



**The University of Sydney**

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**“Exploring the use of  
biofeedback video games to  
help children diagnosed with  
Attention-Deficit/Hyperactivity  
Disorder (AD/HD)”**

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# The Journey to the Wild Divine



# Aim

- To explore biofeedback through heart rate and skin conductance measurements as a reasonable treatment option to help manage AD/HD symptoms.

# Hypotheses

- Improvements in attention, hyperactivity, and impulsivity levels, in AD/HD children,
- minimum side effects,
- difference in symptom outcomes between children who attend sessions three times a week, to those who attend once a week, and
- reduction in parental depression, anxiety, and stress levels.



<http://www.adhdresearch.info>

- AD/HD background information and studies
- Project aims and hypotheses
- Participant information
- Parent's Diary / questionnaire
- Project team members / contact details

# Measures

- AD/HD scale derived from the DSM-IV-TR
- Strengths and Difficulties Questionnaire (SDQ)
- Depression, Anxiety and Stress Scale (DASS)

# Participants

- 10 Families (10 parents and 12 children)
  - 9 boys with AD/HD
  - 3 AD/HD girls
- Age range = 5-15 years
- Mean age = 9.16 years
- 8 taking medication
- 4 not taking medication



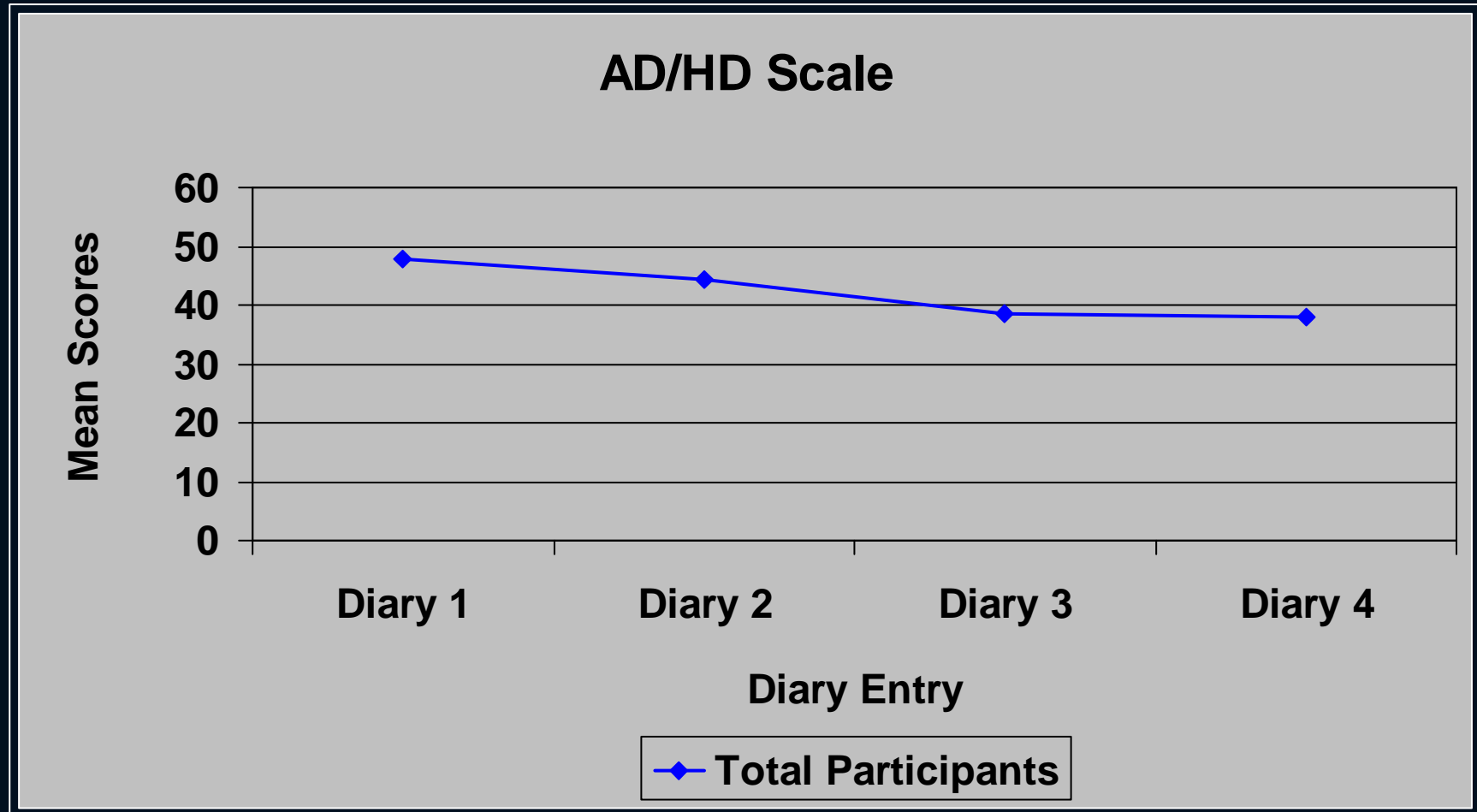
# Two groups

- Group 1
  - Attended biofeedback sessions once a week
  - 12 sessions in total
  - 10 children
- Group 2
  - Attended biofeedback sessions three times a week
  - 24 sessions in total
  - 2 children

