



# **Toward a functional analysis of self injury**

Iwata et al 1994



**PROACTIVE**  
BEHAVIOUR ANALYSTS



# Synopsis

- Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994)
- Self-injurious behaviour (SIB) of nine children and adolescents with developmental disabilities.
- Empirically identified the function of each individual subject's SIB by systematically manipulating antecedent and consequent events.
- Identification of environmental variables that maintain SIB via empirical means might be important when developing individualized interventions.



# What led to the study

- Previous 15 years focused on the use of DR+ based interventions that did not lead to successful outcomes
- Very little data/research available on the environmental determinants that develop or maintain of SIB



# Setting the scene

- Iwata and colleagues set out to developing and refining an operant methodology to identify the functional properties of self-injury before treatment.
- This led to the development of an initial assessment protocol, which involved observing subjects' behaviour in controlled environments with various physical and social manipulations
- Prior to this study, this was only done in animal labs.

# Experimental arrangement

- 9 Participants – aged between 3.5 years and 17.5 years
- Topographies of SIB include self biting, SIB to head self coking and hair pulling
- Setting: Paediatric hospital at Johns Hopkins
- Risk assessments were conducted for safeguarding the participants
- Topographies were operationally defined
- Typically, high IOA (88% - 100%). The lower rates of IOA occurred during the high intensity/frequency of SIB
- Four conditions – social disapproval, Academic Demand, Alone Unstructured Play (Control Condition)

# Results

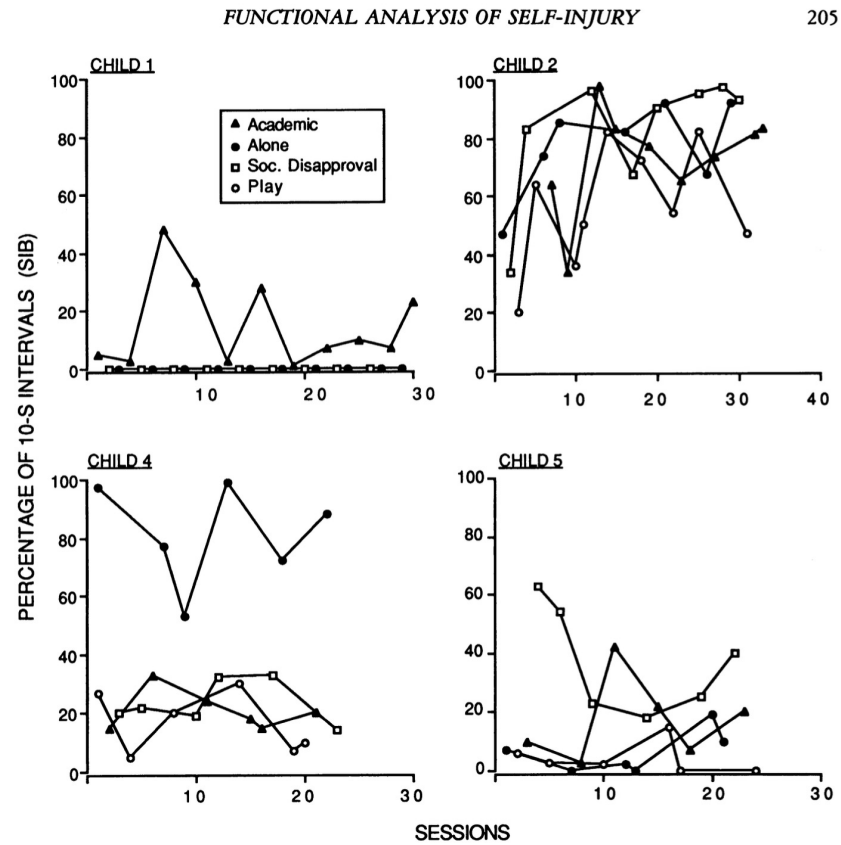


Figure 2. Percentage of intervals of self-injury for subjects 1, 2, 4, and 5 across sessions and experimental conditions.

