

What did that research study really find?: How to critically read a research paper

Seminars in Ayurveda, March 28 2022

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Overview

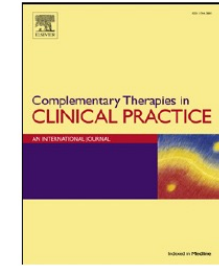
- How to evaluate the Journal
- Title
- Understanding authorship
- Abstract
- Introduction
- Methods
- Results
- Discussion
- Conclusion
- References



Contents lists available at ScienceDirect

Complementary Therapies in Clinical Practice

journal homepage: www.elsevier.com/locate/ctcp

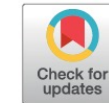


Combination of Ayurveda and Yoga therapy reduces pain intensity and improves quality of life in patients with migraine headache

Vasudha M. Sharma^{a,*}, Manjunath N.K.^a, Nagendra H.R.^a, Csaba Ertsey^b

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A B S T R A C T

Objectives: To Understand the efficacy of Ayurveda and Yoga in the management of Migraine Headache.

Methods: 30 subjects recruited to Ayurveda and Yoga (AY) group underwent traditional *Panchakarma* (Bio-purificatory process) using therapeutic Purgation followed by Yoga therapy, while 30 subjects of Control (CT) group continued on symptomatic treatment (NSAID's) for 90 days. Body constitution questionnaire was administered to both groups. The outcome measures included Symptom check list, Comprehensive Headache related Quality of Life Questionnaire and Visual Analogue Scale.

Results: Forty-six (76.6%) out of 60 subjects belonging to both groups had *Pitta* based body constitution. Following 90 days of intervention the AY group showed significant reduction in Migraine symptoms including pain intensity ($p < .001$) and improvement in Headache related Quality of Life ($p < .001$). The CT group showed no significant change ($p > .05$).

Conclusion: Traditional Ayurveda along with Yoga therapy reduces symptoms, intensity of pain and improves Quality of life in Migraine patients.

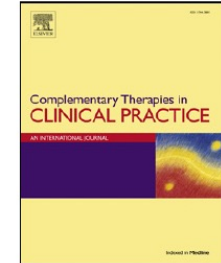
Evaluating the journal

- “Complementary therapies in clinical practice”
- Impact Factor: Yearly mean number of citations of the articles in the journal for the last 2 years.
 - The higher the impact factor the “more important” the journal.
 - But very specialized journals will only be read by people in the specialized field, so the impact factor may be low even though it is a high quality journal.
- Impact factor for our journal is 2.45
 - Published by Elsevier, a leading publisher of scientific journals.
- Impact factor for Science is 47.4
- Impact factor for the Proceedings of the National Academy of Sciences (PNAS) is 11.2
- Impact factor for JARO (a specialty auditory science journal) is 3.0



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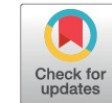
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Title

- Summarizes main idea of the study.
 - A good title contains the fewest possible words needed to adequately describe the content and/or purpose of the research paper.
- “Combination of Ayurveda and Yoga therapy reduces pain intensity and improves quality of life in patients with migraine headache.”
 - Population in the study are migraine patients.
 - Interventions are Ayurveda and Yoga therapy
 - Outcome is less pain and better quality of life after the intervention.

Authorship

- Authorship should be based on the following criteria:
 - Substantial contributions to the design or conception of the work; or the acquisition, analysis, or interpretation of data for the work.
 - Writing the study or substantially revising/editing it critically for intellectual content.
 - Giving final approval for the publication.
 - Agreement to be accountable for all aspects of the work and ensuring that any questions regarding the accuracy or integrity of the work are appropriately investigated and resolved.

Authorship

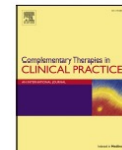
- Lead author: The first author is the who has performed the central experiments for the study.
 - Usually writes the first draft of the study.
 - Ultimately responsible for ensuring that all other authors meet the authorship requirements.
 - Usually the corresponding author.
- Co-authors: Have a major role in the study.
 - Review and approve the manuscript as it pertains to their contribution.
- The last author: Is the lead Project Investigator (PI) who supervised, financed, or have otherwise been the main person responsible for the project.



