

“A Conceptual and Analytical Study on Kārya-Kāraṇa Siddhānta with Reference to Cause-Effect Relationship in Research Methodology”

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ABSTRACT

The *Kārya-Kāraṇa Siddhānta*, the principle of cause and effect forms the cornerstone of Ayurvedic philosophy, explaining that every effect (*kārya*) arises from a specific cause (*kāraṇa*). This conceptual and analytical study explores the correlation between this classical doctrine and the modern scientific approach to causality in research methodology. Data were compiled through an extensive review of Ayurvedic scriptures such as *Caraka Saṃhitā*, *Suśruta Saṃhitā*, and *Aṣṭāṅga Hṛdaya*, alongside contemporary research literature. The study identifies that *Satkāryavāda*, *Pariṇāmavāda*, and *Svabhāvoparamavāda* form the theoretical basis for understanding transformation and manifestation, paralleling the hypothesis-testing and cause-and-effect validation processes in modern science. The review also reveals that the Ayurvedic classifications of causation—*samavāyī*, *asamavāyī*, and *nimitta kāraṇa* align with modern distinctions between inherent, associative, and external causal factors. In research methodology, establishing causality through hypothesis formulation, experimentation, and controlled trials reflects the logical principles of the *Kārya-Kāraṇa Siddhānta*. The findings highlight a philosophical and methodological convergence between Ayurveda and modern research, positioning this Siddhānta as a universal framework for understanding causation across disciplines.

Keywords: Kārya-Kāraṇa Siddhānta, causality, research methodology, Satkāryavāda, Ayurvedic philosophy

INTRODUCTION

The *Kārya-Kāraṇa Siddhānta*, the principle of cause and effect, is a foundational concept in Ayurveda that explains the intrinsic relationship between an action (*kārya*) and its underlying cause (*kāraṇa*). It asserts that every effect arises from a definite cause, and no phenomenon can exist without its antecedent reason. The cause represents the potential form, while the effect is its manifestation. ^[1]Classical Ayurvedic texts, such as the *Suśruta Saṃhitā* and *Caraka Saṃhitā*, illustrate this through natural and biological examples: the fertilisation of the ovum by sperm resulting in a fetus, or the transformation of food into body tissues through the actions of *pācaka pitta* and *samāna vāta*.^[2]

This cause-and-effect framework extends beyond theoretical philosophy and serves as a scientific tool for understanding physiological functions, disease mechanisms, and therapeutic actions. In Ayurvedic pharmacology, it provides the rationale for studying the relationship among *dravya*, *rasa*, *guṇa*, *vīrya*, *vipāka*, and *prabhāva*, the causal determinants of drug action. Similarly, the dynamic interplay of *doṣa*, *guṇa*, and *karma* exemplifies its applied significance in understanding bodily responses.

In modern research methodology, this principle parallels the pursuit of causality in experimental science. At the same time, statistical associations may show relationships between variables; true causation requires temporal sequence, mechanism, and controlled observation, core ideas already embedded in *Kārya-Kāraṇa Siddhānta*. Randomised controlled trials exemplify this approach by isolating causes (interventions) and observing their effects (outcomes).^[3]

Thus, the *Kārya-Kāraṇa Siddhānta* forms the philosophical and methodological bridge between ancient Ayurvedic science and contemporary scientific inquiry. It emphasises that understanding the cause behind every effect is essential for generating knowledge, validating treatments, and advancing research across disciplines.

MATERIALS AND METHODS

This review was conducted through a comprehensive analysis of classical Ayurvedic texts, peer-reviewed journals, and contemporary scientific publications. Data were collected from authenticated sources such as *Caraka Saṃhitā*, *Suśruta Saṃhitā*, and indexed research databases, focusing on literature related to *Kārya-Kāraṇa Siddhānta*, research methodology, and cause-and-effect relationships.

