Mindfulness-Based Stress Reduction in Adult Patients with Active Crohn's Disease: Preliminary Findings based on the Subjective Units of Distress Scale (SUDS)

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Background

In recent years, Mindfulness-Based Stress Reduction (MBSR) has emerged as an effective stress reduction intervention for patients with chronic physical illnesses.
Crohn's disease patients suffer from a host of mental symptoms, particularly when the disease is active (Schwartz D et al. United European Gastroenterol J 2018; 6: Supplement 1).
We postulated that psychological distress can be diminished by teaching MBSR to patients using an internet-based one-on-one live video sessions.

Study design

Randomly selected adult patients with active Crohn's disease, attending for routing follow-up in a teaching hospital, were enlisted in a program where MBSR is taught by specially trained social workers in a series of 8 one-hour sessions delivered once a week, using real-time video conferencing (Skype™) and a standardized protocol. Home practice twice daily with feedback to an application was required. Patients were randomly divided into an intervention group receiving MBSR and a wait-list control group without any intervention.
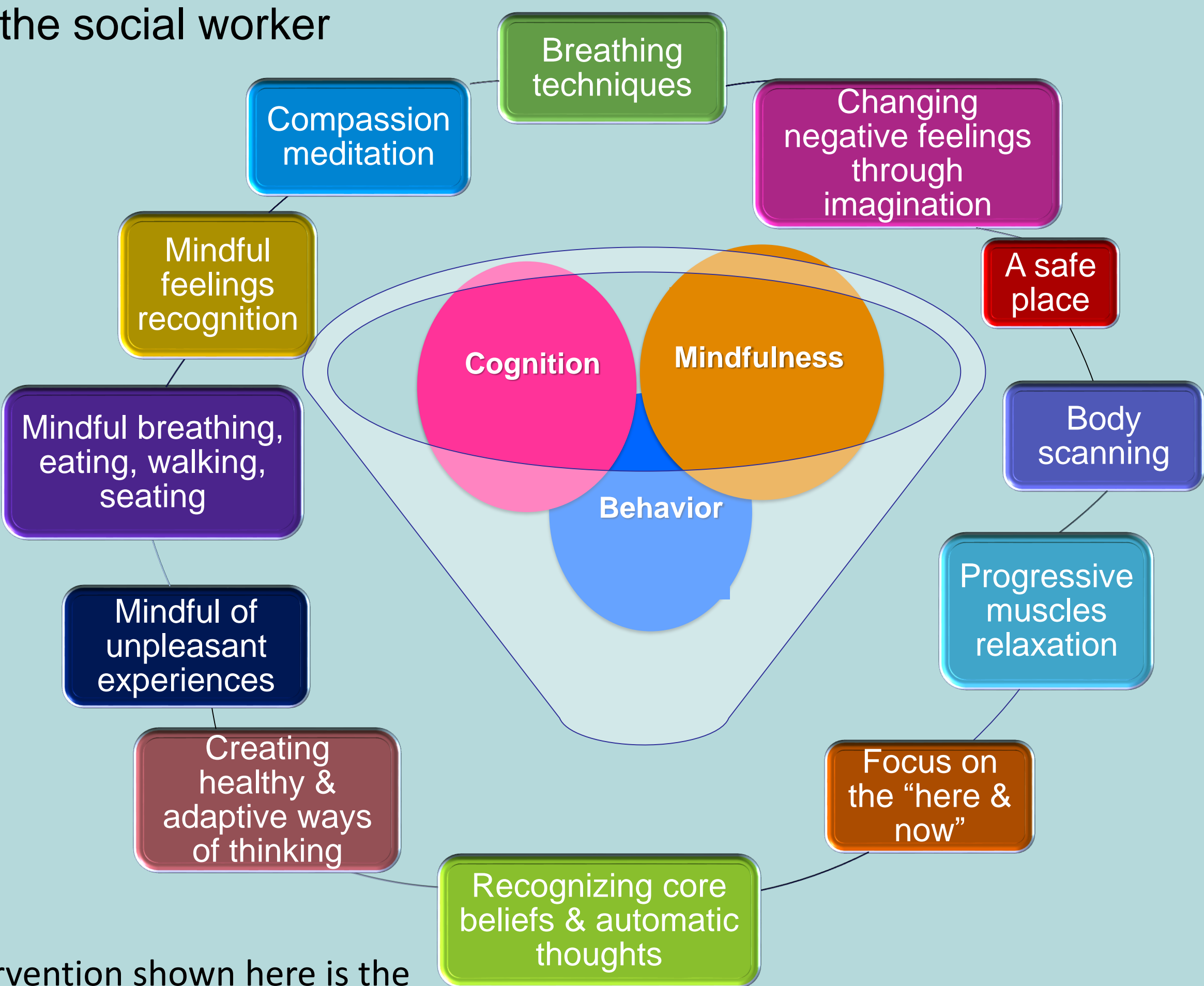
Measures:

- Disease activity (Harvey-Bradshaw Index) was monitored at entry and after 3 months. HBI ≥5 indicates active (Harvey & Bradshaw, Lancet, 1980).
- The Subjective Units of Distress Scale (SUDS, Wolpe J, 1969) was administered at the beginning and at the end of each teaching session. The SUDS scale range is 0-10, a higher score indicated more stress.
- Psychological distress at entry and after 3 months was measured using the Brief Symptom Inventory (Deragotis & Melisaratos, 1983), which gives the General Severity Index GSI with range is 0-4. A higher score indicating higher distress.
- Global cognitive judgment of one's life was measured using the Satisfaction with Life Questionnaire (Diener, Emmons, Larsen, & Griffin, 1985) at entry and after 3 months. Scale range is 5-35, a higher score indicates more satisfaction with life.

The intervention

- 1*1 interaction between the patient and the social worker
- Each learned technique was practiced with the social worker
- Twice a day home practice (10 minutes each) with self-report to an app was required.
- Emphasis was on the importance of self-exercise at each session

Breathing techniques · Compassion meditation · Changing negative feelings through imagination · Mindful feelings recognition · A safe place · Cognition · Mindfulness · Mindful breathing, eating, walking, seating · Behavior · Body scanning · Mindful of unpleasant experiences · Progressive muscles relaxation · Creating healthy & adaptive ways of thinking · Recognizing core beliefs & automatic thoughts · Focus on the "here & now"
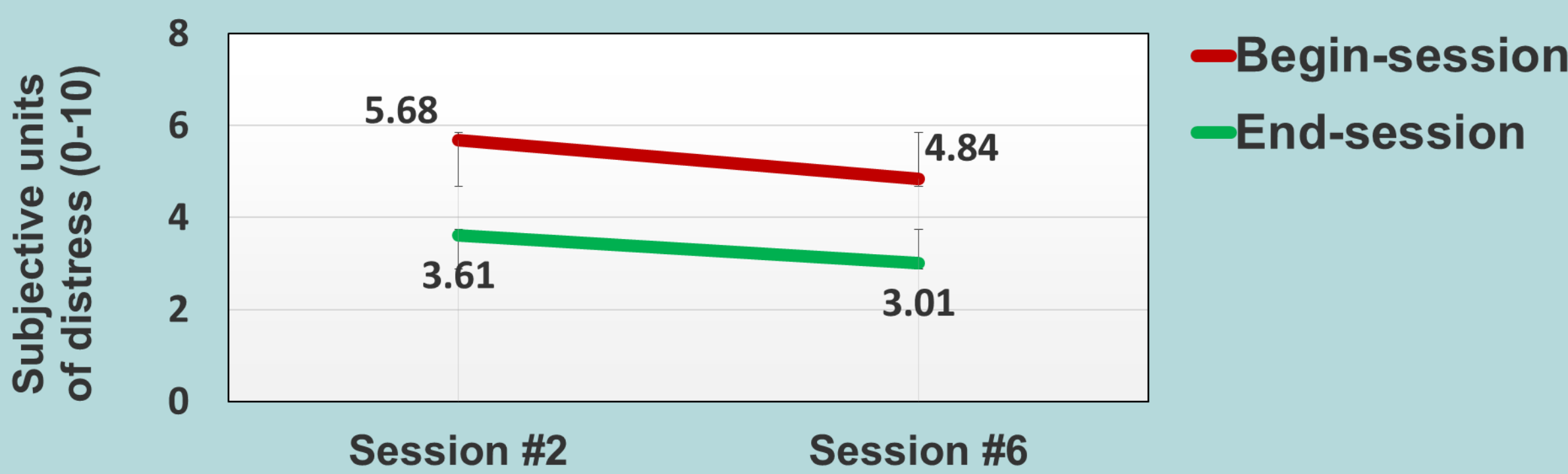
The psychological intervention shown here is the intellectual property of Profs. Slonim-Nevo and Sarid.