# Discussion

- In all four participants, SIB was observed to occur in the Alone condition – indicating that the SIB was automatically maintained
- Undifferentiated patterns indicated the need for a more sensitive tool
- Although no treatment data was included in the study, the need to design function based behaviour interventions (and the need for going beyond a DRO) was identified

# Developments

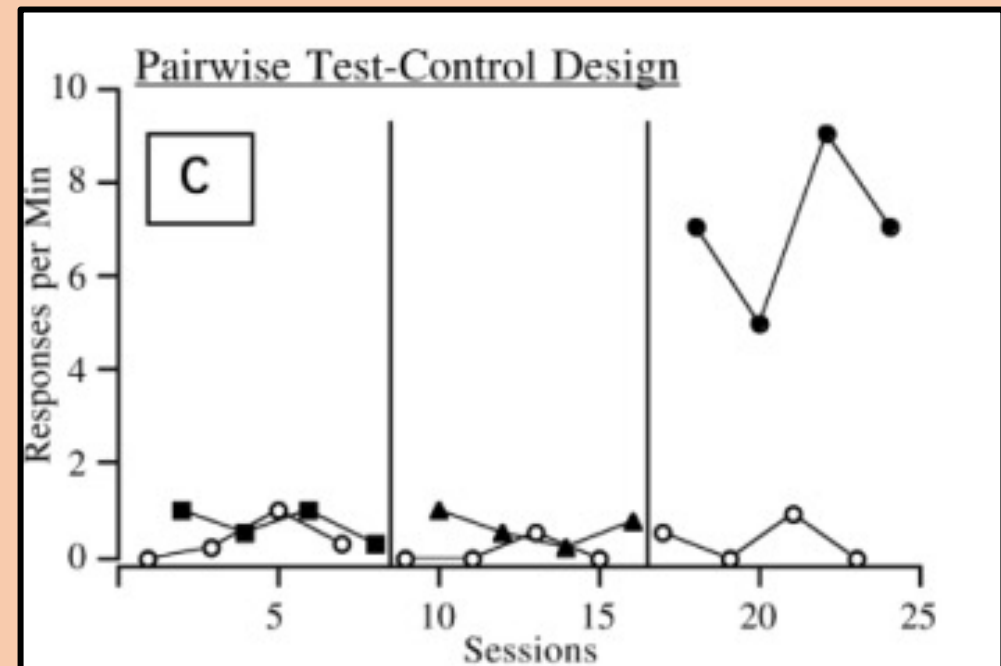
- Extended – 15 min sessions or longer (if time and safety allows and deemed necessary – very time consuming)
- Brief – 5 min or less (frequently used.)



# Developments

Pairwise Test-Control Design:

- Combine multielement with withdrawal design
- Test and control in each pair.

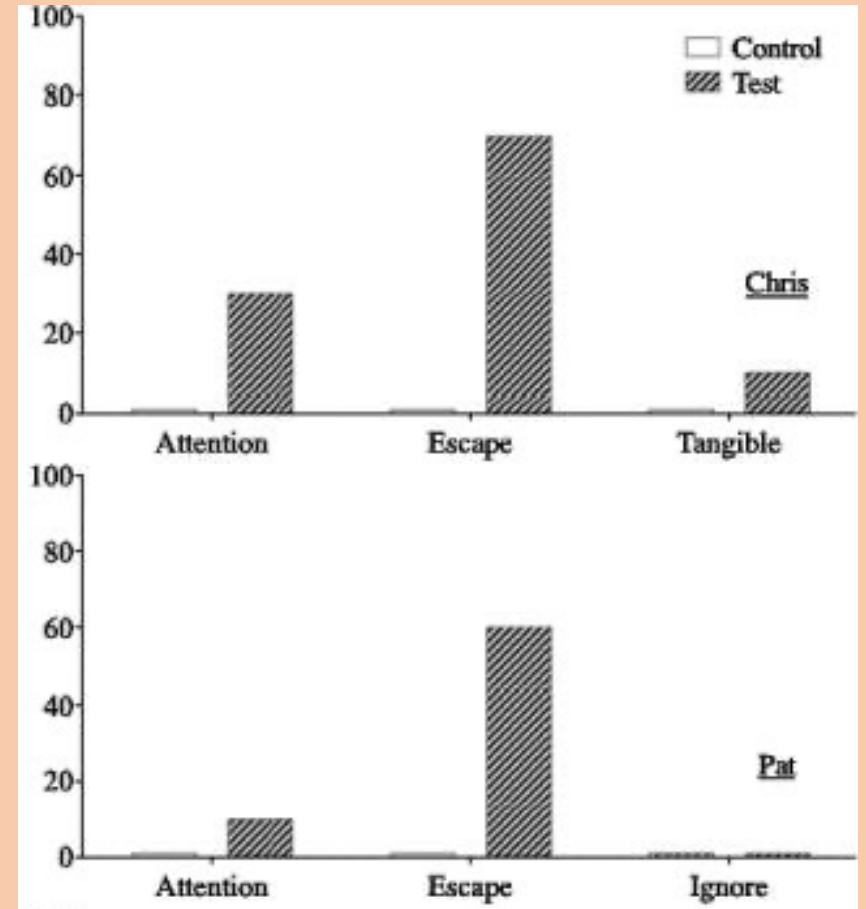


[Iwata & Dozier, 2008.](#)