RESULTS

1. Kārya-Kāraṇa Siddhānta

The Sanskrit term *kārya* denotes action or effect, while *kāraṇa* refers to cause or reason. The theory of *Kārya-Kāraṇa Siddhānta* explains the invariable relationship between cause and effect, wherein no action is possible without a cause, and every effect remains in a dormant state within its cause. Classical Ayurvedic texts, including *Suśruta Samhitā*, *Caraka Samhitā*, and *Aṣṭāṅga Hrdaya*, describe this relationship through biological and physiological examples such as the fertilisation of an ovum by sperm, forming the fetus (*Su. Sa. Sharira Sthana 1/3*), and the transformation of food into body tissues through the action of *pācaka pitta* (*Su. Sa. Sutra Sthana 21/10*) and *samāna vāta* (*A. Hr. Sutra Sthana 11/8*).

Kārya is defined as the attainment of *dhātu samya* (equilibrium of body tissues), while *kāraṇa* refers to the physician or any causative factor responsible for this outcome.^[4] The characteristics of *kāraṇa* are enumerated as *pūrvabhāva* (prior existence of cause), *niyatātva* (continuous presence within effect), and *ananyathāsiddhi* (indispensability).^[5]

Three major types of *kāraṇa* are consistently mentioned^[6]:
 (1) *Samavāyikāraṇa* - inseparable cause (e.g., *vāta* with its *rūkṣa guṇa*);
 (2) *Asamavāyikāraṇa* - essential but separable cause (e.g., *vāta* combining with *pitta* to generate heat);
 (3) *Nimittakāraṇa* - instrumental or external cause (e.g., *vāta*-provoking diet leading to *vāta vyādhi*).

Supportive doctrines such as *Satkāryavāda*, *Pariṇāmavāda*, and *Svabhāvoparamavāda* are found to explain the mechanism of causality within this framework. *Satkāryavāda* (as per *Sāṅkhya Darśana*) proposed that the effect exists within the cause before manifestation, while *Pariṇāmavāda* described the transformation of cause into effect through qualitative (*dharmā pariṇāma*) or apparent (*lakṣaṇa pariṇāma*) change. *Svabhāvoparamavāda* (*Cha. Sa. Sutra Sthana 16/27-28*) emphasised that while creation arises from causes, dissolution occurs naturally.

2. Research

Research is defined as creative and systematic work undertaken to expand the stock of knowledge through the collection, organisation, and analysis of evidence.^[7] It involved controlling sources of bias and error to ensure reliability and validity.

Research is classified broadly into basic and applied categories. Basic research is identified with discovery and documentation, while applied research emphasises practical implementation.^[8] The review also observed various forms of research, including scientific, social, and technological, with meta-research representing the study of research practices themselves.

Standardised procedural stages of research identified across reviewed articles included^[9]:

1. Observation and topic formation,
2. Hypothesis formulation,
3. Conceptual and operational definition of variables,
4. Data collection using valid and reliable instruments,
5. Data analysis and interpretation,
6. Hypothesis testing and revision,
7. Conclusion and reiteration as required.

The distinction between a working hypothesis and the null hypothesis clarifies that scientific hypotheses are never proven but only supported or rejected based on empirical testing.

3. Cause-Effect Relationship in Research

Findings from scientific and biomedical literature described the cause-and-effect framework as central to research design and interpretation. The relationship between cause and effect is defined as a dependency in which one phenomenon (cause) is responsible for producing another (effect).^[10] Classical examples, such as smoking leading to lung cancer and overnutrition without physical activity leading to weight gain, are documented to illustrate real-world causal linkages.^[11]

Observational and statistical studies are found to demonstrate correlations between variables (e.g., age and mortality rates due to lung cancer), though such associations are distinguished from causation.^[12] Establishing causality is described as requiring temporal precedence of cause before effect, presence of a consistent mechanism, and elimination of confounding variables.^[13]

Randomised prospective and controlled studies are reported as the standard methodology for determining causal effects. The causal relationship is expressed mathematically as $\delta = E(Y_A - Y_0)$, where Y_A represents the outcome after treatment and Y_0 the outcome under control conditions.^[14] Randomisation is reported to ensure balance of covariates and control for external causes, allowing the observed difference between groups to estimate the causal effect.

