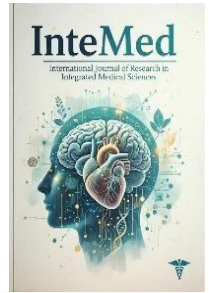




InteMed: International Journal of Research in Integrated Medical Sciences (IJ-RIMS)

Journal homepage: www.intemed.in

Vol.: 2 | Issue: 8 | Aug 2026



Article History: Received: 25-08-2026

Accepted: 28-08-2026

Published:30-08-2026

DOI: doi.org/10.68108/intemed.v2.i8.23

Review Article

Satva Bala and Vipassana Meditation in Young Adults Conceptual Foundations Evidence and Research Priorities

Dr.Sunil Revati Tulshiramji Mehetre¹, Dr.Ramesh M.Bansode²

1.BAMS,M.D. Sharir-Kriya ,Ph.D (Scholar)-at Government Ayurvedic College,Nanded-431601,Maharashtra, India.

Associate Professor & H.O.D. Department of Kriyasharir-APM'sS.C.M. Aryangla Vaidyak Mahavidyalay,Satara-415002,Maharashtra,India-

Email : sunil.mehetre@rediffmail.com

2.BAMS,M.D.(Sharir-Kriya),Ph.D

Email : rameshdrbansode@gmail.com

Abstract:

Background : *Satva Bala* is an Ayurvedic account of mental strength expressed through steadiness, judgment, memory, purposeful conduct, courage, and tolerance of adversity. Vipassana is an intensive contemplative practice centred on ethical restraint, sustained attention, awareness of bodily sensations, and nonreactivity. The two traditions use different conceptual languages, yet several functional domains overlap.

Objective To examine the conceptual relationship between *Satva Bala* and Vipassana meditation, summarize relevant contemporary evidence, and define a rigorous research agenda for young adults.

Methods A focused narrative review integrated classical Ayurvedic sources with peer reviewed studies and systematic reviews indexed in PubMed through September 2026. Literature on Vipassana, traditional meditation retreats, mindfulness mechanisms, resilience, cognition, psychophysiology, measurement, and adverse experiences was prioritized. Because the review was interpretive rather than systematic, no pooled estimate or formal risk of bias score was produced.

Synthesis Vipassana may plausibly engage attention regulation, interoceptive awareness, decentering, response inhibition, emotional recovery, and prosocial orientation. These functions resemble parts of the *Satva Bala* profile but are not equivalent to it. Retreat and mindfulness studies report potential benefits for distress, well-being, cognitive control, and selected physiological measures; however,

heterogeneity, self selection, weak control conditions, inconsistent definitions, and underreporting of adverse experiences limit causal interpretation. The available *Satva Bala* questionnaire also needs modern psychometric evaluation.

Conclusion Vipassana provides a defensible hypothesis for strengthening selected expressions of *Satva Bala*, not proof that the classical construct and modern psychological measures are interchangeable. Future research should preserve the integrity of both knowledge systems, measure mechanisms directly, use credible controls, report harms, and validate the Ayurveda specific outcome before testing efficacy.

Keywords Ayurveda; emotional regulation; mindfulness; resilience; *Satva Bala*; Vipassana; young adults

Introduction

Mental health research increasingly examines attention, emotion regulation, resilience, self-awareness, and prosocial behaviour as interdependent capacities rather than isolated symptoms. Ayurveda offers an older but structurally similar concern with the functional strength of the mind. *Satva Bala* is evaluated as part of the tenfold examination described in *Charaka Samhita*. A person with *Pravara Satva* is described as capable of tolerating substantial adversity, whereas *Madhyama* and *Avara Satva* denote increasing reliance on external support and vulnerability under strain.¹ The classical definition of health also includes a contented mind, senses, and self, showing

that mental clarity is intrinsic to health rather than an optional addition.²

The terms *Satva*, *Satva Guna*, *Satva Bala*, and *Satva Sara* are related but should not be collapsed. *Satva* may denote mind; *Satva Guna* is the quality associated with clarity and balance; *Satva Bala* is the functional strength of the mind under challenge; and *Satva Sara* describes excellence of the relevant essence as expressed through recognizable qualities. Ayurvedic management of mental disturbance also includes *Satvavajaya*, commonly understood as restraining the mind from unwholesome objects, together with knowledge, discrimination, courage, memory, and contemplative stability.^{1,3}

Vipassana is often grouped within mindfulness practices, but a ten day residential course is more intensive and contextually richer than most clinical mindfulness programmes. It combines ethical precepts, repeated attention to natural respiration, systematic observation of bodily sensations, equanimity toward pleasant and unpleasant experience, extended silence, and a highly regulated environment. The question is not whether Vipassana and *Satva Bala* are the same concept. They are not. The useful question is whether the training engages functions through which selected expressions of mental strength may change.

