# SASBT Abstract Writing Series

## The Results Section

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# 4 KEY ELEMENTS

- **Relevance (*Introduction*)**
  - Essentially the background
  - Explains why this is an important question
- **Question (*Methods*)**
  - What is the question that is being answered
  - Must be “FINER”
  - How did you do it?
- **Data (*Results*)**
  - Counted something
  - Which can be summarised / analysed
- **Conclusion (*Discussion*)**
  - Gives meaning to the results of your question

# Willi's Order of Writing

1. 3 Tables and 1 Figure
2. Results
3. Discussion
4. Introduction
5. Methods
6. Abstract
7. References

# Plan for today's session


- Go through the presentation
- Please stop me at any time if you have questions
- Q&A session at the end where you can ask any questions related to the Results section
- We also have our experts Karin and Marion in the session and they are always willing to help

# Results

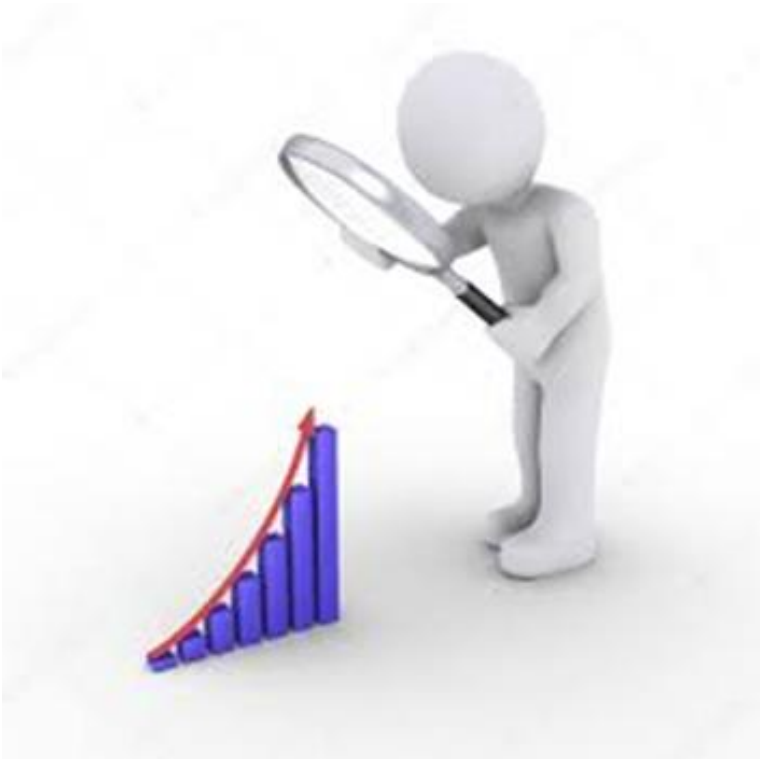
- The Results section should be a clear, concise and objective description of your study
- Usually written in the past tense
- The findings are presented without interpretation as this is done in the discussion
- The Results section mirrors the Methods section i.e. for every method (what you did) there should be a corresponding result (what you found)
- Remember that abstracts are usually restricted to **500** words
  - Important findings can get lost when too much detail is provided
  - Keep sentences short and to the point
  - Include only enough words to make your point
- Only describe the key information needed to understand what was learned from the study
- Any study data you want to talk about in the discussion must be in the results!

# Tips for writing results


- Tables need to be done before you start to write your results section of your abstract
- Table or The story in numbers becomes the story in words (Results)
- State in simple words the most interesting findings in tables
    - key characteristics, main outcomes, most important, most interesting, unexpected finding
- The findings in the results section should match and answer the research question from the introduction using the procedures explained in the methods section

# Results in 4 parts

- Describe the study sample
  - Number and demographics of participants
- Present primary outcomes
  - Main outcome, lab results
- Describe associations with the main outcome
  - Bivariate analysis
  - Secondary analysis or any additional (unexpected) findings
- Does the effect hold up to adjustments
  - Multivariate analysis



# 1. Study sample

- Who were the participants in the study
- Example:
  - There were 1200 HIV positive donors included in the study

  or

  - Of 1400 HIV positive donations, 1200 (86%) had sufficient plasma to be included in the study

