

RESPONSE INHIBITION IN SUICIDE IDEATORS AND ATTEMPTERS

LIDLAW UNDERGRADUATE RESEARCH AND LEADERSHIP PROGRAMME
DEREK YU

RESEARCH QUESTION ?

Because impulsivity is a known risk factor for suicide, what is its effect on the progression from suicide ideation to suicide attempt?

HYPOTHESIS ?

Suicide attempters should have lower response inhibition (higher impulsivity) than suicide ideators.



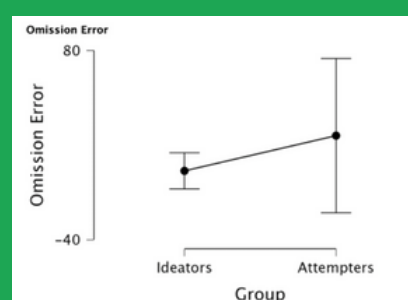
IDEATION TO ACTION FRAMEWORK

Previously, suicide research has been approached by analyzing suicide attempt and suicide ideation as two separate processes. In 2005, Thomas Joiner proposed the ideation to action framework, which differentiated and separated the focus of research into looking at suicide ideation and suicide attempt as two separate entities. (Klonsky and May, 2015) Recent theories credit impulsivity as being the bridge between the two.

RESPONSE INHIBITION & IMPULSIVITY

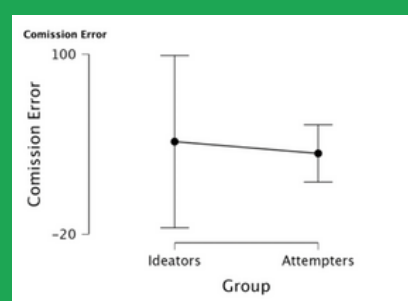
Response inhibition, which is directly linked to impulsivity, is the ability to suppress inappropriate responses to a given stimulus or action interfering with a specific goal. Connors Continuous Performance Tasks (looking at the omissions, commissions, and d-prime) and Delis-Kaplan Executive Function System Colour Word Interference Test (with the conditions naming, reading, inhibition, switching) are two tests that quantify and measure one's response inhibition.

CONNORS CONTINUOUS PERFORMANCE TASK RESULTS



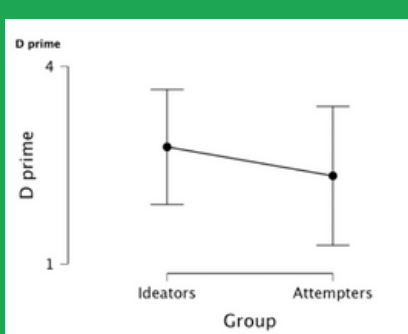
OMISSION ERRORS

Omission errors are when the participant fails to respond to a target stimulus. Attempters (M = 26.00, SD = 46.59) had overall more omission errors than Ideators (M = 3.667, SD = 4.619), $t(5.193) = -1.163$, $p = 0.296$, Cohen's $d = -0.675$.



COMISSION ERRORS

Commission errors are when the participant responds to a non-target stimulus. Attempters (M = 33.833, SD = 18.181) had overall less commission errors than Ideators (M = 41.667, SD = 23.116), $t(3.302) = 0.153$, $p = 0.640$, Cohen's $d = 0.377$.



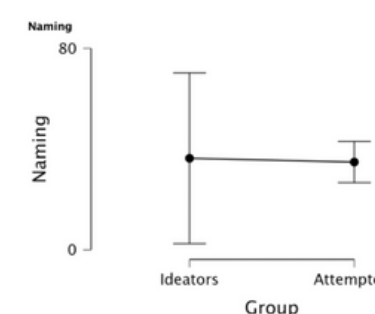
D PRIME

D-prime quantifies the group's ability to differentiate between signal and noise. Attempters (M = 2.338, SD = 1.005) had a lower D prime when compared to Ideators (M = 2.776, SD = 0.351), $t(6.736) = 0.957$, $p = 0.371$, Cohen's $d = 0.582$.

