The Assessment and Treatment of Auditory Processing Disorders in the South African Context: Problems and Pitfalls

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Disclosure

• Disclosure:
No relevant financial or nonfinancial relationships to disclose.

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• Co-Authors:
- Ms Nasim Khan
- Ms Samantha Govender
Journal article

Where to view the journal article
Searching for answers?
Auditory pathway and involves the CANS

Normal hearing sensitivity / normal audiogram

Inability to separate meaningful auditory information (speech) from non-meaningful information (noise)

Difficulty with auditory memory, auditory sequencing, and delayed receptive language development amongst others

Prevalence of APD in the paediatric between 2% and 5%

Listening, Reading, Spelling
Attention difficulties

- frustration
- often unable to follow instruction,
- impacts social & emotional development

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RISK FACTORS FOR APD

- Chronic otitis media
- Academic underachievement
- Family history
- Co-existing disorder(s)

Neonatal risk factors:
- Seizure disorders

Head injury
SCOPE OF THE AUDIOLOGIST/ STA

The HPCSA states that audiologists/ STA’s should only participate in the field of practice in which they feel competent, based on their level of training and their qualifications.

UNIVERSAL CHALLENGES

- No universal gold standards
- Differential diagnosis required
- Scope of the Audios/STA
- Lack documentation
- Time taken to screen, assess and diagnose
- Referral
- Cure
(Chermak, Traynheim, Seikel & Musiek, 1998)
- <50% felt competent to assess
- <50% confident in the area
- Avg. of 3 hrs contact with the APD population

Canadian Interorganizational Steering Group for Audiology & SLP (CISG, 2012)
- <50% assessed children for APD
- Priority on services such as H/A fittings
- Audiologists creating their own test batteries
- SLT tools administered to account for gaps

Baldry and Hind (2008)
58% not adequately informed to practice in APD further training was necessary
Primarily identified & managed hearing disorders whilst fitting H/A, very little practice in APD (Bantwal, 2011)

Population: 1.2 billion, 22 different languages, served by 1 750 audiologists/STA’s

Khan (2005) - undergraduate curricula for APD


- Self learning through observation
- Inappropriate tools
- Referral pathway
Challenges in SA

- Increase in non-communicable diseases (HIV/AIDS & TB)
- Demands of managing more commonly occurring conditions.
- 1,802 audiologists and STA's: ±54 million people.
- Linguistically diverse clients
- Few standardised normative data, therefore influencing reliability & validity of screening and assessment
- APD tests developed in USA & influenced by foreign data with the linguistic load disadvantaging children with different dialects to that of the SA population

Audiology services are unequally distributed in rural & urban areas
South African Taskforce (2001)

- To establish an appropriate test battery for both the fluent first-language, English-speaking child and one who is non-proficient in English, that is second-language English speaker.

- The *South African Low Linguistically Loaded CAPD Test Protocol* was created to cater for individuals with a basic understanding of the English language (Saleh, Campbell & Wilson, 2003).

- Electrophysiological tests (P300)
  - Cost & Time
  - Lacks interhemispheric information or corpus calosum;
  - Behavioural information not seen
Rationale
- Areas requiring attention
- Contextually appropriate guidelines/ protocols,
- Audiologists become more equipped,
- Cost-effective/ realistic solutions to suit the South African context.

Aim
To determine the practices, challenges and recommendations of South African audiologists/ STA’s regarding managing children with APD.

