

# Play for a Better Life: Helping College Students Perceive the Risks of Cancer

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# Public Health Problem

- Carcinogenic processes begin at young age and show long latency.
- Cancer initiating behaviors are learned in youth
- The transition out of high school: Cancer risk behaviors increase



## Possible Solution?

# Objective

To experimentally examine how a digital game called “*Re-Mission*<sup>TM</sup>” may indirectly influence healthy college students’ perception of cancer risk, their motivation to get protected from cancer, and their intention to seek cancer-related information from their doctors.



# What is *Re*MISSION?

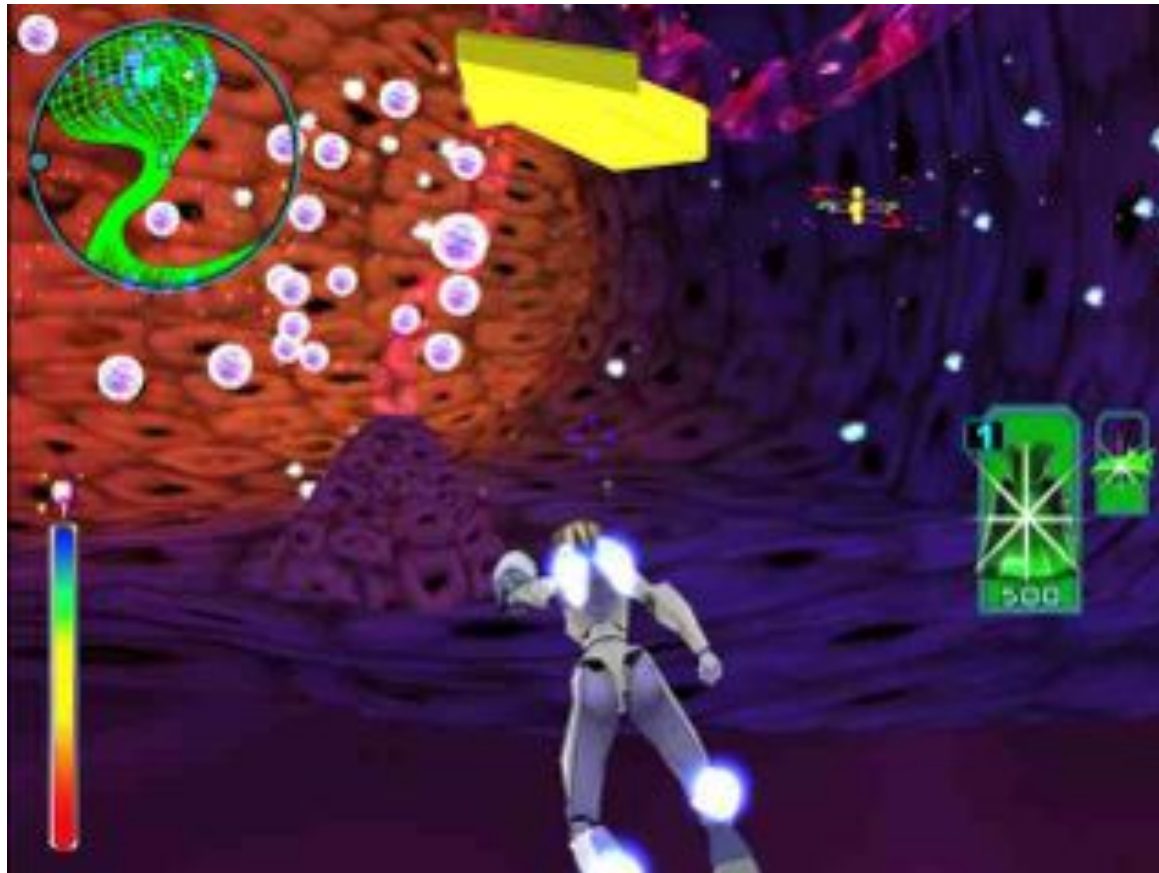
- A game that was designed by HopeLab, a non-profit organization that works to make use of technology for better health among kids.





# What is *Re*MISSION?

- In “Re-Mission” players control a nanorobot that goes inside virtual patients’ bodies to fight cancer cells.



## Aim of “Re-Mission”

- Initially, “Re-Mission” was designed to help young cancer patients adhere to their medication.
- Consider its ability to help healthy young adults perceive cancer risks and encourage them to seek information