Evidence specific to Vipassana has expanded since an early review found only seven mainly poor quality studies.⁴ A 2025 review and a 2026 review of deconstructive practices describe generally favourable psychological findings but continue to identify heterogeneous interventions, variable outcome measures, and limited high quality controlled evidence.^{5,6} An integrative appraisal is therefore needed to avoid two opposite errors: rejecting conceptual dialogue because the vocabularies differ, or claiming equivalence without measurement and empirical support.

Review Method

This focused narrative review used the classical sources cited in the study synopsis and peer reviewed literature indexed in PubMed through 22 September 2026. Search concepts included *Satva*, *Satva Bala*, Vipassana, insight meditation, deconstructive meditation, meditation retreat, mindfulness, attention, cognition, emotion regulation, resilience, well-being, heart rate variability, adverse events, and measurement. Priority was given to Vipassana specific studies, systematic reviews, meta-analyses, methodological papers, and established scale development studies. Reference lists of selected reviews were also examined to identify relevant primary studies.

The aim was conceptual integration, not an exhaustive effectiveness estimate. Study selection and interpretation were therefore narrative; no protocol registration, duplicate screening, formal risk of bias tool, or meta-analysis was used. Findings from mindfulness programmes are treated as indirect evidence because programme content, intensity, teacher training, setting, and participant expectations differ from a residential Vipassana retreat.

Ayurvedic Structure of Satva Bala

Mind as a Functional Component

Ayurveda places *Satva* within the living coordination of body, senses, mind, and self. The mind receives, selects, and

organizes sensory information, directs attention, supports deliberation, and participates in action. Disturbance in judgment and self-regulation is described through concepts such as *Prajnaparadha*, while mental urges involving greed, anger, fear, grief, envy, and related reactions are to be recognized and restrained. *Satva Bala* is therefore broader than calmness. It concerns how well the person maintains organized, ethically directed functioning when internal or external pressure increases.

Levels of Mental Strength

The *Pravara*, *Madhyama*, and *Avara* classification is relational and clinically observed. It describes the person's tolerance of adversity and dependence on support, not a permanent moral label. This distinction matters in research. A brief postretreat score may reflect a temporary state, altered self-perception, social desirability, or a more stable change. Longitudinal measurement is needed before a state response is interpreted as durable strengthening of *Satva Bala*.

Table 1 Related Ayurvedic concepts and their research implications

Concept	Working meaning	Research implication
Satva	Mind as a coordinating functional component	Do not reduce it to mood or a single cognitive test
Satva Guna	Clarity, balance, and discriminative orientation	Distinguish quality of mental activity from capacity under adversity
Satva Bala	Strength and steadiness of mental functioning	Measure response to challenge, persistence, and support needs
Satva Sara	Excellence expressed through characteristic qualities	Avoid treating every listed quality as an interchangeable item
Satvavajaya	Restraint from unwholesome mental engagement	Examine attention, reactivity, and behavioural regulation as mechanisms
Achar Rasayana	Health supporting conduct and ethical discipline	Account for the ethical and behavioural context of a retreat

Vipassana as a Multicomponent Exposure

The standard course taught in the S N Goenka tradition progresses from behavioural discipline to attentional stabilization and then insight practice. Participants undertake ethical precepts, practise awareness of natural

breathing, and learn to observe bodily sensations with equanimity. Noble silence, minimal external contact, a fixed timetable, simple meals, teacher guidance, and group practice structure the experience.⁷ These features may reduce ordinary distractions, but they also create confounding when outcomes are attributed to meditation alone.

Vipassana is best described as a combination of focused attention and open monitoring. Focus on respiration develops stability, while broad observation of sensations emphasizes moment to moment detection without habitual reaction. Contemporary models distinguish focused attention from open monitoring because each recruits different attentional operations.⁸ This distinction fits the course sequence better than the generic description of meditation as relaxation.

