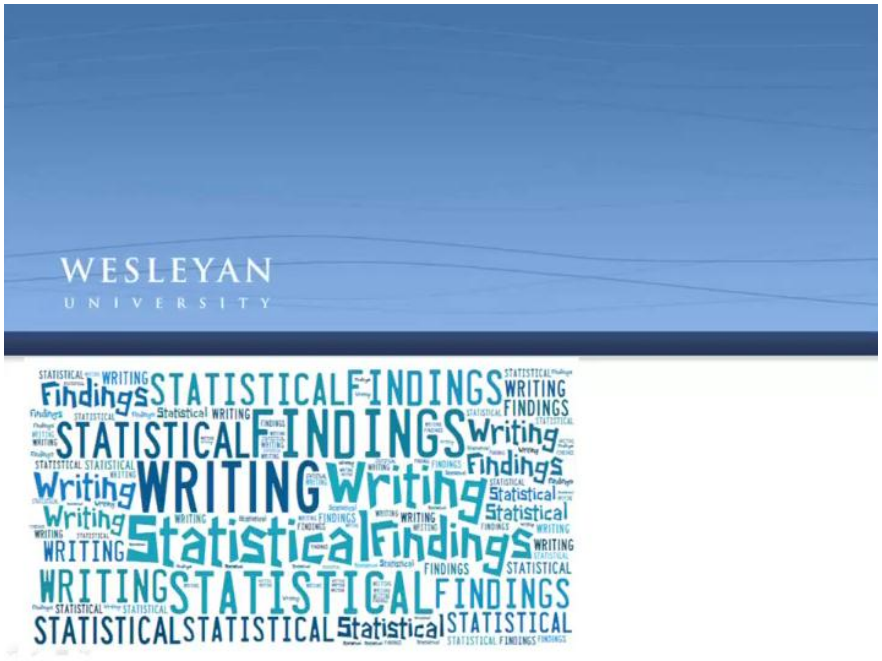
Week Six: Preparing Your Final Project

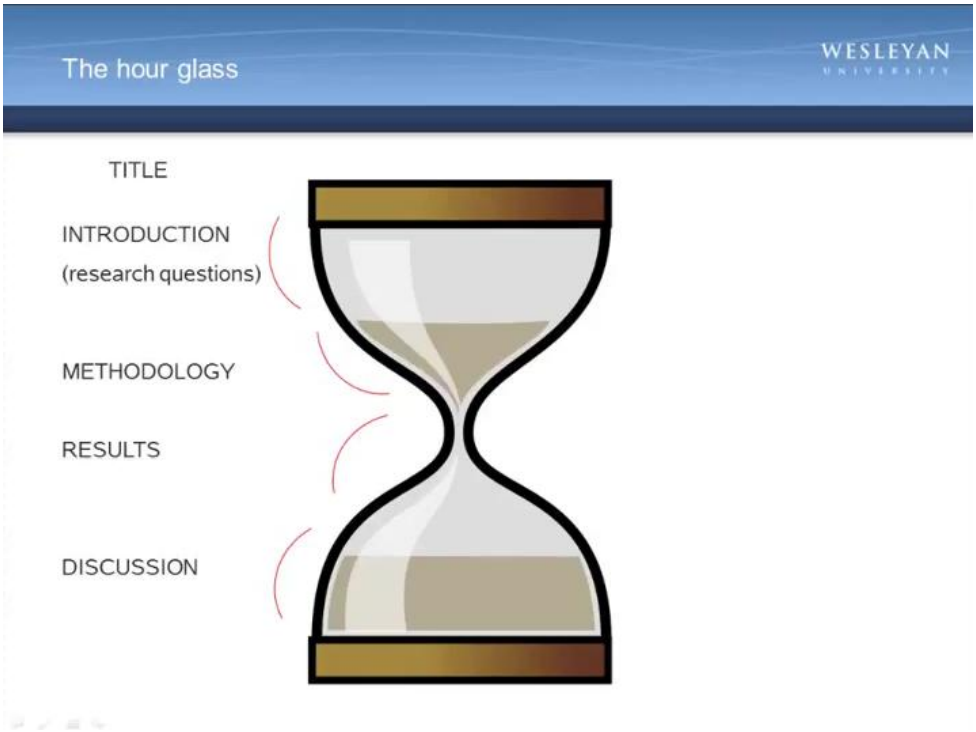
Time: 13 minutes, 45 seconds



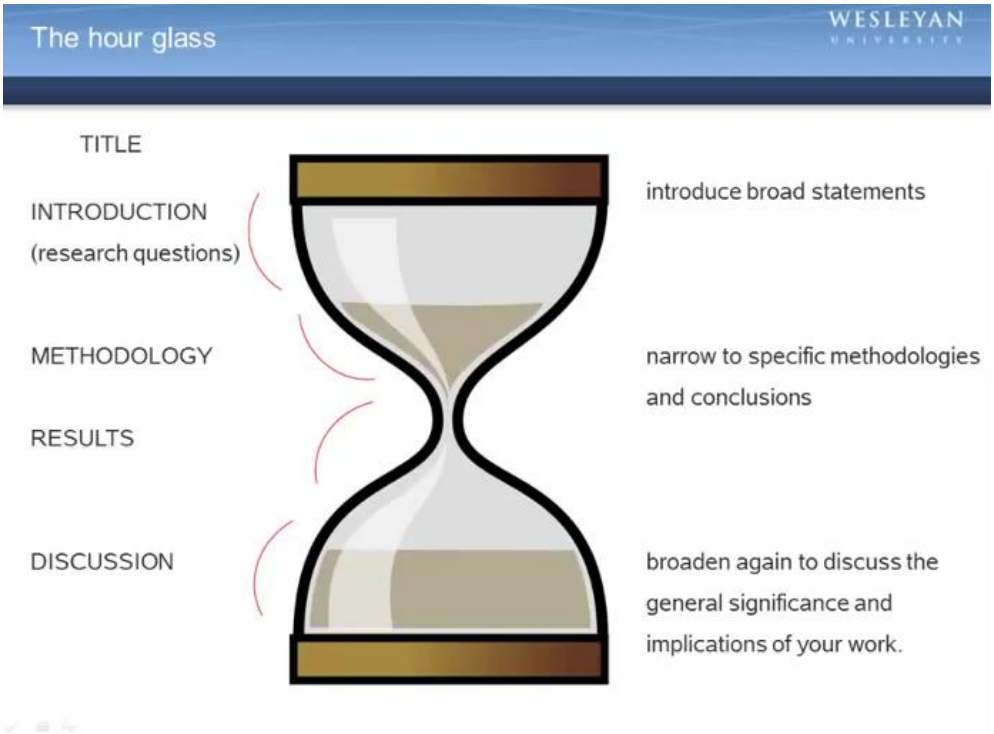
In this final video, I'd like to cover the topic of writing about statistical findings. The ultimate goal of quantitative research, and research more generally, is to disseminate your work and allow it to guide further study. Or ideally, to better help us to make evidence based decisions, as such writing is an incredibly important and ongoing part of the research process. Successful empirical writing minimizes descriptive or complex language so that methodologies, findings, and conclusions are accessible to readers from all areas of expertise.

Although this sounds easy, it is difficult to write clearly and concisely, especially when writing about empirical research for the first time. This last video for the course is aimed at providing you with the instructions on how best to put together a final presentation of your research.

Your final blog post provides you with the opportunity to present your findings. Hopefully, you've been keeping up with your blog entries each week, as this work should help you tremendously in this final step.



