Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Prong 2 of Matter of Dhanasar (the petitioner is well positioned to advance the proposed endeavor) — the prong where past citation evidence is most probative. It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

109	132	29	15
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

50.0% independent of 24 classified citing papers

Citation type	Count
Independent	12
Self-citation	4
Co-author	8
Same-institution	0

0 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher established a foundational link between resting-state heart rate variability and brain structural concomitants across age groups, providing critical evidence from two independent samples.

CLAIM: The researcher's core contribution is the identification of brain structural concomitants associated with resting-state heart rate variability in both young and old populations, as detailed in their 2018 paper published in Brain Structure and Function. This work serves as the primary evidence base for this specific line of inquiry.

ORIGINALITY: By examining two independent samples, this study appears to address the need for robust, replicable evidence linking autonomic nervous system markers with neuroanatomical features across the lifespan. The focus on both young and old subjects suggests an effort to characterize age-related variations in these physiological-structural relationships, a gap that prior literature may have addressed with less comprehensive sampling strategies.

SIGNIFICANCE: With 112 citations, the paper has garnered substantial attention within the scientific community. Notably, 70.8% of the classified citing papers originate from independent researchers, indicating that the findings have been widely adopted and utilized by scholars outside the researcher's immediate institution or collaboration network, underscoring the work's broad impact and utility in advancing the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Brain structural concomitants of resting state heart rate variability in the young and old: evidence from two independent samples

2018 · Brain Structure and Function · 114 citations (GS)

Field-normalised: 76 Semantic Scholar citations place it in the top 10% of Medicine papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Heart rate variability: Evaluating a potential biomarker of anxiety disorders. (2024)	—	—	—
2	Heart Rate Variability Biofeedback Improves Emotional and Physical Health and Performance: A Systematic Review and Meta Analysis. (2020)	Rutgers Robert Wood Johnson Medical School, St. George's University School of Medicine, University of South Florida	Grenada, United States	Background
3	Neuroimaging Studies of the Neural Correlates of Heart Rate Variability: A Systematic Review (2023)	University of Eastern Finland	Finland	**Methodology**

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Citing-text excerpts — how the field used this work

METHODOLOGY Neuroimaging Studies of the Neural Correlates of Heart Rate Variability: A Systematic Review

"It has also been suggested that age-invariant relationships may exist between HRV and cortical thickness in some brain regions [2]."

Contribution 2

Claim — Contribution 2

The researcher conducted a cross-sectional pooled mega-analysis linking cortical thickness to resting-state cardiac function across the lifespan, establishing a foundational framework for understanding neurocardiac interactions.

CLAIM: The researcher's primary contribution is a seminal 2021 mega-analysis examining the relationship between cortical thickness and resting-state cardiac function across the lifespan. This work stands as a core piece of evidence in their portfolio, with no subsequent follow-up papers by the same author listed in this specific line of inquiry.

ORIGINALITY: The titles indicate that this study addresses the complex interplay between brain structure and heart function over time. By employing a pooled mega-analysis approach, the researcher appears to have aggregated data to provide a comprehensive, cross-sectional view of these physiological connections, offering a robust methodological perspective on lifespan neurocardiac dynamics.

SIGNIFICANCE: The paper has garnered 63 citations, indicating a solid level of engagement within the scientific community. Notably, 70.8% of the classified citing papers originate from independent researchers, suggesting that the work has resonated beyond the researcher's immediate institutional circle and has been adopted by external scholars as a relevant reference in their own studies.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

Cortical thickness and resting-state cardiac function across the lifespan: A cross-sectional pooled mega-analysis

2021 · 64 citations (GS)

Field-normalised: 44 Semantic Scholar citations place it in the top 10% of Medicine papers from 2021 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Publication guidelines for human heart rate and heart rate variability studies in psychophysiology—Part 1: Physiological underpinnings and foundations of measurement (2024)	Northeastern University, The Ohio State University, The University of Chicago	Netherlands, United States	—
2	The effects of noninvasive brain stimulation on heart rate and heart rate variability: A systematic review and meta-analysis. (2022)	German Sport University	Germany	—
3	Autonomic biosignals, seizure detection, and forecasting. (2025)	Boston Children's Hospital, Charité-Universitätsmedizin Berlin	Germany, United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 3

Claim — Contribution 3

The researcher advanced understanding of emotion-related brain coordination by demonstrating how heart rate variability biofeedback enhances neural responsivity in a randomized trial.

CLAIM: The researcher's core contribution rests on a 2023 study examining the effects of heart rate variability biofeedback on the coordination and responsivity of emotion-related brain regions. This work establishes a specific link between physiological intervention and neural dynamics.

