結構化英文論文分析
與寫作概念

陳甫州 博士

台中榮民總醫院醫學研究部
Why am I qualified?

- 156 papers (1989-2014)
- 4 review articles
- 3 book chapters
- 1 patent
- Review 500+/year
- Proposals/Manuscripts
- Technical writing/Experimental design courses
Time to write a paper?

- has a significant advancement been made?
- is the hypothesis straightforward?
- can you describe the study in 1 or 2 minutes?
- can the key message be written in 1 or 2 sentences?
Title: What's your point?

- Describe: Succinct and reflect study contents
- Raise: the interest toward the paper
- Think: many people read the title, few read the abstract, very few people read the paper
- Read: some “Tiltes of the Journal”
Scientific American

- How to Cure 1 Billion People?
- --Defeat Neglected Tropical Diseases
- Gaming for Profits: Real Money from Virtual Worlds!
- How Birth Order Affects Your Personality?
Should IQ, perceptual speed, or both be used to explain response time?

The role of height in the sex difference in intelligence

In the Wrong Places? Or With the Wrong People?
Recurrent copy number changes in mentally retarded children harbour genes involved in cellular localization and the glutamate receptor complex

How much is too much? Phenotypic consequences of \textit{Rai1} over-expression in mice

The candidate gene approach in asthma: what happens with the neighbours?
Journal of Clinical Oncology

- Treatment of Hodgkin Lymphoma: A 50-Year Perspective
- Adverse Event Reporting in Cancer Clinical Trial Publications
- Targeted Cancer Therapy: From Bench to Bedside to Patient
- Use of Statins and the Risk of Death in Patients With Prostate Cancer
- Adjuvant Interferon in Melanoma: Is Duration of Therapy Important?
Writing... An Apple

TO BE HONEST, MR. JOBS, THE LAST TIME AN APPLE CAUSED SO MUCH EXCITEMENT AROUND HERE INVOLVED ADAM, EVE AND A SNAKE...

Originality, Novelty, Significance
四段式結構模組
The IMRaD Format

- **Introduction:** What was the question?
- **Methods:** How did you try to answer it?
- **Results:** What did you find?
- **Discussion:** What does it mean?

- A format used in some journals: IRDaM
- People read sections in various orders.
# Manuscript Writing Template

<table>
<thead>
<tr>
<th>Title</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Running title</td>
<td></td>
</tr>
<tr>
<td>Corresponding author</td>
<td></td>
</tr>
<tr>
<td>Authors, institutions &amp; e-mail</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
</tbody>
</table>

## Results

<table>
<thead>
<tr>
<th>Figure 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td></td>
</tr>
<tr>
<td>Figure 2</td>
<td></td>
</tr>
<tr>
<td>Table 2</td>
<td></td>
</tr>
</tbody>
</table>

## Materials and Methods

<table>
<thead>
<tr>
<th>Method 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Method 2</td>
<td></td>
</tr>
<tr>
<td>Method 3</td>
<td></td>
</tr>
</tbody>
</table>

## Introduction

1. importance & problems
2. mini review (previous & current)
3. gap
4. the present study
Results to be Presented

- The **core** of the paper
- Often includes tables, figures, and the text should overlap with that in the tables and figures
- Should present results **but not** comment on them
Results

- Overview of results
- Viewing results
- Key results in detail
- Problems with results
A

Bar graph showing absorbance levels of different cell lines (PZ-HPV7, DU145, PC3, LNCaP) with varying TGFβ1 (ng/ml) concentrations (0, 1, 10).

B

Images showing cell migration in DU145 and PC3 cell lines under control, TGFβ1, and EGF conditions.

C

Western blot analysis of p-Smad3 and β-actin expression in PZ-HPV7, DU145, PC3, LNCaP, and HeLa cell lines at different time points (0, 10, 20, 30 min).
Figure 2. MTT assay was performed when the cells were transfected for 72 h. (A) Id1-siRNA showed inhibitory effects on the proliferation of SGC-7901 cells. (B) Upregulation of Id1 in SGC-7901 cells showed no affect on cell proliferation. Values are the means ± SD of 3 wells. *P<0.05 compared to the control group cells.
Materials and Methods

- Study design is selected & the subjects (patients, animals) to be studied are defined.
- Interventions (treatment) are decided on in detail.
- Measurements and other observations to be made.
- Statistical procedures/limitations for assessment of data.
Procedures/methods

- According to .. (as reported by ...)
  - The protein was overexpressed and purified according to ...[1]
- A modified version of...
  - The ... is a slightly modified (version of ) commercially available model, HP-5895.
- A novel step was..
  - Our procedures partly based on reported by .. [2], a novel step was.. ...
Statistical analysis

- Taiwan’s NHI was established on 1 March 1995.
- By the end of 2013, more than 98% of the residents had joined the insurance program.
- Mean age at diagnosis and the 5-year survival rate before and after implementation of the Taiwan’s NHI were compared.
- All analyses were conducted using the commercial statistical software SPSS version 9.0 (SPSS Inc., Chicago, IL, USA).
- A $p$-value of 0.05 was regarded as the level of statistical significance.
Introduction

