Gauging the Impact of Interactions with Autistic Children Early in Medical Education

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Introduction

- According to the CDC, 1 in 44 children within the U.S are diagnosed with Autism Spectrum Disorder (ASD) and this prevalence rate has been steadily increasing in the past decade.[1]
- ASD is complex neurodevelopmental spectrum disorder with deficits in social communication, reciprocal interaction, and restricted and repetitive behaviors.[2]
- Research by Austraico et al. demonstrated that an overwhelming majority of medical students perceived their general knowledge of ASD to be less than somewhat informed and both medical students and pediatric trainee respondents reported feeling uncomfortable providing care for an ill child with ASD.[3] This emphasized that medical students feel underprepared for future clinical encounters with patients with ASD.
- Limited research is available on U.S medical school curriculums integrating special needs exposure. Within the U.S, large number of medical schools incorporate didactic teachings about people with disabilities, but few provide opportunities for direct interactions with special needs patients.[4]
- Warranted the need to understand what medical students view as an appropriate teaching method that will better prepare them for future patient interactions.

Figure 1. Logo created by Dr. Dereski for EMBARK Autism Projects
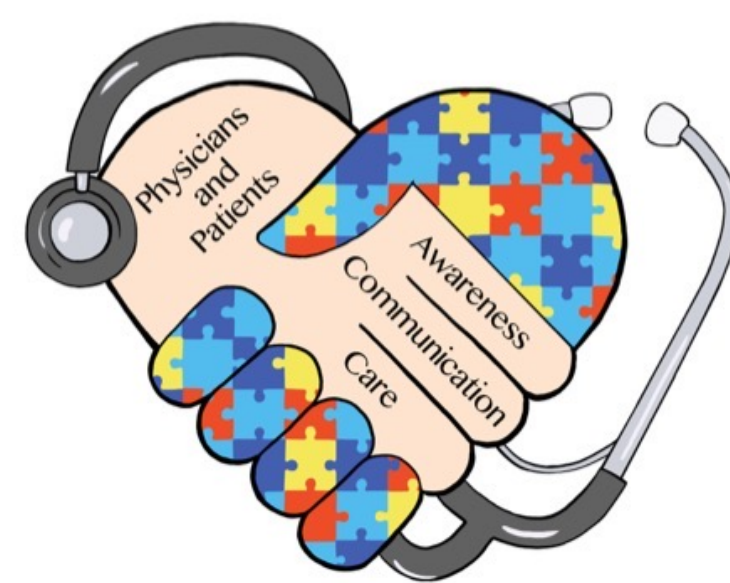
Aims & Objectives

Determine the impact of a guided reading project on preclinical medical students' perceptions of working with children with ASD.

Aim I: To assess change in medical students' perception of the challenges of treating children on the autism spectrum after participating in a structured reading program with autistic children.
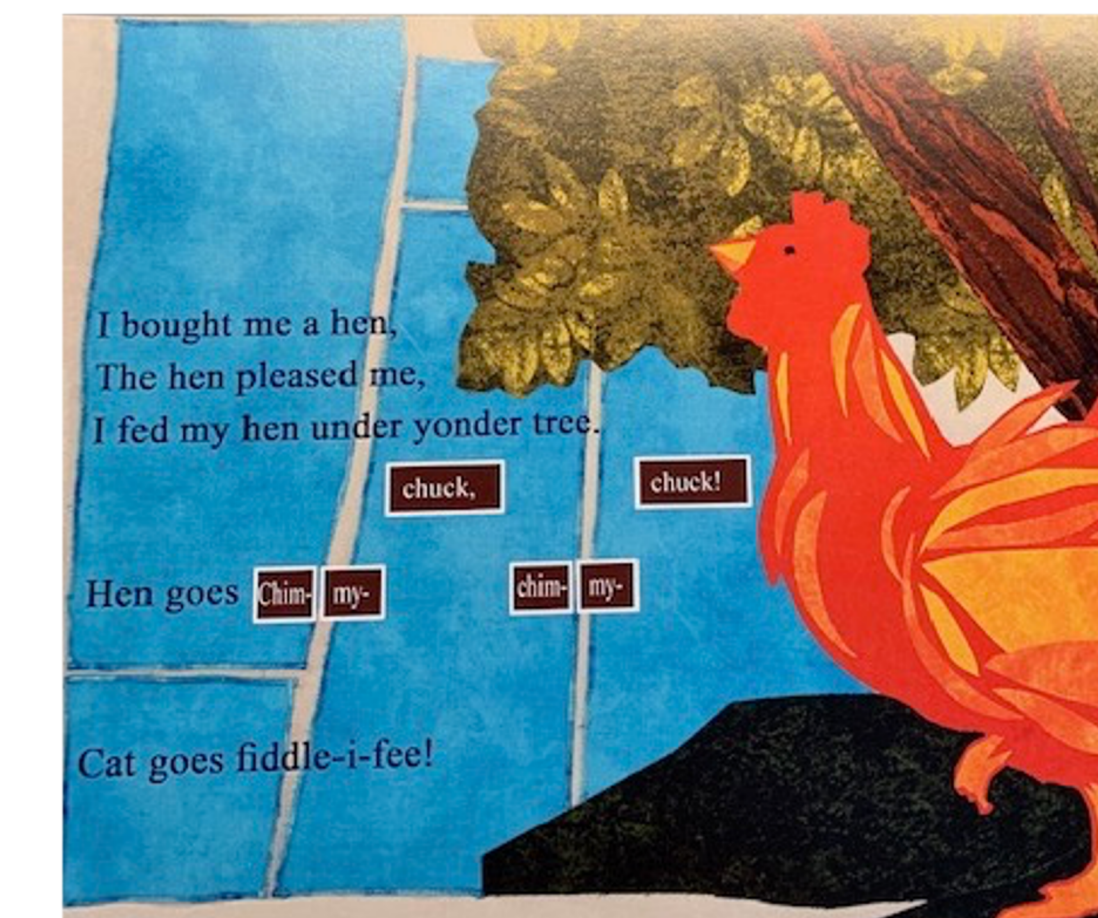
Aim II: To determine if medical students in their preclinical years perceive that interacting with children on the autism spectrum will assist with their future care for this population.

