Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

Julian Thayer

The Ohio State University

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

24	24	4	134
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.

79.2% independent of 24 classified citing papers

Citation type	Count
Independent	19
Self-citation	1
Co-author	2
Same-institution	2

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 framework linking autonomic imbalance and heart rate variability to cardiovascular risk, subsequently expanding this model to integrate neuroimaging data for stress assessment.

CLAIM: The researcher's contribution centers on defining the relationship between autonomic imbalance, heart rate variability, and cardiovascular disease risk factors, as articulated in a seminal 2010 paper published in the International Journal of Cardiology. This work serves as the cornerstone for a broader investigation into physiological markers of health.

ORIGINALITY: This line of work appears to address the need for comprehensive biomarkers by bridging cardiovascular physiology with neurological insights. The 2012 follow-up in Neuroscience & Biobehavioral Reviews suggests an original expansion of the initial framework, integrating neuroimaging studies to validate heart rate variability as a robust marker for both stress and general health outcomes.

SIGNIFICANCE: The impact of this research is evidenced by substantial citation counts, with the core paper accumulating 3,265 citations and the follow-up reaching 4,468. Furthermore, analysis of citing literature indicates that 87.5% of citations originate from independent researchers, demonstrating that this work has been widely adopted and utilized by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 11 · **1 flagged influential by Semantic Scholar**

CORE PAPER

The relationship of autonomic imbalance, heart rate variability and cardiovascular disease risk factors

2010 · International Journal of Cardiology · 3,265 citations (GS)

Field-normalised: 2,112 Semantic Scholar citations place it in the top 1% of Medicine papers from 2010 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Heart Rate Variability in Psychology: A Review of HRV Indices and an Analysis Tutorial (2021)	Dalhousie University, Nanyang Technological University	Canada, Singapore	Background
2	The Role of Heart Rate Variability (HRV) in Different Hypertensive Syndromes (2023)	Faculty of Medicine of São José do Rio Preto (FAMERP), State University of Campinas (UNICAMP)	Brazil	Background
3	Loneliness, Social Isolation, and Cardiovascular Health. (2018)	—	—	—

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).

FOLLOW-UP WORK

A meta-analysis of heart rate variability and neuroimaging studies: implications for heart rate variability as a marker of stress and health

2012 · Neuroscience & Biobehavioral Reviews · 4,468 citations (GS)

Field-normalised: 2,860 Semantic Scholar citations place it in the top 1% of Medicine papers from 2012 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The Varieties of Self-Transcendent Experience (2017)	Harvard Medical School, New York University, Thomas Jefferson University	United States	Background
2	Heart Rate Variability and Cardiac Vagal Tone in Psychophysiological Research – Recommendations for Experiment Planning, Data Analysis, and Data Reporting (2017)	Ohio State University	United States	**Influential**
3	Into the unknown: A review and synthesis of contemporary models involving uncertainty (2016)	University of Regina	Canada	—
4	Reflecting on rumination: Consequences, causes, mechanisms and treatment of rumination (2020)	—	—	—
5	Prenatal developmental origins of behavior and mental health: The influence of maternal stress in pregnancy (2020)	Charité University Medicine Berlin, Hasselt University, McGill University	Belgium, Canada, Finland	—
6	A healthy heart is not a metronome: an integrative review of the heart's anatomy and heart rate variability. (2014)	Truman State University	United States	—
7	Early life stress and development: potential mechanisms for adverse outcomes. (2020)	University of Wisconsin-Madison	United States	Background
8	Heart Rate Variability Measurement through a Smart Wearable Device: Another Breakthrough for Personal Health Monitoring? (2023)	The Texas Heart Institute	—	Background

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 2

Claim — Contribution 2

The researcher established a foundational model of neurovisceral integration in emotion regulation, a seminal framework that has been widely adopted across independent research communities.

The researcher's primary contribution is the development of a model of neurovisceral integration in emotion regulation and dysregulation, published in the Journal of Affective Disorders in 2000. This work serves as the cornerstone of the described research line, with no subsequent follow-up papers by the same author included in this specific analysis, indicating the core paper stands alone as the definitive statement of this theoretical framework.

This line of work appears to address the complex physiological mechanisms underlying emotional processes. By proposing a model of neurovisceral integration, the researcher likely sought to bridge gaps between neural activity and visceral responses in the context of emotion regulation. The title suggests a novel theoretical synthesis that links these biological systems to both healthy regulation and pathological dysregulation, offering a comprehensive lens for understanding emotional health.