Results

Cohort characteristics

31 patients, average age 35.1 years (SD=12.5), 21 (68%) women, 28 (90%) non-smokers. All patients had active disease, average HBI is 8.5 (SD=2.6). Illness duration is 9.4 (SD=9) years.

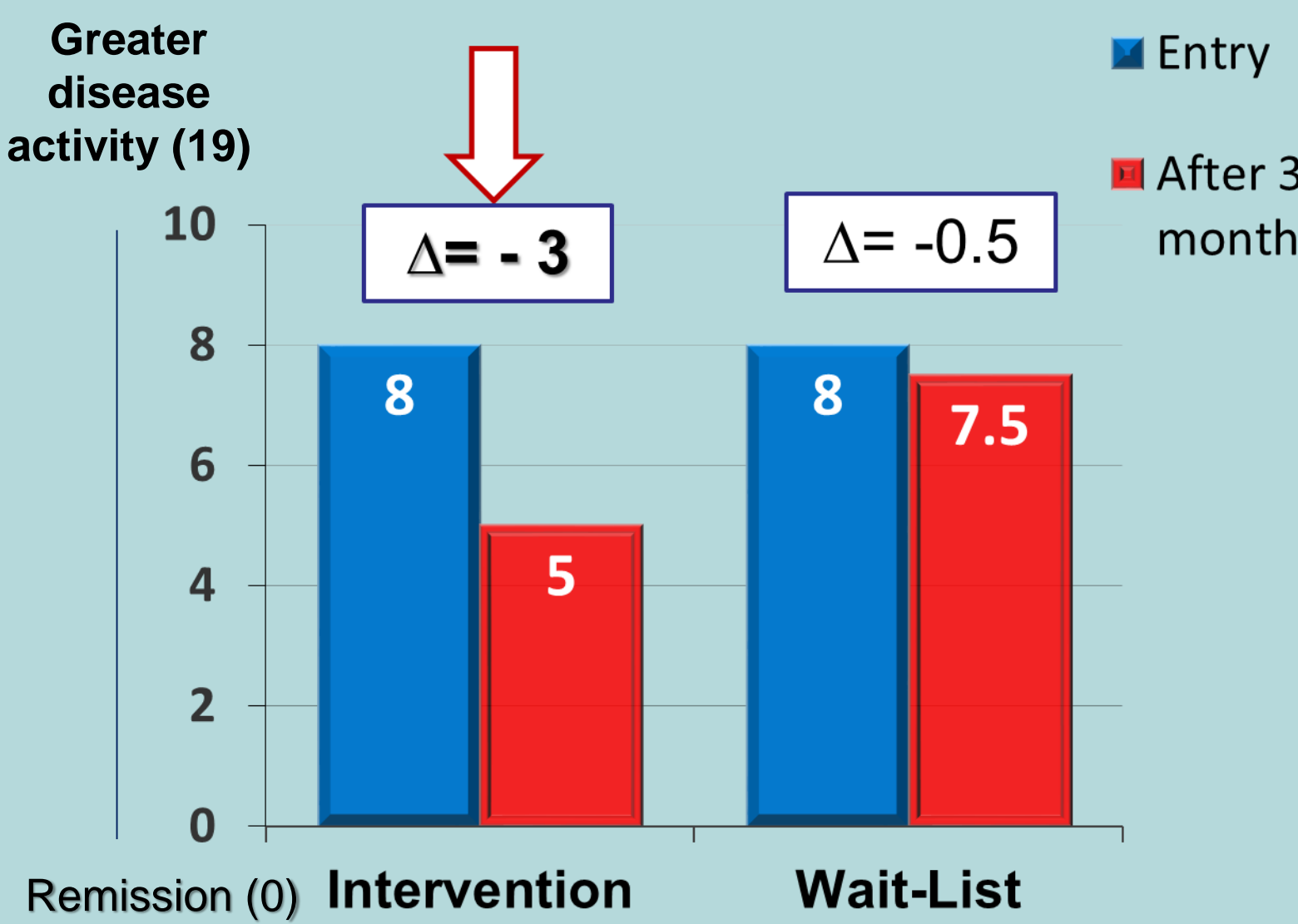**Figure 1**: Mean SUDS scores - Session #2 vs. Session #6

