

# Interaction vs. effect modification



**Ehsan Karim**

*ehsan.karim@ubc.ca*

SPPH 604

Now that you know about **confounding** and **adjustment** ....

*Time for going one step further:*

**What to adjust** when we are dealing with

- ◉ Effect modification or
- ◉ interaction



## On the Distinction Between Interaction and Effect Modification

*Tyler J. VanderWeele*



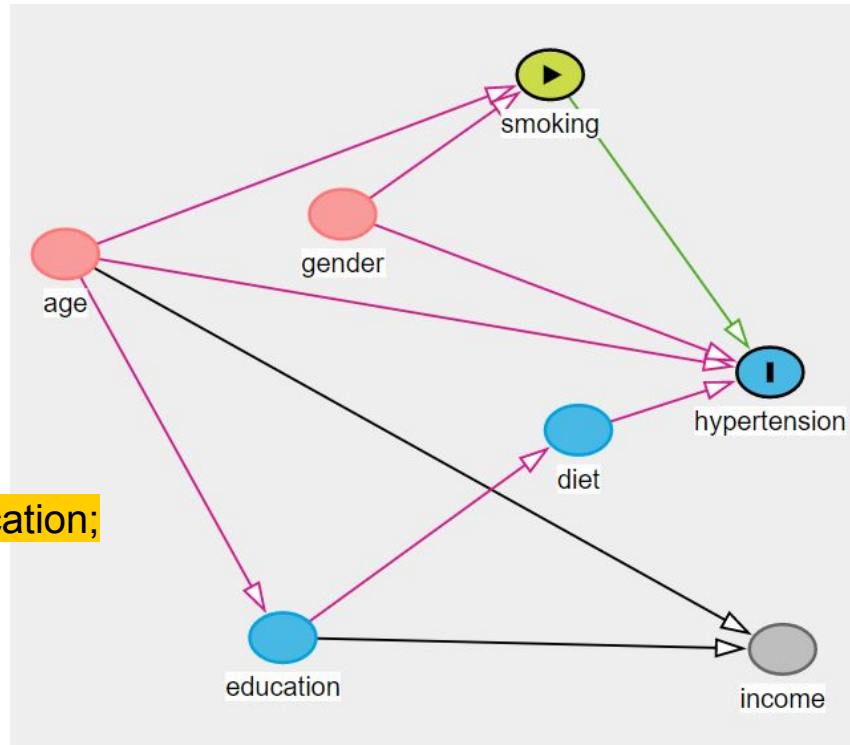
# Confounding in Interaction vs. effect modification

- age, gender

Income as a **modifier**

(effect measure modification;

no interaction)

