



Reviewing Medical Education Research Abstracts

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Disclaimer: The views expressed in this module are those of the authors and do not reflect the official policy or position of the RIME program planning committee, the USUHS, the Department of Defense, or the United States Government.



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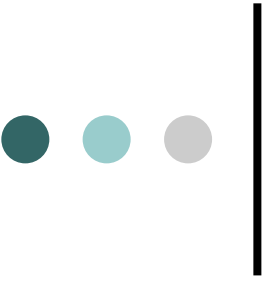
Objectives of this Session

1. Orient to process of reviewing an abstract
2. Define major structural abstract components
3. List key considerations for reviewing an abstract
4. Identify principles regarding written comments and reviewer etiquette



Keep in mind...

- Abstracts are *different* than manuscripts
 - Word restrictions limit the scope
 - Often describe preliminary or pilot studies
 - Excludes supporting documentation such as references, tables, etc.



Anatomy of an Abstract



Introduction

Also known as Background and includes at least one of the following:

Purpose

Problem Statement

Objectives



The Introduction

- Introduction provides the study background or rationale
 - Reference to what is already known
 - Reference to general knowledge or generally accepted standards of practice
- Introduction must include a purpose or problem statement or hypothesis



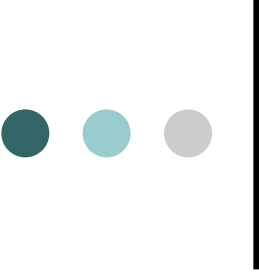
Background Information

- Opening sentences should quickly orient reader to the study focus
- **Important:** abstract word limits often preclude authors from including any evidence of familiarity with current issues related to the study topic



Problem Statement or Hypothesis

- Introduction must include clear statement of purpose.
 - If not present, Introduction is unacceptable
- Reviewer should **clearly** understand:
 - what question was being investigated, and
 - why this question is important



Purpose, Problem Statement or Hypothesis

- Statement of Purpose

- “Our purpose is to describe students’ views on the educational impact of medical school expansion”

- Problem statement

- “We investigate the relationship between USMLE Step 1 scores and self-assessed study skills”

- Hypothesis

- “We hypothesized that our students would demonstrate improvement in exam scores after participating in on-line remediation”



References to the Literature

- Word limits preclude full reference citations
 - Therefore not an *essential* element
- Authors might include abbreviated citation, e.g.: Smith, 2008.
- Allows author and reviewer to differentiate between “opinion” and building on another’s work



Introduction: Example 1

Is A Pre-Clerkship Examination Equivalent To The Pre-Third Year GPA as a Predictor Of Performance On The Third Year Internal Medicine Clerkship?

We sought to determine a) whether an early clerkship examination (pretest) correlates with pre-clinical grade point average (GPA) or USMLE Step One scores and, b) whether GPA, USMLE, and pretest scores equally predicted clerkship outcomes.



Introduction: Example 2

Clerkship Placement and Performance

More medical students do clerkships in community settings yet few studies have evaluated how setting type impacts clinical experiences, skill development, and student satisfaction. This study compared patient care case-mix by medical students in university hospital (U) and community (C) settings.



Methods

Also known as:

- Methodology
- Research Design



General Considerations

- Clarity

- Logical flow; should make sense to reviewer

- Operationalizes the Research Question

- Drives study design

- Ethics Review

- Explicit statement about IRB approval or review is optimal,



Study Sample

- Who was sampled? Was it appropriate?
 - Patients, students, residents, fellows, faculty?
- Was the sample size adequate?
 - Statistical power especially important for “negative” or “no difference” studies
- Was the setting described?
 - What is the context of the study?
- What was the source of data?
 - Survey, papers, blogs, examinations, etc.



