

# Clinician Perspectives on Autonomy and Trust in Robots for Pediatric Interventions



Ameer Helmi, Bethany M. Sloane,  
Samuel W. Logan, and Naomi T. Fitter



## Background

- Minimal work understanding pediatric clinicians' experiences and thoughts about robots in clinic spaces
- Pediatric clinicians' definition of autonomy and their trust in robots may differ from roboticists
- Our research goal was to gather and analyze clinician perspectives on robot autonomy and trust as a component of pediatric rehabilitation**

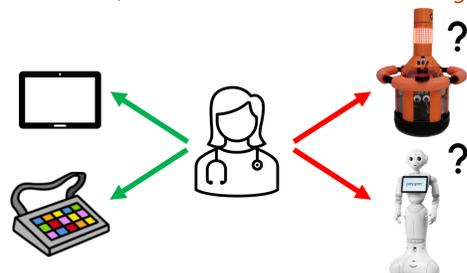
## Methods

- 11 pediatric clinicians (5 PT, 4 OT, 1 SLP, 1 DP) conducted semi-structured interviews
- Asked about experiences with robots, desired features in a robot, definitions of robot autonomy, and trust in robot autonomy
- Constant Comparison Method was used to collate themes



## Limited Experiences with Robots

- Few had prior experience with robots (n = 3)
- All clinicians routinely used other assistive technology (e.g., iPad, AAC)
- "We played hide and seek with the robots, with a child who's been working on independent mobility skills"*



## Open and Curious about Robots

- All clinicians wanted to learn more about robots
- "I am into the idea of using robots, especially in specific circumstances"*
- 2 clinicians noted hesitations to using robots
- "If something goes wrong, we usually don't know how to fix it"*



## Parents are Always Involved

- All clinicians include parents in sessions
- A parent could control or interact with a robot
- "I wouldn't do anything without the parents there"*



## Overall Need for More Education

- Uncertain of robot capabilities
- "I don't know enough about robots probably. So, I can't really envision anything"*
- Unclear how affordable robots are for clinicians
- "We just don't have the capacity to afford them"*



## General Robot Features Desired

- Easy-to-use, durable, child-friendly and have a meaningful purpose
- "It has to be durable. I feel bad cause I keep breaking the robot"*
- "Should not overwhelm the therapist with all the options"*



## Limited Understanding of Robot Autonomy

- Robot autonomy means robot moving itself
- "Independent moving, independent functioning, and responding directly to environmental stimuli as opposed to needing to be operated remotely"*
- Technologies such as cruise control were not autonomous (n = 9)
- Semi-autonomous robot was viewed as autonomous (n = 7)



## Limited Trust of Robots with Autonomy

- Skeptical of trusting a robot without practice (n = 2)
- 5 clinicians would trust a teleoperated robot
- "You can hit the wrong button, and people can do unpredictable things"*
- 2 clinicians would trust a semi-autonomous or autonomous robot
- "I would never completely trust a robot, but I would never completely trust myself either"*



## Key Recommendations

- Include and educate clinicians in all design steps
- Parents are a necessary component to be considered in interactions
- Robot level of autonomy should always be clear to the clinician and easy to deactivate.



Paper Link



## Acknowledgements

This work is sponsored by the U.S. National Science Foundation under award CMMI-2024950.