DELIS-KAPLAN EXECUTIVE FUNCTION SYSTEM COLOUR WORD INTERFERENCE TEST RESULTS

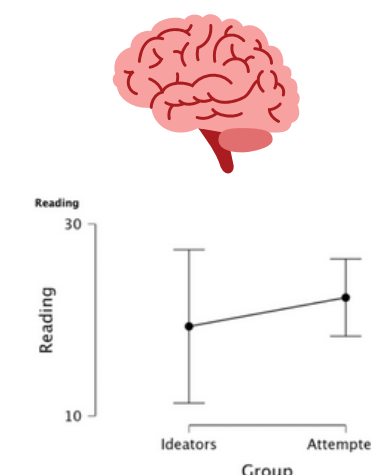
NAMING

Attempters (M = 34.833, SD = 7.808) were slightly faster in their response than Ideators (M = 36.333, SD = 13.650), $t(2.679) = 0.176$, $p = 0.872$, Cohen's $d = 0.135$.



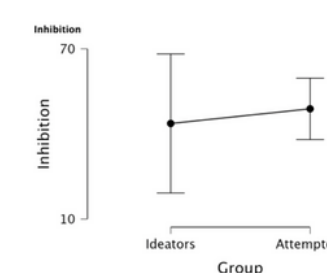
READING

Attempters (M = 22.333, SD = 3.830) performed slightly slower than Ideators (M = 19.333, SD = 3.215), $t(4.866) = -1.236$, $p = 0.273$, Cohen's $d = -0.849$.



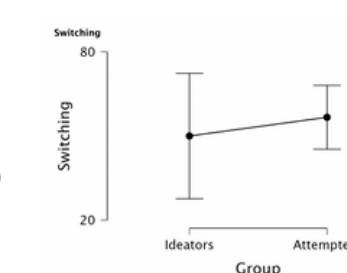
INHIBITION

Attempters (M = 48.833, SD = 10.323) were slightly slower than Ideators (M = 43.667, SD = 9.866), $t(4.276) = -0.729$, $p = 0.504$, Cohen's $d = -0.512$.



SWITCHING

Attempters (M = 56.667, SD = 10.838) were slightly slower than Ideators (M = 50.000, SD = 9.000), $t(4.918) = -0.977$, $p = 0.374$, Cohen's $d = -0.669$.



DISCUSSION

Commission errors from Connors Continuous Performance task can be an indicator of two things, inattentiveness and impulsivity. Because we are only interested in impulsivity, cross-referencing it with omission errors will eliminate the inattentiveness variable. From the results, we conclude that Ideators have higher impulsivity than Attempters, which contradicts our hypothesis and previous research reporting on the same topic.

Delis-Kaplan Executive Function System Colour Word Interference Test (DKEFS CWT) consists of 4 conditions. The Naming and Reading condition aims to measure the subject's linguistic and verbal skills. The Inhibition and Switching conditions aim to measure cognitive flexibility and response inhibition. When looking at the scores from all four conditions together, we conclude that Ideators have greater response inhibition and cognitive flexibility than Attempters.

CONCLUSION

Unfortunately, these results are statistically insignificant, due to $p > 0.05$ for every result. This can be accounted for by the very small sample size which results in very low statistical power. Statistical power is the probability of detecting an effect in a hypothesis test. Because of the low sample size and low statistical power, we are unable to confidently reject the null hypothesis and thus are unable to confidently come to any conclusions. Future continuations of this study should look to increase the sample size and the statistical power to generate conclusive results.



REFERENCES

Klonsky, D. E., & May, A. (2015, July). The Three-Step Theory (3ST): A New Theory of Suicide Rooted in the "Ideation-to-Action" Framework. ResearchGate. Retrieved September 3, 2022, from https://www.researchgate.net/publication/280090909_The_Three-Step_Theory_3ST_A_New_Theory_of_Suicide_Rooted_in_the_Ideation-to-Action_Framework

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