

# Effects of Equine-Assisted Learning on Firefighters' Psychological Stress: A Pilot Study



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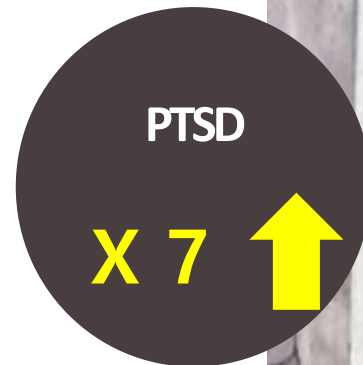
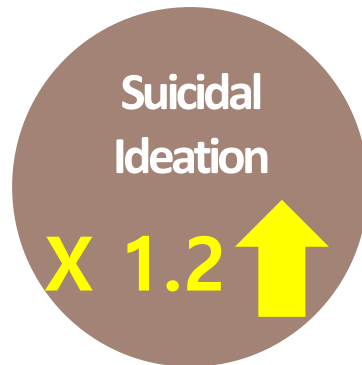
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# Psychological Stress in Firefighters

- Firefighters are frequently exposed to traumatic events on the job.

The prevalence of psychological disorders is higher in Korean firefighters than in the general population.



# Post Traumatic Stress Disorder (PTSD)

Major  
Symptoms

Re-experiencing

Avoidance/ Emotional Numbing

Hyperarousal



PTSD

- PTSD can occur as a result of their indirect exposure to trauma, usually in the course of professional duties (APA, 2013).

## Professions With High Risk of PTSD



# Interventions & Limitations

## Conventional Interventions for Firefighters

Cognitive Behavioral Therapy

Eye Movement Desensitization  
and Reprocessing

Medications

•  
•  
•

## *Low participation*

8 in 10 firefighters

did not apply for compensation for injuries.

Due to Worries about

- ✓ Stigmatization
- ✓ Negative performance evaluation



# Equine-Assisted Learning and Psychological Benefits

## Equine-Assisted Learning(EAL)

- Experiential learning approach
- Provides equine assisted activities
- Promotes the development of life skills for educational, professional, and personal goals

