IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Elucidation of *Karya–Karan Bhav Siddhant* through Mill's Methods of Causality: A Narrative Review

Dr.Jyoti Mukesh Rathi[1] Vd.S.M. Satpute[2]

1. Professor & HOD, Samhita Siddhant & Sanskrit Department, Mahatma Gandhi Ayurveda College Hospital & Research centre, Salod (Wardha), PhD Scholar,APM's Ayurved Mahavidyalaya Sion, Mumbai.
2. Professor, Samhita Siddhant & Sanskrit Department, APM's Ayurved Mahavidyalaya Sion, Mumbai.

Abstract

Background: The principle of causation underpins the conceptual framework of both classical Ayurveda and modern biomedical sciences. In Ayurveda, causation is discussed in terms of the *karya-karan bhav siddhant*, in which disease causation is described as interactions among multiple factors. Modern science uses methodologies such as Mill's methods for inferring causation. **Objective:** To systematically review Ayurvedic principles related to causation and establish their correlation with Mill's methods. **Methods:** A narrative review was conducted using electronic resources and classical Ayurvedic literature, guided by structured principles. **Results:** The concepts of causation, such as *bahukaran yogaj, nidana-dosha-dushya sammurchana,* and *vyadhi-kshamatva,* correlated strongly with probabilistic causation and epidemiology. **Conclusion:** Integrating Ayurvedic concepts of causation with Mill's logical methods provides a powerful framework for understanding complex diseases and supports evidence-based integrative medicine.

Key words: Cause, Effect, Causation, Mills method, *Karyakaranbhav*

1. Introduction

Causation plays a key role in scientific research and clinical practice. According to modern principles of epidemiology, causation cannot be observed; it can only be inferred from associations, probabilities, and causal modelling [1,4,5]. This issue becomes especially significant for chronic multifactorial diseases when a single causal factor alone does not explain the disease's manifestation [6].

In Ayurveda, causation is understood according to the principle of *karya–karan bhav siddhant*, whereby diseases result from an interaction of multiple causes *(karan*) [12]. Cause and effect are considered fundamental to human action in the pursuit of knowledge. Cause and effect may be defined as the relationship between two phenomena in which one phenomenon causes the other. This theory can be

quite helpful while undertaking any research activity. While establishing cause-and-effect in any research work, it should first be kept in mind that causation is an interpretation but not a concrete object. Proving or establishing causation is almost never possible, except for genetic and infectious diseases, in cases of other diseases caused by environmental factors.

The phenomenon can be well understood through Acharya Charak's explanation given in *Prameha Nidan*. The specific interrelation between etiological factors and *doshas/dushyas*, along with an individual's resistance to disease (immunity), determines whether the disease develops (including *prameha*). Even time (season) plays its own part here. In case of any practical event, the probability will lie between zero and one. An event with probability 1 will definitely occur, whereas an event having zero probability cannot ever happen. Though such extreme situations are hardly possible in medicine, Acharyas described them in Ayurveda. (बहुकारणयोगजान).

In contrast to reductionist medical theories, Ayurveda assumes an interconnected system comprising *nidana, dosha, dushya, kala,* and *vyadhi-kshamatva* [12,15].

Traditional approaches, especially those described in *Prameha Nidana*, emphasise that diseases arise from interactions among these elements rather than from their presence [12]. This type of causation is known as *bahukaran yogajan* or multicausal [1,6].

Four methods of causal inference were suggested by John Stuart Mill: agreement, difference, joint method, and concomitant variation [3,4], which remain at the heart of research design and epidemiological theory today. The current paper aims to reconcile both approaches.

2. Methodology

2.1 Review Method

A structured narrative review method was used, with the study search and data analysis following the PRISMA guidelines [10,11].

2.2 Information Sources

Sources of information were:

- PubMed/MEDLINE
- Google Scholar
- Ayurveda literature (Charak Samhita) [12]

2.3 Search Strategy

Keywords used during the search included:

- “causation in Ayurveda”
- “*karya karan siddhant*”
- “Mill’s methods of causality”
- “multi-factorial causation of diseases”

Boolean operators (AND/OR) were applied to refine the search in line with the systematic review guidelines [10].

2.4 Eligibility Criteria

Eligible sources include:

- Studies related to methods of causation
- Epidemiological literature
- Classical Ayurveda studies

Excluded were:

- Popular non-peer-reviewed sources

3. Results

3.1 The Ayurvedic Theory of Causation

In Ayurveda, causation is considered an interactive process involving probability rather than a deterministic sequence [12].

Table 1: Components of *Karya–Karan Bhav*

Component	Functional Role
Nidana	Etiological initiation
Dosha	Functional imbalance
Dushya	Structural substrate
Kala	Temporal modulation
Vyadhi-kshamatva	Host resistance

The disease arises only when there is adequate interaction between these elements, emphasising the idea of bahukaran yogaj [12].

3.2 Probability Aspects of Causation

The current view of epidemiology is that causation is probabilistic, with results ranging from certainty to impossibility [1,5]. Absolute causation is rare and common only in diseases related to infections or genetics [6].