Educational Outcomes

Type of Outcome	Focus	Example
1. REACTION	<ul style="list-style-type: none">○ satisfaction○ usefulness○ motivation	“I asked students to write about critical incidents in a blog and they liked it”
2. LEARNING	Acquisition of <ul style="list-style-type: none">○ knowledge○ skills○ attitudes	“Students who wrote in a blog significantly improved their knowledge of critical incidents”
3. TRANSFER	Change in <ul style="list-style-type: none">○ knowledge○ skills○ attitudes	“Students who wrote in the blog led a tutorial project about critical incidents for second year medical students”
4. RESULTS	Changed KSA lead to changes in real world outcomes	“Students who wrote about critical incidents in blogs had fewer medication errors than prior interns.”



Statistical Methods

- What was the plan for analysis of the data?
- Were the statistical methods described so that you understand how it was done?
- Were the methods appropriate for the research question?
 - If you need help, ask the meeting planners if you can consult with other(s)



Questions for Qualitative Studies

- Was sampling appropriate to the question?
 - What were the sources of information?
- Was data collection appropriate?
 - Interviews, focus groups, survey responses, written comments
 - Triangulation may be utilized



Questions for Qualitative Studies

- Is the analysis described sufficiently and clearly?
 - What was done?
 - By whom?
 - How were coding differences resolved?
 - Was iterative checking done?



Other Considerations

- Abstracts are limited in length, so don't expect to find:
 - Controlling for confounding variables
 - Addressing validity threats
 - Characterizing subgroups within sample



Methods Example 1

IS A PRE-CLERKSHIP EXAMINATION EQUIVALENT TO THE PRE-THIRD YEAR GPA AS A PREDICTOR OF PERFORMANCE ON THE THIRD YEAR INTERNAL MEDICINE CLERKSHIP?

Methods: On clerkship day one, students take a faculty-developed, 100 question multiple-choice examination. Teacher evaluations are converted into total clinical points. The NBME subject examination in medicine is given in the 12th week. From 1997-2001, data from 585 students (88%) were available. Multiple linear regression (MLR) was used with a standardized z-NBME score and total clinical points score as separate outcome measures and the z-pretest score, USMLE Step One, and GPA as exposures. Correlations used Pearson's coefficient.



Methods Example 2

Clerkship Placement and Performance

Method. Student participants returned patient logs upon clerkship completion, and the number and distribution of their primary diagnostic categories were compared by setting.



Results

Also known as:

- Findings
- Analyses



Results: Essential Elements

- Should flow from and relate to other sections
- Clearly organized
- Key findings are presented
- Statistical analyses/findings are presented
 - Actual data (numbers) should be presented
 - Congruent with Methods section
 - Inferential analyses, with p values, should be present



Results: Essential Elements

- Descriptive results characterize dataset:
 - Response rate to a survey
 - Participation rate in cohort studies
 - Numbers in control and intervention groups
 - Numbers and/or reasons for exclusion
 - Demographic information



Inferential Statistics

- Data and p values should be reported
 - Example: in the case of a correlation coefficient, **the author should** state the actual correlation coefficient and p value:
 - “ $r = .25, p < .05$ ” vs. “the correlation between X and Y was significant ($p < .05$)”.



Functional Significance

- Statistical analyses with *significant* p values ideally should be accompanied by a measure of functional significance
 - Examples: Effect size, confidence intervals, proportion of variance explained
- Such measures help to show the size or importance of the statistical difference



Results: Qualitative Studies

- Often, a description of the findings of the analysis
 - Themes and sub-themes that emerged
 - Differences among participants, groups may be discussed
 - Quantification of the results often not included or relevant



Results: Common Problems

MIXES RESULTS & DISCUSSION

“Statistical analysis supports that our educational intervention should be broadly implemented as students improved their OSCE communication scores (65.5 vs. 58.5, $p < .05$, Effect size 0.8)”

PRESENTS RESULTS

“Students who received intervention scored higher on the end of clerkship OSCE communication station compared to controls, 65.5 vs. 58.5, $p < .05$, Effect size 0.8)”



Results: Other Common Problems

- Inadequate sample size/response rate
- Statistical analyses inappropriate for type of data (e.g., nominal, ordinal, continuous)
- Numbers don't add up throughout section
- Insufficient, inadequate, or absent data presented for interpretation