### Psychological Benefits of EAL

from the previous studies with Veterans

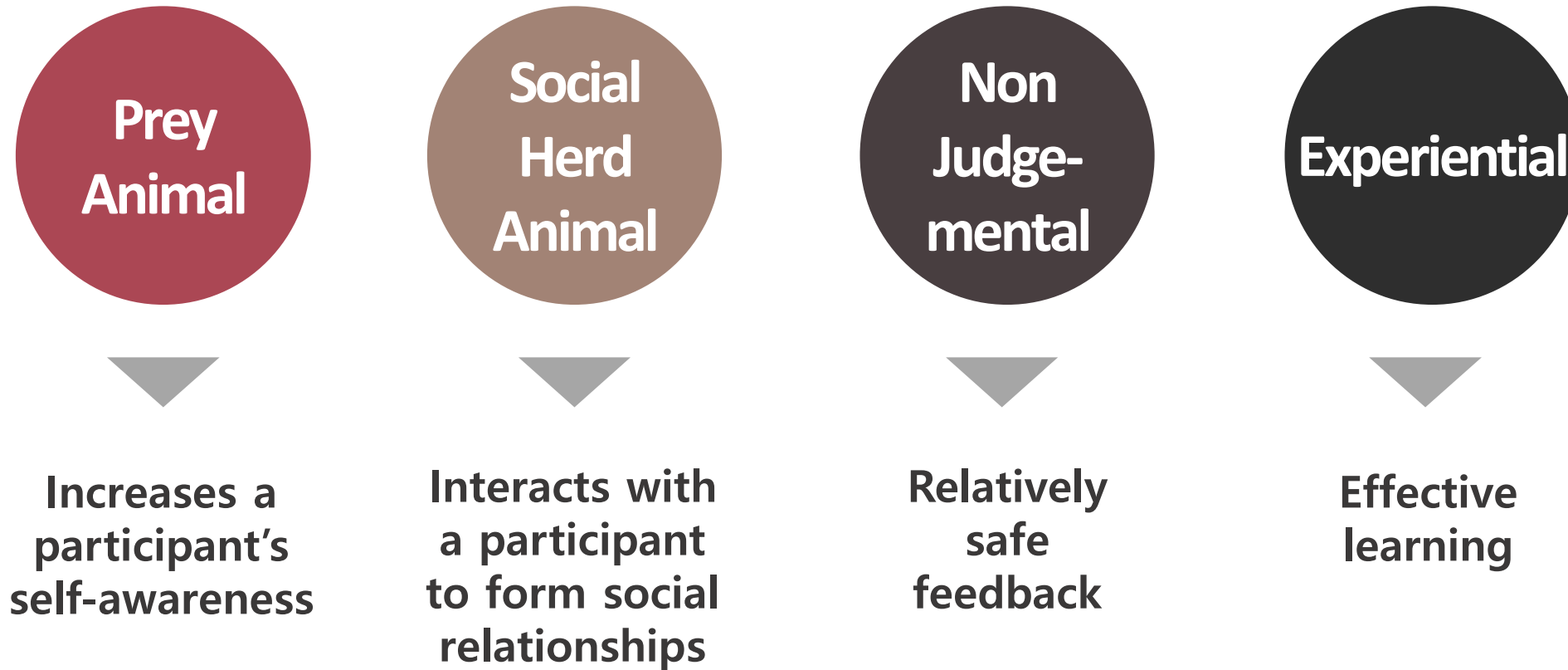
✓ Improves

- Self-mediation coping skills
  - Temper control
  - Concentration

✓ Relieves PTSD symptoms



# Why is it Beneficial to Utilize a Horse ?



## Research Aims

### Effects of Equine-Assisted Learning on Firefighters' Psychological Stress: A Pilot Study

Explores the feasibility of field application of the EAL program

Determine the safety and efficacy of the program

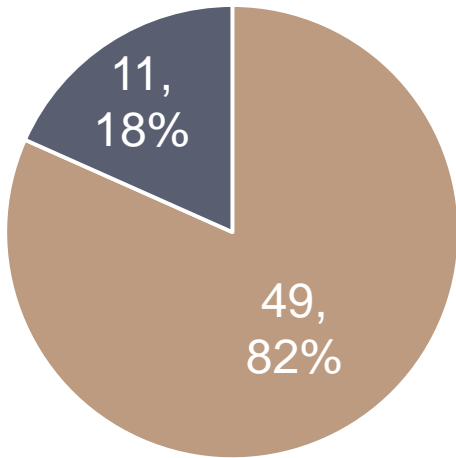
Generate evidence for general use of the program



# Demographic Information of Participants

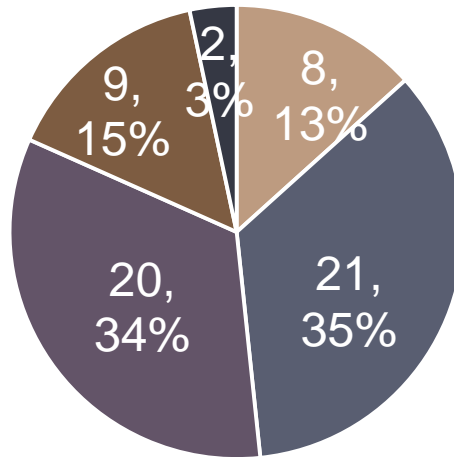
60 firefighters were recruited from 9 provinces and 2 cities across South Korea.