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ABSTRACT

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1. Introduction

Migraine is a primary headache disorder which is vastly prevalent across the world. It contributes extensively to the disease-related burden resulting in lowered Quality of life [1]. Migraine is the 10th most disabling disorder amongst both genders in the world [2], triggered by psychological and physiological stressors [3]. Stress as a risk factor attributes to the problem in 50% of the migraineurs [4]. Studies have shown that the adherence to prophylactic treatment is low and more than 50% of migraineurs discontinue such treatment, regardless of the class of medicine taken [5]. Medication overuse is also an associated issue in Migraine patients owing to use of Non-Steroidal Anti Inflammatory Drugs (NSAIDs) with or without doctor's prescription [6].

The use of Complementary and Alternative medicine in migraine or in patients with severe headache is popular as they feel it is congruent to their beliefs in health and lifestyle and has lesser-known side effects with less dependency on medication [7]. The idea of Integrative medicine is gaining popularity and its use is increasing in the management of chronic conditions [8]. In a study on the prevalence of CAM use in Migraine patients, among several therapies acupuncture, massage and chiropractic were found to be the most commonly used methods. 47.7% participants reported potential improvement in headache [9].

Ayurveda is an ancient Indian system of medicine, which considers

health as a state of wellbeing resulting from a synergistic balance in *Doshas* (Principal systems functions - *Vata*, *Pitta*, and *Kapha*), *Agni* (Digestive fire), *Dhatu* (Body tissues) and *Mala* (Excretory products). It also emphasizes on a blissful state of *Atma* (spirit), *Indriya* (sense organs) and *Manas* (mind) [10]. Migraine headache finds its mention as *Ardhavabdhaka* under the classification of *Shiroroga* (Diseases related to the Head region) in Ayurveda treatises [11]. *Acharya Sushruta*, an ancient Indian Ayurveda Physician opines *Ardhavabdhaka* to be a *Tridoshaja vyadhi* (a disease with involvement of *Vata Pitta* and *Kapha*) [11] and *Acharya Charaka* mentions it as a *Vata-kaphaja Vyadhi* (Disease involving *Vata* and *Kapha*) [12]. There are visible *Pitta lakshana's* (signs of *Pitta*) and involvement of *Rakta* (blood) in the pathogenesis of *Ardhavabdhaka* [13]. The line of treatment involves administration of *Samshodhana* (*Panchakarma*-Bio-purificatory techniques) with special mention of *Kaya virechana* (Therapeutic Purgation) [12], diet and lifestyle regulation. Scientific literature also shows that diet, lifestyle and stress can contribute to increased prevalence of Migraine Headache [14].

A study on five Ayurveda oral medicines administered for 90 days provided a preliminary evidence for the effectiveness of an Ayurveda based treatment protocol in the management of Migraine Headache [15].

According to Yoga, Migraine is considered as an *Adhija Vyadhi* (mind-body disorder) where the disturbances in the mind influence the flow of *Prana* (the vital force/breath) resulting in physical problems and

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Abstract

- A summary that is usually approximately 300 words that describes the major aspects of the entire paper and includes:
 - The overall purpose of the study and the research problem that was investigated.
 - The basic design of the study.
 - The major findings of the study based on analysis of the data.
 - Summary and conclusions.

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Introduction

- What is being studied?
- Why is this topic important to investigate?
- What is known on the topic?
- How will this study advance new knowledge or new insights into the topic?

Introduction

- The introduction leads the reader from a broad subject area to the particular topic of inquiry.
- It places the study in the context of what is known about the topic area.
 - Summarizes the current understanding and background information on the topic.
- States the purpose of the work in the form of a research problem that is supported by a hypothesis or a set of questions.
- Brief explanation of the methods used to examine the research problem.
- Describe the potential outcomes of the study.

State the purpose of the work

Identifying the need for generating more scientific evidence for integrative treatment protocols, the present study was designed to evaluate the use of traditional Ayurveda based *Virechana* (Therapeutic purgation) followed by Yoga therapy in the management of Migraine in comparison to symptomatic conventional treatment.