- Establish Facts and Problems
- Provide Previous and Current Research
- Locate a Gap to Solve the problems
- Describe the Present work
Discussion

- The heart of the paper
- State the interpretations and opinions, explain the implications of findings and make suggestions for future research
- Outline and organization of discussion
  - Outline items from specific to general
  - Expand each item
  - Cluster map and issue tree...etc
Discussion

- Revisiting previous sections & summarising key results
- **Mapping** (relationship to existing research)
- Achievement/Contribution refining the implications
- Limitations/current and future work/applications
Conclusion

- A default approach is to treat it as an extended abstract. But this is also an opportunity to be reflective about what you learned, the uncertainties remaining, the links to other problems, etc.

- **First paragraph:** focus on what you did. Begin with “We have used…”, “We have investigated…”

- **Following paragraphs:** one major finding per paragraph. First sentence states the finding, following sentences elaborate.

- **Final paragraph:** should have some forward-looking perspective. Don't let paper finish on a whimper!
<table>
<thead>
<tr>
<th>Section</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>1. key results</td>
<td></td>
</tr>
<tr>
<td>2. mapping</td>
<td></td>
</tr>
<tr>
<td>3. achievement or contribution</td>
<td></td>
</tr>
<tr>
<td>4. limitations</td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
</tr>
<tr>
<td>1. focus on what you did</td>
<td></td>
</tr>
<tr>
<td>2. major findings</td>
<td></td>
</tr>
<tr>
<td>3. forward-looking</td>
<td></td>
</tr>
<tr>
<td>Abstract</td>
<td></td>
</tr>
<tr>
<td>1. Objective</td>
<td></td>
</tr>
<tr>
<td>2. Method and materials</td>
<td></td>
</tr>
<tr>
<td>3. Key results</td>
<td></td>
</tr>
<tr>
<td>4. Conclusion</td>
<td></td>
</tr>
<tr>
<td>Keywords</td>
<td></td>
</tr>
<tr>
<td>Acknowledgement</td>
<td></td>
</tr>
<tr>
<td>1. thank people who helped</td>
<td></td>
</tr>
<tr>
<td>2. financial supports</td>
<td></td>
</tr>
<tr>
<td>3. technical supports</td>
<td></td>
</tr>
<tr>
<td>Key Reference (by EndNote X4)</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Total</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Prognosis of complication</td>
<td>61</td>
</tr>
<tr>
<td>Drug adverse effect</td>
<td>18</td>
</tr>
<tr>
<td>Prevalence</td>
<td>18</td>
</tr>
<tr>
<td>Therapeutic effect</td>
<td>17</td>
</tr>
<tr>
<td>Risk factor</td>
<td>12</td>
</tr>
<tr>
<td>Care</td>
<td>11</td>
</tr>
<tr>
<td>Prevalence &amp; prognosis of complication</td>
<td>5</td>
</tr>
<tr>
<td>Surgical complication</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
</tr>
</tbody>
</table>
Step by Step of Starting Your Study

- Step one  - Literature review
- Step two    - Knowing NHIRD
- Step three - Study design
- Step four   - Results & re-analyze
- Step five   - Title & Introduction
- Step six    - Discussion
- Step seven  - Conclusion, Abstract
Population-based epidemiologic study of Wilsons disease in Taiwan

### Table 1: Incidence and prevalence of Wilson’s disease in Taiwan

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population (millions)</th>
<th>New cases</th>
<th>Total cases</th>
<th>Incidence rate per 10^5/year</th>
<th>Prevalence per 10^5</th>
<th>M/F of incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>M</td>
<td>T</td>
<td>F</td>
<td>M</td>
<td>T</td>
</tr>
<tr>
<td>2000</td>
<td>10.88</td>
<td>11.39</td>
<td>22.28</td>
<td>23</td>
<td>31</td>
<td>54</td>
</tr>
<tr>
<td>2001</td>
<td>10.96</td>
<td>11.44</td>
<td>22.41</td>
<td>36</td>
<td>45</td>
<td>81</td>
</tr>
<tr>
<td>2002</td>
<td>11.04</td>
<td>11.49</td>
<td>22.52</td>
<td>19</td>
<td>27</td>
<td>46</td>
</tr>
<tr>
<td>2003</td>
<td>11.09</td>
<td>11.52</td>
<td>22.60</td>
<td>24</td>
<td>29</td>
<td>54</td>
</tr>
<tr>
<td>2004</td>
<td>11.15</td>
<td>11.54</td>
<td>22.69</td>
<td>32</td>
<td>40</td>
<td>72</td>
</tr>
<tr>
<td>2005</td>
<td>11.21</td>
<td>11.56</td>
<td>22.77</td>
<td>32</td>
<td>40</td>
<td>72</td>
</tr>
</tbody>
</table>