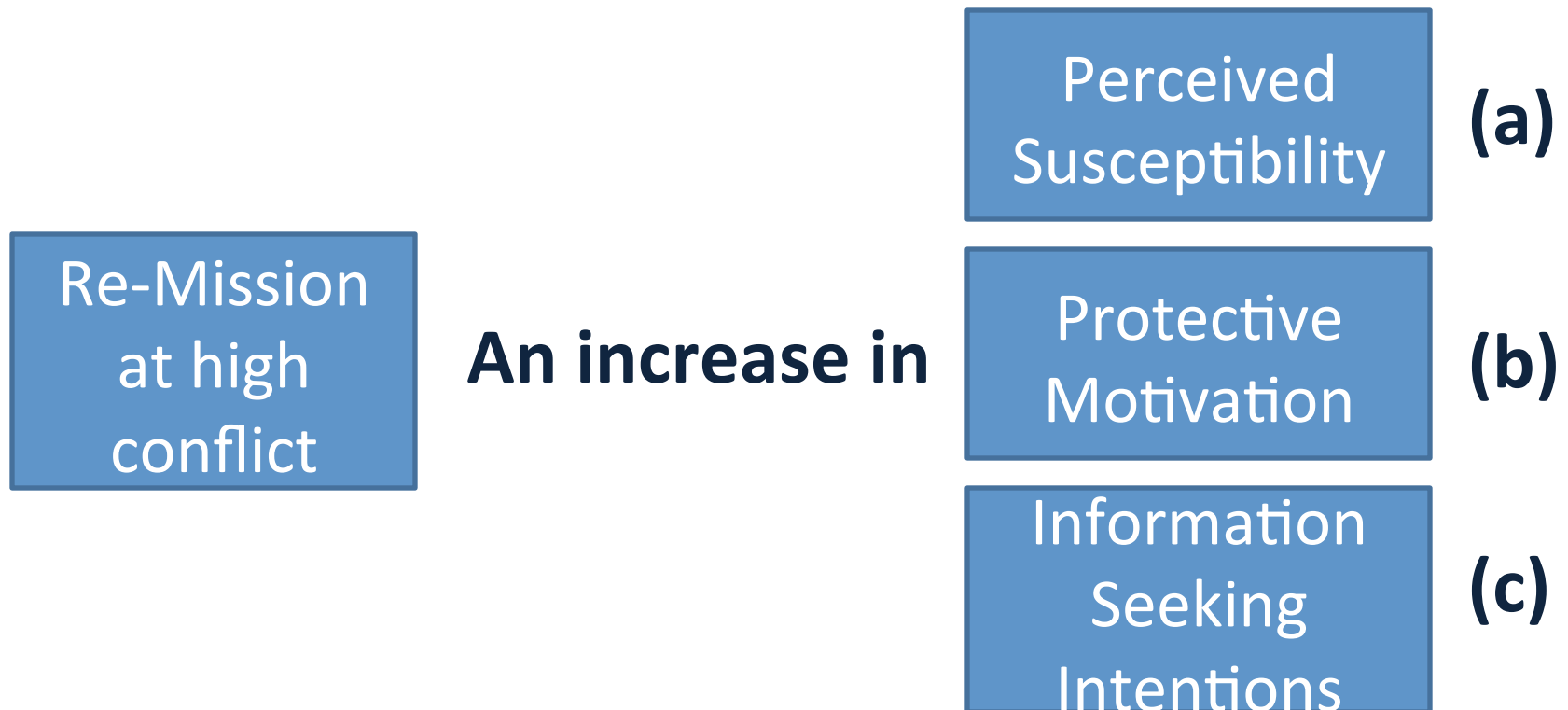


# Experiential Play

- A behavior that involves the exploration of the world through play.
- During experiential play, players may explore different scenarios and discover the consequences of certain behaviors.

