



Stanford
M E D I C I N E

Measuring Social Motivation in ASD

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2018 Stanford Autism Update

Social Motivation

The drive or desire to interact socially or affiliate with others, *independent of the quality of the interaction or overture*



When we are socially motivated, we:

- preferentially orient to the social world
- take pleasure in social interactions
- work to foster and maintain social bonds

Chevallier, C., Kohls, G., Troiani, V., Brodtkin, E. S., & Schultz, R. T. (2012). The social motivation theory of autism. *Trends in Cognitive Sciences*, 16(4), 231–239. doi:10.1016/j.tics.2012.02.007.

Social Motivation Hypotheses

Social Motivation theories hypothesize that disruption in social motivation may play a causative role in broader social deficits in ASD



Anecdotal evidence suggests a spectrum of social motivation in ASD

However, there are no available tools specifically designed to measure social motivation

Need for a measure

A measure of social motivation could be used to:

- Increase our understanding of ASD subtypes
- Determine if social motivation can be increased
- Identify change over the course of treatment
- Predict treatment response and target treatment accordingly
 - Differing levels of social motivation may have important implications for treatment selection and expected outcomes (Dawson, Bernier & Ring, 2012)
 - E.g., pair an NDBI with oxytocin or vasopressin treatment in a child with low social motivation

Creation of Stanford Social Motivation Scale (SSMS)



Developed 71 items our team believed measure social motivation and related concepts: **“The Stanford Social Scale”**

Divided items into 4 content domains based on theoretical models of social motivation

- **Social drive** (the desire to interact socially)
- **Quality of overtures** (the appropriate use of overtures when approaching others to interact)
- **Behaviors that sustain an interaction** (the ability to maintain relationships and create social connections)
- **Social recognition** (understanding and recognizing social contexts)

Items submitted to expert review for item validation/content validity

- 28 items rated extremely relevant to the construct of social motivation:
“Stanford Social Motivation Scale”

SSMS

Makes attempts to get my attention to share his/her interests or enjoyment with me.

In a social situation, will attempt to play with other children instead of avoiding the group.

Actively avoids social interactions.

Tries to get my attention using both verbal and non-verbal communication in a way that seems typical for kids his/her age.

Without prompting from an adult, will initiate interactions with others with the purpose of being social.

Does not want to participate in activities that involve other children.

Will try to get my attention or interact with me, without being reminded to do so.

Plays with children his/her own age.

Shows me toys, objects, etc. just to share them with me, not to get help or make a request.

Prefers to play with other children rather than alone.

Shows me things that he/she finds interesting, not just to make a request or get help.

Is interested in having friends.

Tries to share enjoyment with me.

Enjoys interacting with others.

Seeks out interactions with me (ex: smiles, makes noises, laughs).

Shows empathy for others (ex: shows happiness or concern for others).

Approaches others appropriately to interact without being prompted.

Does not notice or pay attention to the presence of other children or adults.

Spends more time playing by him/herself than with others.

It is not concerning to my child that he/she is often alone.

Chooses to play with pets/animals instead of other children.

Engages in to and fro conversations with others.

Does not ask to have play dates with friends.

Asks to have play dates with friends.

I can have a conversation with my child in which he/she responds to me by building on what was said.

Will respond when others make small talk about things outside of my child's specific interests.

Talks about wanting to have friends.

Mostly talks about topics that interest him/her with little attempt to involve me in the conversation.

Data collection is currently underway

- Parents of children and young adults ages 2-30 with ASD, other psychiatric conditions, other developmental or genetic conditions, siblings, or typically developing children
- Complete an online questionnaire
 - Stanford Social Scale
 - demographics questionnaire
 - Social Responsiveness Scale
 - Child Behavior Checklist