Introduction for our study

- Positives

- Good description of overall study design.
- Gave a good overview of migraines, Ayurveda, yoga.
- Mentions a previously published study on Ayurvedic oral medicines and treatment of migraine.
 - Should give more detail on these treatments. How did this relate to the current study, were the same medications used?

- Negatives

- Should include a brief summary of what the study will be.
- Missing the potential outcomes.

Methods

- How is the data collected or generated?
- How is the data analyzed?
 - This is critically important!
 - What statistical analyses are used?
 - Is the analysis objective?
 - E.g. is the analysis “blinded” as to treatment group?
 - Is the control group appropriate?
- The methods section describes the protocols that are used to investigate the research problem.
 - There should be a rationale for the application of specific procedures or techniques used in the study.
- The reader must be able to critically evaluate a study’s overall validity and reliability.

Methods for our study

- Positives

- Good description of overall study design.
- Good calculation for number of subjects needed.
- Listed inclusion and exclusion criteria.
- Good assessment.
- Detailed description of Ayurvedic and yoga treatment.
- Tables that included the herbal formulations.
- Good statistical analysis.

- Negatives

- Subjects should have been randomly assigned to groups.
- No justification for Virechana.
- Control group was not appropriate.
- Was the analysis done blinded as to treatment group?

Results

- Where the findings of the study are reported.
- Should state the findings in a logical order.
 - Must be presented in an unbiased way without interpretation.
- Organization of the results:
 - Introductory context for understanding the results.
 - Include figures, tables and charts etc.
 - Highlight the results that are most relevant to the research question.

Results for our study

- Positives

- Good tables.

- Negatives

- should have more data (numbers) from the tables in the narrative.

- Results summaries are lacking the data from the tables. Don't get a good idea of the magnitude of the differences.

Discussion

- Interpretation and description of the significance of the findings in relation to what is already known.
- Description of how the study adds new understanding or insight into the field.
- Usually included in the discussion:
 - Restatement of the research problem and a summary of the major results.
 - Explanation and interpretation of the results.
 - Are there alternative explanations for the results?
 - References to previous research, how does the current study fit into and add to previous knowledge in the field.
 - Limitations of the study.
 - A claim or a hypothesis based on the study that can be proved or disproved in future experiments.
 - Suggestions for future research.

Discussion for our study

- Positives

- Good summary of results in first paragraph.
- Good integration of Ayurveda and migraine.
- Good overview of Yoga and migraine.
- Description and justification of the herbal preparations used.
- Do have some suggestions for future research.

- Negatives

- Confusing explanation of why Virechana was used.
- Should have a better classical explanation of the herbal formulas and why they were selected for the study.
 - Were they based on the formulas cited in the previous paper in the introduction?
- No discussion of limitations of the study.

Conclusion

- Intended to help the reader understand why the research should matter to them after they have read the paper.
 - Highlight the key findings
 - The larger significance of the study.
 - How the study has addressed a gap in the literature.
 - The importance of the study.
 - New ways of thinking about the problem.

Conclusion for our study: Overall very weak

- Positives

- Highlights the key findings.

- Negatives

- Doesn't really address the larger significance of the study.
- Doesn't address the gaps in the literature.
- Could have a stronger statement on the importance of the study.
- Should have highlighted the role of Ayurveda and yoga together in treating migraine.

References

- Literature that was cited in the manuscript.
 - Journal articles, book chapters etc.
- This allows the reader to find and potentially read the original literature that the authors used in the manuscript.
 - Sometimes the literature isn't used accurately.
 - For example, the conclusion of a study cited in the paper might not be exactly correct in the context that the authors are using it.

Overall analysis of the study

- Reasonable introduction, lacking some detail.
- Methods are generally good, better than usual for this type of study.
 - Control group is not appropriate.
 - Some problems with the analysis.
- Tables in the results are good, but need more detail in the text.
- Discussion is pretty good.
 - Lacking detail about how the formulas were chosen.
 - More information on why Virechana was used.
 - Nothing on limitations of the study.
- Conclusion was weak.
- Overall, interesting study and worth following up on. Hard to say if the improvement is actually due to the addition of Ayurveda and Yoga specifically.
 - Maybe some other herbals and massage, and another form of exercise would have given the same response.