

SELF-EFFICACY FOR CHANGING SEDENTARY BEHAVIOR OR PHYSICAL ACTIVITY: COMPARISONS IN HEALTHY AND CHRONIC PAIN POPULATIONS



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Rationale

- Despite the well-known health benefits of regular physical activity (PA), PA interventions report low adherence and high attrition rates, due in part to low self-efficacy (SE).^{1,2}
- Reducing sedentary time (SED) also has health benefits^{3,4} and may be perceived as more achievable than increasing PA.
- Purpose: To compare self-efficacy for reducing SED to self-efficacy for increasing PA in healthy adults (HA) and individuals with chronic pain (CP) and to explore SE for overcoming common barriers for each behavior**

Key Findings

- Both HA and CP felt **more confident** in their ability to **reduce sedentary time by 1 hour** each day compared to **increasing physical activity by 30 minutes** each day.
- Both HA and CP felt **more confident** in their ability to overcome barriers related to **decreasing SED** than for **increasing PA**.
- Both HA and CP had the **lowest SE** for reducing SED when feeling unwell or in pain and in social situations where others are sitting.

Conclusions

- Both healthy adults and adults with chronic pain may be **more likely** to change behavior when encouraged to **sit less** rather than **exercise more**.
- Targeting SED may especially be beneficial for individuals with low levels of self-efficacy for increasing PA, like those with CP.
- Future research should **qualitatively explore barriers to reducing SED** for individuals with chronic pain, which may help better design SED interventions and improve treatment of these conditions.
 - Changing **social norms** surrounding sitting may be key in helping people reduce SED

Methods

Participants:

- Recruited via mass email students, faculty, and staff

	Healthy Adults (HA)	Individuals with Chronic Pain (CP)
N	1,240	273
Age (M ± SD)	26 ± 12	34 ± 16
Sex (% Female)	61%	70%



Measures:

- Survey administered electronically using Qualtrics:**
 - Demographic Questions
 - International Physical Activity Questionnaire Short-Form
 - Beliefs about Activity-Related Behaviors Questionnaire (BARBQ)
 - Four randomized "blocks" of questions:
 - Process-related, outcome-related, change-related, and barrier-related
 - Counterbalanced with SED or PA questions

Analyses:

- 2 groups (HA, CP) x 2 behaviors (SED, PA) repeated measures ANOVAs were used to compare differences in SE by group and for increasing PA vs. decreasing SED
- 2 groups (HA, CP) x 2 behaviors (SED, PA) repeated measures ANOVAs were used to compare differences in SE for overcoming barriers (e.g. social norms) to each behavior
- Effect Sizes (Cohen's *d*) were used to explore differences in barriers for changing PA and SED for both HA and individuals with CP

Beliefs about Activity-Related Behaviors Questionnaire

The following questions are intended to ask about your confidence in your ability to do several types of activities, including physical activity, sedentary time, and resistance training.

Not at all Confident 0 1 2 3 Somewhat Confident 4 5 6 7 8 100% Confident 9 10

How confident are you that you can do the following?

Example of PA and SED Questions

- I can **increase my moderate to vigorous physical activity by 10 minutes** each day.
 - I can increase my moderate to vigorous physical activity by **20 minutes** each day.
 - I can increase my moderate to vigorous physical activity by **30 minutes** each day.
- I can **reduce the total amount of time I spend sitting by 30 minutes** each day.
 - I can reduce the total amount of time I spend sitting by **1 hour** each day.
 - I can reduce the total amount of time I spend sitting by **2 hours** each day.

Results

SE for increasing PA compared to decreasing SED:

- Significant difference between SE for increasing PA by 30 minutes compared to decreasing SED by 1 hour
 - $F(1, 1,485) = 179.91, p < 0.001$
 - No difference between group (HA and CP)
- Medium effect size ($d = 0.58$)
 - For CP only, $d = 0.60$

SE for overcoming barriers of PA compared to SED:

- Significant differences between behaviors for overcoming barriers related to PA and SED
 - $F(1, 1,513) = 117.42, p < 0.001$
- Significant interaction between behavior and group for overcoming barriers related to social norms
- Small to medium effect sizes (shown in Table 1)

Table 1. Effect size (Cohen's *d*) of SE for overcoming barriers related to PA compared to SED for Health Adults (HA) and Individuals with Chronic Pain (CP)