Subjective units of distress (0-10)

Begin-session: 5.68 (Session #2), 4.84 (Session #6)
End-session: 3.61 (Session #2), 3.01 (Session #6)

Stress levels were reduced within each intervention session (significant effect) and as the patient progressed through the intervention.
✓ The mean SUDS scores was significantly higher in session 2 compared with session 6 {$F_{(1,30)}$=4.3, p=.048}
✓ SUDS end-scores were significantly reduced compared with SUDS begin-scores in both sessions {$F_{(1,30)}$=54.3, p<.001}
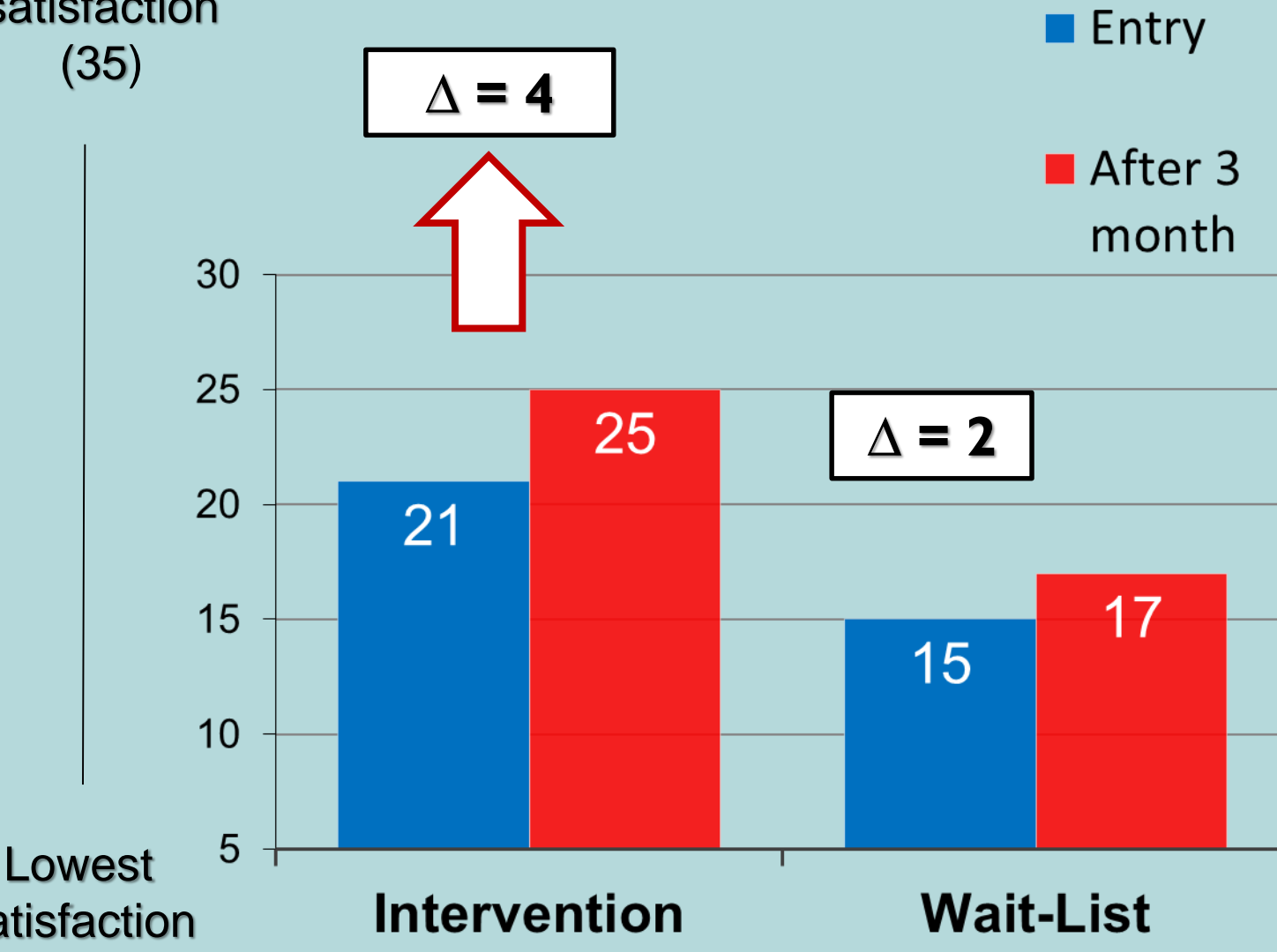(2-way repeated measures analysis of variance)