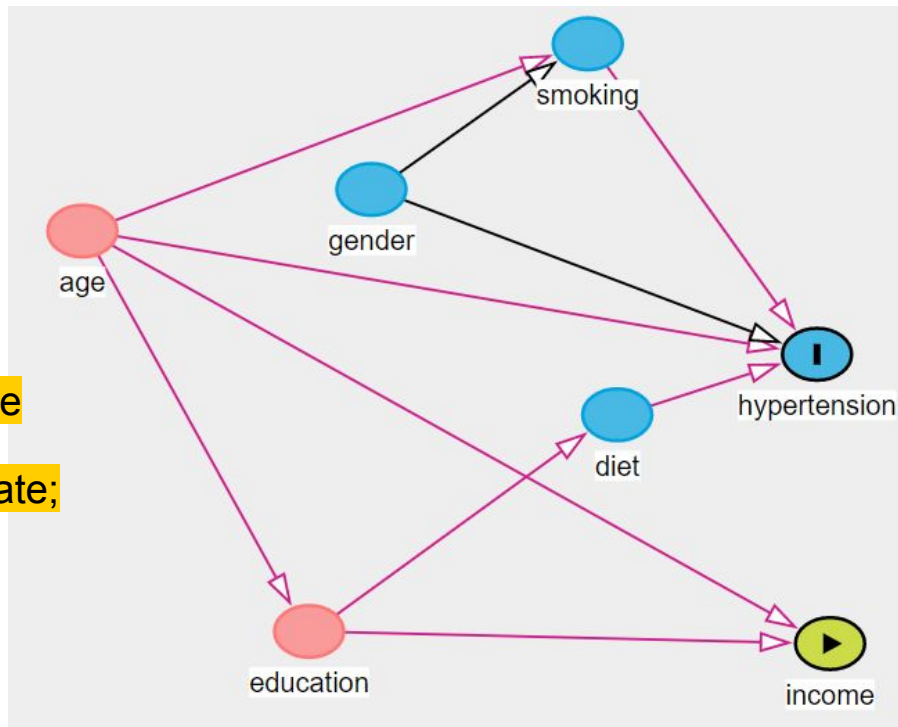




## Confounding in Interaction vs. effect modification

- age, diet
- age, education

Income as an **exposure**  
(smoking just a covariate;  
**no modification**)

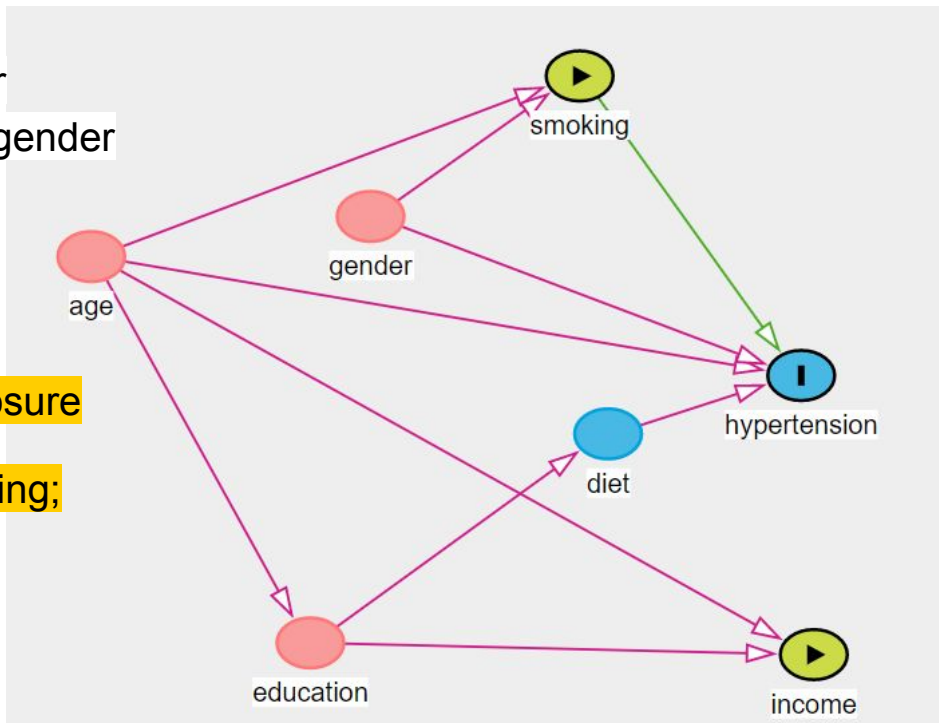




## Confounding in Interaction vs. effect modification

- age, diet, gender
- age, education, gender

Income as a 2nd exposure  
(interaction with smoking;  
but how?)