Plausible Functional Pathways

Attention and Metacognitive Monitoring

Repeatedly noticing distraction and returning to respiration trains selective and sustained attention. Systematic observation of sensations then requires continuous monitoring without immediate evaluation. Mechanistic reviews propose that mindfulness training may alter attention regulation, body awareness, emotion regulation, and perspective on the self.^{9,10} Within an Ayurvedic interpretation, these functions could support *Smritimant*, *Pragya*, *Daksha*, *Gambhir Buddhi*, and *Gambhir Chesta*. The relationship is functional and hypothetical. A modern attention task does not measure *Satva Bala*, and a classical descriptor does not specify a contemporary neural mechanism.

Nonreactivity and Emotional Recovery

Vipassana repeatedly exposes the practitioner to pleasant, unpleasant, and neutral sensations while discouraging craving and aversion. This may create practice in response inhibition, decentering, acceptance, and recovery from distress. These functions resemble the questionnaire domains *Dheera*, *Tyaktavishada*, and courage during a critical task. The strongest claim supported by current science is that mindfulness related practices can influence average psychological distress in some settings. Systematic reviews do not support a universal or context free benefit.^{11,12}

Interoception and Self Regulation

The body scan component of Vipassana gives interoceptive sensation a central role. Awareness of bodily signals may provide earlier information about emotional activation and a pause before action. Neuroscience models frame potential effects through networks involved in attention control, self-awareness, and emotion regulation, but the literature is limited by small samples, cross sectional comparisons of experienced meditators, and variable definitions of practice.¹⁰ It is therefore premature to infer a specific neural basis for change in *Satva Bala*.

Ethical Discipline and Prosocial Orientation

The course begins with ethical restraint and concludes with *Metta* or goodwill. These are not incidental additions. They may shape gratitude, orderly conduct, commitment, and orientation toward welfare represented by *Kritadnya*, *Bhaktimant*, *Suvyavasthita Gati*, and *Kalyanaabhinivesha*.

Research that isolates attention practice while ignoring ethical conduct may fail to represent the intervention being studied. Conversely, a measured improvement cannot be attributed specifically to insight meditation when ethical commitment and group context changed at the same time.

Table 2 Functional mapping of questionnaire domains

Descriptor	Questionnaire meaning	Candidate modern construct	Complementary measure
Smritimant	Memory and retention	Sustained attention and working memory	Memory task and self-report
Bhaktimant	Commitment to work	Persistence and conscientiousness	Behavioural adherence and trait measure
Kritadnya	Gratitude	Gratitude and prosocial affect	Validated gratitude measure
Pragya	Comprehension	Learning and cognitive flexibility	Learning or set shifting task
Shuchi	Cleanliness and order	Orderliness and self-care	Behavioural and contextual assessment
Mahotsaha	Enthusiasm and courage	Vitality and approach motivation	Vitality and activation measure
Daksha	Carefulness and skill	Executive control and conscientious action	Performance task and observer rating
Dheera	Patience in difficulty	Distress tolerance and emotion regulation	Stress task and regulation scale
Samaravikrantayodhina	Courage in critical task	Self-efficacy under challenge	Challenge specific self-efficacy
Tyaktavishada	Recovery from dejection	Emotional recovery and resilience	Repeated mood and resilience measure
Suvyavasthita Gati	Orderly conduct	Behavioural self-regulation	Habit and behavioural report

Descriptor	Questionnaire meaning	Candidate modern construct	Complementary measure
Gambhir Buddhi	Firm decision making	Deliberation and decisiveness	Decision task and decisiveness scale
Gambhir Chetna	Thoughtful action	Response inhibition and reflective action	Inhibitory control task
Kalyanaabhinivesha	Social welfare orientation	Prosocial motivation	Prosocial choice and observer report

The mappings in Table 2 are proposed for research design.

Evidence Relevant to the Proposed Relationship

Psychological Outcomes

A meta-analysis of 21 traditional retreat studies reported moderate pooled improvements in pre and post and controlled comparisons, with benefits maintained at follow up in the available studies. Heterogeneity was substantial, and practices, designs, durations, and outcomes varied.¹³ A small Vipassana study found higher well-being and lower ill-being after a ten day retreat.¹⁴ A naturalistic Muscat study also reported favourable changes, but its sample was only 14 and lacked a control group.¹⁵ These findings justify further investigation; they do not establish that Vipassana causes a general increase in mental strength.