Figure 2: HBI at entry and after 3 month

Greater disease activity (19)
Entry / After 3 month
Intervention: 8 (Entry), 5 (After 3 month), Δ= - 3
Wait-List: 8 (Entry), 7.5 (After 3 month), Δ= -0.5
Remission (0)
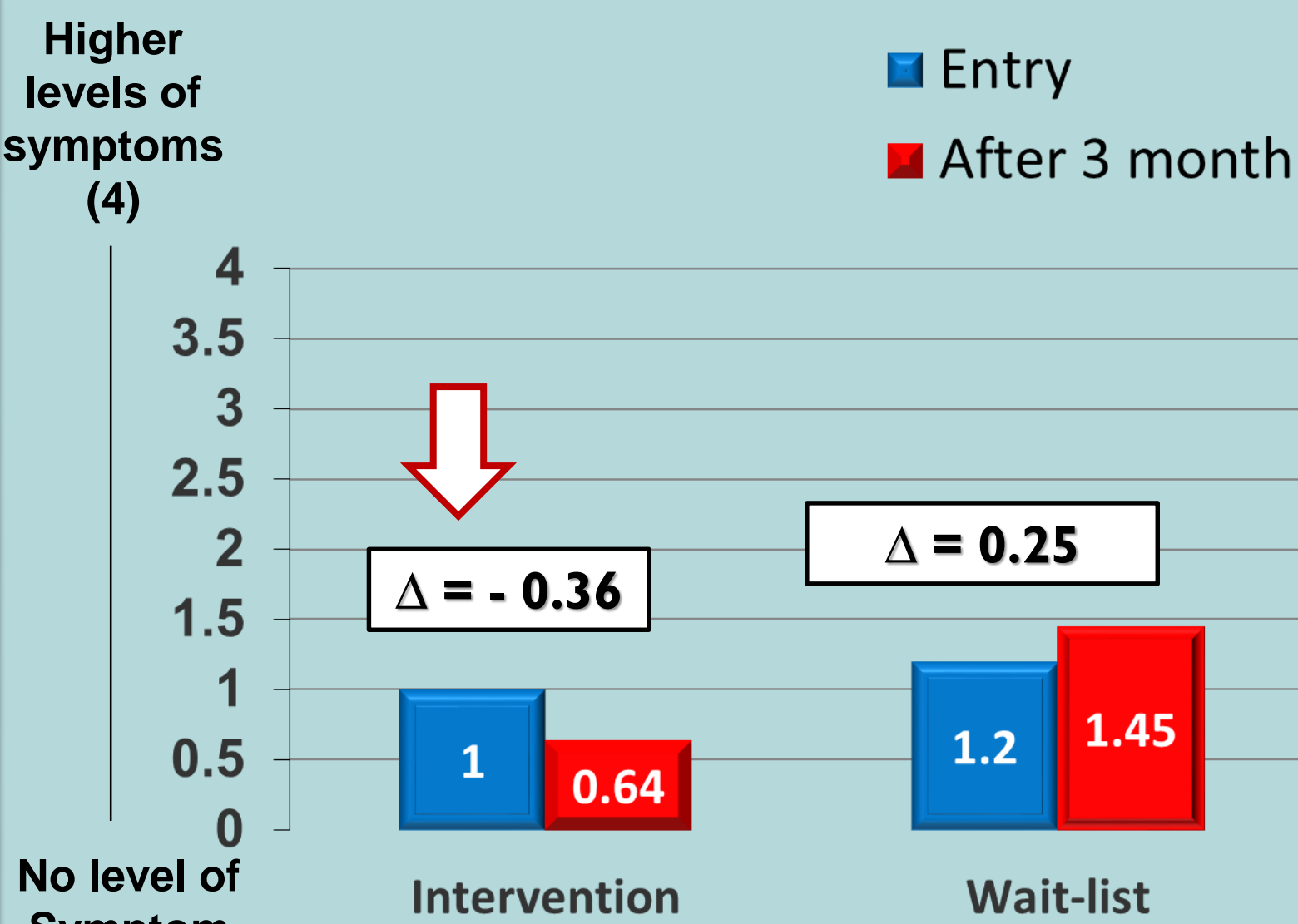
The intervention group showed a large and significant decline in HBI scores (Wilcoxon Z = −2.87, p=0.004) while the change in the wait-list group was small and just-significant (Wilcoxon Z = −1.96, p=.050)

Figure 3: Satisfaction with life score at entry and after 3 month

Greater satisfaction (35)
Entry / After 3 month
Intervention: 21 (Entry), 25 (After 3 month), Δ = 4
Wait-List: 15 (Entry), 17 (After 3 month), Δ = 2
Lowest satisfaction (5)