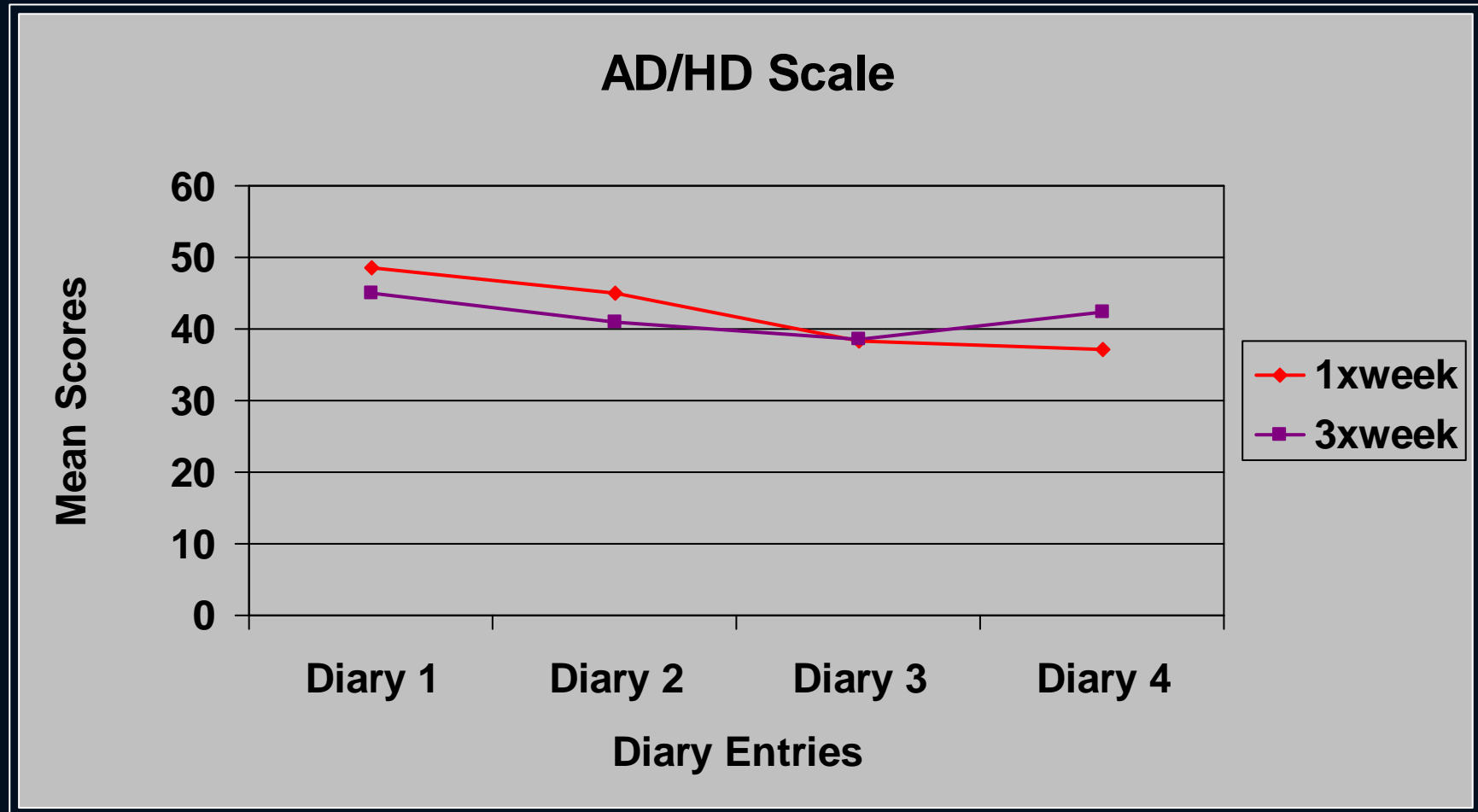
# AD/HD Scale

- Criteria derived from the DSM-IV-TR
- Asked questions based on three core symptoms of AD/HD;
  - Inattention,
  - hyperactivity, and
  - impulsivity.
- Rated on a 5-point scale
  - 0 = Never and 5= All of the time

