The performance of five-year-old children from Mangaung Metro on ten subtests of J. Ayres based Clinical Observations

WFOT CONGRESS 2018

Presented by
Mrs C Potgieter

Acknowledgements:
Mrs E Janse van Rensburg &
Mrs A van Jaarsveld

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
**VRYSTAAT**
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INTRODUCTION

*A science is marked by the **quality and degree** to which it measures the parameters of its field.* ***Measuring instruments*** *are **critical tools** for **acquiring knowledge** and it is difficult to acquire knowledge without them. The **more precisely behaviour** is **measured** the better it is **understood*** (Ayres cited in Mailloux, 1990, p. 589).
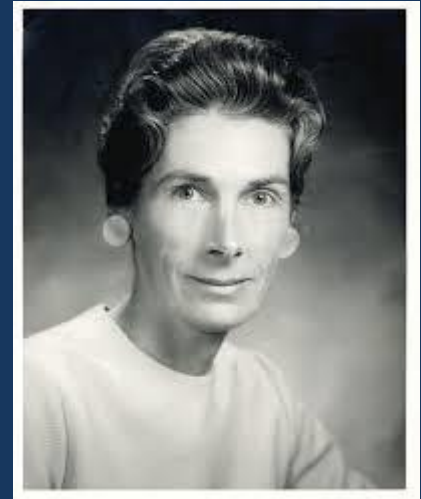
INTRODUCTION

- **Clinical Observations** (COs) are a **measuring instrument** supplementing the SIPT (Ayres, 1989).
- Assist therapists in distinguishing **typical behavioural patterns** from **immature behavioural patterns** (Dunn, 1981, p. V).
- COs are **utilized** by **98.40%** of **South African** paediatric occupational therapists (OTs) (Janse van Rensburg et al. 2017).
- SA has a **diverse socio-economic status (SES)** and OTs are confronted with children from deprived environments.
- **Limited funding** is available and OTs need to **rely on observations** to draw a conclusion and plan intervention (Van Jaarsveld, 2016).

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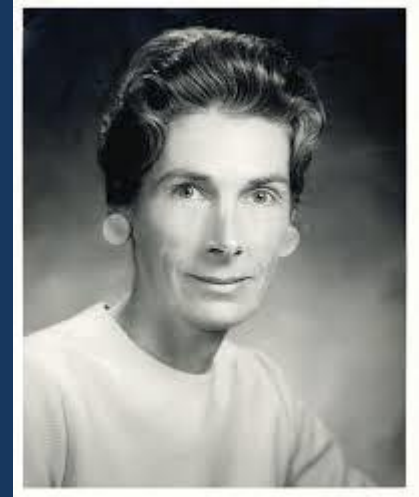
Does the COs adhere?

PROBLEM STATEMENT

- COs can measure **exact precise behavior**.

- **Typical** expected behavioural patterns are **unknown**.

- Difficult to understand and **interpret the behaviour** observed **accurately**.

- **Norms** used based on research outside of SA.

- Children from **diverse socio-economic** environments are compared with the **same COs norms**.

- This impacts **negatively** on the **fairness** and **accuracy – interpret** the COs.

QUESTION: What is the performance of five-year-old children from Mangaung Metro on ten subtests of the current Clinical Observation adapted by SAISI and based on the work of Jean Ayres?
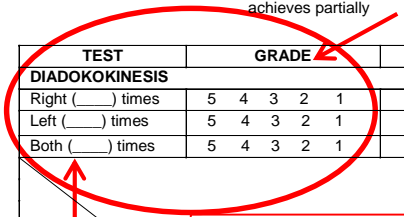
METHODOLOGY

- Quantitative, descriptive, observational study design

Number of child: [ ] **DOB:** 20 / / **Gender:** M_1 F_2 **SES:** H_1 L_2 **Date of test:** 2017 / / **Dominance:** R_1 L_2

1	2	3	4.	5.
Unable to perform	Makes an attempt but only achieves partially	Able to perform, poor control/not well integrated	Good, slight inconsistencies/lacks some integration	Execute with ease / good control / well integrated /

TEST	GRADE	COMMENTS	PERFORMANCE CHECKLIST: OBSERVABLE CHARACTERISTICS				
DIADOKOKINESIS							
Right (____) times	5 4 3 2 1		**SH PARAMETERS**	R	L	B	
Left (____) times	5 4 3 2 1		Start position	P_1 S_2	P_1 S_2	P_1 S_2	DDK 1
Both (____) times	5 4 3 2 1		Isolated forearm movements				DDK 2
			Position of thumb next to index finger				DDK 3
			Rhythmical movement				DDK 4
			SNH PARAMETERS				
			Inco-ordination				DDK 5
			Associated reactions with mouth				DDK 6
			Associated reactions with other hand				DDK 7
			Fixation of upper arm				DDK 8
			Rigid body				DDK9
			Shoulder elevation				DDK10
			Use vision				DDK11
			Slaps hard on legs				DDK12
			Unusual movement of fingers				DDK13
			Careless movements				DDK14
			Extreme caution in movements				DDK15
			One or more double tap				DDK16
			Press elbow in sides				DDK 17
			Not full supination (dorsal side of hand hits leg partially)				DDK18
			Hands not flat (c curved)				DDK19
			Rolling forearm on leg				DDK20

Measurable characteristics

METHODOLOGY CONTINUED

- **Cross sectional study design:**
  - **Schools** classified by DoE **Low SES** (Q1-Q3) and **High SES** (Q4-Q5).
  - **Performances** of the **two groups** were **compared**.