Barrier	HA	CP
Environment	0.66	0.44
Fatigue	0.50	0.46
Time	0.44	0.42
Motivation	0.44	0.37
Pain	0.37	0.27
Social Norms	0.50	0.32
Mood	0.24	0.24

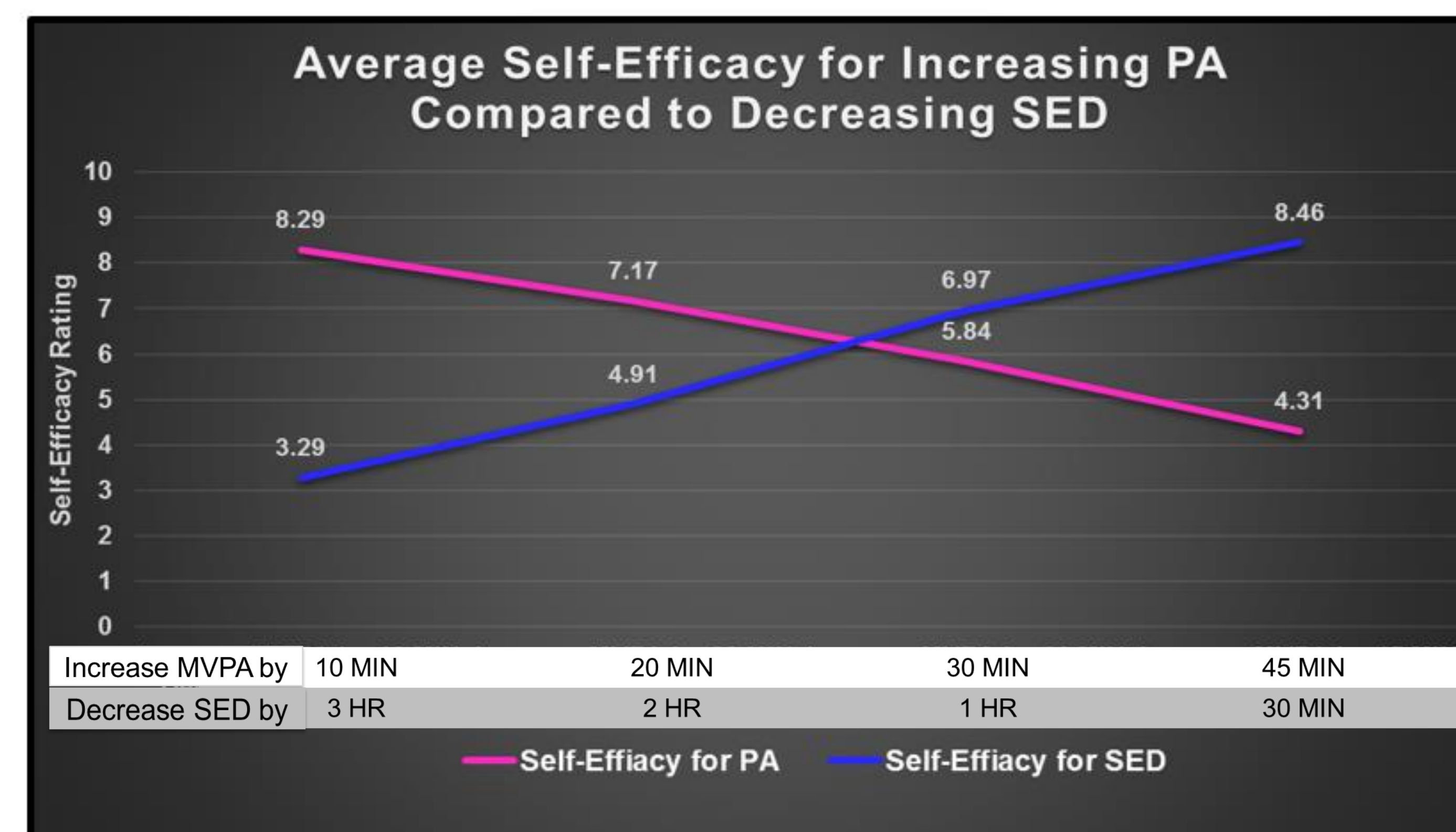


Figure 1. Average self-efficacy for increasing varying levels of physical activity compared to average self-efficacy for decreasing varying levels of sedentary time (* indicates significant difference between behaviors, $p < 0.05$)