What follows is information about how you should structure the presentation so that you can focus on precise writing. I'll offer you advice on how to write each section of a presentation of empirical research. Empirical research presentations often include six sections. A title, introduction, research questions (which can be included at the end of the introduction), methodology, results, and discussion.



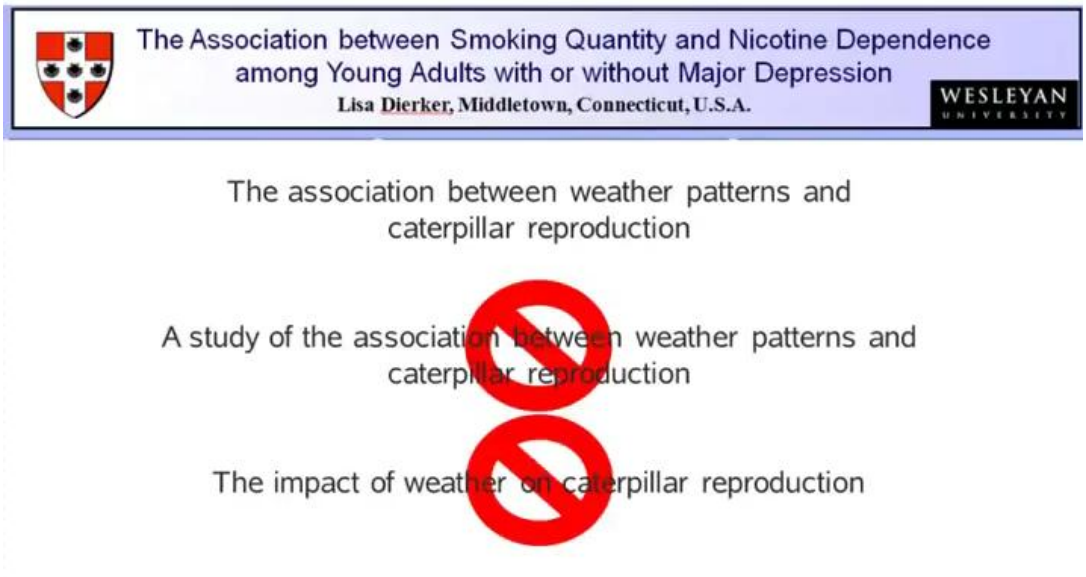
The presentation should be an hourglass shape where I introduce broad statements, narrow to specific methodologies and conclusions, and then broaden again to discuss the general significance and implications of your work. Thus, the beginning of your introduction and the end of your discussion should contain your broadest statements, and the methodology and results sections should contain your most specific statements.

The association between weather patterns and caterpillar reproduction

A title should summarize the main idea of your research question. It should be a concise statement of the main topic and show identify the actual variables under investigation and the relationship between them. An example of a good title is, “The association between weather patterns and caterpillar reproduction.”

A title should be fully explanatory when standing alone. You should avoid words that serve no useful purpose. For example, the words “method” and “results” do not normally appear in a title, nor should such redundancies as “a study of,” or “an experimental investigation of,” begin a title.