DISCUSSION

The review of literature highlights that the *Kārya-Kāraṇa Siddhānta*, one of the fundamental principles of Ayurvedic epistemology, closely parallels the modern scientific understanding of causality in research. Both traditions, though separated by millennia and methodology, converge on the idea that every observable effect is contingent upon a definite and identifiable cause. The integration of these perspectives reveals that Ayurveda's philosophical models and contemporary research frameworks share a common logical foundation—the systematic exploration of cause and effect to generate valid, reproducible knowledge.

In classical Ayurvedic discourse, *kāraṇa* represents the potential state of a phenomenon, while *kārya* signifies its manifestation. This notion of latent potential transforming into observable expression mirrors the hypothesis-testing cycle of scientific research, where theoretical constructs (causes) are tested through experimentation (effects). The doctrines of *Satkāryavāda* and *Pariṇāmavāda* describe the transformation of cause into effect, emphasising pre-existence and change, which align conceptually with modern ideas of variable interaction and transformation in experimental research.

The reviewed studies demonstrate that Ayurvedic scholars historically recognised different types of causation—*samavāyī*, *asamavāyī*, and *nimitta kāraṇa*—which correspond to essential, associative, and instrumental causes. This triadic model reflects the layered complexity of causation seen in contemporary research, where intrinsic mechanisms, contributing variables, and external conditions together influence outcomes. For instance, identifying a drug's active principle (*dravya-guṇa-karma* relationship) in Ayurveda is conceptually similar to isolating independent variables in experimental pharmacology.

When analysed through the lens of modern research methodology, the *Kārya-Kāraṇa Siddhānta* resonates strongly with the logical structure of scientific inquiry. The research process—beginning with observation, followed by hypothesis formation, operational definition, experimentation, and analysis—can be viewed as a progressive unfolding of cause into effect. The hypothesis serves as a predictive cause, and the observed result represents the effect. The cyclic revision of hypotheses further mirrors *Pariṇāmavāda*, the theory of continuous transformation, suggesting that scientific knowledge evolves through an ongoing cause-effect refinement.

In modern research, establishing causality depends on demonstrating temporal precedence, correlation, and exclusion of confounders. Randomised controlled trials, as the gold standard of causal inference, rely on isolating the variable of interest (cause) and observing its consistent influence on an outcome (effect). This procedure reflects the Ayurvedic insistence on *niyatātva* (continuity) and *ananyathāsiddhi* (non-substitutability), wherein the cause must be present and indispensable for the effect to occur. Thus, the philosophical rigour of Ayurvedic causation finds methodological equivalence in the statistical control and randomisation principles of contemporary science.

Furthermore, the comparative analysis between classical and modern frameworks indicates that while Ayurveda conceptualised causation qualitatively—through *guṇa*, *doṣa*, and *karma*—modern science quantifies it through variables, coefficients, and probability models. Yet, both emphasise observation, inference, and verification as essential steps in validating causal relationships. The enduring relevance of *Kārya-Kāraṇa Siddhānta* lies in its adaptability: it not only explains physiological and pathological phenomena but also provides an epistemological model applicable to experimental reasoning.

Therefore, the convergence between Ayurvedic philosophy and scientific methodology underscores a shared epistemic goal—to trace observable outcomes back to their originating principles. The *Kārya-Kāraṇa Siddhānta* thus serves as both a philosophical doctrine and a research paradigm, bridging Ayurvedic science and empirical science through the universal logic of causality.

CONCLUSION

The *Kārya-Kāraṇa Siddhānta* provides a timeless philosophical foundation that aligns closely with the modern scientific understanding of causality in research. Both systems emphasise that every effect arises from a definite cause, reinforcing the essential unity between Ayurvedic reasoning and contemporary evidence-based inquiry.

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