Ayurveda had already foreseen the concept of causation by conditional manifestation of disease:

• Weak relationship → Disease not manifested

• Moderate relationship → Minor disease

• Strong relationship → Major disease

3.3 Mill's Methods and Scientific Application

Mill's methods provide structured tools for causal inference and error reduction [4].

Table 2: Mill's Methods and Research Correlation

Method	Principle	Research Design
Agreement	Common factor → cause	Cross-sectional studies
Difference	Presence vs absence	Case-control studies
Joint Method	Combined inference	Clinical trials
Concomitant Variation	Dose-response	Cohort studies

These methods form the backbone of modern causal inference frameworks [4,5].

3.4 Integrated Model of Causation

Figure 2: Multidimensional Causation Model

Nidana → *Dosha* → *Dushya* → *Kala* → *Vyadhi-kshamatva* → Disease (*Karya)*

This model reflects a **systems-based causal pathway**, similar to causal diagrams used in epidemiology [4].

3.5 Conceptual Correlation

Table 3: Mapping Ayurveda with Mills' Methods

Ayurvedic Concept	Mill's Method	Interpretation
Common *nidana*	Agreement	Shared causative factor
Host variability	Difference	Susceptibility
Treatment response	Joint method	Controlled comparison
Severity variation	Concomitant variation	Dose-response

4. Discussion

In summary, the review highlights the theoretical compatibility between Ayurveda and contemporary approaches to causation.

4.1 Multicausality

The Ayurvedic theory *of bahukaran yogaj* is equivalent to the contemporary understanding of multifactorial diseases and causative networks [6,9].

4.2 Influence of Host Factors

The unique aspect of Ayurveda is its focus on *vyadhi-kshamatva*, which prefigures modern theories of:

• Immunity

• Genetic predisposition

• Personalised treatment [7]

4.3 Dose-Effect Relationship

Dosha vriddhi embodies the principle of a proportional effect akin to the dose-effect concept in epidemiology [5].

4.4 Prevention of False Causation

Mill's guidelines help discern cause from association by eliminating confounding and bias [4,8]. The Ayurvedic approach rejects one-factor causation and stresses holistic causation [12].

4.5 Clinical and Research Applications

- Enables integrative and personalised medical treatments
- Aids in causal reasoning in disease aetiology
- Fills the gap between traditional wisdom and modern medicine [14]

4.6 Limitations

- Nature of concept makes empirical testing difficult
- No quantitative models in Ayurveda
- Necessity for interdisciplinary research perspectives

5. Conclusion

The concept of *karya–karan bhav siddhant* can be regarded as an attempt to provide a holistic, probabilistic, and multi-factorial approach to understanding causation that fits well with principles of causation outlined by Mill and modern approaches to epidemiology [5,14].

Reference

1. Rothman KJ, Greenland S, Lash TL. *Modern Epidemiology*. 3rd ed. Philadelphia: Lippincott Williams & Wilkins; 2008.

2. Hill AB. The environment and disease: association or causation? *Proceedings of the Royal Society of Medicine*. 1965;58(5):295–300.
DOI: 10.1177/003591576505800503

3. Porta M, editor. *A Dictionary of Epidemiology*. 6th ed. Oxford: Oxford University Press; 2014.
DOI: 10.1093/acref/9780199976720.001.0001

4. Greenland S, Pearl J, Robins JM. Causal diagrams for epidemiologic research. *Epidemiology*. 1999;10(1):37–48.
DOI: 10.1097/00001648-199901000-00008

5. Hernán MA, Robins JM. Causal inference: What if? Boca Raton: Chapman & Hall/CRC; 2020.
DOI: 10.1201/9781315378784

6. Vandenbroucke JP, Broadbent A, Pearce N. Causality and causal inference in epidemiology: the need for a pluralistic approach. *International Journal of Epidemiology*. 2016;45(6):1776–1786.
DOI: 10.1093/ije/dyv341

7. Glass TA, Goodman SN, Hernán MA, Samet JM. Causal inference in public health. *Annual Review of Public Health*. 2013; 34:61–75.
DOI: 10.1146/annurev-publhealth-031811-124606

8. Ioannidis JPA. Why most published research findings are false. *PLoS Medicine*. 2005;2(8): e124.
DOI: 10.1371/journal.pmed.0020124

9. Pearl J. Causality: Models, reasoning, and inference. 2nd ed. Cambridge: Cambridge University Press; 2009.
DOI: 10.1017/CBO9780511803161

10. Shamseer L, Moher D, Clarke M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015. *BMJ*. 2015;349: g7647.
DOI: 10.1136/bmj. g7647

11. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement. *BMJ*. 2021;372: n71.
DOI: 10.1136/bmj. n71

12. Dash B, Sharma RK. *Charak Samhita (Text with English Translation)*. Varanasi: Chaukhambha Sanskrit Series; 2014.

13. Patwardhan B, Vaidya ADB, Chorghade M. Ayurveda and natural products drug discovery. *Current Science*. 2004;86(6):789–799.

14. Patwardhan B. Bridging Ayurveda with evidence-based scientific approaches. *Journal of Ayurveda and Integrative Medicine*. 2014;5(3):139–141.
DOI: 10.4103/0975-9476.140468

15. Lad V. *Textbook of Ayurveda: Fundamental Principles*. Albuquerque: Ayurvedic Press; 2002.