  - A total of 246,000 clients age 15 years or older had their first visit at the 4 main HIV testing branches from January 1992 to December 2000

**TABLE 1. Donor demographic characteristics in vCJD surveys (1999-2001) and general donor population***

| Characteristic | First survey, February 1999 (n = 8,026) | Second survey, March 2001 (n = 13,623) | Donor base: 1 week in 2000 (n = 16,630) |
|---|---|---|---|
| Age (years) | | | |
| 17-29 | 1556 (20.2) | 3522 (26.6) | 4488 (27.0) |
| 30-39 | 1778 (23.1) | 2513 (19.0) | 3439 (20.7) |
| 40-55 | 3289 (42.7) | 5370 (40.5) | 6669 (40.1) |
| 56+ | 1076 (14.0) | 1839 (13.9) | 2034 (12.2) |
| Gender | | | |
| Male | 4441 (57.8) | 7177 (54.0) | 9427 (56.7) |
| Female | 3241 (42.2) | 6121 (46.0) | 7203 (43.3) |

* Data are reported as number (%). Totals may vary due to missing values.

# 2. Primary outcomes

- Present the key findings of your study
  - What stands out - main outcome, other outcomes, laboratory results, overall prevalence of outcome, prevalence in key sub-group e.g. By zone or gender
- Examples:
  - The majority of participants were under 25 years old (72%), male (52%) and had less than secondary education (67%)...
  - Overall prevalence of HIV infection was 7.1%. No HIV infections were detected among adolescents age 15 – 19 years....
- Which is better?
  - The prevalence of hepatitis C was highest in Africa and the Eastern Mediterranean, and lowest in Europe and the Americas or
  - The prevalence of hepatitis C ranged from as high as 5.3% in Africa to as low as 1% in Europe as shown in Table 1.

**Table 1:** Estimated prevalence of hepatitis C by region[6]

| Region | Infected population, million | Prevalence rate, % |
|---|---|---|
| Europe | 8.9 | 1.0 |
| Americas | 13.1 | 1.7 |
| Southeast Asia | 32.3 | 2.2 |
| Western Pacific | 62.2 | 3.9 |
| Eastern Mediterranean | 21.3 | 4.6 |
| Africa | 31.9 | 5.3 |



The choice depends on what you want to emphasize

# Examples

In total 12% of the subjects had poor health, 23% had fair health, 41% had good health and 21% had excellent health.
It is not clear how much importance to give this finding.

Re-write as:
Of the 800 subjects, 12% (n = 96) reported poor health, 23% (n = 184) fair health, 41% (n = 328) good health and 21% (n=168) excellent health.

*Or*

Of 800 subjects who completed the survey 12% stated they had poor health, about a quarter (23%) fair health and more than half (62%) good to excellent.

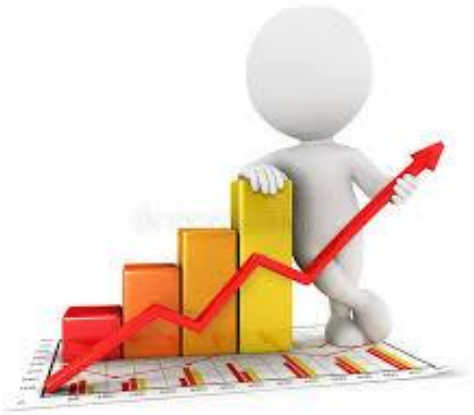
*Or*

Of the 800 subjects, 96 (12%) reported poor health, 184 (23%) fair health, 328 (41%) good health and 168 (21%) excellent health.

# 3. Associations with main outcome

- Be clear on what is associated with what
- Present prevalence by sub-groups, bivariate associations
- Focus on significant findings – statistically significant ($p<0.05$), unexpected or not associated
- Make comparisons within you data but not to other studies – no interpretation
- Use statistics sparingly
  - How LIKELY are your results to be true (p-value), how strong is effect (OR)
  - How CONFIDENT can the reader be in your results (95% CI)
- Examples:
  - In bivariate analysis, HIV seropositivity was associated with age 25 – 44 years, female gender...
  - Over time, prevalence of HIV infection declined from 23% in 1998 to 13% in 2003, with a decreasse from 17% to 9% among men ($p < 0.001$) and from 31% to 17% among women ($p < 0.001$)