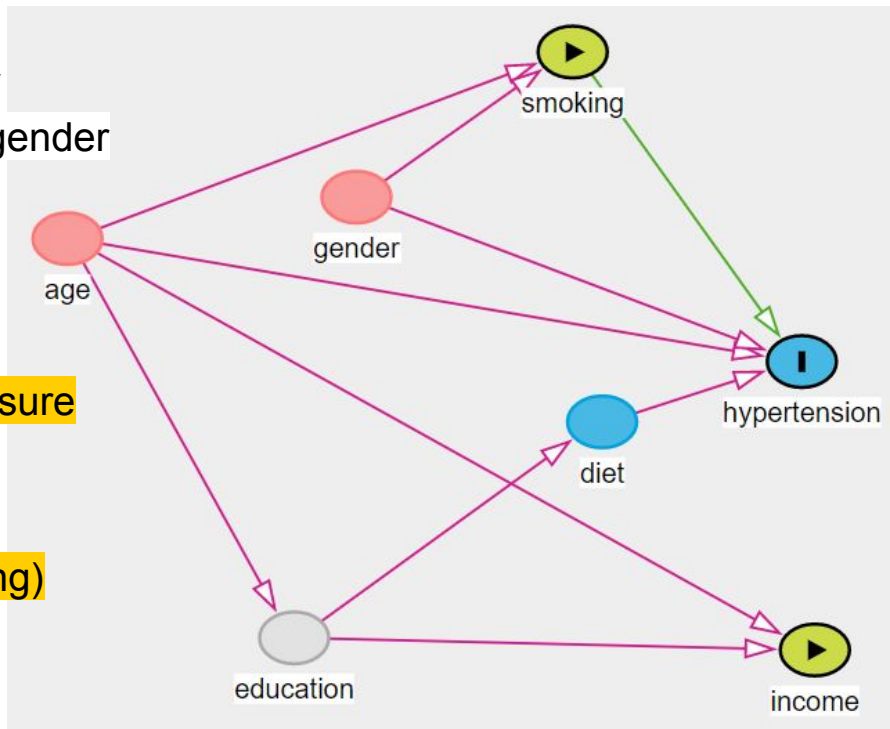
## Confounding in Interaction vs. effect modification

- age, diet, gender
- age, education, gender

Income as a 2nd exposure

(proxy for education;

interaction with smoking)

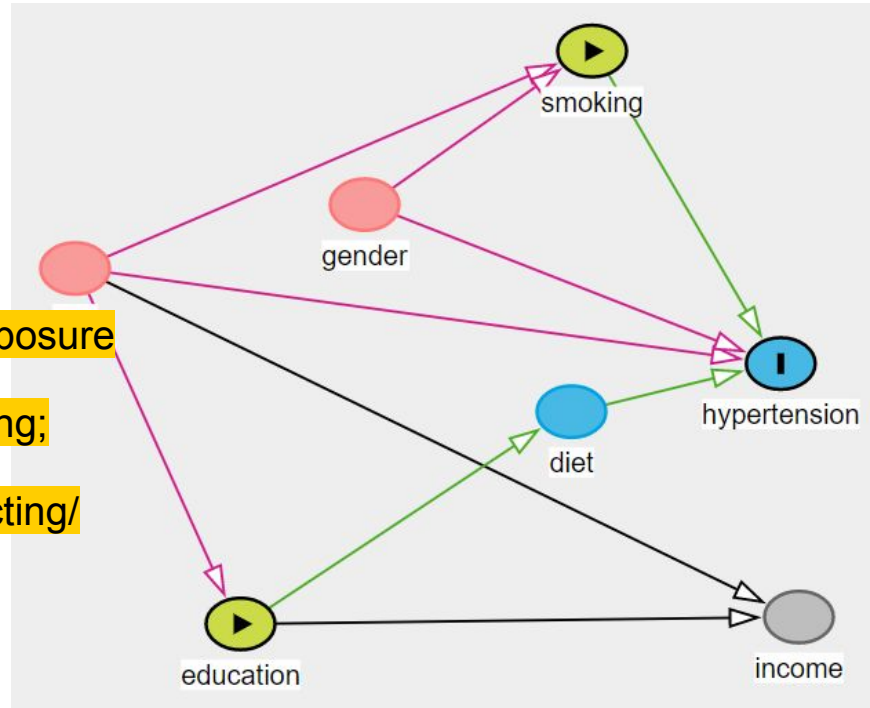




# Confounding in Interaction vs. effect modification

- age, gender

Education as a 2nd exposure  
(interaction with smoking;  
true example of interacting/  
working together)





Thanks!

[ehsan.karim@ubc.ca](mailto:ehsan.karim@ubc.ca)

[www.ehsank.com](http://www.ehsank.com)