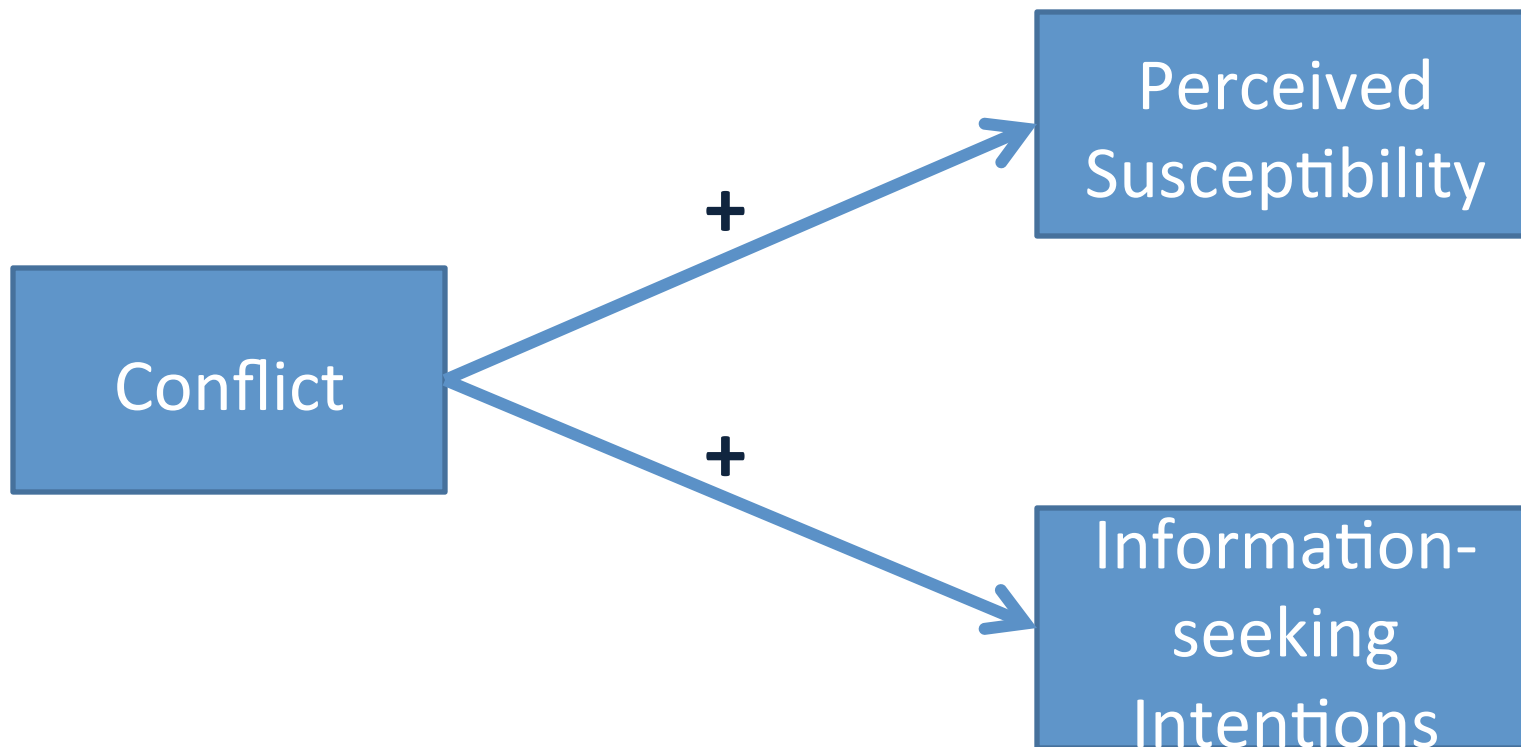


# Hypothesis I

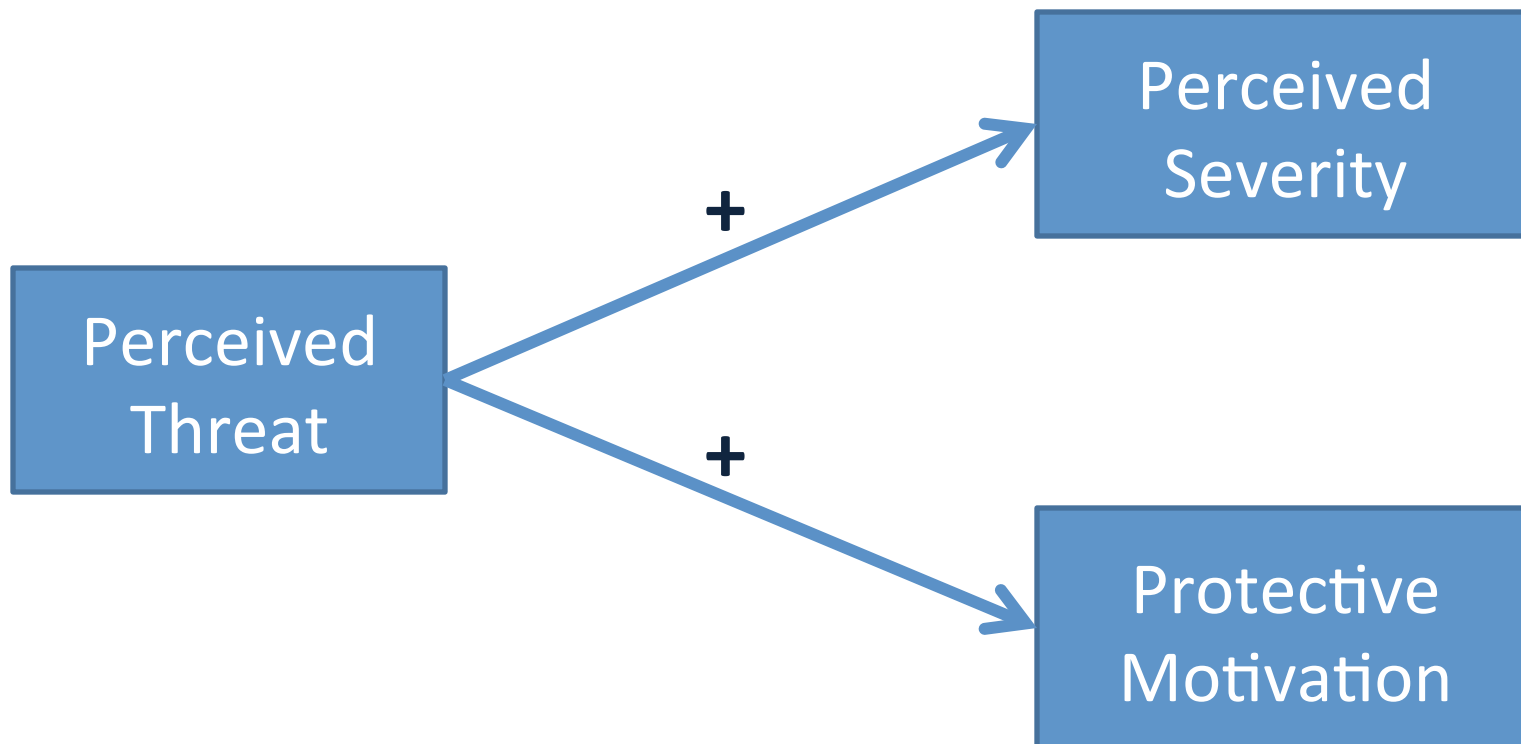




# Hypothesis II



# Hypothesis III



# Methods

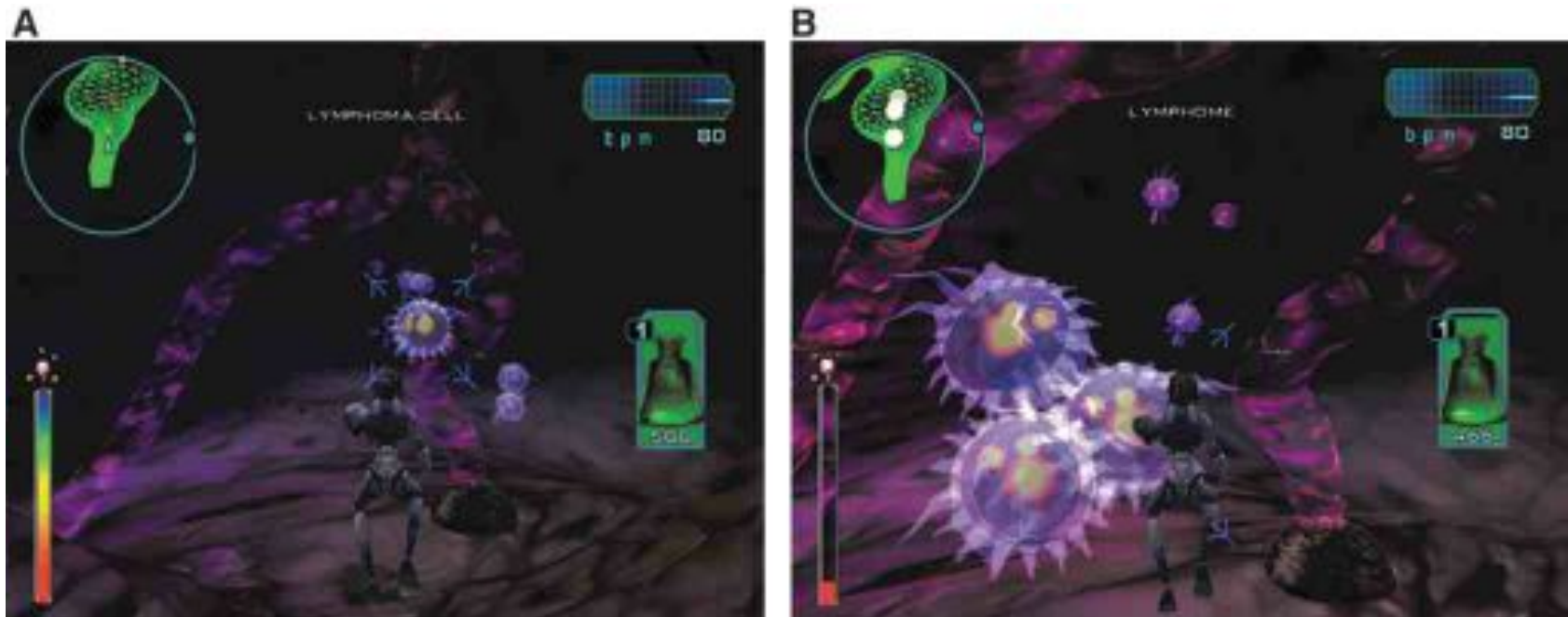
- T1: Baseline survey
- T2: Two days later, 48 participants (ages 18-29) were randomly assigned to play Re-Mission at either low or high conflict.
- Game duration: 43 minutes
- A post-experience survey was completed