Objectives
- To determine the practices & challenges of audiologists/ STA’s regarding the screening, assessment & intervention of children with APD.
- To identify the recommendations provided by the study participants with regards to managing children with APD.
• 189 of 1,802 audiologists and STA’s accessed. A total of 156 questionnaires were considered for analysis

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<thead>
<tr>
<th>Years of experience</th>
<th>BA (n=125) No. (%)</th>
<th>MA (n=29) No. (%)</th>
<th>PhD (n=2) No. (%)</th>
<th>Total No. (%)</th>
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<td>14 (48%)</td>
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<th>PhD (n=2) No. (%)</th>
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<td>2000–2005</td>
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<td>9 (31%)</td>
<td>0</td>
<td>34 (22%)</td>
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<td>1980–1989</td>
<td>19 (15%)</td>
<td>5 (17%)</td>
<td>1 (50%)</td>
<td>25 (16%)</td>
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<td>Prior 1989</td>
<td>4 (0%)</td>
<td>2 (7%)</td>
<td>1 (50%)</td>
<td>7 (5%)</td>
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<tr>
<th>Institute</th>
<th>BA (n=125) No. (%)</th>
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<th>PhD (n=2) No. (%)</th>
<th>Total No. (%)</th>
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<td>UCT</td>
<td>16 (13%)</td>
<td>7 (24%)</td>
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<td>Stell.</td>
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<td>2 (7%)</td>
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<td>51 (41%)</td>
<td>8 (28%)</td>
<td>2 (100%)</td>
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<td>KZN</td>
<td>26 (21%)</td>
<td>3 (10%)</td>
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<td>Wits</td>
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<td>9 (31%)</td>
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<td>29 (19%)</td>
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<td>Other</td>
<td>3 (2%)</td>
<td>-</td>
<td>0</td>
<td>3 (2%)</td>
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Data Collection Tool
Questionnaire survey

Data Collection Procedure
Questionnaire, information letter & consent form with an electronic link to the online survey site, Survey Monkey, was posted to all the audiologists and STA's on the HPCSA register.

Reliability and Validity
Pilot study
Adapted pilot study

Ethical Considerations
The Practices & Challenges of Audiologists regarding Screening, Assessment & Intervention of children with APD

- Of 156, 60% followed guidelines;
- 40% did not follow any guidelines
- Common guidelines
  - RSA CAPD Taskforce (2001) (29%, n = 27),
  - ASHA (2005) (31%, n = 28),
  - *Bellis (2003) guidelines (33%, n=30)

The Perspectives of audiologists/STA’s regarding their level of preparedness in the management of APD.
The overall perspectives of audiologists/STA's regarding the management of APD being a) Screening b) Assessment and c) Intervention
Screening

- **Screening (N= 156)**
  - 60% (n = 93) screened children for APD
  - No single screening protocol. The participants used several combinations of formal and informal screening tools
Informal and Formal Screening measures of APD

<table>
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<tr>
<th>Screening Tool</th>
<th>Formal/Informal</th>
<th>%</th>
<th>(n = )</th>
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<tbody>
<tr>
<td>Children’s Auditory Processing Performance Scale (CHAPPS)</td>
<td>Informal</td>
<td>48%</td>
<td>n = 45</td>
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<tr>
<td>Fisher’s Auditory Processing Checklist</td>
<td>Informal</td>
<td>29%</td>
<td>n = 27</td>
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<tr>
<td>SCAN:C</td>
<td>Formal</td>
<td>28%</td>
<td>n = 26</td>
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<tr>
<td>Screening Instrument for Targeting Educational Risk (S.I.F.T.E.R.)</td>
<td>Informal</td>
<td>16%</td>
<td>n = 15</td>
</tr>
<tr>
<td>SCAN:3C</td>
<td>Formal</td>
<td>16%</td>
<td>n = 15</td>
</tr>
<tr>
<td>SCAN:A</td>
<td>Formal</td>
<td>15%</td>
<td>n = 14</td>
</tr>
<tr>
<td>Auditory Continuous Performance Test (ACPT)</td>
<td>Formal</td>
<td>12%</td>
<td>n = 11</td>
</tr>
<tr>
<td>Listening Inventory for Education Checklist (L.I.F.E)</td>
<td>Informal</td>
<td>11%</td>
<td>n = 10</td>
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**Emanuel (2002)**: just over 50% did not screen for APD
- included classroom observation