Also **do not use causal language.** For example, “the impact of,” “the effect of,” etcetera. As you'll recall from the previous video, correlation does not necessarily imply causation, so it's critically important not to overstate your findings. Finally avoid using abbreviations in a title.



The final title that I chose for my project is, “The Association between Smoking Quantity and Nicotine Dependence among Young Adults with or without Major Depression. “

Here you can see that I describe the association that I am looking at, the sample, that is young adults, and also a third variable of particular interest in my analysis. Finally, below the title include your name and where the work was conducted.

One of the most potent sets of risk factors consistently implicated in the development of nicotine dependence are the psychiatric disorders.

While these associations have been established in both cross-sectional and longitudinal studies, less is known about the *ways* in which psychiatric disorders may play a role in the emergence of nicotine dependence.

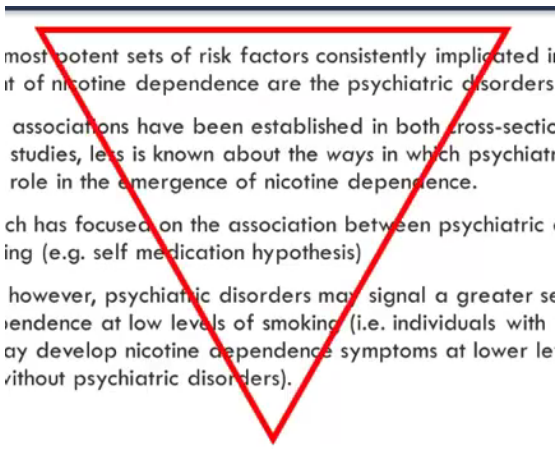
Most research has focused on the association between psychiatric disorders and heavy smoking (e.g. self medication hypothesis)

Alternately, however, psychiatric disorders may signal a greater sensitivity to nicotine dependence at low levels of smoking (i.e. individuals with psychiatric disorders may develop nicotine dependence symptoms at lower levels of smoking than those without psychiatric disorders).

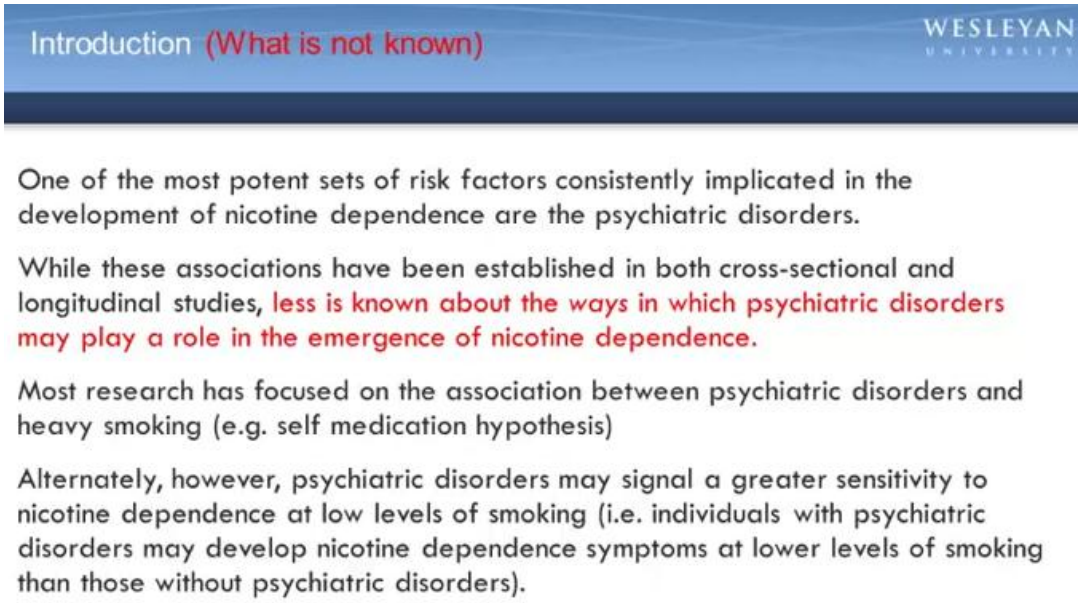
The introduction describes the question you intend to investigate, and if it is an area that you know or have read about, it would introduce how your research relates to other work in the field. For the purposes of this course, if your topic is not something you know, or have read

about, it is perfectly fine to provide whatever context you are able to. Introductory statements introduce your topic and rationale for study, but are accessible to both non-specialists and specialists.