**Gender**



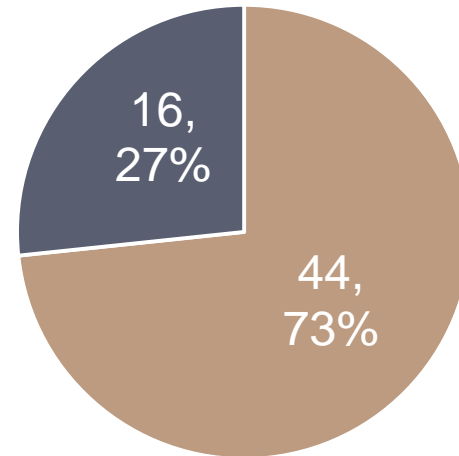
■ Male ■ Female

**Age**



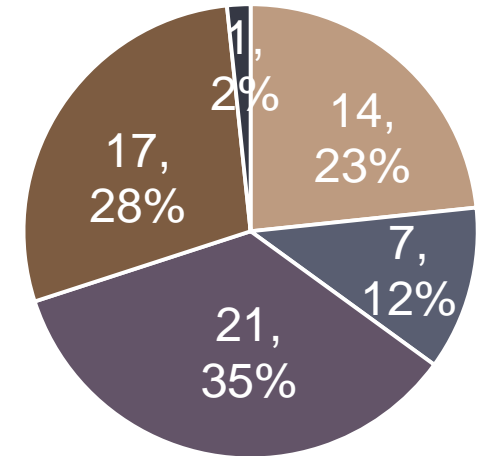
■ 20s ■ 30s  
 ■ 40s ■ 50s  
 ■ above 60s

**Marital Status**



■ Married ■ Single

**Length of Service**



■ 1~4 yr ■ 5~9 yr  
 ■ 10~19 yr ■ 20~29 yr  
 ■ above 30 yr





# EAL Program

Session number	Activities	Objectives	
		Horse Skills	Life Skills
1	Orientation	- Program introduction - Safety education	Starting a new thing
2	Observing horse behavior	Approaching and greeting a horse	Getting to know horses
3	Grooming	Learning how to use grooming tools	Learning new skills
4	Leading a horse	Leading the horse using a lead rope	Leadership
5	Desensitizing	Introducing an unfamiliar object to a horse	Building trust
6	Harnessing	Learning about horse tack and how to use it	Implementing in sequence
7	Mounting & dismounting	- Mount and dismount - Basic riding posture	Self-confidence
8	Walking and halting	Using verbal aide and reins, walking and halting	Sense of control
9	Simple course work	Practicing how to use rein at walk	Planning
10	Interactive vaulting	Performing simple movements on the horse	Improvement in physical functions
11	Walk and trot 1	Practicing posting at trot	Coping with challenge
12	Walk and trot 2	Speed control at trot	Self-Control
13	Changing directions	Changing directions at trot	Communication with horses
14	Trot in a course 1	Playing games in a course (designed by instructors)	Concentration
15	Trot in a course 2	Playing games in a course (designed by participants)	Creativity
16	Wrap up	Free riding and reflection	Sense of accomplishment





