Development of a Novel Mobile Application to Screen for Autism in Arabic-Speaking Communities in Oman

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Presentation Outline

• Background Information
  – Oman
  – Autism

• Autism Fingerprint Application
  – Development
  – Assessment

• Future Directions

• Take-Home Points
Background: Sultanate of Oman
Autism is a group of lifelong neurodevelopmental disorders that are defined by impairments in social interaction, communication skills, and patterns of activities (behavior).
Background: Autism

- **Prevalence**
  - Varies

- **Etiology**
  - Genetics...environmental...

- **Screening and Diagnosis**
  - Screening → Modified Checklist for Autism in Toddlers (MCHAT)
  - Diagnosis → Autism Diagnostic Observation Schedule (ADOS)

- **Treatment**
  - Early intensive therapy, education, rehabilitation
Autism Fingerprint: Development

- **Problem**
  - Limited access to physicians or specialists

- **Goal**
  - To create a free app that allows families to...
    - Educate themselves about autism
    - Screen children culturally-appropriate screening tool (MCHAT)
    - Communicate with medical professionals easier and faster

- **Development**
  - ASM Technologies
  - Muscat Autism Center
  - Important cultural differences
Q4. Does your child enjoy playing peek-a-boo/hide-and-seek?

Non-Autistic

Autistic
Q8. Can your child play properly with small toys (e.g. cars or bricks) without just mouthing, fiddling, or dropping them?
Q22. Does your child sometimes stare at nothing or wander with no purpose?
Autism Fingerprint: Assessment

• Validation Study
  – 65 caretakers of children with confirmed ASD
    • 58 received “high risk of ASD”
    • Sensitivity of 0.89 (low false negative)
  – 65 caretakers of children with no ASD
    • 53 received “low risk of ASD”
    • Specificity of 0.82 (low false positive)

• Limitations
  – Possible recall bias
  – Small study size
  – Age limitations
Future Directions

• Enhanced **visuals**
• **English** language option
• **iOS** availability
• Include **changes** to M-CHAT
• **Usage** and **effectiveness**
• As Oman is a quickly developing Middle Eastern country with a rapidly expanding population, it is important to implement proper resources for diagnosis and treatment of children with learning (and other) disabilities.

• Free, easy to use mobile application to screen for autism that is both sensitive (0.89) and specific (0.82)

• AutismFingerprint available for download from the Google Play Store
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