Broader evidence from mindfulness programmes is relevant but indirect. In clinical populations, a systematic review found small to moderate improvements in some dimensions of psychological stress.¹¹ In nonclinical adults, randomized evidence indicated that programmes can reduce average distress compared with no intervention, but effects were heterogeneous and did not generalize across every setting.¹² A residential retreat differs in intensity, selection, teacher contact, and environmental control, so effect sizes should not be transferred directly.

Cognitive and Neurophysiological Findings

Vipassana studies of experienced practitioners have reported differences in electrophysiological activity during meditation. Occipital gamma activity was greater among long term practitioners, particularly those with more than ten years of daily practice.¹⁶ In an auditory oddball study, meditation was associated with altered delta, alpha, theta, and gamma responses interpreted as changes in perceptual processing and reactivity to distraction.¹⁷ These experiments describe state and expertise related associations in selected samples. They do not show that a first ten day course produces the same pattern or that an electroencephalographic change represents *Pravara Satva Bala*.

A meta-analysis of 111 randomized trials of mindfulness based interventions found small to moderate improvements across selected cognitive domains, including executive

attention, working memory, inhibition, and shifting.¹⁸ This supports the plausibility of attention related change, while leaving open which component of an intensive Vipassana course is responsible and whether self-reported Ayurvedic domains change in parallel.

Resilience

The conceptual overlap between *Satva Bala* and resilience is substantial but incomplete. A 2023 meta-analysis of 103 studies found a positive association between trait mindfulness and resilience, with the magnitude differing by the facets and measures used.¹⁹ This is correlational evidence. Resilience usually concerns adaptation or recovery in relation to adversity, whereas the *Satva Bala* profile includes ethical, cognitive, behavioural, and social qualities. A resilience scale may therefore be a useful comparator but not a substitute.

Autonomic and Cardiovascular Findings

In 36 participants completing a ten day retreat, well-being improved and heart rate variability changed during the meditation task, but the authors cautioned that the pattern did not represent a simple increase in parasympathetic activity.¹⁴ Blood pressure and pulse are easy to measure, yet they are influenced by hydration, sleep, meals, posture, physical activity, measurement timing, and device technique. A pre and post difference during a residential course should be interpreted as a contextual physiological change, not direct validation of *Satva Bala*.

Table 3 Summary of the contemporary evidence

Domain	Representative evidence	Reasonable inference	Main caution
Psychological distress and well-being	Retreat and mindfulness reviews report average improvement in some settings	A change after intensive practice is plausible	Heterogeneity and control conditions limit transfer
Attention and cognition	Mechanistic models and randomized evidence support small cognitive effects	Attention related Satva domains merit direct testing	Tasks and self-report measure different levels
Vipassana neurophysiology	EEG studies show state and expertise associated patterns	Practice engages measurable information processing	Experienced meditators do not model novice change

Domain	Representative evidence	Reasonable inference	Main caution
Autonomic function	Small pre and post studies report HRV and vital sign changes	Physiological monitoring can complement self-report	Respiration and retreat context confound interpretation
Resilience	Trait mindfulness and resilience are positively associated	Resilience is a useful convergent construct	Association is not equivalence or causation
Safety	Reviews and surveys document unpleasant and adverse experiences	Active monitoring is necessary	Definitions and ascertainment vary widely

Measurement Challenges

Construct Validity

The 14 item questionnaire derived from classical descriptors covers a wide range of attributes. A single total assumes that memory, gratitude, cleanliness, courage, decision making, and social orientation reflect one underlying continuum and carry equal weight. That assumption requires testing. The currently cited source is a university dissertation rather than a widely replicated scale validation study. Its classical basis is a strength for content relevance, but classical relevance and psychometric validity answer different questions.

Modern comparator instruments can clarify, but not replace, the construct. The Five Facet Mindfulness Questionnaire separates observing, describing, acting with awareness, nonjudging, and nonreactivity.²⁰ The Connor Davidson Resilience Scale and Brief Resilience Scale assess different aspects of adaptation and recovery.^{21,22} Convergent correlations should be moderate if *Satva Bala* overlaps with these constructs but retains distinct content. Very high correlations could indicate redundancy; very low correlations could reflect either genuine distinctiveness or poor measurement.

Scoring and Category Boundaries

With 14 items scored 1 to 3, the obtainable total is 14 to 42. The synopsis classifies 29 to 42 as *Pravara*, 15 to 28 as *Madhyama*, and 0 to 14 as *Avara*. Scores below 14 cannot occur, leaving *Avara* represented only by the minimum possible score. This creates a severe floor category problem and should be resolved against the original validation record before categorical results are reported. Until revised boundaries are justified, the continuous total and item profiles carry more information.