# 4. Multivariate analysis



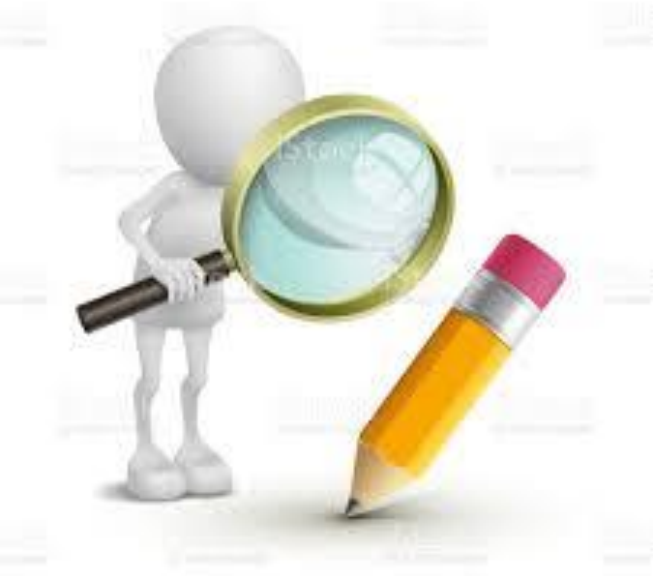
- Main association can stand up to complex analysis
- Rule out confounders – accounting for age, gender etc.
- Interactions e.g. men different from women
- Main hypothesis, single most important finding confirmed

- Example:
    - In multivariable analysis, after controlling for geography, gender, and ethnicity, donors from the post-vac era, had a 2.9 times greater odds of being vaccinated than donors born in the pre-vac era ( OR 2.89 95%CI 2.16-3.89). Compared to Coloured donors, White donors had a 2.1 times greater odds of being vaccinated (OR 2.1, 95%CI 1.21-3.65). No statistically significant odds were noted for geography and gender.

# Example

- Of 1072 donors included in the study, 275 (25.7%) (pre-vac era 87/538 (16.2%) and post-vac era 188/536 (35.1%)) tested anti-HBs titre >10mIU/ml and anti-HBc negative and were therefore deemed HBV vaccinated.
- In the pre-vaccination era, vaccination rates were highest among White donors (22.5%) and donors from Free State/Northern Cape (37.14%). In contrast, Asian donors (58.8%) and those from the Northern Zone (41.5%) had the highest vaccination rates in the post-vac era. All differences were significant ($p<0.01$). Male and female donors had similar vaccination rates in both periods (pre-vac group 16.8%, 15.7% ($p=0.82$), post-vac group: 34.8%, 35.4% ($p=0.96$) respectively).
- In multivariable analysis, after controlling for geography, gender, and ethnicity, donors from the post-vac era, had a 2.9 times greater odds of being vaccinated than donors born in the pre-vac era ( OR 2.89 95%CI 2.16-3.89). Compared to Coloured donors, White donors had a 2.1 times greater odds of being vaccinated (OR 2.1, 95%CI 1.21-3.65). No statistically significant odds were noted for geography and gender

# Tips for writing results



- Just the facts
  - No interpretation
  - Compare within your data, not outside
- Don’t mix Methods into Results
  - Detail of methods should be in Methods
  - If you conduct a new analysis or sub-analysis, add to Methods
- Don’t mix Discussion into Results
  - No interpretation of meaning
  - Also, don’t introduce Results into Discussion, go back

# Reporting p values

| | | |
|---|---|---|
| Null Hypothesis | = | Sample A is from the same population as Sample B |
| Alternative Hypothesis | = | Sample A and Sample B are from different populations |
| $p \geq 0.05$ | → | Not enough evidence to reject Null Hypothesis<br>Do not accept Alternative Hypothesis |
| $p < 0.05$ | → | Evidence supports rejecting Null Hypothesis<br>and accepting Alternative Hypothesis |
| P is helpful in evaluating if there is sufficient evidence to reject the null hypothesis, but does not actually *prove* that the null hypothesis is false (or that the alternative hypothesis is correct) | | |

# Reporting p values

It is preferable to report the actual p-value rather than simply $p<0.05$

BUT generally to the nearest 0.01

Include the 95% confidence interval

Example

- p=0.02 not p=0.01967
- If less than 0.01 report as $p < 0.01$

  $p < 0.001$

  $p < 0.0001$ (this is the smallest you report)

# Reporting p values

How different is p= 0.07 from p=0.04?