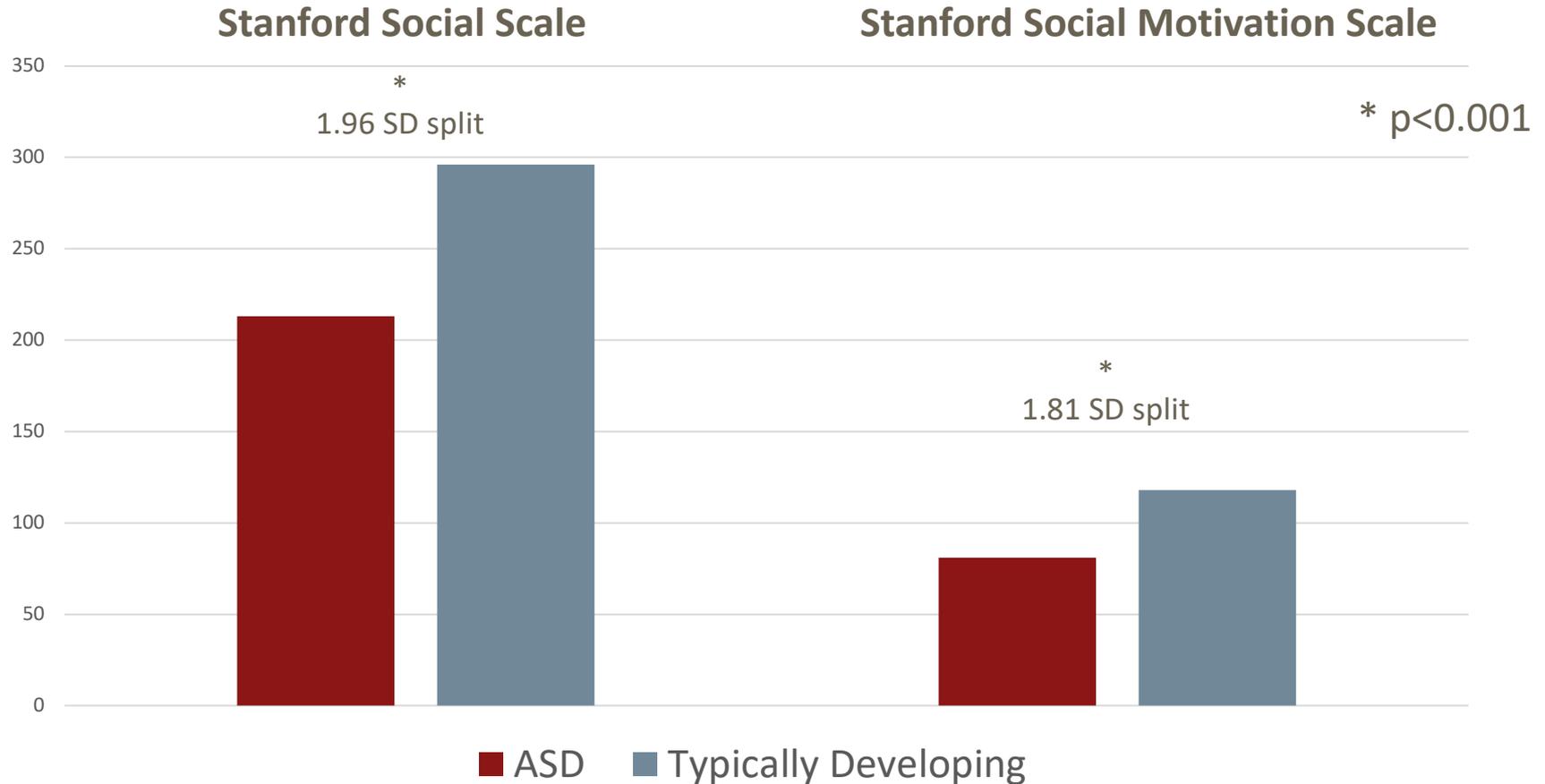
Data collected so far:

- 127 individuals with ASD (ages 2-26); 75% male
- 14 control subjects (average age 5 years); 85% male

Preliminary Findings

- Individuals with ASD show significantly more impairment in social motivation than typical children on the SSMS ($p < 0.001$)
- The measure appears appropriate regardless of a person's IQ, age, or sex
- The Social Drive scale is very highly correlated to social motivation, while other scales are correlated but to a lesser degree
 - Social Drive $r = .958$; $p < .001$ (very high correlation)
 - Behaviors that Sustain and Interaction $r = .797$; $p < .001$ (high)
 - Quality of Social Overtures $r = .670$; $p < .001$ (moderate)
 - Social Recognition $r = .567$; $p < .001$ (moderate)
- The measure appears to be measuring social motivation, rather than other aspects of behavior
 - Moderate correlation to the SRS Social Motivation scale ($r = -.505$)
 - Negligible correlation to the CBCL Externalizing Problems domain ($r = -.226$)

Mean Difference by Group



- Holds promise for providing a means of characterizing social motivation in ASD and other conditions where social motivation is a reported area of deficit
- Appears to measure a unique construct not previously well measured
- Appears valid across a range of ages and levels of cognitive functioning
- Can be completed quickly
- Could provide valuable input to treatment teams about specific motivational deficits a child may have at the outset of therapy, which could impact selection of preferred treatment approaches

Future Plans

- Continued collection of respondents (300+: ASD, non-ASD DD, psychiatric control, TDC)
- Factor analysis to determine final item set
- Completion of psychometric analyses
- Future Goals:
 - Determination of utility as an outcome measure
 - Determination of relevance for behavioral phenotyping in ASD and other conditions
 - Comparison against physiological data points such as eye tracking, EEG, and neuroimaging
 - Comparison against direct behavioral observation of social behaviors

Summary

- Social motivation is a significant challenge in autism and often targeted in treatment, but we have no current scale to measure it or track it over time
- Our team developed the Stanford Social Motivation Scale to address this gap
- Preliminary evidence shows promise for the utility of the SSMS
- We are still actively collecting data to look at validity of the SSMS
- We hope to use this scale to track treatment change and better understand social motivation deficits

Acknowledgements

Project Team

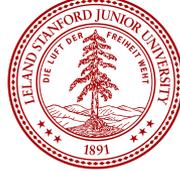
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Online Survey for Parents of Children with Autism Spectrum Disorder (ASD)

Researchers at Stanford University are currently recruiting parents of children with ASD between 2-30 years of age to participate in a research study in order to better understand social motivation in children.

To complete the survey, go to:
https://is.gd/ssms_study

For more information, please call 650-736-1235 or email us at
autismdd@stanford.edu

For general information about participant rights, please call:
1-866-680-2906