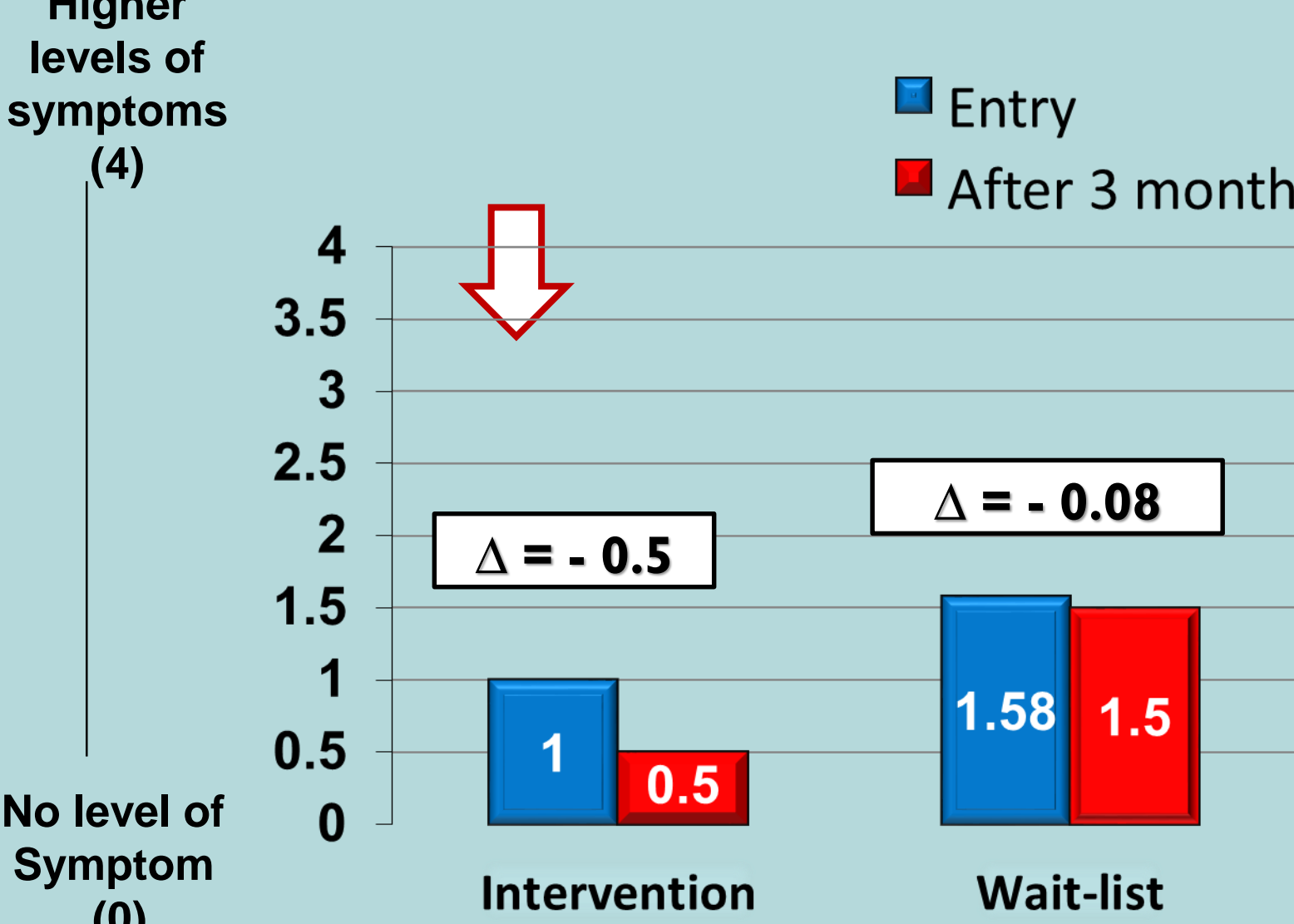The intervention group showed a large and significant improvement in patient life satisfaction (Wilcoxon Z = −2.43, p=.015) while no significant change was observed in the wait-list group.

Figure 4: GSI at entry and after 3 month

Higher levels of symptoms (4)
Entry / After 3 month
Intervention: 1 (Entry), 0.64 (After 3 month), Δ = - 0.36
Wait-list: 1.2 (Entry), 1.45 (After 3 month), Δ = 0.25
No level of Symptom (0)

GSI significantly decreased in the intervention group (Wilcoxon Z = −2.70, p=.007), whereas it slightly increased in the wait-list group (n.s).

Figure 5: Depressive symptoms at entry and after 3 month

Higher levels of symptoms (4)
Entry / After 3 month
Intervention: 1 (Entry), 0.5 (After 3 month), Δ = - 0.5
Wait-list: 1.58 (Entry), 1.5 (After 3 month), Δ = - 0.08
No level of Symptom (0)

In the depression subscale of the BSI questionnaire, the intervention's group scores decreased significantly (Wilcoxon Z = −2.89, p=.004) while no significant change was observed in the wait-list group.

Conclusions

1. These findings suggest that MBSR taught weekly, and accompanied by twice-daily home practice, reduces the level of subjective psychological distress in people with Crohn's disease.

2. Internet based teaching was effective and a daily report to an app ensured compliance.

3. A randomized trial in a large cohort employing several psychological scales is in progress to determine the precise efficacy and long-term effect of MBSR in the armamentarium of therapies available to Crohn's disease patients.