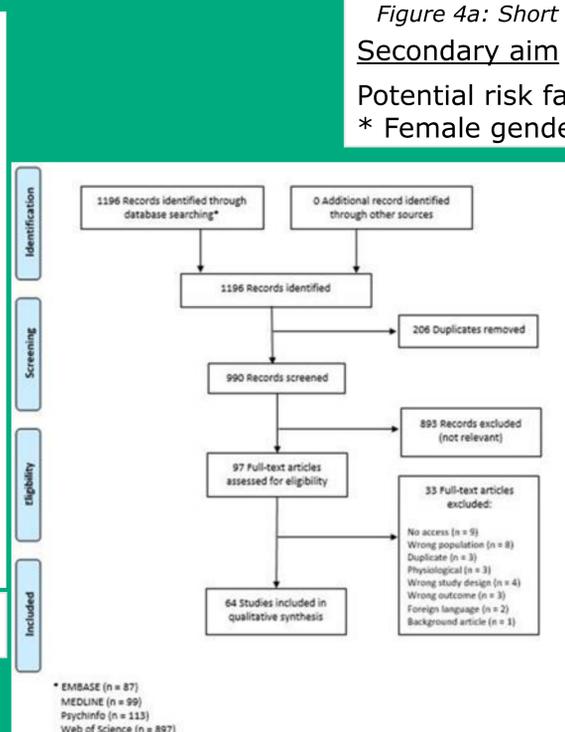


Figure 3: PRISMA flow chart for studies reporting depression