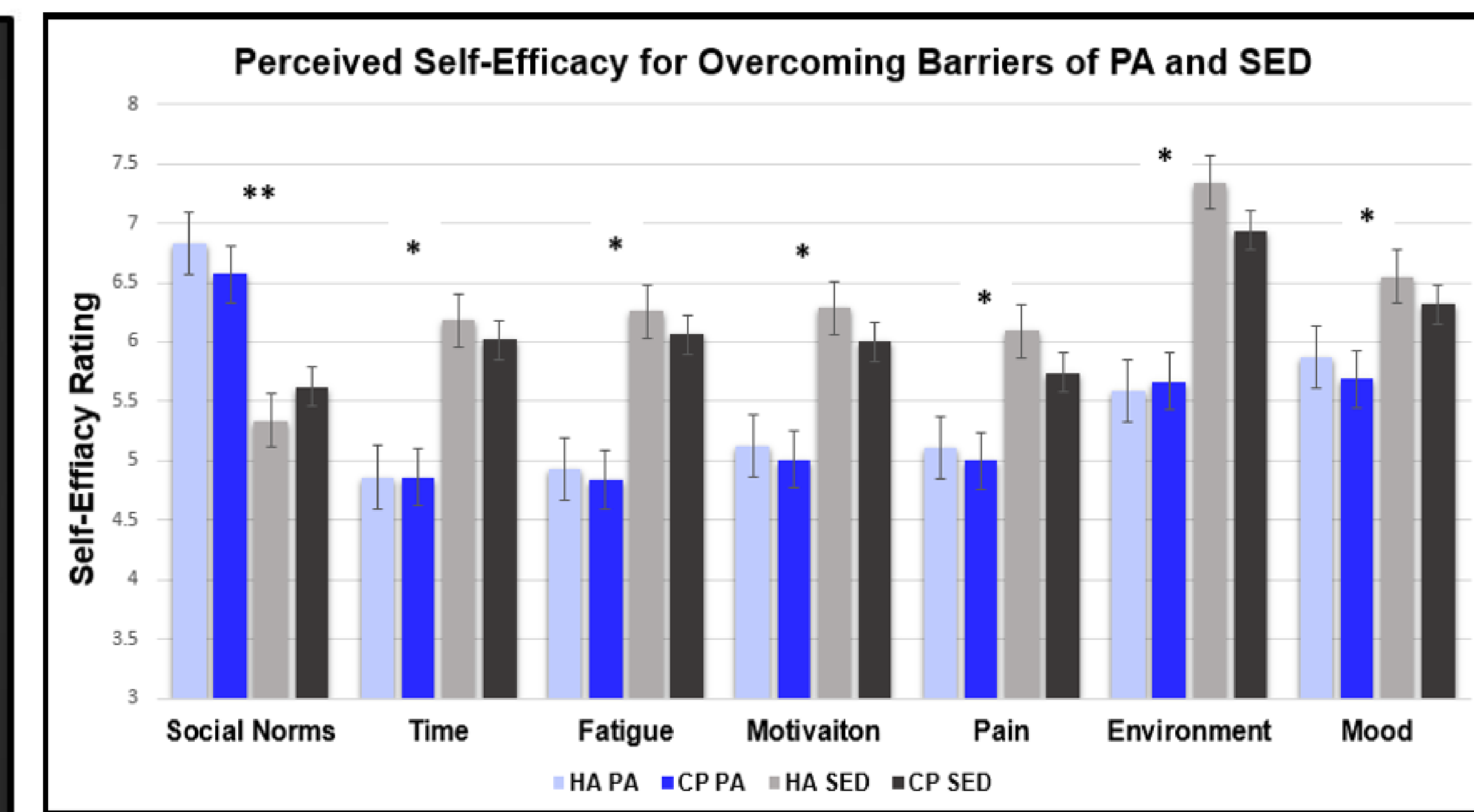


Figure 2. Mean rating of perceived self-efficacy for overcoming common barriers of PA and SED in healthy adults and individuals with chronic pain (* indicates significant ($p < 0.05$) difference between behavior; ** indicates significant ($p < 0.05$) interaction between group and behavior)

Key References

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- Patterson, R., McNamara, E., Tainio, M., de Sá, T. H., Smith, A. D., Sharp, S. J., & Wijndaele, K. (2018). Sedentary behaviour and risk of all-cause, cardiovascular and cancer mortality, and incident type 2 diabetes: a systematic review and dose response meta-analysis.