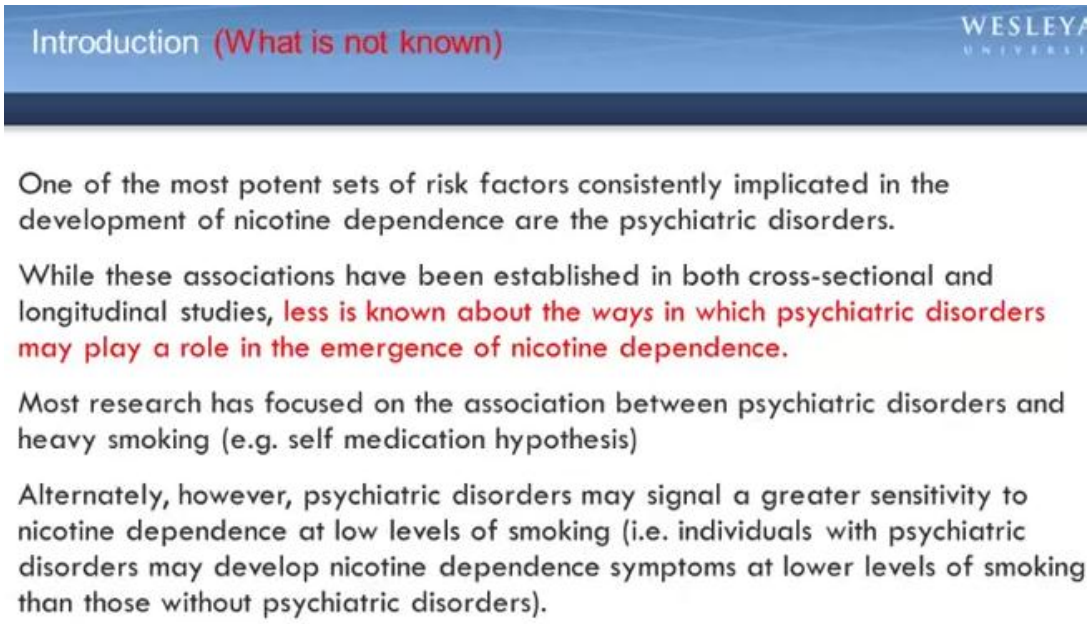
Successful opening statements gradually introduce your topic with examples and explicit, if non-technical, definitions of critical terms. It is important to note that the introduction is an argument that sets the stage for your research question.



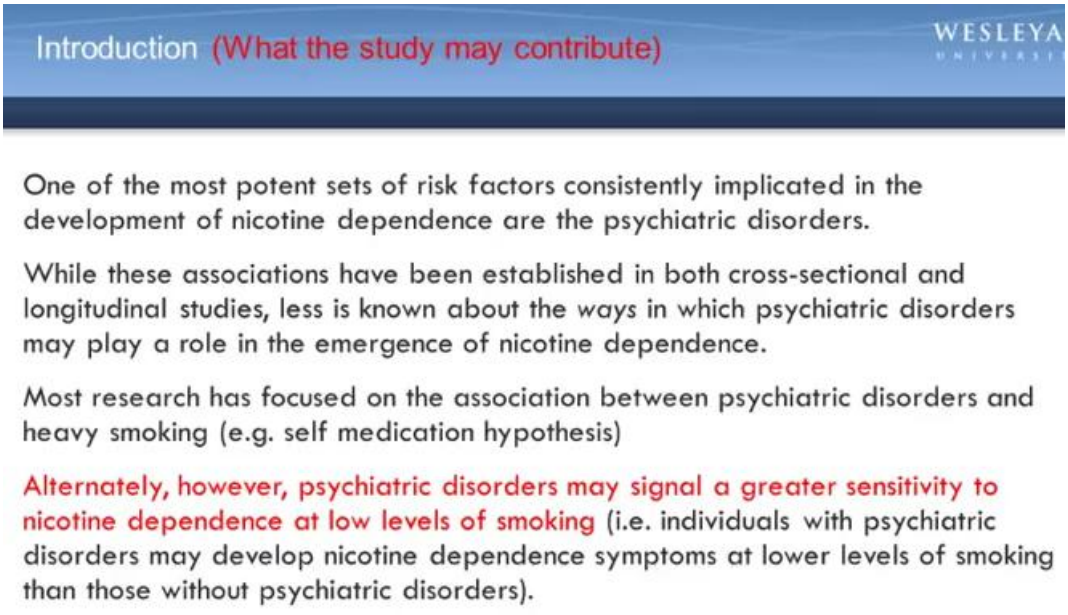
And, modeling the top of an hourglass, it goes from the general to the specific.



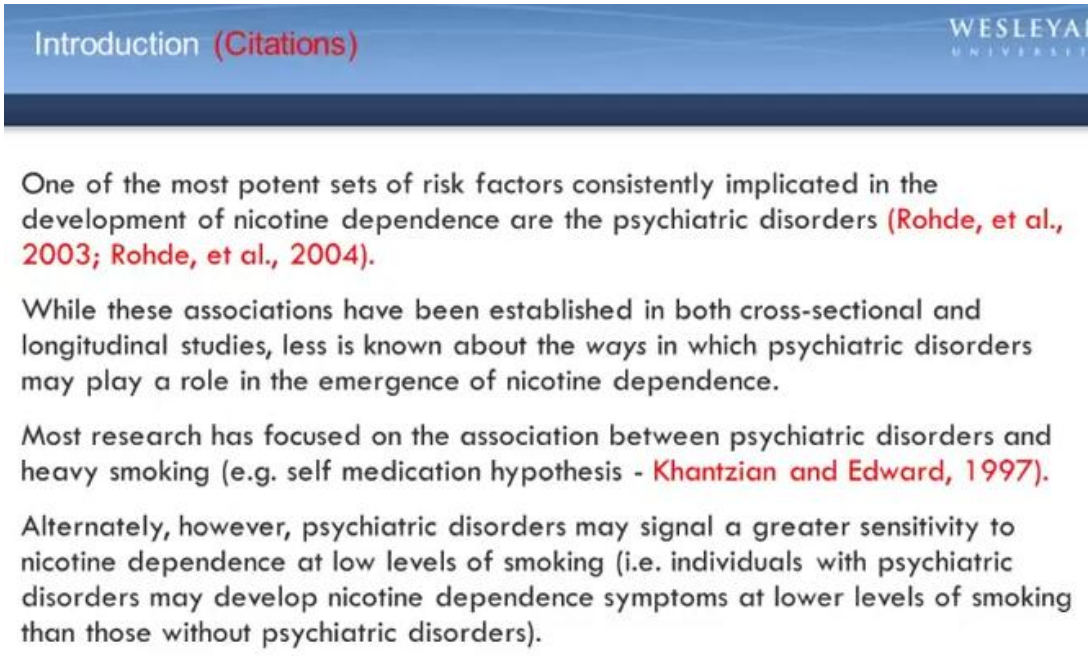
The introduction includes what is known about the topic. These statements I've highlighted here in red.



