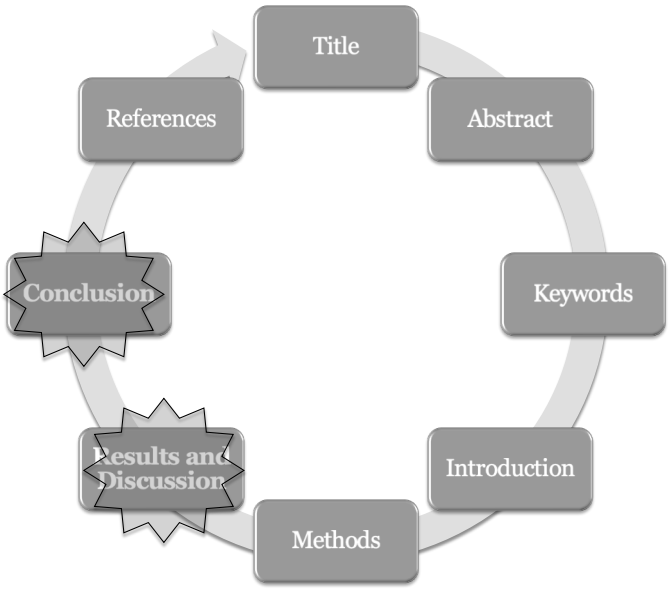
Preparing scientific articles in the field of Pharmacy



$$R = \frac{\int_{320\,nm}^{400\,nm} A(\lambda)\,d\lambda / \int_{320\,nm}^{400\,nm} d\lambda}{\int_{290\,nm}^{320\,nm} A(\lambda)\,d\lambda / \int_{290\,nm}^{32\,nm} d\lambda}. \quad (3)$$

2.5. Statistical treatment

One-way analysis of variance (ANOVA) followed by Tukey's Multiple Comparison Test ($p < 0.05$) was performed by using GraphPad® Prism version 5.00 for Windows®, GraphPad® Software, San Diego, California, USA.

3. Results and discussion

During recent years, knowledge of the effects of UVB and UVA radiation from the sun on human skin has increased significantly. UV exposure of human skin induces multiple deleterious in the epidermis and dermis, and this type of radiation appears to have a dual role in the induction of skin cancers as it may cause several varieties of direct DNA damage plus suppress the immune response to developing skin cancers (FDA, 1999; Seité et al., 2000). The authentic necessity of human skin protection against solar radiation has led to the concerning and upgrading of the development of broad spectrum sunscreens highly effective over the UVB-UVA absorbing range. Modern sunscreen products are also intended to counteract several kinds of UV-induced skin damage such as photoallergies, skin wrinkles and dryness, sunburn and even skin cancer. From the Cosmetic Science viewpoint, the cumulative radiation exposure of skin is directly linked to the generation of fine lines and wrinkles

Results and Discussion

- The Results and Discussion are the most important sections of your paper
- Research is about results and it's that the reader has come to the paper to discover
- It is on these results that opinions and arguments are formed and future researches planned

- Data must be clearly presented
  - Writer should always bear in mind that while numerical data should be absolute, the discussion may be subjective. Another reader may have a different interpretation of the results
  - Give an objective presentation of the results
    - Use all your writing skills to objectively present the key findings in an orderly and logical sequence
    - Numerical data should be presented in a sensible manner, treated, either in table or graph form
    - Graphs tend to be immediately appreciated and, if necessary, include numerical data in a table in the *Supplementary Material* section

- Never extrapolate too far
- Make discussion systematic
  - Main body of a paper should lead the reader on a logical path from the results to the conclusions
  - The inclusion of too many diversions and alternative routes is confusing
- Learn from others
  - You learn to write papers by reading other people's papers and by writing them yourself

Training!!