## Ground Activities



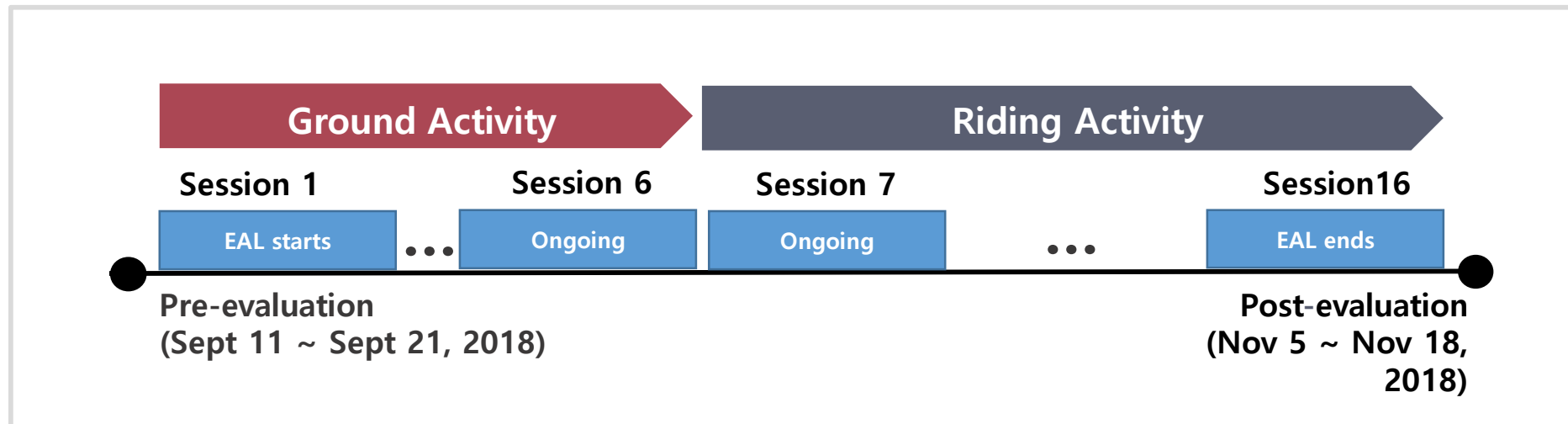


## Riding Activities



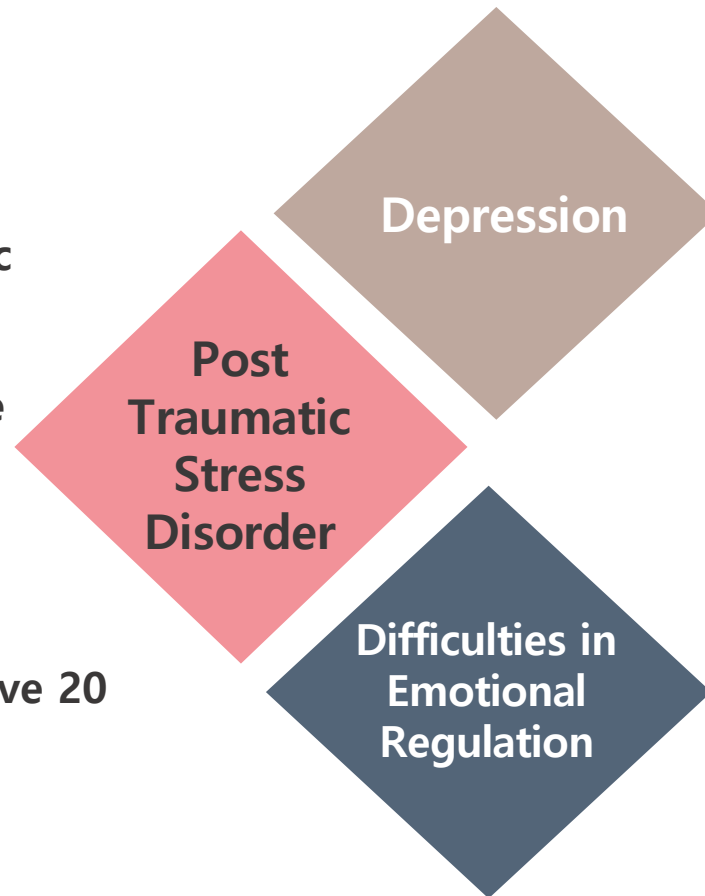
# Research Procedure

- Period: September 11th, 2018 ~ November 18th, 2018
- A total of 16 sessions for eight weeks (twice a week)
- One-group pretest-posttest design
- Before starting the survey and EAL program, the Trauma and Psychological First Aid Training was provided to effectively deal with possible psychological crises.