|               | Time 1 | Game Play | Time 2 |
|---------------|--------|-----------|--------|
| Low Conflict  | N = 24 |           |        |
| High Conflict | N = 24 |           |        |

# Manipulating conflict

What is high conflict?

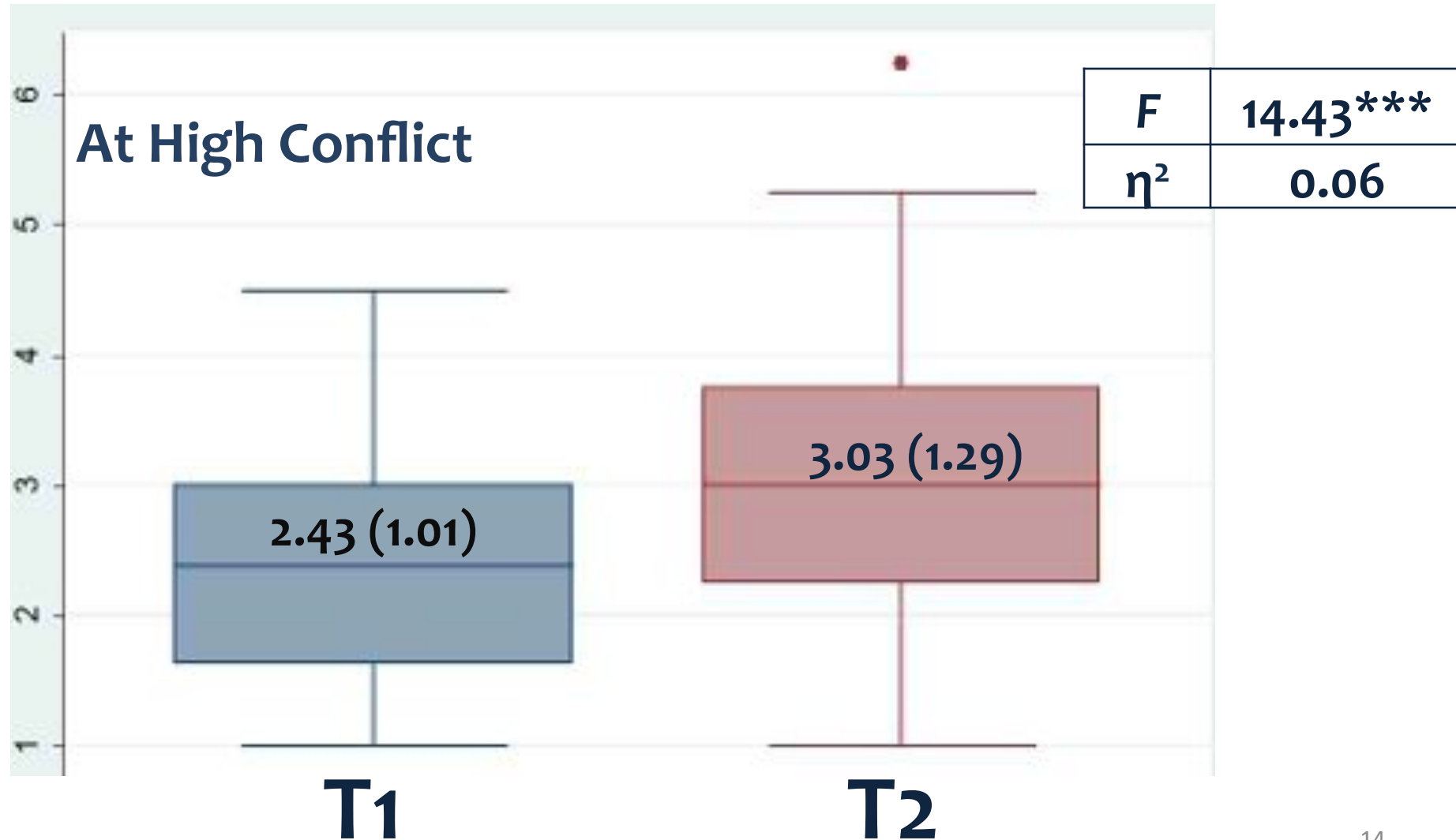
- Harder to kill cancer cells
- Cancer cells may attack and kill the player
- Limited ammunition to kill cancer cells



