Background
- We encounter and set many different goals in our lives in order to achieve some target or ambition.
- Goal Setting Theory, setting specific (in contrast to “do your best” or no goals) and challenging (in contrast to easily achievable or impossible goals) goals lead to better performance, as measured by more effort exertion and persistence.
- Affective experiences are shaped by task difficulty and performance variability, while playing a role in modifying task performance as well.
- Cognitive effort exertion is motivated by monetary incentives, which interacts with task difficulty in influencing goal commitment.
- Previous research has yet to examine effort exertion and persistence under varying levels of reward, and how reward interacts with difficulty in inducing acute stress. Further, research into the influence of performance on stress, and into the role that stress play in altering subsequent performance, is even more limited.

Here, we aim to examine the influence of expected difficulty (Study 1) and reward (Study 2) for a given task on:
1) how much effort a person exerts for a given task on:
2) the subjective affective experiences they feel while doing so (specifically, stress)

Methods
Participants completed 4 blocks * 8 intervals per block.

Study 1: Influence of Task Difficulty (N = 40)
- Participants are given the freedom to complete as many trials as they want of the Stroop task during the interval of 8s each.
- In each interval, participants were rewarded for each correct response but were required to reach a certain threshold number of correct responses in order to receive that reward. (Threshold: Easy = 5 correct responses in 8 seconds; Hard = 8 correct responses in 8 seconds. Condition cues are shown at the beginning of each interval.
- A tracker is displayed at the bottom of the screen and reflected the goal threshold and cumulative correct responses as real-time feedback in addition to the summary feedback at the end of each interval.
- After each time-interval, participants rated either their current stress or positive affect on a scale of 1-10.

Study 2: Influence of Reward (N = 79)
- In addition to task difficulty, study 2 varied the reward level such that the amount of bonus reward participants can earn with each correct response differed in intervals (Low Reward = 1 "gems" per correct response; High Reward = 10 "gems" per correct response).
- Participants completed 8 blocks * 8 intervals per block.

Results: Study 1 (Performance)
- Participants are more accurate in trials closer to the goal (p < 0.01). Looking closer at individual trials, participants initially sped up in performing accurate trials after starting the interval but then slowed down. This decreasing of speed extended until they had surpassed the goal.

Results: Study 1 (Affective Experiences)
- Task Difficulty and Performance: Participants reported feeling less positive (p < 0.001) and more stressed (p < 0.001) during intervals where they failed to reach a goal.
- If they had met their goal, participants reported higher stress (p < 0.001) and feeling worse (p < 0.018) after performing hard difficulty intervals.
- Better performance (faster reaction time and higher accuracy) predicted less stress and greater positive affect.

Future Directions
- Further examine how goal proximity effects are influenced by task difficulty, reward, and affective experiences.

Conclusions
- More challenging goals lead people to work harder, and prolongs their effort exertion but to also experience greater stress doing so.
- Promising greater rewards leads to an enhancement rather than diminution of both of these effects.
- Affective experiences are also influenced by how people perform on the task.

Results: Study 2 (Performance)
- Participants show better performance when facing hard intervals: complete more trials per interval (p < 0.001).
- This is reflected in faster trial-wise reaction time (p < 0.001) and higher accuracy (p < 0.001).
- Participants intuitively showed better performance when they had reached the interval goal: complete more trials per interval (p < 0.001).

Results: Study 2 (Affective Experiences)
- Task Difficulty and Performance: Replicating Study 1, participants reported feeling less positive (p < 0.001) and more stressed (p < 0.001) when they failed to reach a goal.
- If they had met their goal, participants reported higher stress (p < 0.001) but no difference in positive affect (p = 0.140) after performing hard difficulty intervals.
- Participants reported higher stress (p < 0.001) and feeling better (p < 0.001) after reaching the goal for a high reward interval.
- As in Study 1, better performance (faster reaction time and higher accuracy) predicted less stress and greater positive affect.

References

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Notes
1. Treatments: High Reward = 2 “gems” per correct response; Low Reward = 1 “gem” per correct response.
2. Participants completed 8 blocks * 8 intervals per block.
3. In Study 1, participants were faster in performing accurate trials after they had reached the threshold (p < 0.001). In contrast to Study 1, participants were less accurate on trials completed after reaching the goal (p < 0.001).
4. Participants had initially sped up after starting the interval for approximately 2 trials, then gradually slowed as they neared and surpassed the goal.
5. Participants completed 8 blocks * 8 intervals per block.
6. Participants are given the freedom to complete as many trials as they want of the Stroop task during the interval of 8s each.
7. In each interval, participants were rewarded for each correct response but were required to reach a certain threshold number of correct responses in order to receive that reward. (Threshold: Easy = 5 correct responses in 8 seconds; Hard = 8 correct responses in 8 seconds. Condition cues are shown at the beginning of each interval.
8. A tracker is displayed at the bottom of the screen and reflected the goal threshold and cumulative correct responses as real-time feedback in addition to the summary feedback at the end of each interval.
9. After each time-interval, participants rated either their current stress or positive affect on a scale of 1-10.