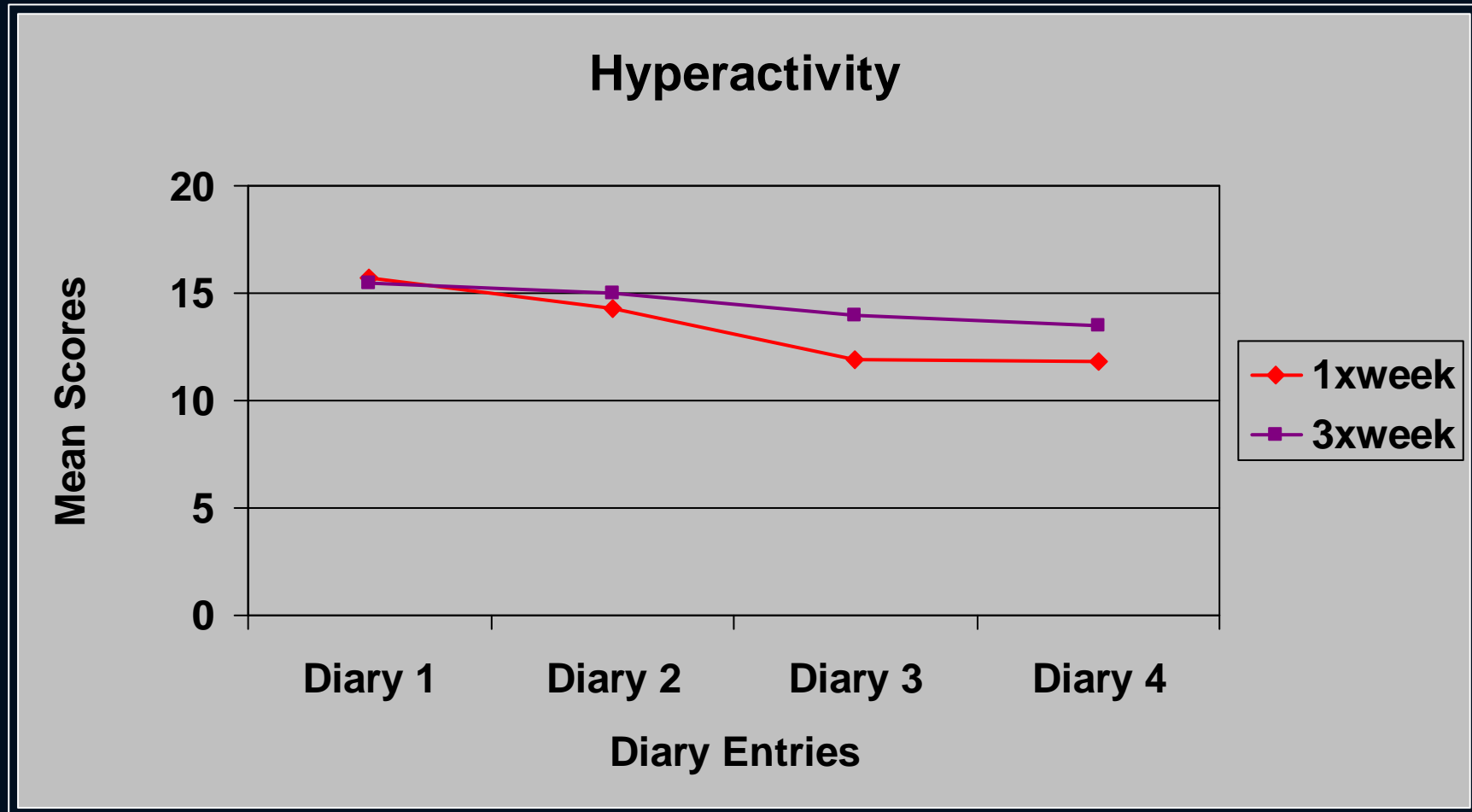
# AD/HD Scale



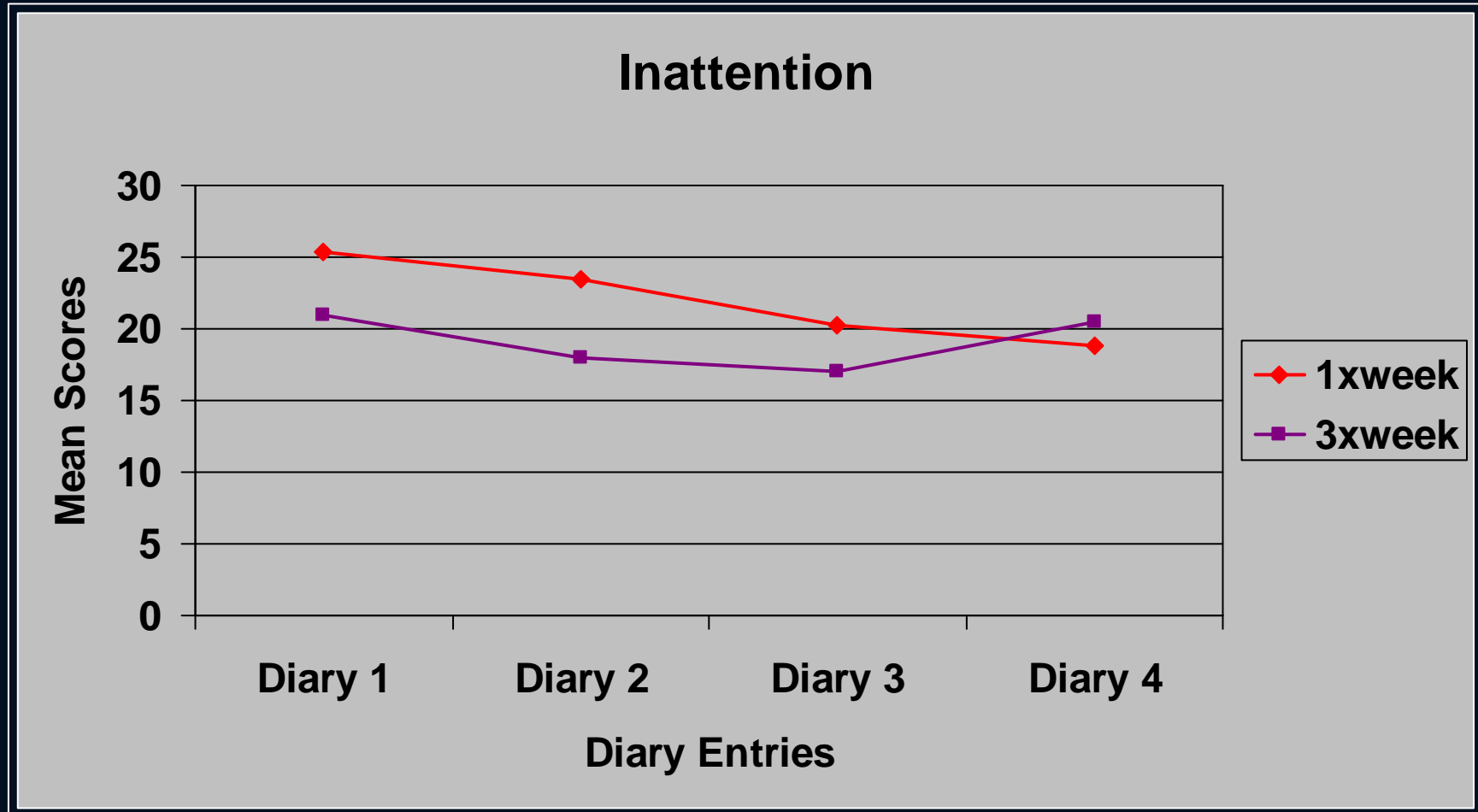
# AD/HD Scale



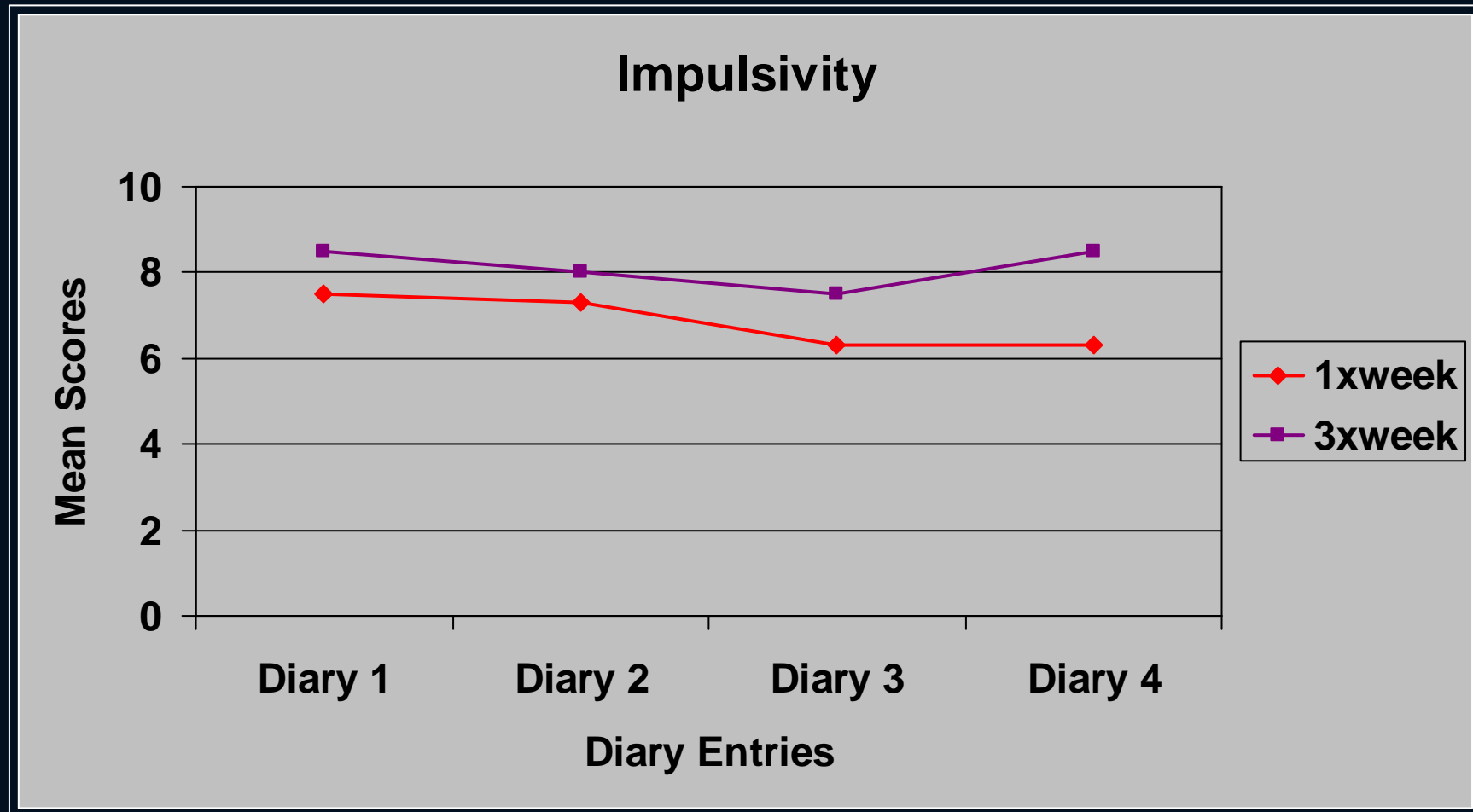
# Hyperactivity sub scale