- **Schools:**
  - **Stratified random sampling.**
  - 8 pre-schools.

- **Population:**
  - **Heterogeneous** group of **120 typically** developing children.
  - Ranging from **5y6m-5y11m,** attending **Grade R.**

- **Data analysis:**
  - Assessed **individually** with **adapted version of COs** (SAISI, 2005 & Cook et al. 2016) at the schools.
  - **Video recorded** for detailed analysis.
  - Scoring **in vivo** and **re-assessed** video recordings.
  - Transferred to document and **analysed** by the **Department of Biostatistics** from the University of the Free State.
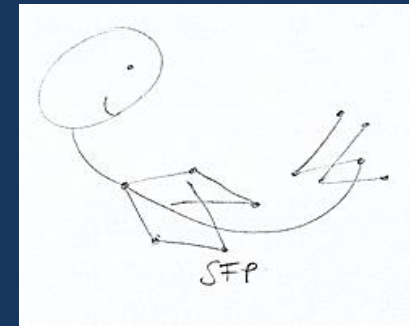
TEN SUBTESTS

- Diadokokinesis (DDK)
- Thumb-Finger Touching (TFT)
- Equilibrium Reactions (ER)
- Prone Extension Posture (PEP)
- Asymmetrical Tonic Neck Reflex (ATNR), Reflex Inhibiting Posture (RIP) & Symmetrical Tonic Neck Reflex (STNR)
- Supine Flexion Posture (SFP)
- Schilder's Arm Extension (SAE)
- Finger-to-Nose (FTN)
- Gaze Stability (GS)
- Standing Balance (SB) [eyes open and closed]

RESULTS OF SFP

- **Measurable Characteristics**:
  - **58.33%** (n=70) obtained a **grade score of 4 & 5**.
  - Median duration **16.00 seconds** with Q_1-Q_3 range of 10.50-25.00 seconds.
  - No **significant difference** was found within the two **SE groups** (grade score p=0.12 and duration p=0.18).

- **Observable Characteristics**:
  - Table.

RESULTS CONTINUE

	Frequently Present (75.00%-100.00%)	Sometimes Present (25.00%-74.99%)	Seldom Present (0.00%-24.99%)
SH Parameters		• Lift limbs simultaneously (52.50%, n=63) • Maintain posture against resistance (44.17%, n=53) • C-curve in upper trunk (43.33%, n=52) • Neck flexion more than 45° (30.00%, n=36)	• **Head held steady** (23.33%, n=28)
SNH Parameters	• **Effort required** (85.83%, n=103) • **Shoulder elevation** (75.00%, n=90)	• **Fixation of upper limbs** (73.33%, n=88) • **Neck flexion less than 45°** (70.00%, n=84) • Retract chin (61.67%, n=74) • Press feet together (58.33%, n=70) • Trunk and shoulders in line (56.67%, n=68) • Head lag before 10 seconds (50.00%, n=60) • Assumes posture with lower limbs first (44.17%, n=53) • Fixation of lower limbs (43.33%, n=52) • Place one foot over the other (35.83%, n=43)	• **Assumes posture upper limbs first** (3.33%, n=4) • **Unable to count aloud** (23.33%, n=28) • **Grabbing onto clothes** (21.67%, n=26) • **Chin lead** (11.67%, n=14) • **Fisting of hands** (3.33%, n=4) • **Associated reactions with the mouth** (3.33%, n=4)

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RESULTS CONT.

- **Observable Characteristics**:
  - One significant difference, **count aloud** (*p*=0.00)
  - **More often** in **low SES** (36.67%, n=22) compared to **high SES** (10.00%, n=6).
  - **Interpret** this parameter with **caution** in low SES settings.

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FINAL CONCLUSION

- **Measurable characteristics**:
  - **Majority** obtained grade scores of **4 & 5**.
  - Can be expected of this age group to engage **adequately** in the COs.
  - **Low grade** scores in TFT, Reflexes, SAE and SB (eyes closed).
  - Most of the **quantitative data** (except reflexes) was found **consistent** with norms used in COs (SAISI, 2005).

FINAL CONCLUSION CONTINUE

- **Observable characteristics**:
  - **Summary** of each **item** according to **prevalence**.
  - **Assist OTs**.

- **SE differences:**
  - **No marked differences** on the measurable and observable characteristics.
  - Differences in **TFT** and **SB**.
  - On both **measurable** and **observable** characteristics.
  - **High** SES group performed **better.**

CONTRIBUTION OF STUDY

- **Expanding** literature on COs.
- **Updated** quantitative **data** on South African children.
- More **specific data** to assist therapists in under-resourced communities.
- Enhance **SI trained** OTs **reasoning** on patterns of dysfunction.
- Value to **SI & neuro-developmental** frame of reference.
- **Accurate assessment**, indirectly influencing treatment.
- Identify children **before** entering formal schooling.

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Thank You
Dankie

T: 051 401 9111 info@ufs.ac.za   www.ufs.ac.za

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