Results: More Common Problems

- Methods & Results incongruent
- p values
 - Excluded
 - Presented without data or test statistic
- “Results will be presented at the meeting”
- Results are disorganized, incomplete



Results: Example 1

Pre-clerkship Examination

The pretest and GPA were moderately correlated ($r = 0.57$, 95% CI 0.50 - 0.63), while the USMLE correlated with both the pretest and GPA ($r = 0.66$, 95% CI 0.60-0.72; and 0.72 , 95% CI 0.66-0.78, respectively). By univariate analysis, GPA, USMLE, and pretest scores were significant predictors of both outcomes. For teachers' points, the MLR model showed GPA and pretest explained 19% of the variance and remained significant predictors (pretest $p < 0.04$ and GPA $p < .001$), but USMLE did not contribute. For the z- NBME MLR model, GPA, pre-test, and USMLE explained 43.7% of the variance (all with $p < 0.001$).



Results: Example 2

Clerkship Placement and Performance

The overall distribution and most specific diagnosis differed significantly between settings, and C students saw more patients than U students. In general, C students saw proportionately more routine illnesses, whereas U students reported seeing proportionately more rare disorders. There was no relationship between setting-type and examination scores.



Discussion

Also known as:

- Conclusions



Discussion/Conclusion

- This section provides space for:
 - Interpretation of results
 - General reaction to findings
 - Statements of limitations
 - Description of study's impact
 - Proposals for next steps



Discussion/Conclusion

- Related to problem statement/ hypothesis
 - should relate background to findings
- Interpretation of study's findings
 - What do the results mean?
 - Were they as expected?
 - Do they answer the original hypotheses or problem statement?



Fair and Balanced?

- Have the authors provided a reasonable interpretation of what is presented in the Results?
- Are obvious limitations of their findings stated or balanced within the Discussion?
- Does the Discussion make assertions beyond the data?



Overall

- While ideal, word limits might prevent the author from:
 - providing a framework for application of the findings or next steps for study
 - discussing information that might be useful to share with the conference audience
- These omissions are acceptable



Discussion: Example 1

Pre-clerkship Examination

A faculty developed pretest given on the first day of the internal medicine clerkship can identify students at risk of poor performance and may offer advantages over USMLE Step One and preclinical GPA.



Discussion: Example 2

Clerkship Placement and Performance

Clerkship settings provide significantly different overall training experiences, but had no significant impact on level of competence.



Skill Building Time



Practical Do's & Don'ts



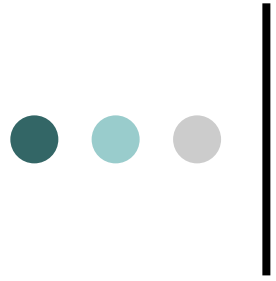
Conforming to Submission Requirements

- As a reviewer, it is important to be familiar with the submission requirements
- Some submission systems reject an abstract that exceeds the word count
 - If the abstract seems long, check the word count and comment on it in the review if excessive



Writing Style

- Writing style is an individual choice, however optimally using every word is important.
- Despite word limitations, correct grammar and spelling are essential



Written Feedback and Comments



General Rules

- Always write comments
 - Engage authors in feedback
- Your chance to convey:
 - Concerns/suggestions for improvement
 - Compliments
 - Reasons for ratings of abstract elements
- Consider writing comments FIRST, then use the rating form



Written Comments

- Be respectful
- Be specific
- Be constructive
- Be focused



Example of Comments

Poor

- “The worst abstract I’ve ever read!”
- “Data presentation was pitiful.”
- “Wonderful study!”

Improved

- “The authors need to attend to several areas before resubmitting; these include:”
- “The authors need to present the actual data and statistical analyses.”
- “This was an excellent study for the following reasons:”



Final Recommendation

Definitely Include	Highly rated in most/all categories; highly relevant
Probably Include	Few concerning areas; can be improved before presenting. Relevant
Probably Exclude	Several areas of concern, will require significant revision to remedy
Definitely Exclude	Many areas of concern; fatal flaws present; needs substantial revision



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