# Measurements

- The Korean versions of the Posttraumatic Diagnosis Scale (PDS-K)
- Participants divided into 2 groups by the scores of PDS-K
  - \* Posttraumatic Stress Symptom (PTSS)
    - 1) PTSS risk group(n=28)
      - High risk PTSD(n=2): PDS-K score above 20
      - Subsyndromal PTSD(n=26)
    - 2) PTSS non-risk group(n=32)



- The Center for Epidemiological Studies Depression Scale (K-CESD)

- The Difficulties in Emotional Regulation Scale (K-DERS)

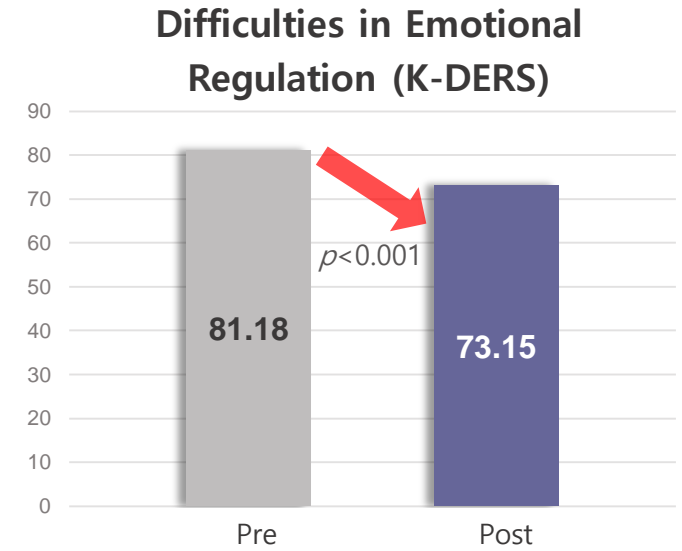
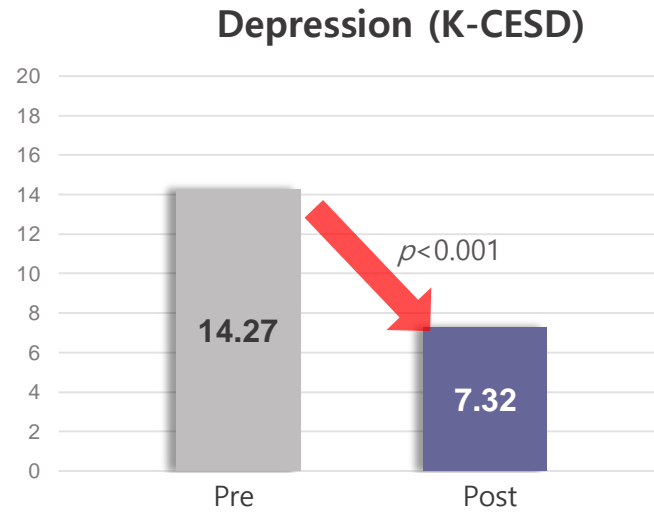
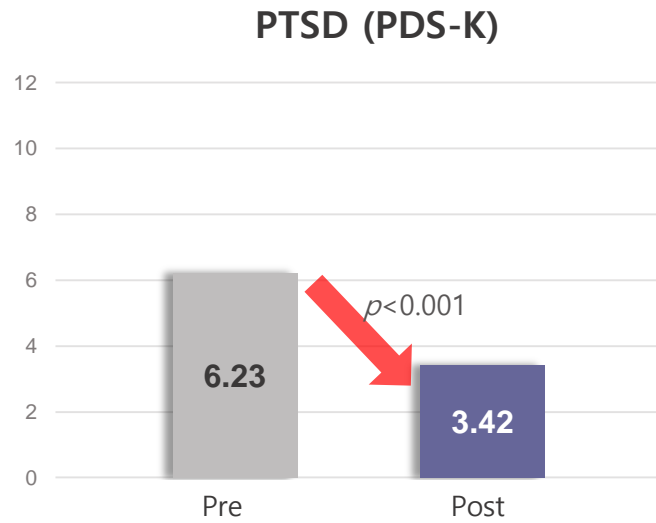