# Inattention sub scale



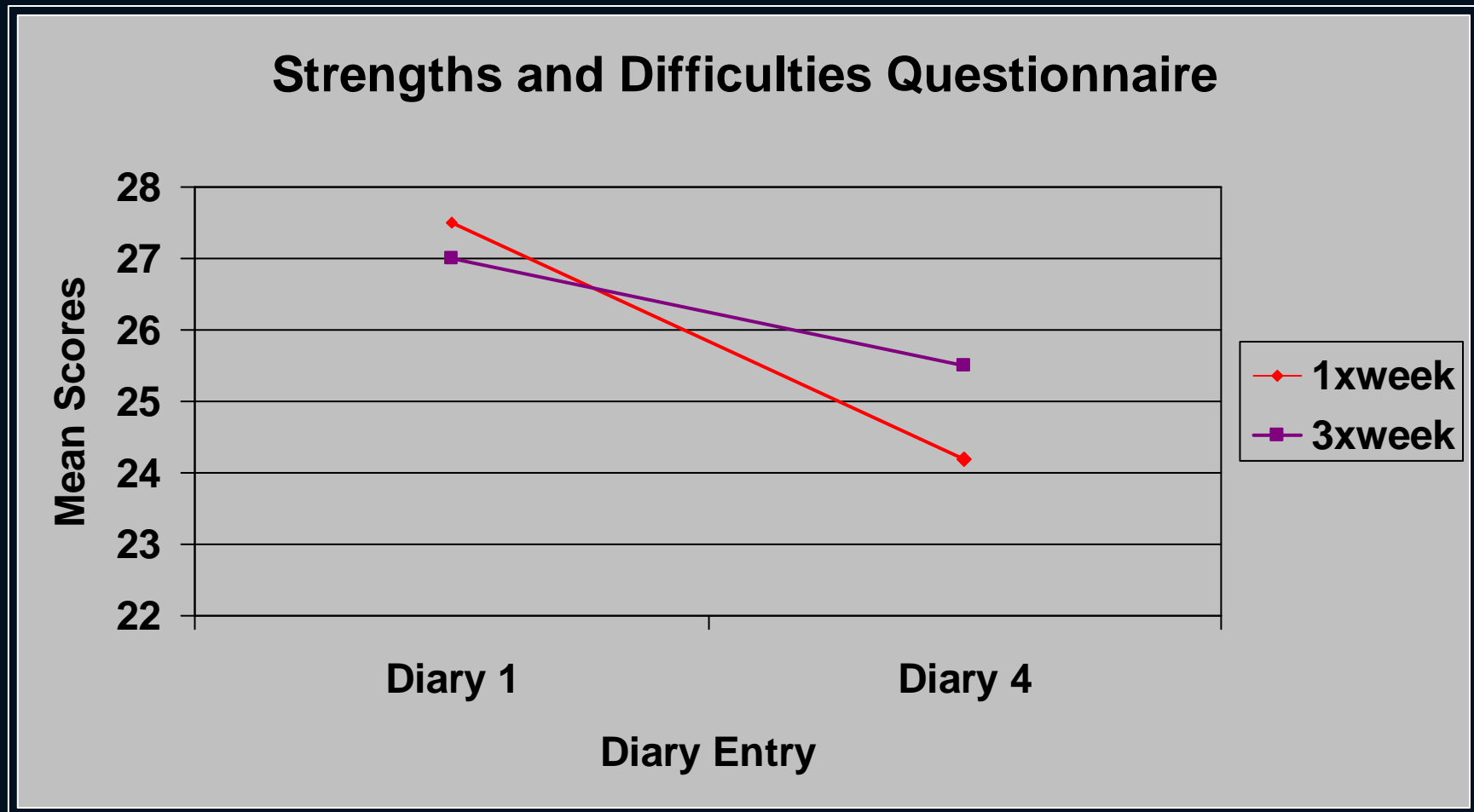
# Impulsivity sub scale



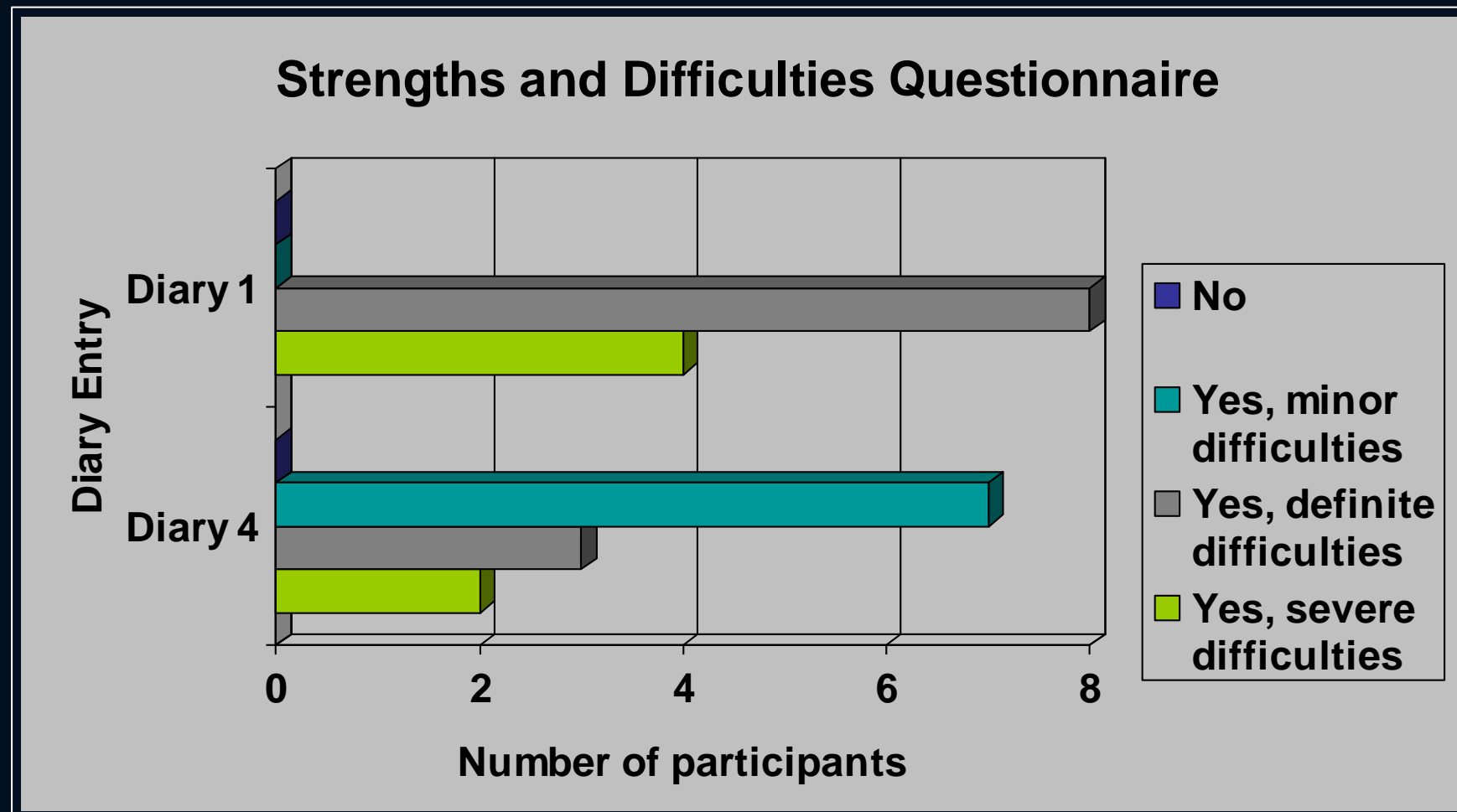
# Strengths and Difficulties Questionnaire

- Asks positive and negative attributes generalizing scores for conduct problems, hyperactivity, emotional symptoms, peer problems, and prosocial behaviour.
- Completed at the first and last biofeedback session.