Response Shift and Social Desirability

Intensive contemplative training may change how participants understand questionnaire items. A postcourse participant may judge memory, courage, or patience against

a different internal standard, producing response shift. The moral and communal context may also encourage favourable self-description. Blinded outcome assessment cannot remove self-report expectancy. Behavioural tasks, collateral observations obtained with consent, neutral instructions, social desirability measurement, and delayed follow up can reduce but not eliminate the problem.

Trait and State

Satva Bala is often discussed as a clinically meaningful personal capacity, but the questionnaire can respond to current mood, fatigue, and context. Immediate assessment after ten quiet days may capture a state that changes after return to ordinary life. Repeated follow up is therefore essential. Multilevel models can estimate the average time course, while test retest reliability and measurement invariance are needed to determine whether the same construct is being measured at each occasion. These safeguards are consistent with established methodological cautions in meditation research.^{23,24}

Safety and Ethical Interpretation

Meditation should not be described as inherently harmless. A systematic review of meditation related adverse events found anxiety, depression, cognitive anomalies, and other unwanted outcomes across heterogeneous reports.²⁵ Qualitative work has described challenging somatic, affective, cognitive, perceptual, and self-related experiences that may require support.²⁶ In an international survey of regular meditators, 25.6 percent reported a particularly unpleasant meditation related experience, although the design could not determine clinical harm or incidence.²⁷

These findings do not show that a standard supervised Vipassana course is unsafe. They show why screening, teacher access, voluntary withdrawal, clinical referral, and active follow up matter. Excluding people with diagnosed major illness does not identify every vulnerable participant. Safety reporting should include the nature, timing, duration, severity, functional effect, action taken, and resolution of any distress. Benefit and harm must be measured with equal seriousness.

Methodological Limits of Current Evidence

Meditation research has recurring problems with imprecise intervention labels, inadequate control groups, participant allegiance, teacher effects, small samples, selective reporting, multiple outcomes, and interpretation of cross sectional differences as training effects.^{23,24} Vipassana research adds the challenge of the residential package. Silence, diet, sleep timing, reduced digital exposure, group norms, physical discomfort, and time away from work or family can all influence outcomes.

A one group pre and post design is useful for feasibility and temporal description but vulnerable to history, maturation, regression to the mean, expectancy, and selective attrition. Randomization to an appropriate comparator is difficult because participants often strongly prefer the retreat. A pragmatic trial, preference design, or carefully matched prospective cohort may sometimes be more acceptable, but each requires transparent causal assumptions.

Research Agenda

Table 4 Priorities for rigorous research

Priority	Recommended approach	Purpose
Define the exposure	Report lineage, course schedule, teacher qualification, practice hours, silence, diet, and adherence	Permit replication and distinguish Vipassana from generic mindfulness
Validate Satva Bala	Expert content review, cognitive interviews, reliability, factor analysis, validity, responsiveness, and invariance	Establish what the score measures and whether change is interpretable
Use credible comparators	Match expectancy, residential time, silence, routine, and group support where possible	Reduce non-specific and contextual confounding
Measure mechanisms	Assess attention, interoception, nonreactivity, emotion regulation, and home practice	Test how change may occur rather than only whether scores change
Measure benefit and harm	Use predefined outcome and adverse event procedures with referral pathways	Produce a balanced clinical interpretation
Prespecify analysis	Register hypotheses, primary outcome, timing, missing data rules, and multiplicity plan	Limit selective analysis and exaggerated claims
Extend follow up	Assess at course completion and several later intervals	Separate transient retreat state from durable change
Use mixed methods	Combine scores with qualitative interviews and contextual observation	Preserve meanings that a total score may miss

The existing 14 item instrument cited in the synopsis can serve as the starting point for this programme.²⁸ The first phase should focus on measurement rather than efficacy. Sanskrit and Marathi descriptors require careful translation, back translation, cognitive testing, and review by clinicians familiar with classical texts. Item wording should avoid double meanings and absolute response options such as always or never when the intended construct is graded.

The second phase should estimate natural change during a course with repeated assessments and explicit safety monitoring. The third phase should use a controlled design. A core outcome set could include the validated *Satva Bala* measure, a mindfulness measure, a resilience measure, distress and well-being, one objective attention or inhibition task, physiological measures obtained under standardized conditions, adherence, home practice, and adverse

experiences. The analysis should report effect sizes and confidence intervals, not only within group *P* values.