# Research Questions

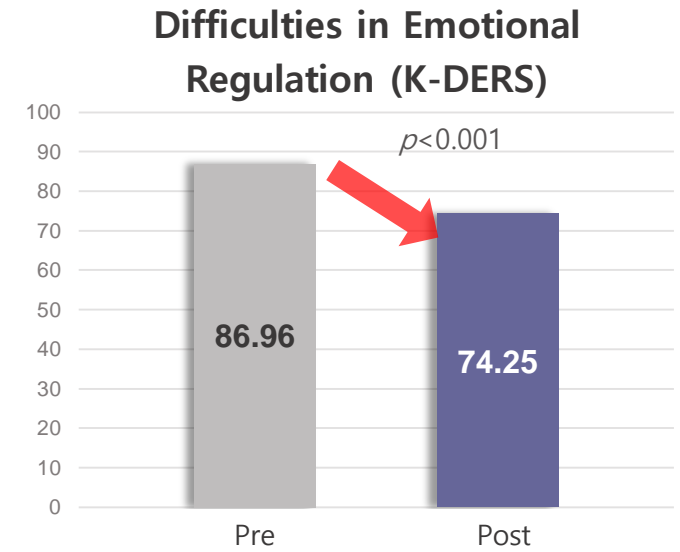
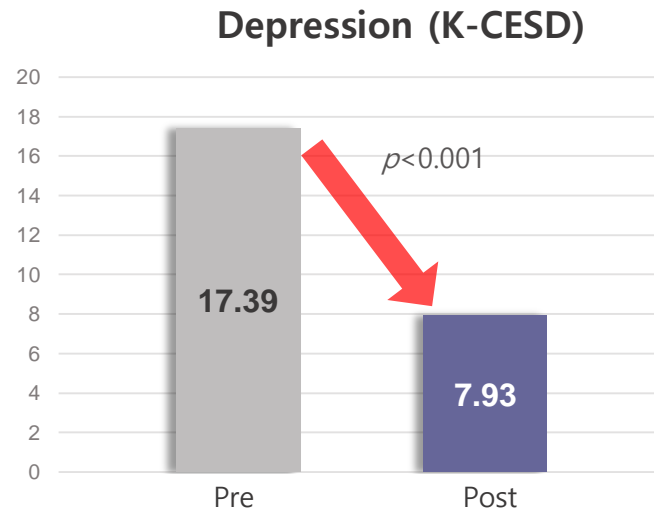
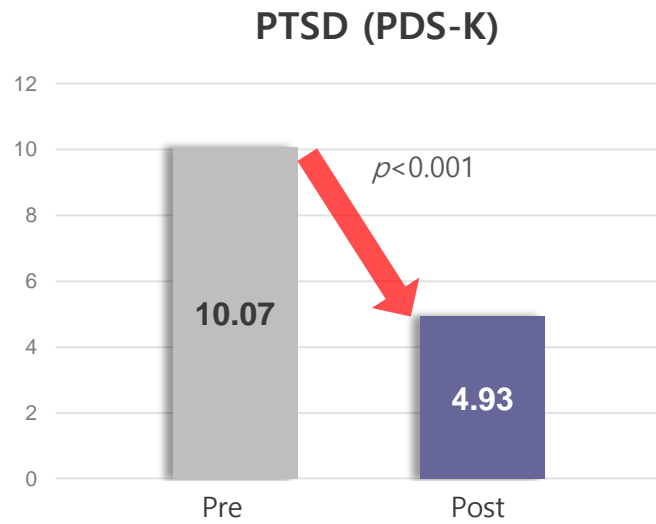
- 1) How does EAL affect psychological stress(PTSD, Depression & Difficulties in Emotional Regulation) in all participants?
- 2) How does EAL affect the psychological stress of the PTSS risk group of participants?
- 3) Is there any difference between the PTSS risk group and PTSS non-risk group in terms of the effects of EAL?