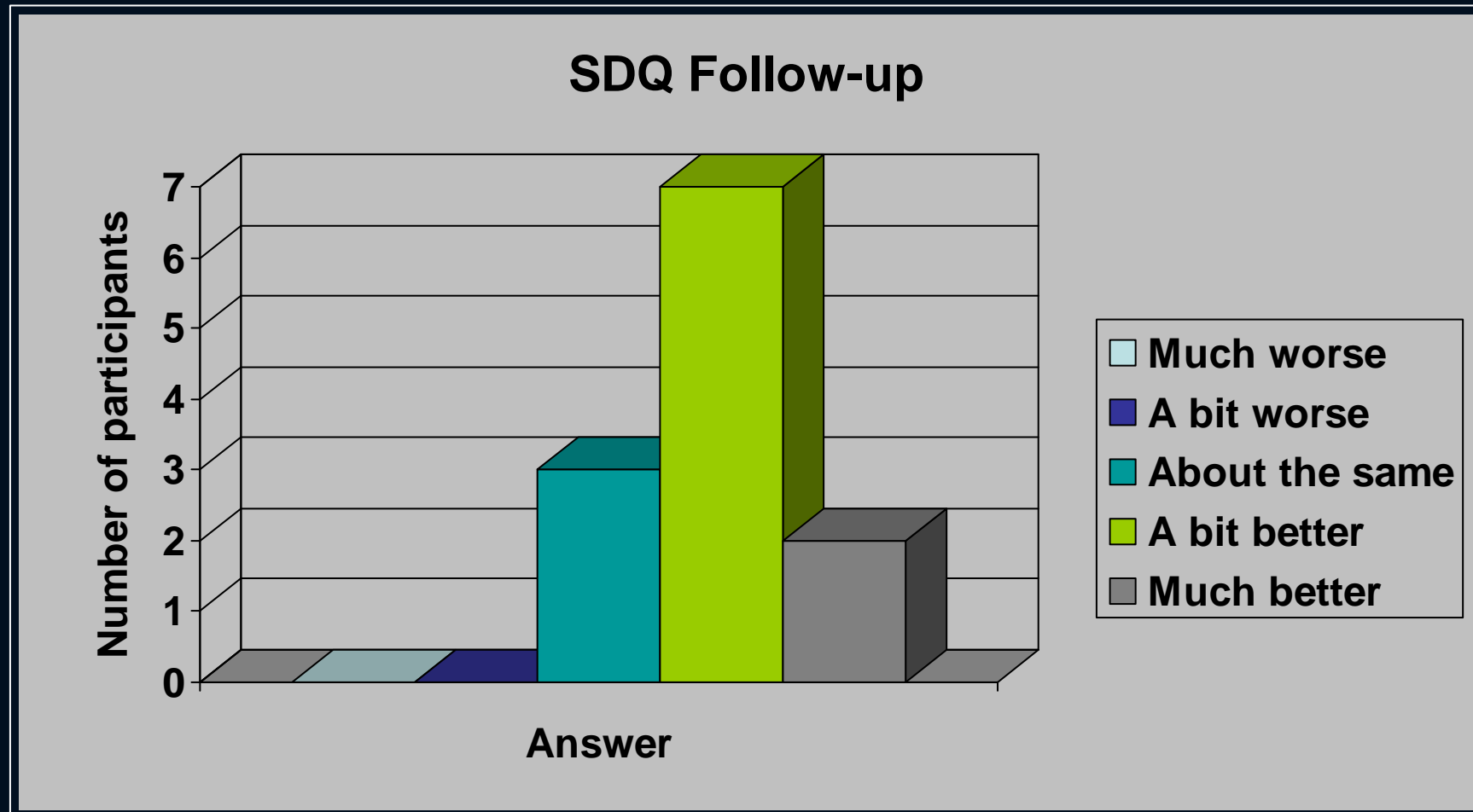
# Strengths and Difficulties Questionnaire



**Overall, do you think your child has difficulties with emotions, concentration, behaviour, or being able to get along with other people?**