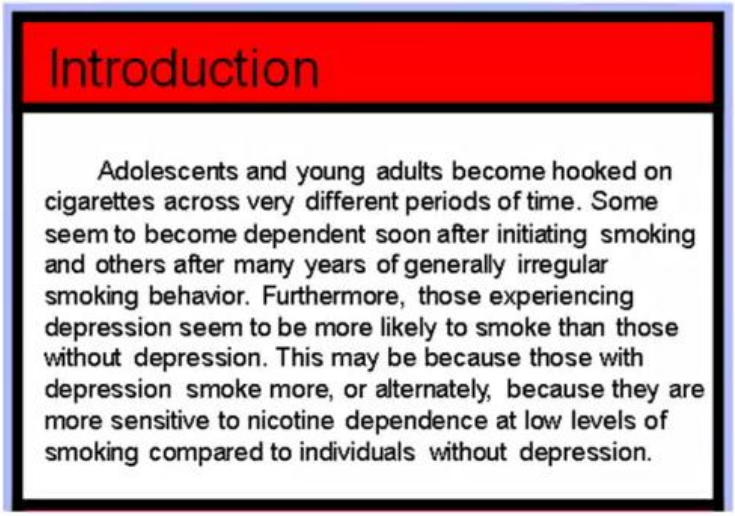
Also included in the introduction is what is not known. So while these associations have been established in both cross-sectional and longitudinal studies, less is known about the ways that psychiatric disorders may play a role in the emergence of nicotine dependence.



And finally, we typically include what our study may contribute. All of this background that I include here sets up my research question. I include nothing extra. I want my reader to be interested in knowing more, so I try to be very concise: each word counts and also jargon free.



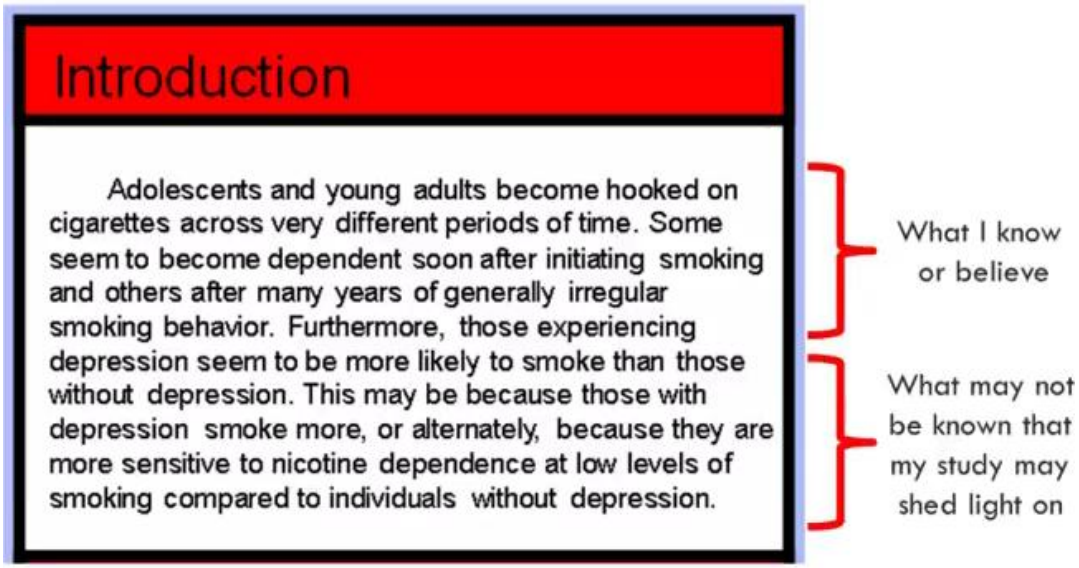
Not surprisingly in scientific writing, if I am describing the previous work of other researchers, I would also need to include citations for that work.



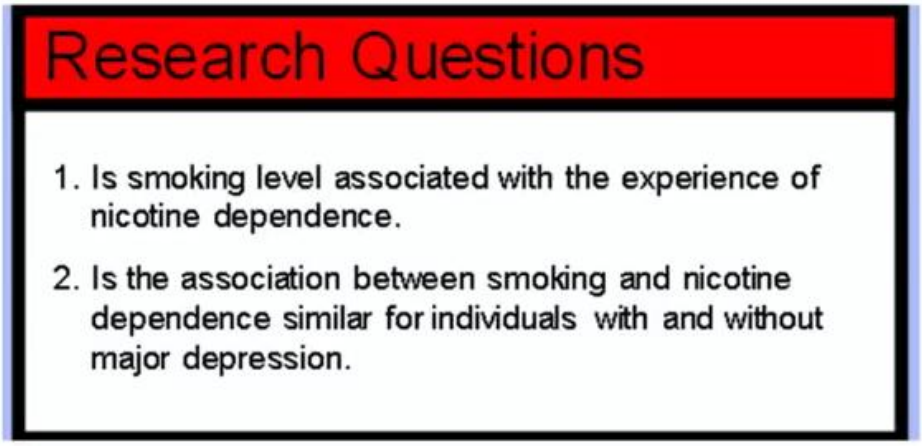
For the purposes of your final project, you are welcome to provide a far less formal introduction to your work. Here's an example. For my introduction, I include the following:

“Adolescents and young adults become hooked on cigarettes across very different periods of time. Some seem to become dependent soon after initiating smoking and others after many years of generally irregular smoking behavior. Furthermore, those experiencing depression seem to be far more likely to smoke than those without depression. This may be because those

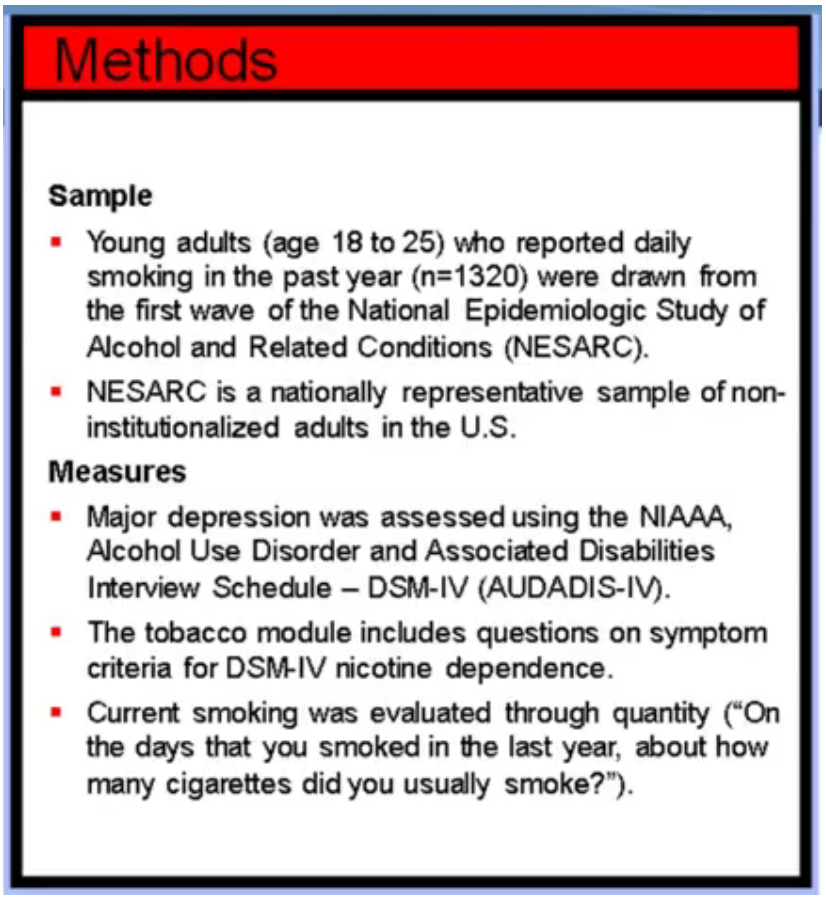
with depression smoke more, or alternately, because they are more sensitive to nicotine dependence at low levels of smoking compared to individuals without depression. “



So here you can see that I'm introducing my topic by first telling you what I know or believe, and then secondly, telling you what may not be known that my study may shed light on.



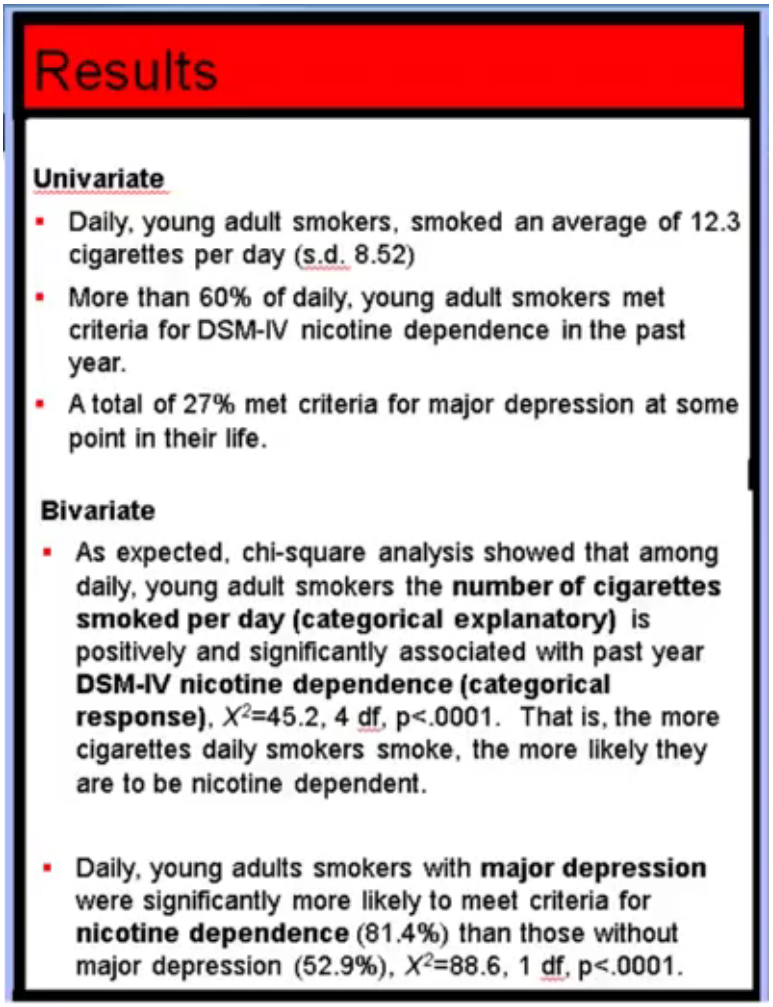
At the end of the introduction or directly following the introduction, we next describe our research questions. So, my research questions include, “Is smoking level associated with the experience of nicotine dependence?” and secondly, “Is the association between smoking and nicotine dependence similar for individuals with and without major depression?”