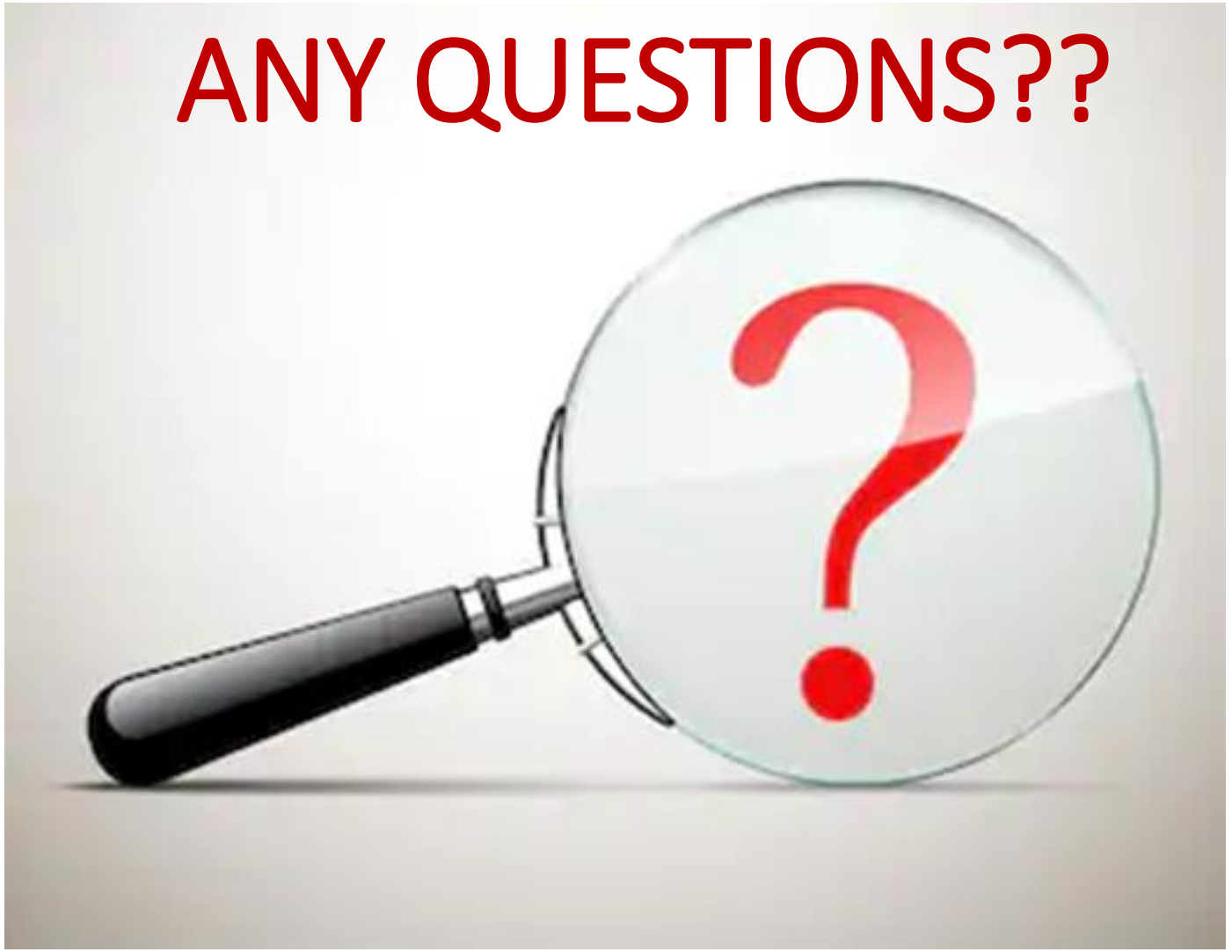
Not much difference

BUT

Many reviewers and editors consider  $p<0.05$ an absolute indicator of significance

It is better to simply state that the  mean for the two groups was not statistically significant and show the p-value as (p=0.07).

# ANY QUESTIONS??




THANK YOU