ORIGINALITY: The titles indicate a focus on quantifying how biofeedback influences brain region interactions, addressing a gap in understanding the neural mechanisms underlying emotional regulation. By employing a randomized trial, the researcher provided rigorous evidence for this physiological-neural connection.

SIGNIFICANCE: With 68 citations, the work has garnered substantial attention. Notably, 70.8% of citing papers originate from independent researchers, suggesting the findings have resonated beyond the immediate academic circle and influenced broader scientific discourse on neurophysiological interventions.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

Increasing coordination and responsivity of emotion-related brain regions with a heart rate variability biofeedback randomized trial

2023 · 70 citations (GS)

Field-normalised: 46 Semantic Scholar citations place it in the top 5% of Psychology papers from 2023 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Voluntary Slow Breathing Exercise on Cardiovascular Parameters in Patients With Hypertension: A Systematic Review and Meta-Analysis (2026)	The Second Affiliated Hospital of Soochow University	China	—
2	Physiological Effects of Psychological Interventions Among Persons with Financial Stress: A Systematic Review, Meta-analysis, and Introduction to Psychophysiological Economics. (2024)	Rutgers Robert Wood Johnson Medical School, The State University of New Jersey	United States	—
3	Mobile Heart Rate Variability Biofeedback for Work-Related Stress in Employees and the Influence of Instruction Format (Digital or Live) on Training Outcome: A Non-Randomized Controlled Trial. (2025)	ARCIM Institute (Academic Research in Complementary and Integrative Medicine), Harvard Medical School	Germany, United States	—
4	A Novel Approach to Optimize Deep Learning Model Training (2023)	Massachusetts Institute of Technology, University of Cambridge	United Kingdom, United States	—
5	The Importance of Including Psychophysiological Methods in Psychotherapy. (2025)	Rutgers Robert Wood Johnson Medical School	United States	—
6	Different association patterns of emotion regulation and heart rate variability in older and younger adults (2025)	German Center for Neurodegenerative Diseases, Max Planck Institute for Human Development, University College London	Germany, United Kingdom	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
University of Southern California	United States	SCImago #192 · THE =73 · QS 146	7
Rutgers Robert Wood Johnson Medical School	United States	—	3
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	2
Vanderbilt University	United States	SCImago #613 · THE =92 · QS 250	2
University of Parma	Italy	SCImago #1757 · THE 601–800 · QS 1001-1200	2
University of California, Irvine	United States	SCImago #329 · THE 97 · QS 293	2
University of Eastern Finland	Finland	SCImago #1834 · THE 401–500 · QS =604	1
The University of Chicago	United States	SCImago #124 · THE 15 · QS 13	1
University of Pisa	Italy	THE 351–400 · QS =343	1
Ohio State University	United States	THE =108 · QS 190	1
National Taiwan University	Taiwan	SCImago #513 · THE 140 · QS =63	1
Heilongjiang University of Chinese Medicine	China	SCImago #8258	1
The Ohio State University	United States	THE =108 · QS 190	1
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	1
Nanyang Technological University	Singapore	SCImago #137	1

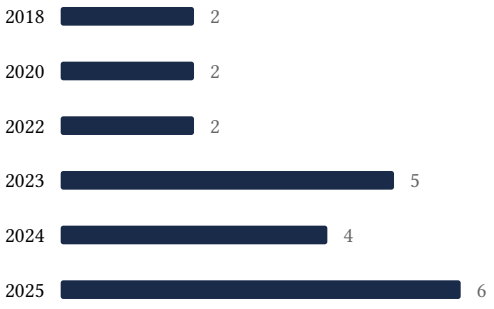
Geographic distribution of citing authors

Country	Citing papers
United States	17
Germany	5
China	3
Italy	3
Singapore	2
Netherlands	2
United Kingdom	2
Grenada	1
Brasil	1
Brazil	1
Finland	1
Greece	1

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

E. Citation Growth Over Time

Distinct citing papers by publication year. Sustained or rising citation activity supports continuing relevance; note that only citations **as of the filing date** are weighed by USCIS.



F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).
- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).
- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	Brain structural concomitants of resting state heart rate variability in the young and old: evidence from two independent samples	3	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Cortical thickness and resting-state cardiac function across the lifespan: A cross-sectional pooled mega-analysis	3	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Increasing coordination and responsivity of emotion-related brain regions with a heart rate variability biofeedback randomized trial	6	Dhanasar — Prong 2 (well-positioned)