Next, the methods section describes how the research was conducted. It includes the description of your sample, measures, and procedures. In the sample section, identify who or what was studied, people, animals et cetera.

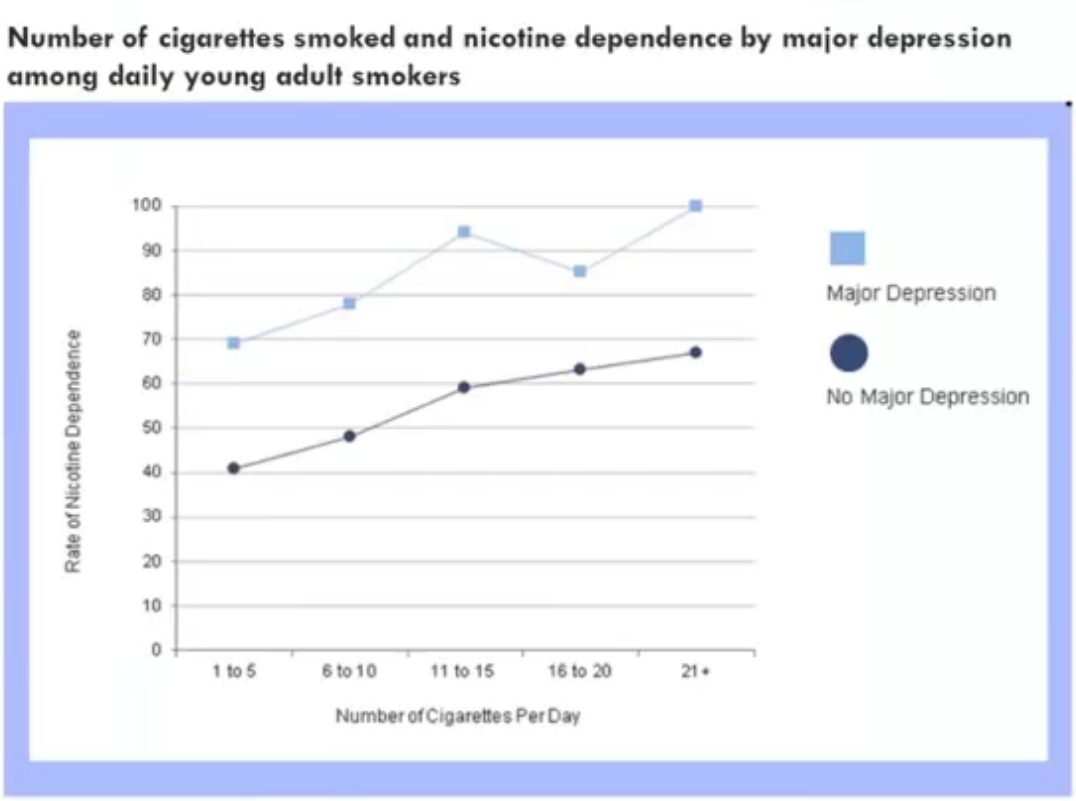
If you group observations, use meaningful names like "low income women" rather than abbreviations like "PPM100" or labels like "control group." It can also be helpful to describe the procedures so explaining what participants or observations experienced. You can discuss whether data were collected by surveillance, survey, case study, or another method. Mentioning observations discarded during data collection or analysis.

Finally, in the measures section of methods, describe the questions or measures for your participants or observations. This slide shows a very brief, but successful, method section.



