Brain Care Score (BCS)

- Anesthetic and perioperative management of pregnant patients undergoing neurosurgery: a case series from a single center in Morocco (2017-2024)
- Treatment outcome in elderly traumatic brain injury patients at a Level 2 trauma care facility in a low-middle income country
- Sepsis in patients with severe TBI: a retrospective CT scoring study
- Optimized stereoelectroencephalography-guided thermocoagulation versus anterior temporal lobectomy in mesial temporal epilepsy: A pilot randomized controlled study
- A New Predictor Score for Postoperative Seizures in Brain Tumor Patients Without a Seizure History (BRAINNN Score)
- Effects of blood pressure lowering in relation to time in acute intracerebral haemorrhage: a pooled analysis of the four INTERACT trials
- Longitudinal Risk Prediction for Pediatric Glioma with Temporal Deep Learning
- Ability of a Composite Brain Magnetic Resonance Imaging Score to Predict Neurologic Outcomes in Survivors of Out-Of-Hospital Cardiac Arrest

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The **Brain Care Score** **(BCS)** is a wellness metric developed by the Center for BrainHealth at the University of Texas at Dallas. It aims to promote brain health by assessing and encouraging daily habits that support cognitive and emotional wellbeing.

Purpose

The goal of the BCS is to provide a simple, evidence-based framework to improve brain performance and long-term mental fitness.

Main Domains

The BCS questionnaire evaluates behaviors across **three core domains**:

- **General Wellness**
  - Physical activity
  - Quality of sleep
  - Nutritional habits
  - Stress management
- **Social and Emotional Interaction**
  - Positive emotional engagement
  - Social connectivity
  - Empathy and kindness
- **Cognitive Engagement**
  - Intellectual curiosity
  - Purposeful learning
  - Limiting multitasking and distractions

Scoring

Each behavior is scored from 0 to 2 points. The total Brain Care Score ranges from **0 to 60**.

- 0–20: Needs improvement
- 21–40: Average care
- 41–60: Strong brain care

Recommendations

To increase your BCS:

- Exercise regularly (at least 3 times a week)
- Get 7–8 hours of restful sleep
- Practice mindfulness or stress-reduction techniques
- Limit screen time and multitasking
- Foster meaningful relationships
- Stay mentally active (reading, puzzles, lifelong learning)

Choksi et al. aim to measure the association of the BCS and incident cerebrovascular events (CVEs), including stroke and transient ischemic attack (TIA), in the Women's Health Study (WHS).

Methods: The WHS comprises women health professionals aged 45 and older in the United States. Participants without a history of CVE and complete data available to calculate a BCS and covariates 5 years after enrollment were included. Higher BCS reflects better risk factor control, with the minimum score being 0 and the maximum score being 20. Cox proportional hazard models examined the association between BCS and incident CVE, adjusted for potential confounders.

A total of 21,271 women were eligible, with a median age of 57.9 years (interquartile range: 53.9-63.8) and median BCS of 15 (interquartile range [IQR]:13-16). There were 1,294 incident CVE cases (6.1%) during a median follow-up of 22.4 (IQR: 15.9-23.5) years. A five-point higher baseline BCS was associated with a 37% decrease in the risk of incident CVE after adjusting for age, menopausal status, use of hormonal replacement therapy, and other known cardiovascular disease risk factors (hazard ratio [HR] 0.63, 95% CI 0.56-0.71). This association remained significant after adjusting for race, educational attainment, and income (HR 0.64, 95% CI 0.57-0.72). There was a 28% decreased risk of incident CVE among those with a BCS equal to or above the median compared with those with a BCS below the median, in a fully adjusted model (HR 0.72, 95% CI 0.64-0.80).

A Higher baseline BCS was associated with a decreased risk of incident CVE in the WHS. Future studies are needed to study the BCS in more diverse populations and to investigate how changes in BCS across the lifespan affect the risk of CVE [1)]

Strengths

- **Large Sample Size & Long-Term Follow-Up**
  1. >21,000 women from the Women's Health Study (WHS)
  2. Median follow-up of 22.4 years provides strong statistical power
- **Robust Outcome Measurement**
  1. Incident stroke and TIA (not self-reported proxies)
- **Thorough Confounder Adjustment**
  1. Age, menopausal status, hormone therapy, race, education, income, etc.
- **Clinically Meaningful Effect Size**
  1. A 5-point higher BCS associated with 37% lower risk of incident CVE (HR 0.63)
- **Simple and Intuitive Score**
  1. BCS range: 0 to 20 → easily interpretable in clinical settings

⚠ Limitations

- **Limited Generalizability**
  1. Predominantly white, educated, middle/upper-class women
  2. Excludes men, younger populations, minorities → validation needed in diverse groups
- **Potential Selection Bias**
  1. Only included those with complete data 5 years post-enrollment
  2. May exclude high-risk early CVE cases (survivor bias)
- **BCS Composition Not Disclosed**
  1. Components and scoring method not fully transparent
  2. Reproducibility and external application currently limited
- **Static Measurement**
  1. BCS only measured once (baseline)
  2. Does not account for changes in health behavior over time
- **Residual Confounding**
  1. Possible influence of unmeasured factors: stress, AFib, healthcare access
- **Low Absolute Event Rate**
  1. 6.1% CVE over >20 years → risk is statistically relevant but modest in absolute terms

Conclusion

This study presents strong evidence for an inverse association between the Brain Care Score (BCS) and long-term risk of cerebrovascular events in middle-aged women. However, important caveats remain:

- The BCS must be validated in broader, real-world populations
- The score’s transparency and reproducibility require improvement

- The predictive value of **dynamic BCS changes** over time should be studied

Until these gaps are addressed, BCS remains a **promising but not yet definitive** tool for clinical cerebrovascular risk stratification.

1)

Choksi D, Gutiérrez-Martínez L, Rist PM, Buring JE, Senff JR, Marini S, Kourkoulis C, Chemali Z, Newhouse A, Westover MB, Tanzi RE, Fricchione G, Singh S, Rosand J, Anderson CD, Yechoor N. Use of the Brain Care Score to Estimate the Risk of Incident Cerebrovascular Events in Middle-Aged Women. Neurology. 2025 Jun 10;104(11):e213674. doi: 10.1212/WNL.0000000000213674. Epub 2025 May 16. PMID: 40378376.

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