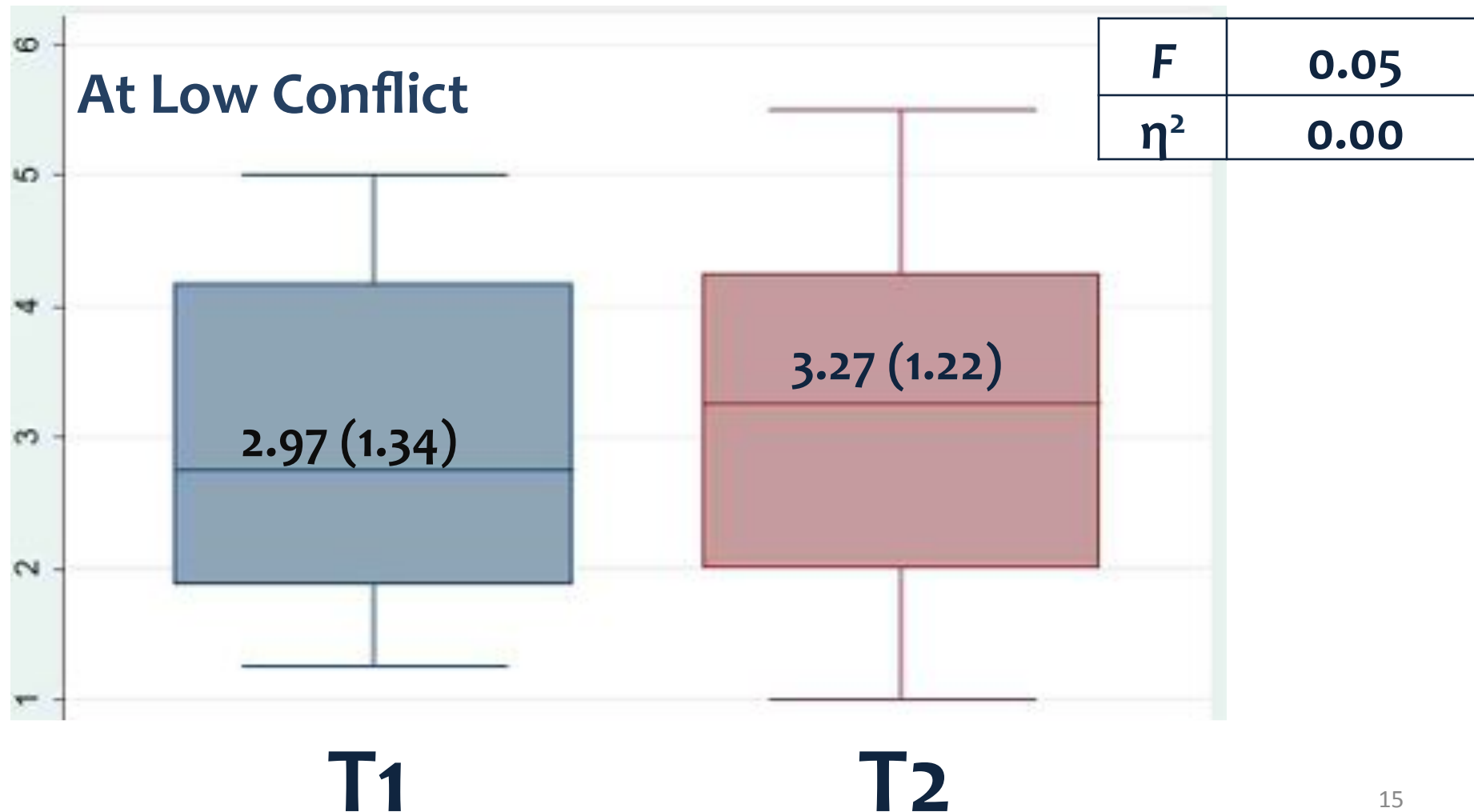


# Results

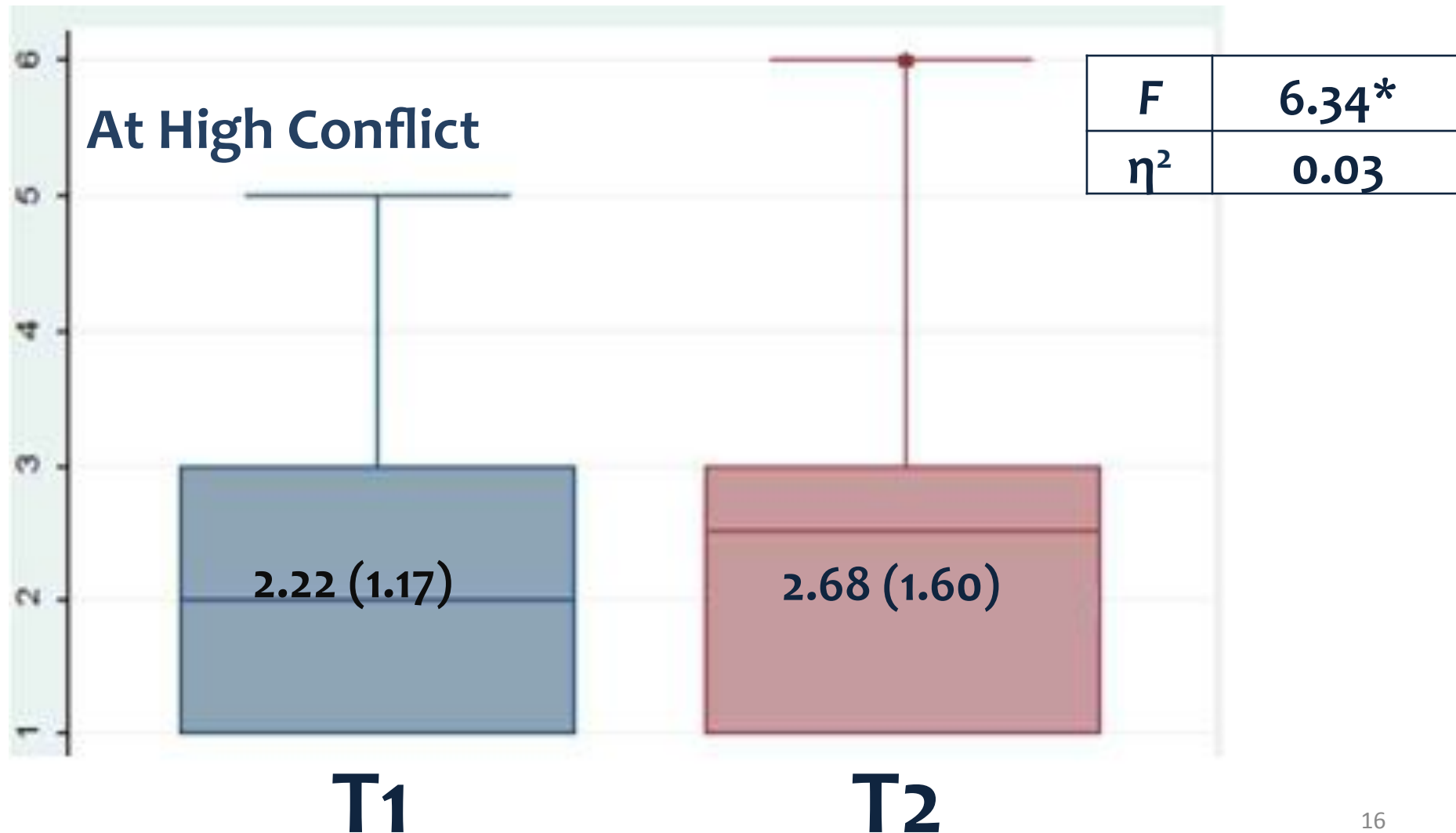
# Perceived Susceptibility



# Perceived Susceptibility

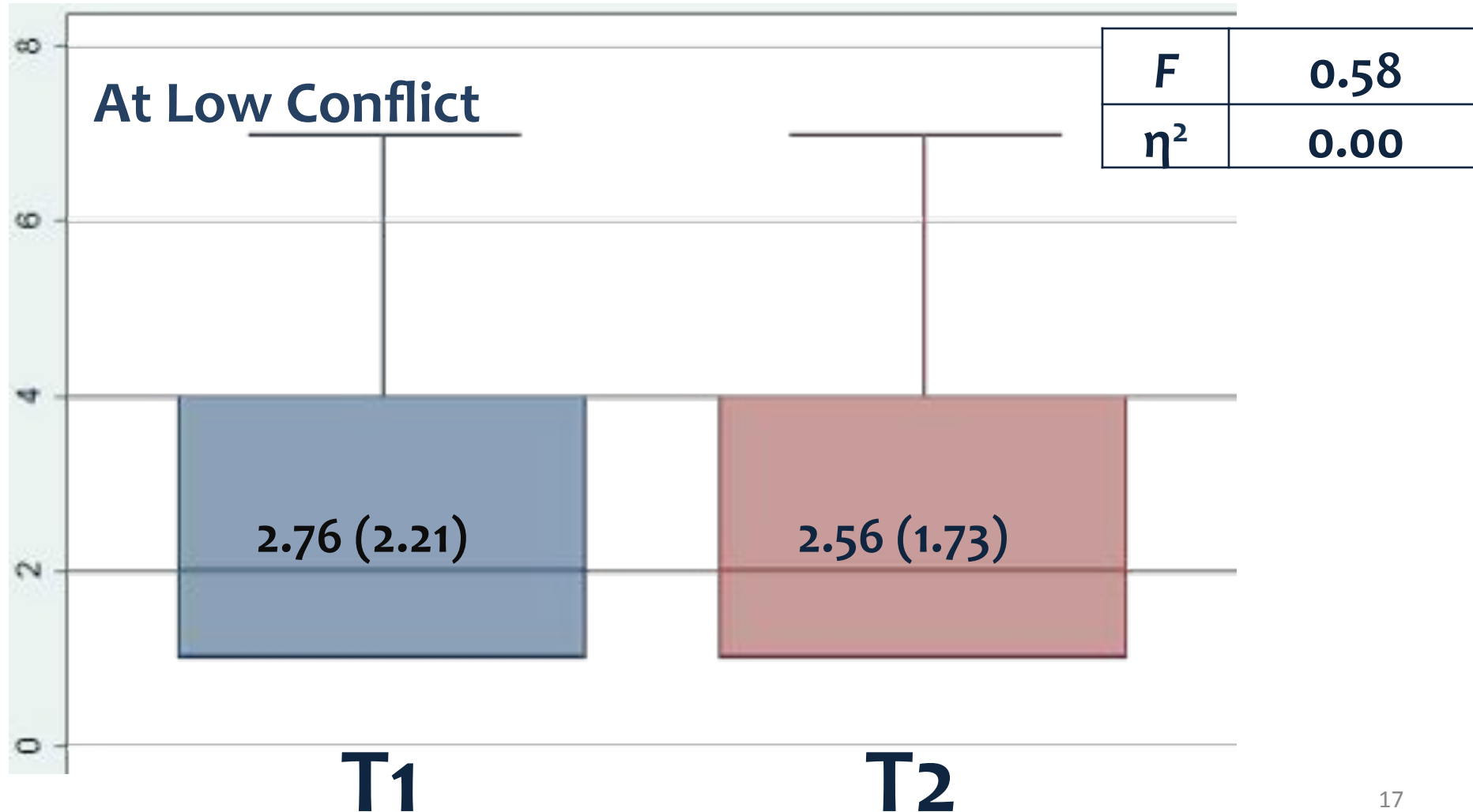


# Information Seeking Intentions



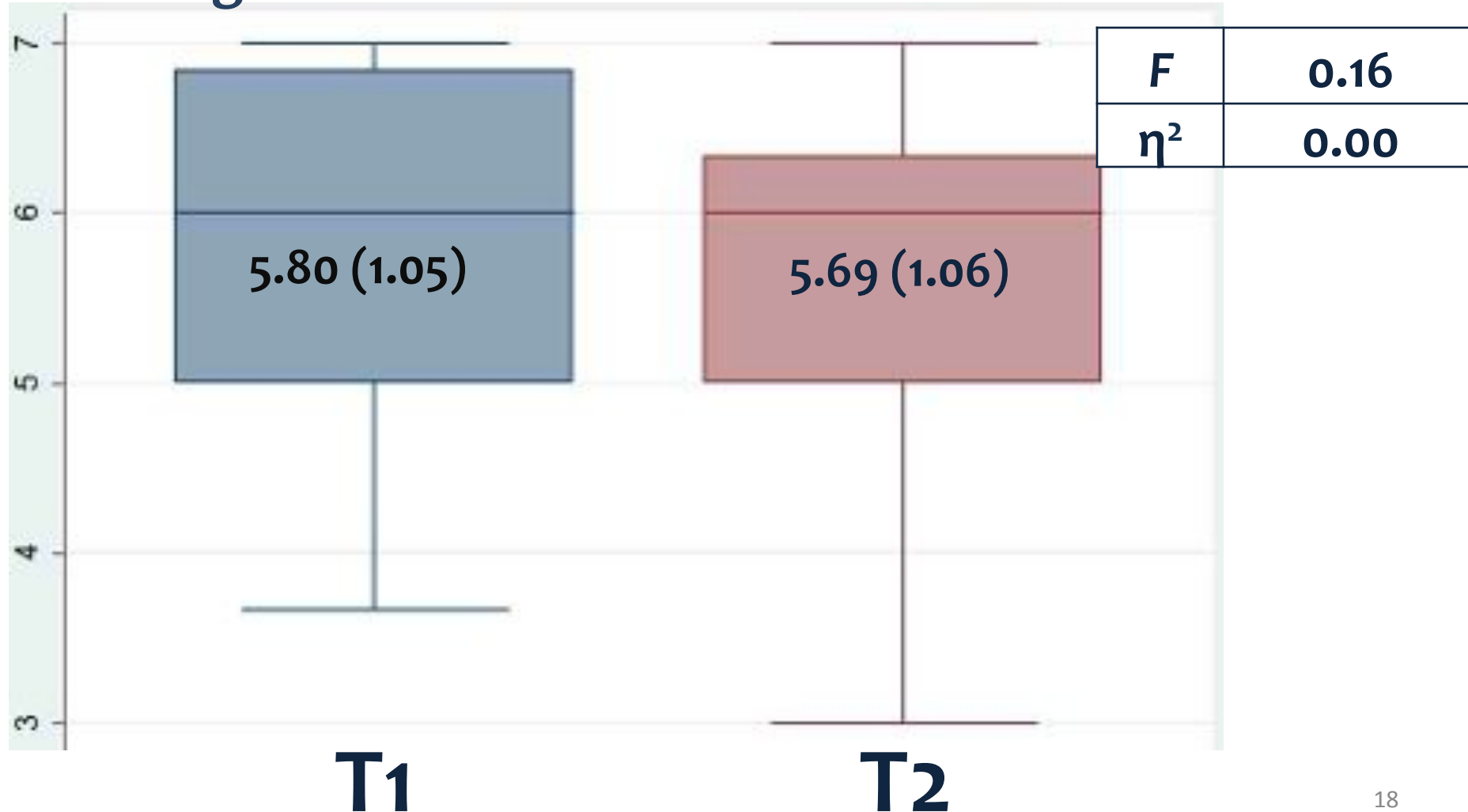


# Information Seeking Intentions



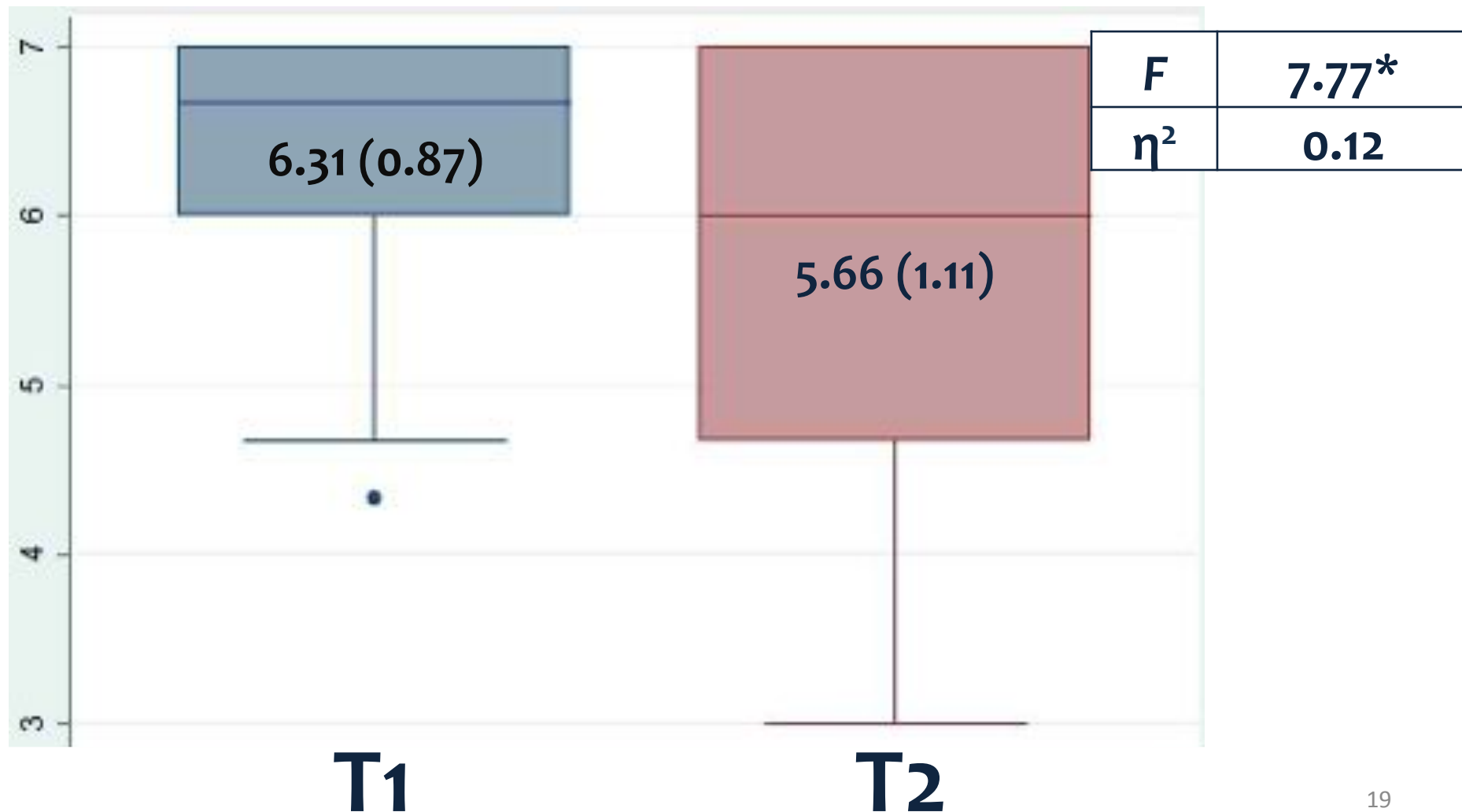
# Protective Motivation

At High Conflict

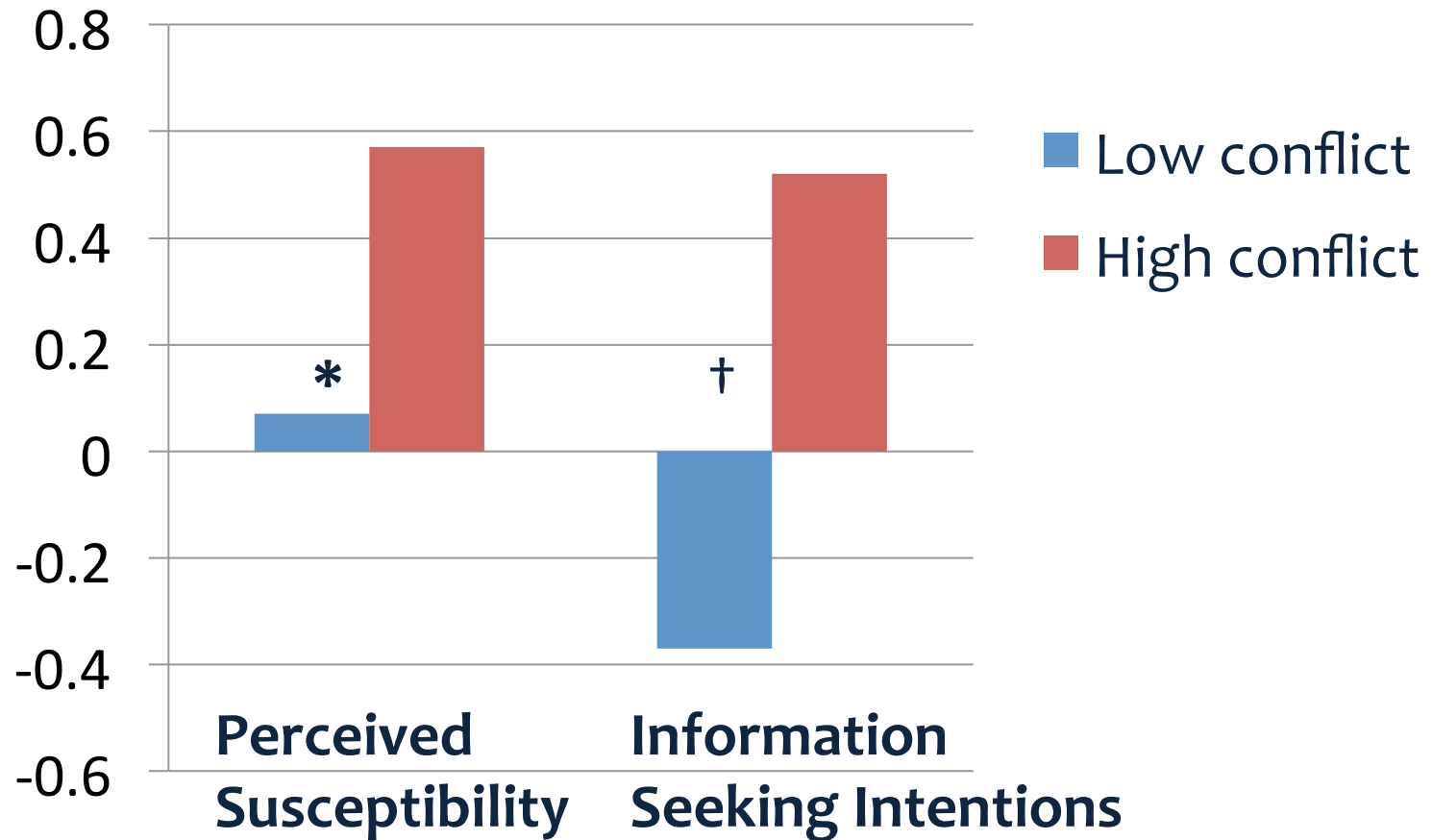


# Protective Motivation

At Low Conflict



# Results: Low vs. High Conflict



Change in each variable is computed by subtracting the measure at baseline from the measure at post-test.

† =  $p < 0.1$ , \* =  $p < 0.05$ .