- The traditional Results and Discussion sections are usually combined
  - Check Journal's Guide for Authors
  - Results make little sense to most readers without interpretation

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Results section

- If readers are interested in your paper, they are interested in your results
- Be selective in presenting data and choose only those that are essential for your reader to understand the findings
  - Treat your results
  - Be able to discard excessive experimental details → distracting and confusing
- In Results section, the findings are presented without interpretation
- Adverbial intensifiers (clearly, essential, quite, basically, rather, fairly, really, virtually *etc.*) should be avoided → they lower the result's credibility

- Findings in the Results section should match and answer the research questions from Introduction, using the procedures explained in Methods section
- Results section mirrors the Methods section → match your results with methods
  - For every method, there should be a corresponding result and vice-versa
- If you have to use the word "significant", it is probably better to use the words "statistically significant"

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- Use text and **illustrative materials**
- Do not duplicate information from tables and figures, but highlight them in the text
- They are generally presented separately from the main text, usually uploaded individually

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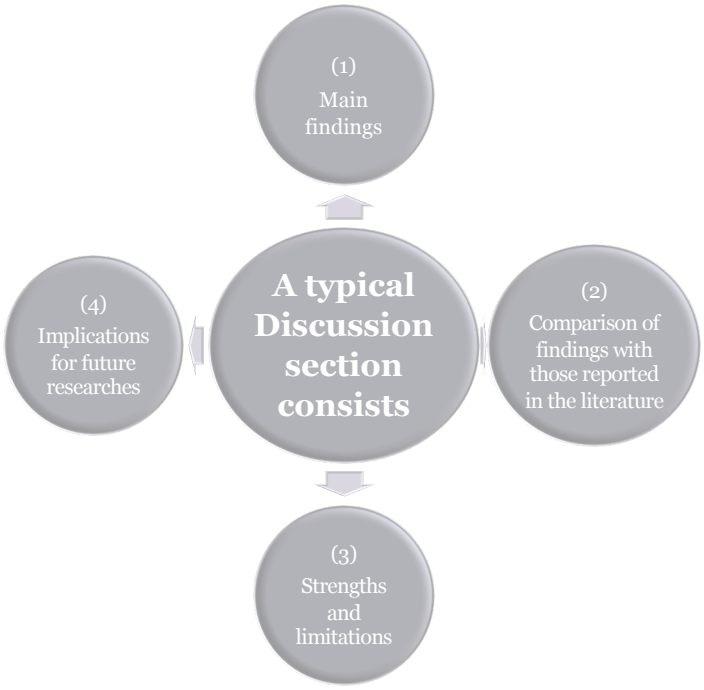
Discussion section

- The purpose of the Discussion section is to place your findings in the research context by comparing with previous work and discussing future implications and shortcomings of the research design
  - Explain the meaning of the findings and why they are important
  - Describe how your findings fit into the general picture of the current research and how you contribute to the existing knowledge on the topic
- Different of the Introduction section structure, the Discussion section is visualized as an inverted funnel
  - Introduction and Discussion together form an hourglass shape

It starts with the narrowest part by answering the research question in the summary of main findings, and it than gradually widens out to comparisons with other studies and the interpretation of the study findings in the wider context of the study topic



- Many writers consider the Discussion section opening paragraph a big challenge

- Thus, a good choice is to start answering the research question postulated in your Introduction

  - Common starting phrases
    - Our findings demonstrated…
    - In this study, we have shown that…
    - Our results suggested…

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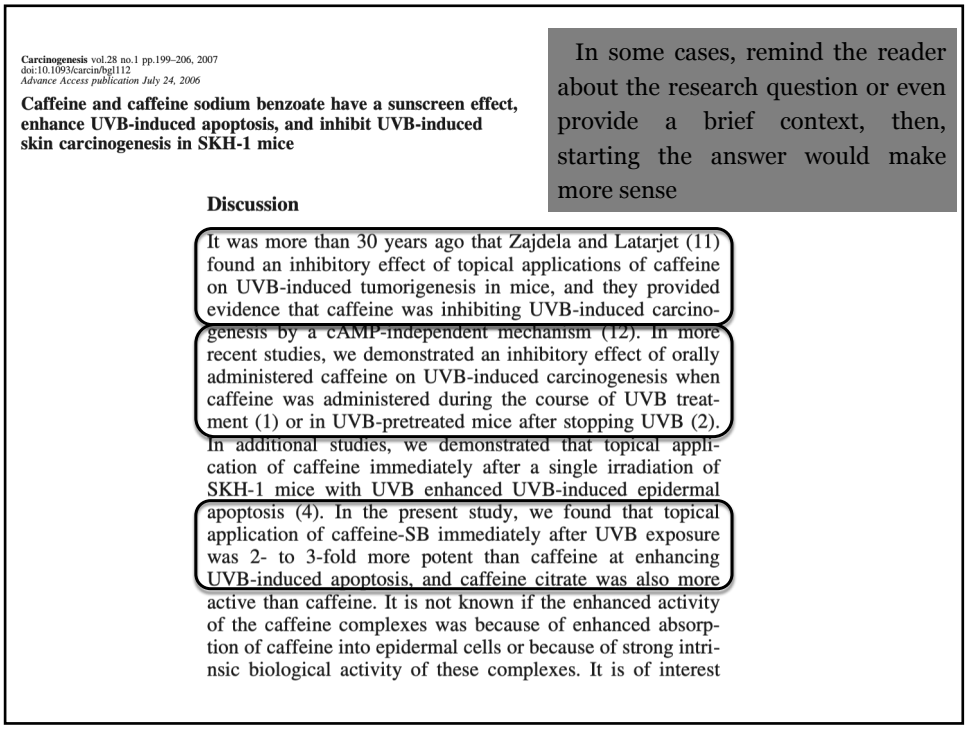
RESEARCH ARTICLE