**Chermak et al. (2007)** SCAN; CHAPPS; Fisher’s Auditory Problems Checklist; SIFTER; ACPT

**Logue-Kennedy et al. (2011)** more than 50% expressed few screening tools used due to insufficient training and limited available
CHAPPS, the S.I.F.T.E.R and TAPS-R, only highlight areas of the child’s weaknesses (Emanuel, 2002)

Fisher’s Auditory Problems Checklist: limited categorical organisation (Wilson, Jackson, Pender, Rose, Wilson, Heine, & Khan, 2011)

SCAN: Poor test-retest reliability and is linguistically-loaded nature
The practices of audiologists/ STA’s regarding the assessment of children with APD
42% (n = 66) assessed children for APD,
Assessment

**Emanuel (2002)**: SSW (63%), Speech in Noise Test (56%), SCAN (53%), the Dichotic Digits Test (43%) & Pitch Pattern Test (46%)

**Logue-Kennedy et al. (2011)**, only 3% of the participants diagnosed APD, all of which were qualified as SLTs

43% (n = 67) provided interventions

- Gaining child's attention: 80%
- Note taker: 33%
- Repitation: 48%
- Confirmation: 41%
- Visual aids: 61%
- Preferential seating: 83%
- Assistive listening devices: 83%
- Self reflection & correction: 61%
- Cognitive problem solving: 38%
- Self instruction: 26%
- Attribution training: 19%
- Content schema induction: 26%
- Discourse cohesion: 15%
Intervention

- Statistically significant relationship between the number of years of experience and the provision of intervention for APD
  - 59% with >10 years of experience,
  - 31% with <10 years of experience, provided interventions.

- 46% provided onward referral to other practitioners,
  - Occupational therapists (56%)
  - Psychologists (51%) and
  - Second audiologist (51%).
Logue-Kennedy et al. (2011): 52% did not offer intervention
• 48%: offering advice to the client, with no formal intervention protocol

Emanuel (2002): >95% preferential seating; 91% gaining attention; 89% rephrasing and/or repeating; 85% FM systems
Limitations: created by school district policies and procedures, lack of training, poor reimbursement and time constraints (Emanuel et al., 2011).
Challenges

Lack of collaboration

Cultural and linguistic issues

Time taken to assess/report writing

‘Too complicated’, ‘too long to administer’ or ‘too boring for children’

Referral?

Theoretical and clinical preparation

Budget constraints/hospital policies

lack of adherence from parents and teachers

lack of awareness among teachers, parents and other practitioners

Lack of standardised screening and assessment tools with minimal supporting documentation

51% (n = 79)
“Training in APD gave relatively good guidelines regarding the roles, but unable to practice and therefore feel inadequate in this area.”

“The speech therapy and audiology approaches to APD are so very different and my perception is that the SLT’s role is much better known and there are more test and assessment materials for the SLT management of APD, other than FM systems. I would recommend that the SLT be the main profession doing APD assessments and therapy.”

“No golden standard / universal definition - so what exactly are we testing and managing? Are our tests really sensitive enough for APD identification and...”

“Main concerns are that other allied professionals are conducting management that is often eg. educational psychologists. They are even offering courses to train teachers and trespassing the scope of practice of the SLT and...”

“I attended a two day course led by Dr Wayne Wilson which was very helpful to understand APD and current issues. Such courses are needed to stay informed.”
Research & Clinical Implications

Creating standardised, reliable & culturally acceptable assessment tools

Reinstituting the South African Taskforce

Similarities and/or discrepancies between the SLT and the audiologist

Training workshops

Future research using a mixed-method design

Educating medical aids and insurance companies

Updated study on the current SA audiology training programmes
Limitations

• less than 10% of the population of South African audiologists

• Information bias

• Participants’ responses were based on their own understandings of APD, and therefore, variable responses may be expected.
“Unless and until clinicians within the educational setting become involved in asking and answering questions related to CAPD, the area of CAPD in children will remain as much a mystery as it is today”  
(Bellis, 2003)
QUESTIONS?

ARE YOU CONFUSED?

SO AM I.
References