# Results

|                         | <u>Change in perceived severity</u> |           |           | <u>Change in protective motivation</u> |           |           |
|-------------------------|-------------------------------------|-----------|-----------|--|-----------|-----------|
|                         | B                                   | Std. Err. | $\beta$   | B                                      | Std. Err. | $\beta$   |
| <b>Perceived Threat</b> | 0.14                                | 0.05      | 0.32*     | 0.22                                   | 0.07      | 0.33**    |
| At baseline:            |                                     |           |           |  |           |           |
| Perceived severity      | - 0.49                              | 0.09      | - 0.66*** |  |           |           |
| Protective motivation   |                                     |           |           | - 0.67                                 | 0.12      | - 0.60*** |
| Cum. adjusted $R^2$     | 0.41***                             |           |           | 0.52***                                |           |           |

Change in each variable is computed by subtracting the measure at baseline from the measure at post-test.

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

# Conclusion

- High conflict and threat perception → Perception of cancer risks + Individuals' intention to seek cancer-related information from physicians.
- Virtual experience of cancer behavior → actual experience of cancer threat → Risk perception + motivation to get protected

# Main limitations

- Concern for ecological validity
- The results only explain short-term effects and do not consider long-term opportunities for information seeking and protective behaviors

# Implications

- Investigate the mediating role of emotions (e.g., fear, or anger) between perceived threat and health outcomes.
- Offer positive consequences as a result of healthy actions.

# Implications





# Implications





# Implications



# Implications



# Implications



Thank you!

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