# Developments

## Trial-Based FA

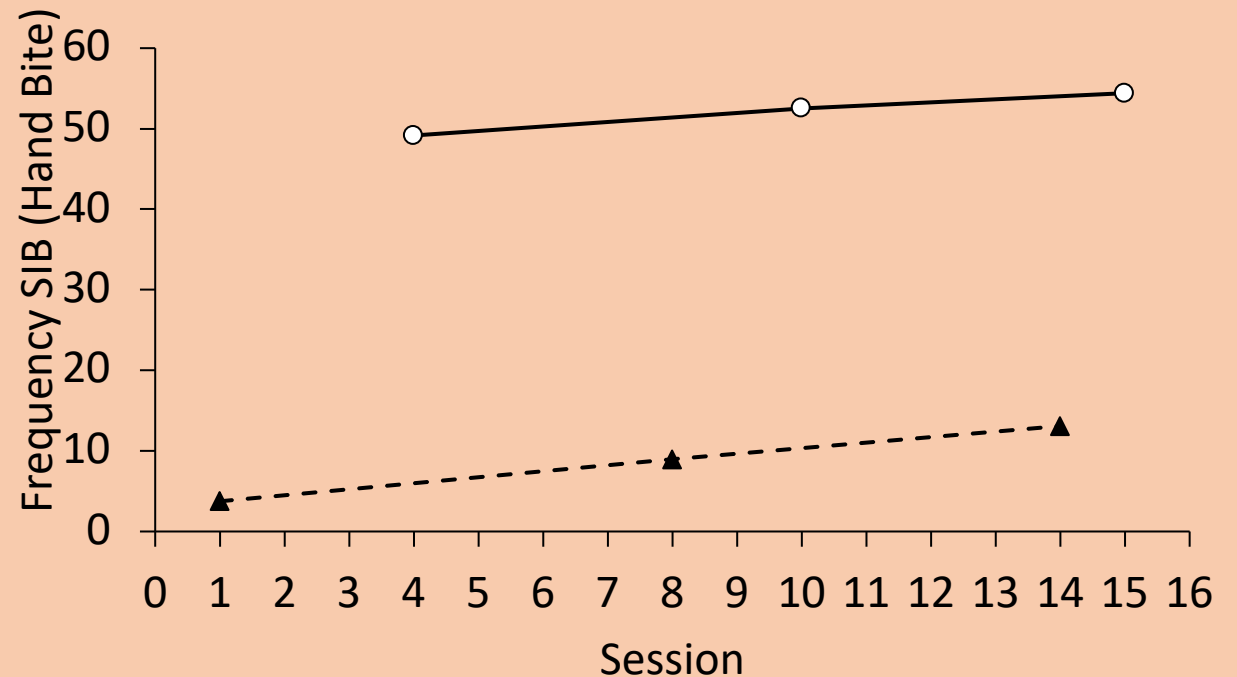
- Run trials of each condition
- Terminate trial upon instances of target behaviour
- Set up 10 trials in each condition
- Present data as percent of trials



# Developments

## Synthesised Functional Analysis

- Interview-informed synthesised contingency analysis (IISCA)
- The initial interview is used to develop the test conditions.
- Rapid alternation between a test and control condition.
- Replicates real-world contexts



# Discussion Questions

- How can we expand the scope of functional analyses to encompass the broader spectrum of self-harm behaviors, including those that are not linked to developmental disabilities? What additional variables or factors should be considered?
- How do technological advancements, such as wearable sensors and mobile data collection tools, influence the experimental setups for studying behaviours of concern?

# Discussion Questions

- What role does the inclusion of caregivers, family members, or other individuals in the experimental setup play in obtaining a more comprehensive understanding of problematic behaviours and its function?
- How can researchers ensure the reliability and validity of data when conducting functional analyses, and what strategies can be employed to enhance the rigor of experimental setups

THE END