# Results of Paired T-Tests for All Participants (N=60)

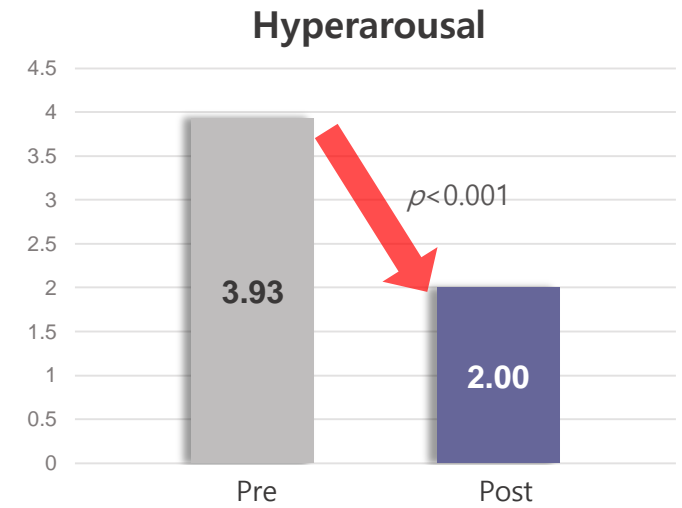
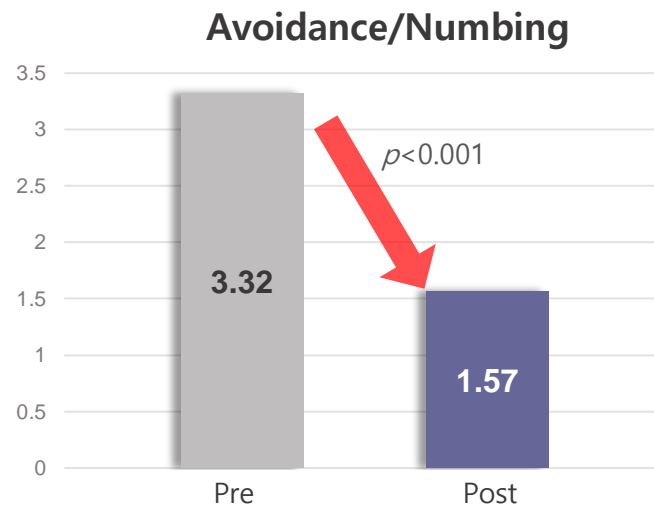
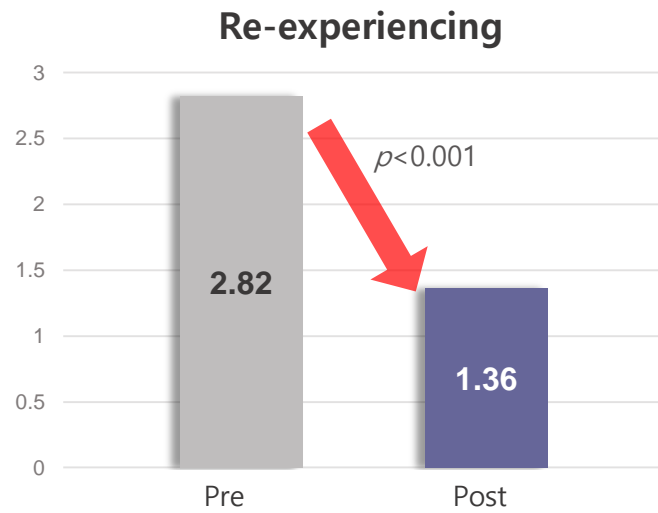