Aim III: To identify what, if any, specific actions the medical students propose to assist in the future interactions and treatment of this population.

Methods & Materials

Participants	• OUWB first-year medical students in the preclinical years (n=9) • **Exclusion criteria:** previous participation in programs at the OU ABA clinic or Lowry Center Reading Program
Instruments	• Medical student **guided songful reading sessions at the OU ABA Clinic** • Songbooks created by Dr. VanderLinde of the OU Music Department specifically for children with ASD
Data Collection	• Pre & Post Reading Project **surveys video recorded** via YouSeeU platform
Data Analysis	• Qualitative coding based on the **Grounded Theory** • Compare and contrast common themes

Figure 2. Sample of Dr. Vanderlinde's songbooks that were used in the reading sessions

I bought me a hen,
The hen pleased me,
I fed my hen under yonder tree.
cluck,   cluck!
Hen goes this my-   this my-
Cat goes fiddle-i-fee!

Results

- Participants came variety of background experience working with individuals with ASD (Table 1).
- Post-project students were able to list more specific and key characteristics listed under the DSM-5 diagnostic criteria for ASD, such as repetitive behavior and behavioral rigidity (Figure 3).
- There was an overall positive change in the medical education categories of knowledge and attitudes, with no overall change in skills among the students (Table 2).
- All participants stated that direct interaction is viewed as useful, invaluable, and irreplaceable.
- The most preferred learning modality was hands on experience (Table 3). Some reasons participants stated was that it allowed for trial and error, builds problem solving skills, provides the opportunity to explore effective communication strategies.

Table 1. Participant background with working with individuals with ASD

Patient Background	
With experience	4
Limited experience	3
No experience	2

"helped me to see what children on the autism spectrum behave like and what they're actually like as opposed to making assumptions about what they're like"

Table 2. Changes in Main Categories of Medical Education

Main Categories of Medical Education	
Knowledge	
• increased exposure	+1
• learned about positive abilities	+1
• increased knowledge about ASD characteristics	+2
Skills	
• trial & error	0
• techniques & strategies specific for ASD	0
• patience	0
• navigating family dynamics	-1
• increased cultural competence	+1
Attitude	
• increased comfort	+2
• nonjudgmental	-1
• flexibility & adaptability	+4

Table 3. Learning Modality Preferences

Top 3 Learning Modalities
1. Hands on experience/direct interaction
2. Combination (lectures, readings, hands on experience)
3. Small group discussions

Figure 3. Word Cloud of Common Characteristics of Children with ASD Listed by Participants Post-Project

easily frustrated
strict routine
behavioral rigidity
social deficit
outgoing
trouble expressing themselves
reptitive behavior
sensory overload
lack of eye contact
tantrum

Conclusions

- Direct interactions with children having an ASD diagnosis in early medical education is an effecting teaching strategy to better equip medical students for future clinical care of this unique and vulnerable population.
- Direct interaction is the preferred teaching modality among preclinical medical students.

"I cannot express with words how useful I think it is […] to have the opportunity for direct interaction with children with autism spectrum disorder."

Limitations

- Qualitative analysis could introduce bias and subjectiveness of the coder due to the coding process of assigning meaningful key phrases to narrative data.
- Individuals with prior knowledge or those that have previous experiences with ASD might have pre-existing bias and interests towards working with the ASD population, which could bias the results.

Future Directions

- Calls for change or incorporation of special needs "hands on" exposure and training in medical school preclinical curriculum.

References

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Acknowledgements

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