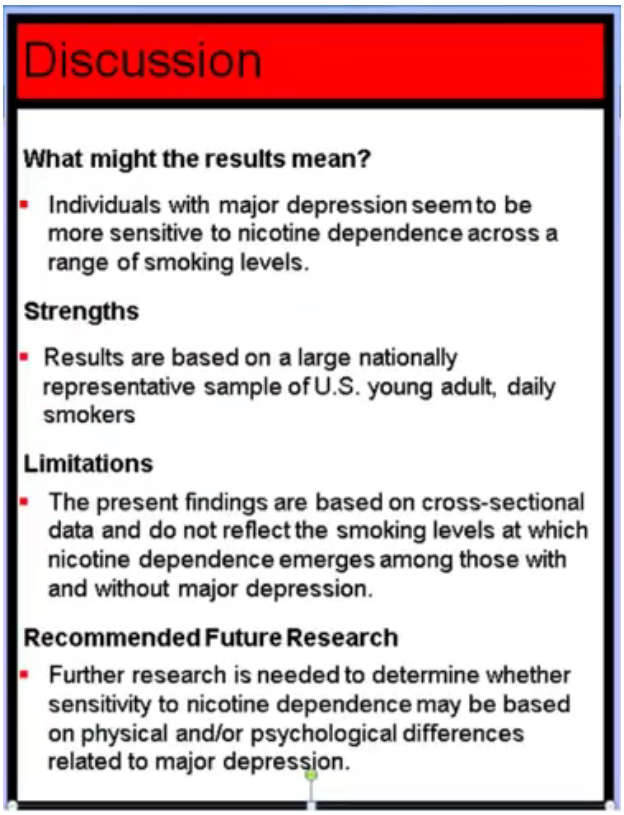
Next, I present my results, both univariate and bivariate. So, here's what I found: Daily, young adult smokers smoked an average of 12.3 cigarettes per day with a standard deviation of 8.52. More than 60% of daily, young adult smokers met criteria for DSM-IV nicotine dependence in the past year. And a total of 27% met criteria for major depression at some point in their life.

These results are simply describing the findings for one variable at a time. When examining my associations of interest, as expected, chi-square analyses show that among daily young adult smokers, the number of cigarettes smoked per day is positively and significantly associated with past year DSM-IV nicotine dependence. That is, the more cigarettes daily smokers smoke, the more likely they are to be nicotine dependent. Daily, young adult smokers with major depression were significantly more likely to meet criteria for nicotine dependence, 81.4% of them, than those without major depression, only 52.9%.



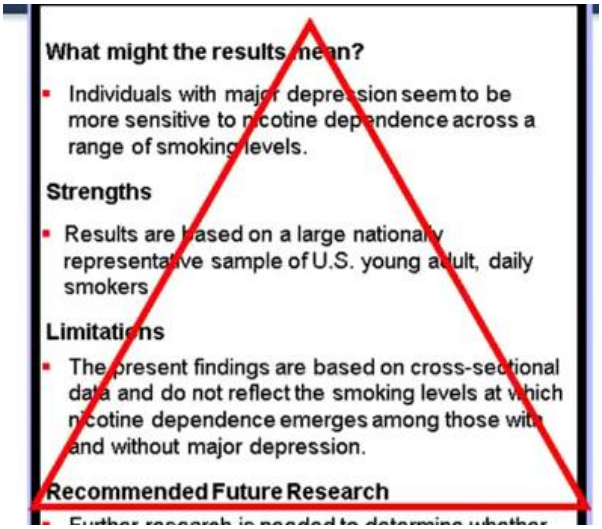
I also include in my results section, a graph that shows the relationship between cigarettes smoked and nicotine dependence, for those with major depression and for those without major depression. As you can see, while rates of nicotine dependence increase, as smoking quantity increases for both groups, young adult smokers with major depression have higher rates of nicotine dependence at every level of smoking compared to young adult smokers without major depression.

When completing your results section, it's important to select the most pertinent results and to remove everything that is not absolutely necessary. You want to think about the most attractive way to present the data and figures, and generally, try to avoid tables if at all possible. Remember that your graph should include a clear title, and that your x and y axes should be clearly labeled.



The final section of your presentation is the discussion section. It's important that this section includes real implications linked to possible results and not merely a restatement of your research question.

This is a very important section of the research presentation and sometimes best written after you've had a few days to step away from your project and allow yourself to put your question and possible answers into some perspective. In my discussion, I include what my results might mean, the strengths of the study, the study limitations, and also, recommended future research. If you feel that your findings have immediate implications, you should also include those.



And remember, this is the bottom of the hourglass, and should proceed from the more specific, to the most general statements.

Title
Introduction
Research questions
Methods
Results (including at least one graph)
Discussion
Output for the analyses that you present
Actual program that provided the results

In addition to presenting your title, introduction, research questions, methods, results, including at least one graph, and discussion. I would also like you to include in your final project, the output for the analyses that you present, as well as the actual program that program that provided you with the results.

http://pds-finalprojectmodel.tumblr.com/

To view this complete final project submission, please go to pds-finalprojectmodel.tumblr.com.

And here are just a few more final tips that you may find useful.

First, avoid surprises. Lead your reader through your presentation and avoid jumping around.

Use the words “I” and “we” sparingly.

Know who your audience is. As yours will be diverse you will need to make a special effort to frame your question and results in an understandable and interesting way. Be brief. Distill down, down, down to the very essence of your project.

Use figures and graphics where possible. Graphics are good attention getters. But remember the golden rule of figures and graphs is that they must be understandable without reference to accompanying text.

And here are some common pitfalls: too much text. Keep each text block to just a few sentences, if possible. If you leave out key elements, such as objectives, methods or conclusions, people who are not insiders to your subject will not understand what your goal was or why it's interesting.

And finally, poor figures can be a problem. Some figures are real puzzles, with incomprehensible legends, secret codes, small lettering, cryptic captions, etcetera. Many spreadsheet and data programs do not produce reader-friendly graphics, so you'll need to budget a little extra time to customize your figures so that they are self-explanatory. You can do this in SAS Enterprise Guide, in Excel, in R, or whatever package you prefer.

Your final project will be evaluated through a peer review process, to begin Monday, May 6th.

More details on that to come.