# Results of Paired T-Tests for PTSS Risk Group (N=28)



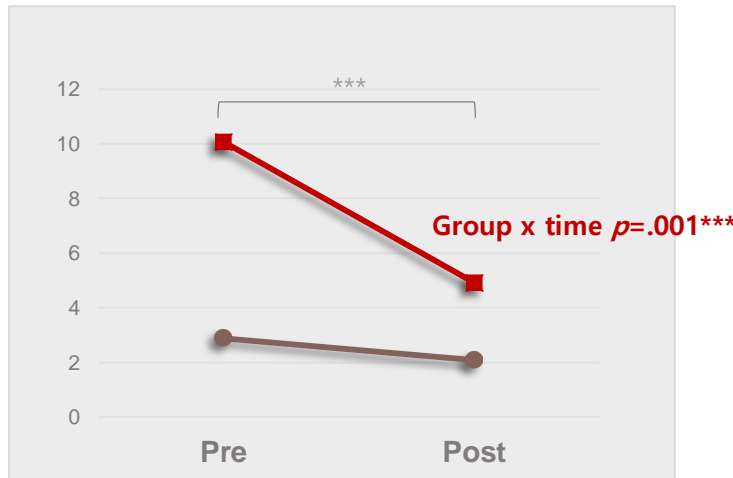


# Results of Paired T-tests of PDS Sub-scales for PTSS Risk Group

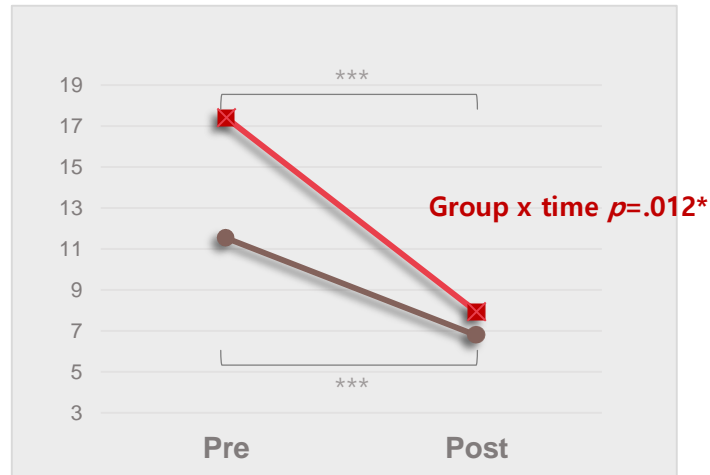


# Results of Repeated Measures ANOVA between PTSS Risk Group & PTSS Non-risk Group

PTSD (PDS-K)



Depression (K-CESD)



Difficulties in Emotional Regulation (K-DERS)



—●— PTSS non-risk group  
 —■— PTSS risk group



# Comments from the Participants

"My horse seems a little annoyed today, why is that?"

"The horse looks comfortable today. He was not like that yesterday..."

Awareness of emotion

"I'm very happy to get close to my horse and to be able to better communicate with him."

"Covering his body with a sack must have made him extremely frightened. So I told him, that's all right. I'm with you."

Relationship

"I think my horse and I have developed trust with each other."

"I was a little scared at first, but I got comfortable when my horse rubbed his face on me."

Trust



# Comments from the participants

**"I tend to move with great caution around my horse since the horse might be afraid of me."**

**"I was nervous while trotting on a horse. However I was able to feel better by taking a deep breath and relaxing my body."**

**"I had nightmares almost every night, and it's hard to stay focused at work. But while riding a horse, nothing distracts me and I can focus on the horse and what I'm doing. It's great. "**

**"I felt great when I led my horse with ropes and ran together with him. It made me feel like keeping running as it helped me avoid thinking about the traumatic events I'd experienced."**

**Regulation**

**Attention**



# Conclusions

- The EAL intervention was effective in alleviating PTSD, depression, and difficulties in emotional regulation in all participants.
- The EAL was effective in relieving PTSD, depression, and difficulties in emotional regulation in the PTSS risk group.
- The study successfully verified the feasibility and safety of EAL in South Korea.
- For future research, there is a need to include a control group in the experimental design.



# Thank You

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