Discussion

The strongest conceptual bridge between Vipassana and *Satva Bala* lies in disciplined attention and reduced automatic reactivity under challenge. Vipassana trains the participant to notice sensation and mental reaction without immediately acting on craving or aversion. *Satva Bala* describes a person's capacity to remain organized, courageous, deliberate, and appropriately directed when adversity occurs. This overlap is sufficiently specific to support a research hypothesis.

The bridge becomes weak when broad claims are made. Vipassana evidence cannot validate every classical attribute, and a higher questionnaire total cannot establish purification of mind, prevention of *Prajnaparadha*, or progression toward spiritual liberation. Those claims belong to wider philosophical and soteriological contexts that a short observational health study is not designed to test. Scientific restraint protects rather than diminishes the value of the Ayurvedic question.

Young adulthood is a relevant period because education, work, relationships, and identity impose new demands on attention and emotional regulation. It is also a heterogeneous age range. A 19 year old student and a 39 year old parent may differ substantially in responsibilities, baseline distress, motivation for retreat, and resources after returning home. Future analyses should examine age and life context without converting exploratory subgroup differences into definitive conclusions.

The most defensible near term study is a transparent longitudinal cohort that treats the *Satva Bala* score as an outcome requiring validation, reports course context and attrition, and follows participants beyond the immediate retreat. Its result would be a carefully bounded estimate of change after the course. A later controlled study could then address attribution.

Conclusion

Vipassana and *Satva Bala* meet at a meaningful functional question: can systematic observation, restraint, and equanimity strengthen the capacity to respond to adversity with attention, judgment, courage, and constructive action? Current evidence makes this hypothesis plausible, but not proven. High quality research must keep the classical construct distinct, define the meditation exposure precisely, validate the outcome, use appropriate comparators, follow participants over time, and report unwanted experiences alongside benefits.

References

1. Agnivesha. *Charaka Samhita*, revised by Charaka and Dridhabala. Shastri SN, editor. Vol 1. Varanasi: Chaukhamba Bharati Academy; 2005. Sutra Sthana 1.42 and 11.54; Vimana Sthana 8.110 and 8.119.
2. Sushruta. *Sushruta Samhita*. Acharya YT, editor. Varanasi: Chaukhamba Krishnadas Academy; 2004. Sutra Sthana 15.41.
3. Vagbhata. *Ashtanga Hridaya*. Garde GK, editor. 6th ed. Pune: Aryabhushan Mudranalaya; Sutra Sthana 2.1 and 4.25.