Non-Communicable Disease Clinical Practice Guidelines in Brazil: A Systematic Assessment of Methodological Quality and Transparency

Discussion

We performed a systematic search of Brazilian CPGs for treating the most prevalent NCDs within primary care settings. Except for dementia, we identified 26 CPGs, with diabetes mellitus as the most common. Most CPGs had been created in the last 5 years; yet, none were of particularly high quality, and most were not recommended by our reviewers. Specifically, 62% of the selected CPGs were deemed "low quality": low-A (8%), low-B (39%), and low-C (15%). In essence, most of the CPGs scored less than 30% on the "rigor of development" domain. This domain evaluated how evidence for the CPG was assembled and synthesized, how recommendations were formulated, and how the CPG would be updated. Given the deficiencies within this metric, we can conclude poor quality of our selected CPGs. Similar to our findings, Chinese CPGs have been evaluated for poor quality, particularly presenting low scores on the "rigor of development" domain [74–77].



Carcinogenesis vol.28 no.1 pp.199–206, 2007
doi:10.1093/carcin/bgl112
Advance Access publication July 24, 2006

Caffeine and caffeine sodium benzoate have a sunscreen effect, enhance UVB-induced apoptosis, and inhibit UVB-induced skin carcinogenesis in SKH-1 mice

In some cases, remind the reader about the research question or even provide a brief context, then, starting the answer would make more sense

Discussion

It was more than 30 years ago that Zajdela and Latarjet (11) found an inhibitory effect of topical applications of caffeine on UVB-induced tumorigenesis in mice, and they provided evidence that caffeine was inhibiting UVB-induced carcinogenesis by a cAMP-independent mechanism (12). In more recent studies, we demonstrated an inhibitory effect of orally administered caffeine on UVB-induced carcinogenesis when caffeine was administered during the course of UVB treatment (1) or in UVB-pretreated mice after stopping UVB (2). In additional studies, we demonstrated that topical application of caffeine immediately after a single irradiation of SKH-1 mice with UVB enhanced UVB-induced epidermal apoptosis (4). In the present study, we found that topical application of caffeine-SB immediately after UVB exposure was 2- to 3-fold more potent than caffeine at enhancing UVB-induced apoptosis, and caffeine citrate was also more active than caffeine. It is not known if the enhanced activity of the caffeine complexes was because of enhanced absorption of caffeine into epidermal cells or because of strong intrinsic biological activity of these complexes. It is of interest

- Discussion section offers an interpretation of the results and should never present new findings
  - **Do not** just assume the importance of your findings, they may not be obviously clear to the reader
  - Digesting the findings and their importance is as crucial as stating your research question
- **Do not** ignore or cover up inconvenient results
  - Reviewers will find them and it weakens the paper if you try to hide them
- **Do** mention unexpected findings by explicitly stating that they were unexpected and did not relate to a prior hypothesis
  - Such honesty will strengthen the paper

- Every study has its limitations and you should make sure to mention them
  - Provide a counterbalance between a limitation and a specific strength
  - Showing the limitations, weaknesses and assumptions is essential and adds modesty to your image as a scientist