F, Female; M, Male; T, Total.
Age- or gender- or whatever-specific incidence

<table>
<thead>
<tr>
<th>Age group</th>
<th>Case number</th>
<th>Incidence rate per 10^5/year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>0–4</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>5–9</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>10–14</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>15–19</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td>20–24</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>25–29</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>30–34</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>35–39</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>40–44</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>45–49</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>≥ 50</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

F, Female; M, Male; T, Total.
Step one: Literature review

- To read some papers using NHIRD in your field.
- Choosing model papers and studying them in detail.
  - The study question
  - Dataset, study subjects, definition of variables
  - Study design
  - Tables and figures
Step two: knowing NHIRD

- Understanding NHIRD
  - Who collect it
  - purpose
  - validation
- Reading the coding book
- Knowing the limitations and strengths
Step three: study design

- To define your research question
  - Hypothesis
- Choosing a study design
- To define the variables
  - Primary outcome
- Designing your tables and figures
Step four: Results & re-analyze

- To get the dataset
- Analyzing it
- Interpreting the results
  - Clinically meaningful
  - Statistically meaningful
- Limitations
Step five: Title

- **Describe:** Succinct and reflect study contents
- **Raise:** the interest toward the paper
- Population-based epidemiologic study of Wilsons disease in Taiwan
- Population Incidence of Guillain-Barre Syndrome: A Systematic Review and Meta-Analysis
Step five: Introduction

- Establish Facts and Problems
- Provide Previous and Current Research
- Locate a Gap to Solve the problems
- Describe the Present work
1. Facts and Problems

Wilson's disease is an autosomal-recessive disorder caused by a large number of different mutations in the ATP7B gene, with resultant impairment of biliary excretion of copper.

- Subsequent excessive copper accumulation in the liver, then in the brain and other tissues, produces protean clinical manifestations, including variable combinations of hepatic, neurological, psychiatric, ophthalmological and other derangements [1].
2. Mini-review

- The onset of symptoms is rare before age 6 and usually presents before the age of 30, although it has been described in those as young as 3 years old and patients in the seventies [2-4].

- **Wilson's disease** can lead to a miserable prognosis if treatment is inadequate or not started in a timely manner [5].

- The discovery of Wilson's disease is one of the milestones in the history of neurology [6,7], and effective treatment is usually available [8].

- Few population-based epidemiologic studies of Wilson's disease have been reported [9-11].
2. Mini-review

- The discovery of Wilsons disease is one of the milestones in the history of neurology [6,7], and effective treatment is usually available [8].
- The onset of symptoms is rare before age 6 and usually presents before the age of 30, although it has been described in those as young as 3 years old and patients in the seventies [2-4].
- Wilsons disease can lead to a miserable prognosis if treatment is inadequate or not started in a timely manner [5].
- Few population-based epidemiologic studies of Wilsons disease have been reported [9-11].
3. Gap

- Although *Wilsons disease* has been studied in Taiwan since the 1960s [7, 12-19], population-based epidemiologic data have not been reported.
4. The present study

- We have previously established the population-based epidemiological data of neurologic diseases in Taiwan from the National Health Insurance Research Database (NHIRD) [20,21].
- In this study, we presented the epidemiology data of Wilsons disease in Taiwan during 2000-2005.
Step six: Discussion

- Revisiting previous sections & summarising key results
- **Mapping** (relationship to existing research)
- Achievement/Contribution refining the implications
- Limitations/current and future work/applications
Step seven: Conclusion

- A default approach is to treat it as an extended abstract. But this is also an opportunity to be reflective about what you learned, the uncertainties remaining, the links to other problems, etc.

  - **First paragraph:** focus on what you did. Begin with “We have used...”, “We have investigated...”

  - **Following paragraphs:** one major finding per paragraph. First sentence states the finding, following sentences elaborate.

  - **Final paragraph:** should have some forward-looking perspective. Don't let paper finish on a whimper!
Step seven: Abstract


Background: The purpose of the study is to investigate the epidemiology and medical expenses of Wilson’s disease in Taiwan.

Methods: Cases of Wilson’s disease were identified from the National Health Insurance Research Database with corresponding International Classification of Diseases, Ninth Revision (ICD-9) code 275.1 from January 2000 to December 2005. Age and sex-specific incidences were estimated by dividing the incidence number by population data obtained from the Department of Statistics, Ministry of the Interior.

Results: During the study period, 495 cases of Wilson’s disease were identified. The male to female ratio was 1.28. The average annual incidence rate was 0.27 per 100,000, and the incidence rate peaked in the age group of 15–19 years. Most cases were juvenile and young adults. The prevalence increased steadily during the study period. Cirrhosis of the liver was the most common co-existing condition.

Conclusions: This is the first population-based epidemiologic study of Wilson’s disease in Taiwan. Because of the effective and affordable treatment, the prevalence of Wilson’s disease in Taiwan is expected to increase continuously.