4. Chiesa A. Vipassana meditation: systematic review of current evidence. *J Altern Complement Med*. 2010;16(1):37-46. doi:10.1089/acm.2009.0362.
5. Giridharan S, Soumian S, Kumar NV, Godbole M. The impact of Vipassana meditation on health and well-being: a systematic review of current evidence. *Cureus*. 2025;17(9):e93355. doi:10.7759/cureus.93355.
6. Lamas-Morales P, Garcia-Rubio C, Beltran-Ruiz M, Barcelo-Soler A, Lopez-Del-Hoyo Y, Garcia-Campayo J. Effectiveness of deconstructive meditative practices in improving mental health and well-being: a systematic review. *Mindfulness*. 2026;17:1323-1340. doi:10.1007/s12671-026-02825-7.
7. Vipassana Research Institute. Code of discipline for meditation courses [Internet]. Igatpuri: Vipassana Research Institute; [cited 2026 Sep 22]. Available from: <https://www.dhamma.org/en/about/code>
8. Lutz A, Slagter HA, Dunne JD, Davidson RJ. Attention regulation and monitoring in meditation. *Trends Cogn Sci*. 2008;12(4):163-169. doi:10.1016/j.tics.2008.01.005.
9. Holzel BK, Lazar SW, Gard T, Schuman-Olivier Z, Vago DR, Ott U. How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspect Psychol Sci*. 2011;6(6):537-559. doi:10.1177/1745691611419671.
10. Tang YY, Holzel BK, Posner MI. The neuroscience of mindfulness meditation. *Nat Rev Neurosci*. 2015;16(4):213-225. doi:10.1038/nrn3916.
11. Goyal M, Singh S, Sibinga EMS, Gould NF, Rowland-Seymour A, Sharma R, et al. Meditation programs for psychological stress and well-being: a systematic review and meta-analysis. *JAMA Intern Med*. 2014;174(3):357-368. doi:10.1001/jamainternmed.2013.13018.
12. Galante J, Friedrich C, Dawson AF, Modrego-Alarcon M, Gebbing P, Delgado-Suarez I, et al. Mindfulness-based programmes for mental health promotion in adults in nonclinical settings: a systematic review and meta-analysis of randomised controlled trials. *PLoS Med*. 2021;18(1):e1003481. doi:10.1371/journal.pmed.1003481.
13. Khoury B, Knauper B, Schlosser M, Carriere K, Chiesa A. Effectiveness of traditional meditation retreats: a systematic review and meta-analysis. *J Psychosom Res*. 2017;92:16-25. doi:10.1016/j.jpsychores.2016.11.006.
14. Krygier JR, Heathers JAJ, Shahrestani S, Abbott M, Gross JJ, Kemp AH. Mindfulness meditation, well-being, and heart rate variability: a preliminary investigation into the impact of intensive Vipassana meditation. *Int J Psychophysiol*. 2013;89(3):305-313. doi:10.1016/j.ijpsycho.2013.06.017.
15. Al-Hussaini AA, Dorvlo ASS, Antony SX, Chavan D, Dave J, Purecha V, et al. Vipassana meditation: a naturalistic, preliminary observation in Muscat. *Sultan Qaboos Univ Med J*. 2001;3(2):87-92.
16. Cahn BR, Delorme A, Polich J. Occipital gamma activation during Vipassana meditation. *Cogn Process*. 2010;11(1):39-56. doi:10.1007/s10339-009-0352-1.
17. Cahn BR, Delorme A, Polich J. Event-related delta, theta, alpha and gamma correlates to auditory oddball processing during Vipassana meditation. *Soc Cogn Affect Neurosci*. 2013;8(1):100-111. doi:10.1093/scan/nss060.
18. Zainal NH, Newman MG. Mindfulness enhances cognitive functioning: a meta-analysis of 111 randomized controlled trials. *Health Psychol Rev*. 2024;18(2):369-395. doi:10.1080/17437199.2023.2248222.
19. Zhang J, Mao Y, Wang Y, Zhang Y. The relationship between trait mindfulness and resilience: a meta-analysis. *Personal Ment Health*. 2023;17(4):313-327. doi:10.1002/pmh.1581.
20. Baer RA, Smith GT, Hopkins J, Krietemeyer J, Toney L. Using self-report assessment methods to explore facets of mindfulness. *Assessment*. 2006;13(1):27-45. doi:10.1177/1073191105283504.
21. Connor KM, Davidson JRT. Development of a new resilience scale: the Connor-Davidson Resilience Scale. *Depress Anxiety*. 2003;18(2):76-82. doi:10.1002/da.10113.
22. Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The Brief Resilience Scale: assessing the ability to bounce back. *Int J Behav Med*. 2008;15(3):194-200. doi:10.1080/10705500802222972.
23. Davidson RJ, Kaszniak AW. Conceptual and methodological issues in research on mindfulness and meditation. *Am Psychol*. 2015;70(7):581-592. doi:10.1037/a0039512.
24. Van Dam NT, van Vugt MK, Vago DR, Schmalzl L, Saron CD, Olendzki A, et al. Mind the hype: a critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspect Psychol Sci*. 2018;13(1):36-61. doi:10.1177/1745691617709589.
25. Farias M, Maraldi E, Wallenkampf KC, Lucchetti G. Adverse events in meditation practices and meditation-based therapies: a systematic review. *Acta Psychiatr Scand*. 2020;142(5):374-393. doi:10.1111/acps.13225.
26. Lindahl JR, Fisher NE, Cooper DJ, Rosen RK, Britton WB. The varieties of contemplative experience: a mixed-methods study of meditation-related challenges in Western Buddhists. *PLoS One*. 2017;12(5):e0176239. doi:10.1371/journal.pone.0176239.
27. Schlosser M, Sparby T, Voros S, Jones R, Marchant NL. Unpleasant meditation-related experiences in regular meditators: prevalence, predictors, and conceptual considerations. *PLoS One*. 2019;14(5):e0216643. doi:10.1371/journal.pone.0216643.
28. Kevat S. The study of Satva according to Dehaprakriti with special reference to emotional intelligence [dissertation]. Nagpur: Maharashtra University of Health Sciences; 2011-2012.