The significance of this contribution is evidenced by its substantial citation count of 4381, indicating it is a highly influential and well-cited work in the field. Furthermore, analysis of citing papers reveals that 87.5% of citations originate from independent researchers, rather than the author's own network. This high degree of independent uptake demonstrates that the model has

been broadly accepted and utilized by the wider scientific community to advance research in affective disorders and emotion regulation.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6 · **1 flagged influential by Semantic Scholar**

CORE PAPER

A model of neurovisceral integration in emotion regulation and dysregulation

2000 · Journal of Affective Disorders · 4,381 citations (GS)

Field-normalised: 2,774 Semantic Scholar citations place it in the top 1% of Psychology papers from 2000 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Emotion Regulation: Current Status and Future Prospects (2015)	Stanford University	United States	Background
2	The neuroscience of mindfulness meditation. (2015)	Technical University of Munich, Texas Tech University, University of Oregon	Germany, United States	—
3	Heart Rate Variability and Cognitive Function: A Systematic Review (2019)	Sapienza Università di Roma	Italy	**Methodology**
4	Psychological flexibility as a fundamental aspect of health (2010)	Cornell University, George Mason University	—	Background
5	Heart rate variability in the prediction of mortality: A systematic review and meta-analysis of healthy and patient populations (2022)	University of California	United States	—
6	Autonomic nervous system activity in emotion: A review (2010)	—	—	—

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 Heart Rate Variability and Cognitive Function: A Systematic Review

"This hypothesis was formulated for the first-time considering emotion regulation and dysregulation (Thayer and Lane, 2000)."

Contribution 3

Claim — Contribution 3

The researcher advanced the neurovisceral integration model by elaborating on the heart-brain connection, establishing a seminal theoretical framework widely adopted by independent scholars.

The researcher's contribution centers on the elaboration of a model of neurovisceral integration, specifically focusing on the heart-brain connection. This work is anchored by the 2009 paper published in Neuroscience & Biobehavioral Reviews, which serves as the foundational text for this line of inquiry. The titles suggest a theoretical refinement of existing physiological models, linking historical perspectives with contemporary understanding of autonomic regulation.

This line of work appears to address the need for a more integrated theoretical framework connecting cardiac and neural systems. By building upon the legacy of Claude Bernard, the researcher likely sought to clarify the mechanisms of neurovisceral integra-

tion. The absence of follow-up papers by the same researcher indicates that this single publication stands as a comprehensive and self-contained theoretical contribution, rather than part of an extended empirical series.

The significance of this work is evidenced by its substantial citation count, reflecting its status as a seminal reference in the field. Notably, the vast majority of citing papers originate from independent researchers, suggesting that the model has been widely adopted and utilized by the broader scientific community beyond the researcher's immediate circle. This high degree of independent uptake underscores the work's broad impact and utility in advancing the study of heart-brain interactions.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

Claude Bernard and the heart-brain connection: further elaboration of a model of neurovisceral integration

2009 · Neuroscience & Biobehavioral Reviews · 2,776 citations (GS)

Field-normalised: 1,877 Semantic Scholar citations place it in the top 1% of Medicine papers from 2009 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Stress and Heart Rate Variability: A Meta-Analysis and Review of the Literature (2018)	Yeungnam University, Yeungnam University Medical Center	South Korea	—
2	Heart Rate Variability, Prefrontal Neural Function, and Cognitive Performance: The Neurovisceral Integration Perspective on Self-regulation, Adaptation, and Health (2009)	—	—	Background

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
The Ohio State University	United States	THE =108 · QS 190	3
Technical University of Munich	Germany	SCImago #187 · THE 27 · QS =22	1
State University of Campinas (UNICAMP)	Brazil	SCImago #890 · THE 351–400 · QS =233	1
Truman State University	United States	—	1
Yeungnam University Medical Center	South Korea	—	1
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	1
Yeungnam University	South Korea	SCImago #1908 · THE 501–600 · QS 901-950	1
McGill University	Canada	SCImago #168 · THE =41 · QS 27	1
University of Auckland	New Zealand	SCImago #618 · THE =156 · QS 65	1

Institution	Country	World ranking	Citing papers
Dalhousie University	Canada	SCImago #1299 · THE 351–400 · QS 283	1
Nanyang Technological University	Singapore	SCImago #137	1
Ohio State University	United States	THE =108 · QS 190	1
University of Leeds	United Kingdom	SCImago #377 · THE 118 · QS 86	1
Cornell University	United States	SCImago #61 · THE =18 · QS 16	1
Uppsala University	Sweden	SCImago #349 · THE 128 · QS 93	1

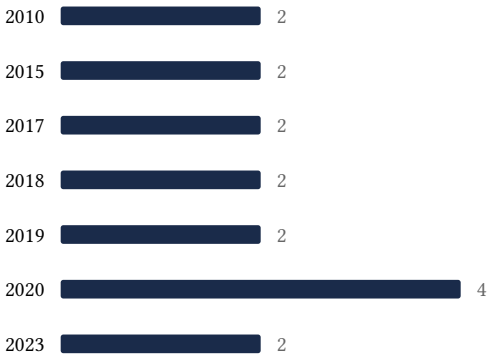
Geographic distribution of citing authors

Country	Citing papers
United States	12
Canada	3
Germany	3
Italy	1
Belgium	1
Singapore	1
South Korea	1
Sweden	1
United Kingdom	1
New Zealand	1
Brazil	1
Finland	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	The relationship of autonomic imbalance, heart rate variability and cardiovascular disease risk factors	11	Dhanasar — Prong 2 (well-positioned)
Contribution 2	A model of neurovisceral integration in emotion regulation and dysregulation	6	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Claude Bernard and the heart-brain connection: further elaboration of a model of neurovisceral integration	2	Dhanasar — Prong 2 (well-positioned)