RESEARCH ARTICLE

Non-Communicable Disease Clinical Practice Guidelines in Brazil: A Systematic Assessment of Methodological Quality and Transparency

Caroline de Godoi Rezende Costa Molino[1], Nicolina Silvana Romano-Lieber[2], Eliane Ribeiro[3], Daniela Oliveira de Melo[3]*

Limitations and strengths

To date, this is the first study to assess Brazilian CPGs' quality for the most prevalent NCDs, as well as conduct a comprehensive search for identifying Brazilian guidelines. Prior Brazilian research evaluated only 8 Ministry of Health guidelines, and most were for managing rare diseases [18]. Nevertheless, the present study is limited by a subjective analysis of the AGREE II instrument. However, raters received exhaustive training on the instrument, which should ameliorate assessment concerns [21].

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- When comparing your data with other studies, discuss the reasons for differences and similarities and mention the limitations of those references, but be respectful and objective
  - Discuss any discrepancies and unexpected results that may otherwise distort the general picture of your paper
  - The intention is to highlight what your findings add to the existing knowledge

Gelatin-based microspheres crosslinked with glutaraldehyde and rutin oriented to cosmetics

Fabiana Graziola[1], Thalita Marcílio Candido[1], Camila Areias de Oliveira[1], Daniela D'Almeida Peres[1], Michele Georges Issa[1], Joana Mota[2], Catarina Rosado[2], Vladi Olga Consiglieri[1], Telma Mary Kaneko[1], Maria Valéria Robles Velasco[1], André Rolim Baby[1]*

BJPS

With a magnification of 50,000 times, it was possible to observe that the surface of all microspheres had a slight roughness, suggesting that crosslinking had no impact on surface morphology. This finding is contrary to that described by Choy *et al.* (2008), who observed expressive wrinkles on the surface of MG and described by Patel *et al.* (2006), who obtained microspheres with smooth surface (Choy *et al.*, 2008). The use of NaOH and acetone, as a medium of crosslinking, may have led to differences in relation to the literature. The presence of agglomerates was greater in MG and MR than in M0.

- Try to suggest feasible explanations and solutions

RESEARCH ARTICLE

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In order to improve CPG quality, we suggest focusing on the following: 1) assembling a multidisciplinary development group; 2) take into account patients' preferences; 3) describe literature search details, selection criteria, and the formulation of recommendations; and 4) explicitly declare any competing or financial interests among the authors. Finally, we believe high-quality CPGs will likely require a partnership between health institutions and universities with CPG development expertise. Previous work in Saudi Arabia has suggested that collaborative work between the Ministry of Health and McMaster University enabled the production of 10 CPGs, with 80 recommendations, within 4 months [85]. Thus, knowing that the Brazilian health system is a reference in Latin America, the Caribbean, and Portuguese-speaking African countries, the study of Brazilian CPGs is essential for healthcare professionals in many other countries. Health institutions should identify universities with CPG expertise and work collaboratively toward promoting high-quality CPG development and adaptation.

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- **Never, ever(!), just write that further research is needed**

CONCLUSION

It can be concluded from the review of research works carried out in the field of vesicular carriers that they prove to be very promising novel drug delivery units with respect to biocompatibility, reduced toxicity and enhanced controlled release quality that would be essential to address issues pertaining to compromised therapeutic efficacy of the bio-actives especially through topical route of administration. Diversity of vesicular based topical and transdermal technology renders variety of critical properties that can be exploited by the formulator on the basis of the challenges imposed by the active moiety via this route. Vesicular formulations shows better therapeutic results as compared to conventional formulations and it has been expected that in upcoming years more vesicular formulations would find their place in therapeutic world.

Conclusion

- It should be clear and fully supported by the results
- It should be based on fact and logic, not supposition or speculation
- It must respond the stated objectives
- Some authors use Conclusion section to mention any future research required to further understanding in the area
- ***...and again...never end with "more research is needed"***

- In particular, do not restate what you have done or what the paper does
  - Focus on what your findings mean
- Do not be afraid to write a short Conclusion section
  - If you can conclude in just a few sentences given the rich discussion in the body of the paper, then do so
  - In other words, resist the temptation to repeat material from the Introduction just to make the Conclusion longer under the false belief that a longer Conclusion will seem more impressive