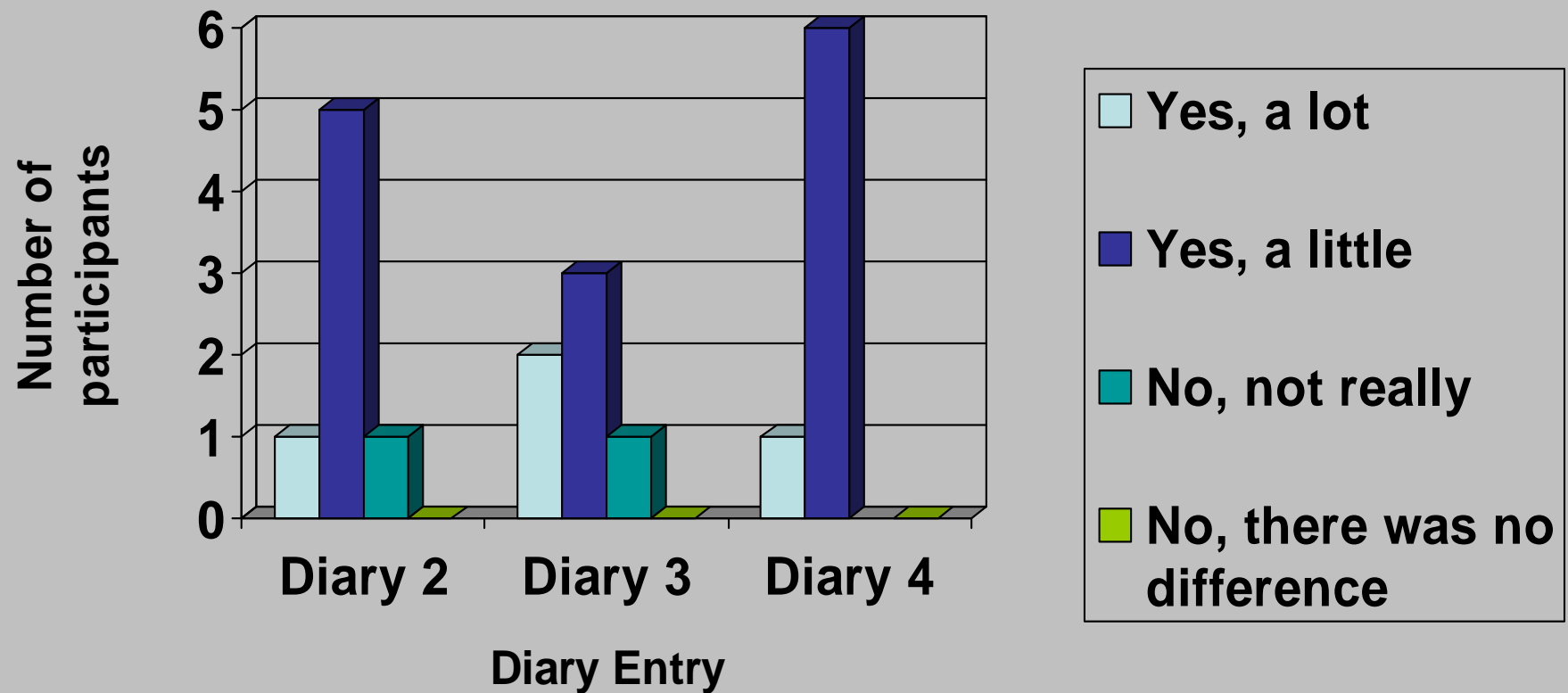


# Since coming to the service, are your child's problems ...

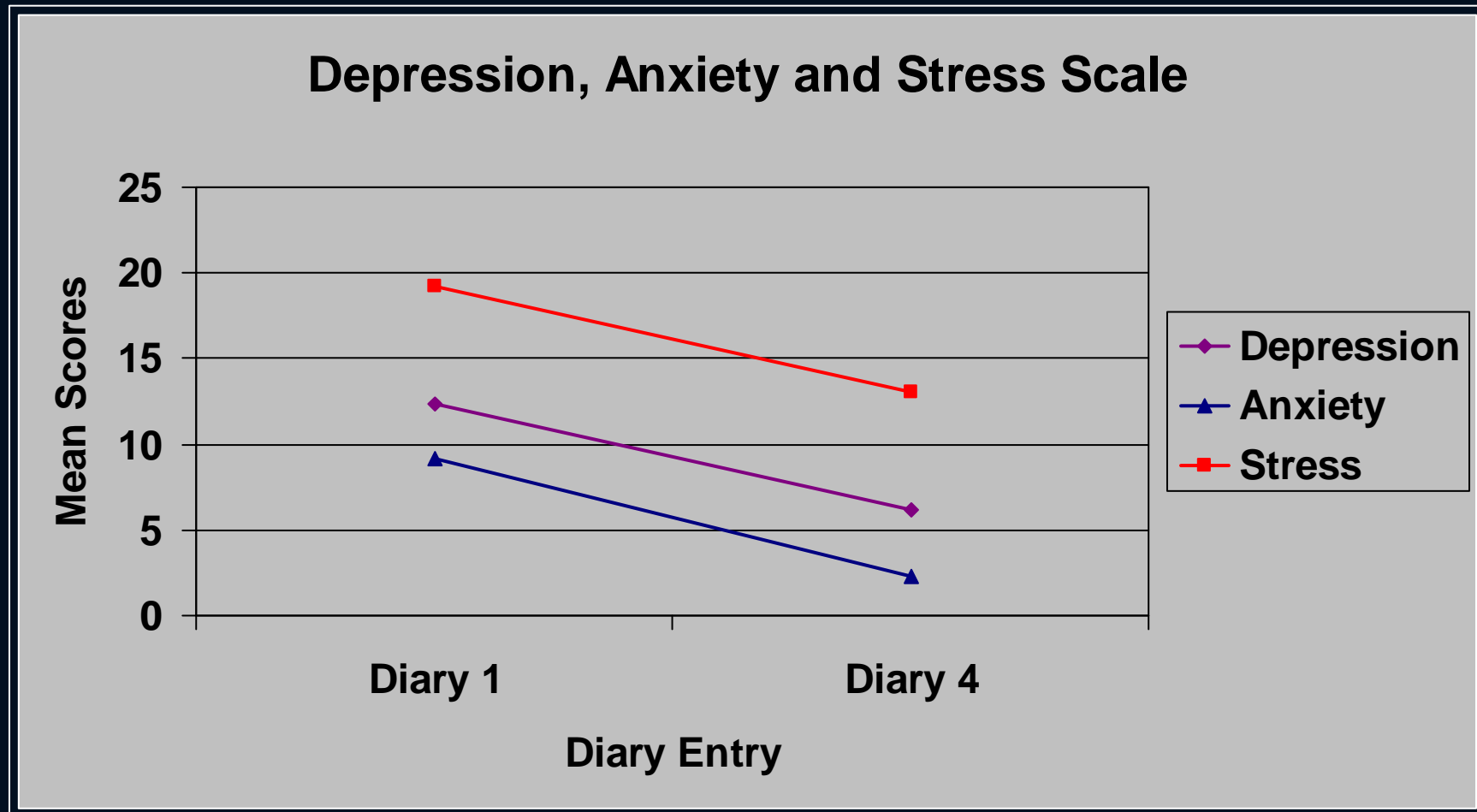


# Use of breathing techniques elsewhere

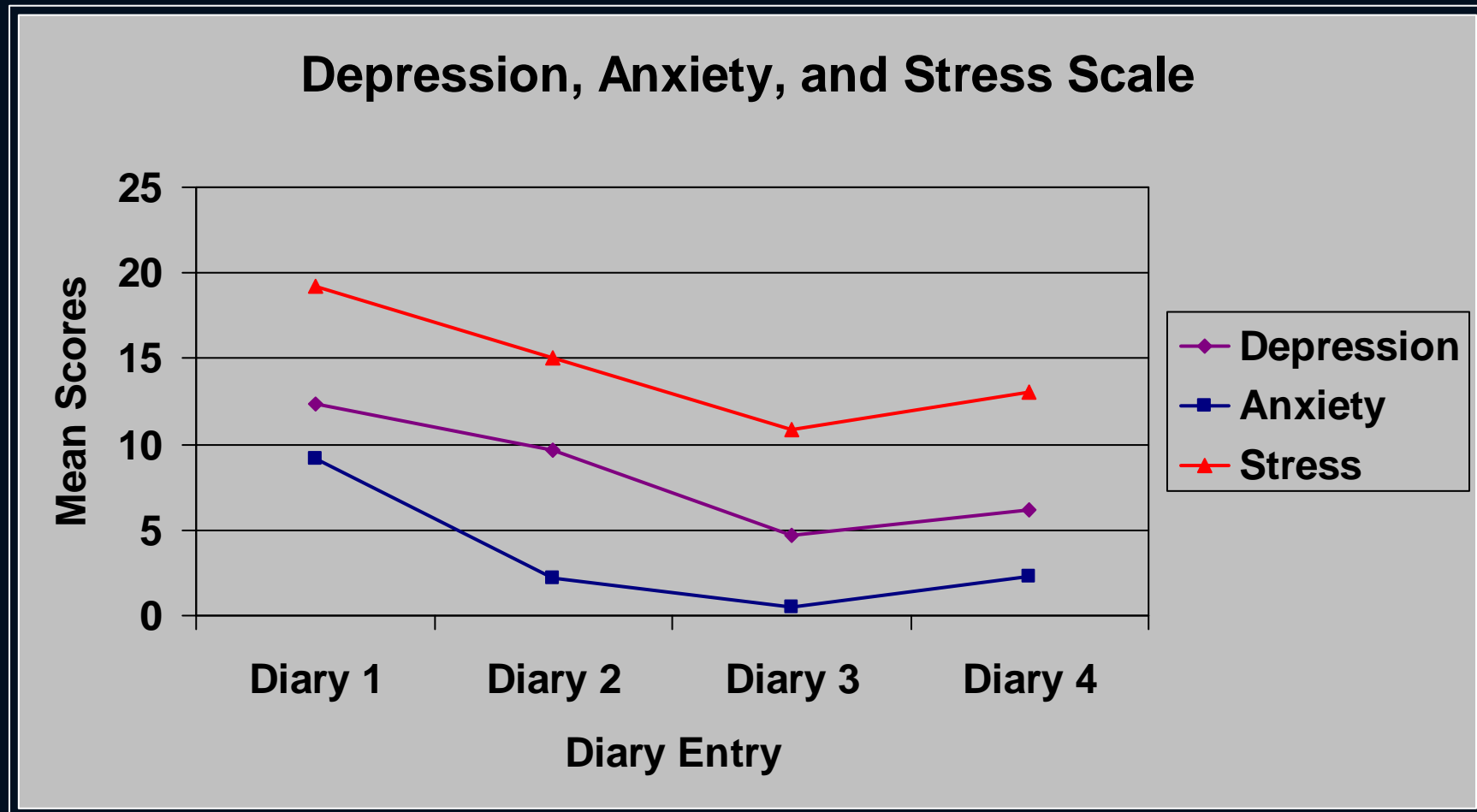
## Help from breathing techniques



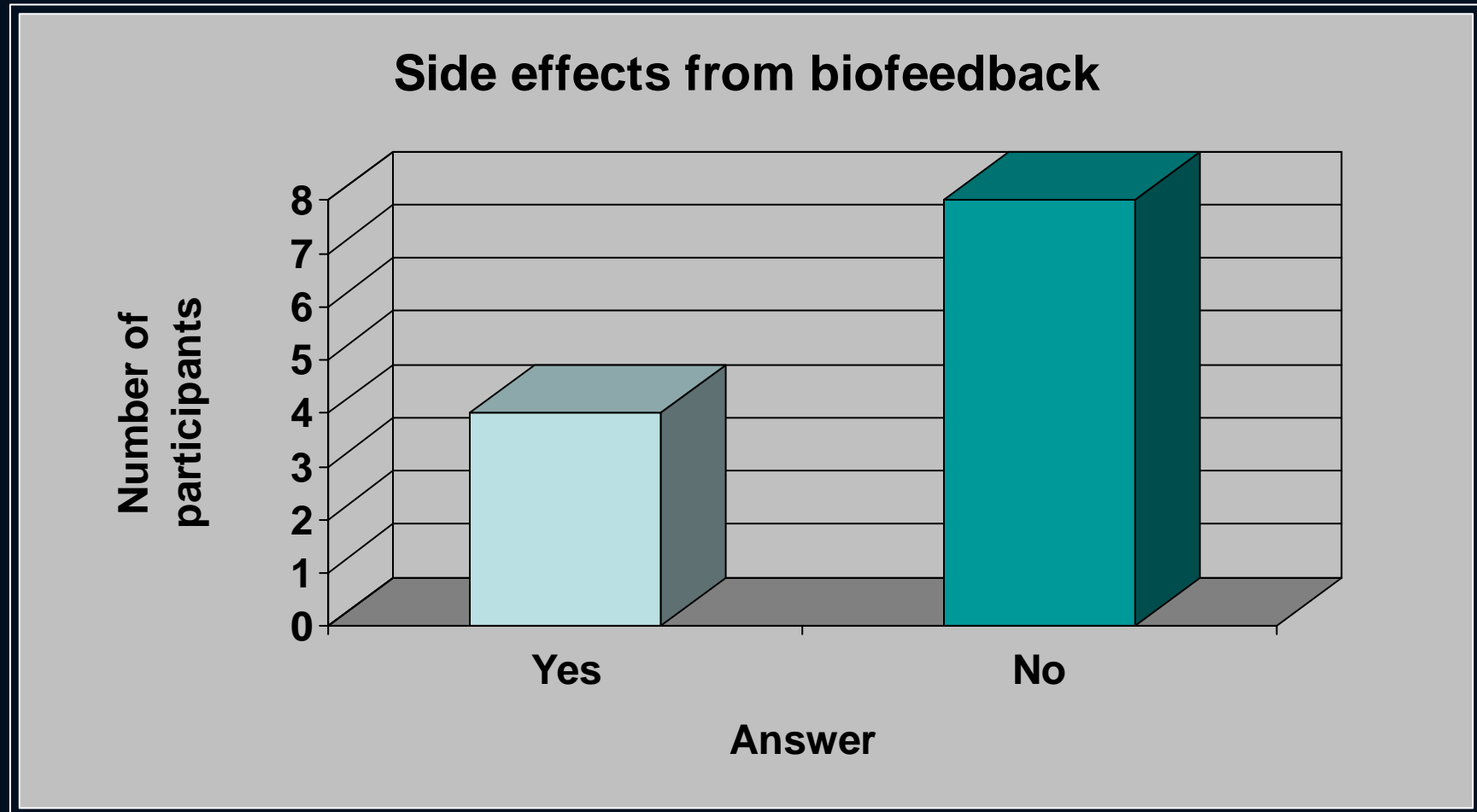
# Depression, Anxiety, and Stress Scale (DASS)



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# Side Effects



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- Lack of appetite
- Computer stimulation
- Built up energy

# What the parents had to say

*“He’s been very good. Straight after the sessions he’s very calm. I am able to take him shopping now without having to worry about chasing after him.”*

*(AD/HD boy, aged 5)*



*“His teachers have commented on his positive behaviour in class. Last week he got a certificate for most improved student. We’re really happy about some of his changes.”* (AD/HD boy, aged 9)