

RELIGION AND AUTISM: THE ROLE OF THEORY OF MIND

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OVERVIEW

- **Project objective:** to further understanding of what cognitive systems underlie religious belief and behaviour.
- **Method:** we compared religious belief and behaviour in individuals with high functioning autism spectrum disorder (ASD) with typically developing (TD) individuals .
- This allowed us to see if known differences in the way the autistic brain works result in predictable differences in their religious beliefs and behaviours.

What is autism?

- Autism is a spectrum disorder characterised by a triad of impairments in social interaction, social communication and rigidity in thought and behaviour.
- Consistent findings have supported the claim that people with HFA are deficient in their Theory of Mind (ToM) capacity which could explain their known difficulties in the social realm.
- ToM or mentalising refers to the application of folk psychological theory that people utilise on an everyday basis to help us predict, explain and manipulate other people's behaviour.

Methodology

What differences in religious belief and behaviour might be expected between typically developing and ASD? Here we examined 3 dimensions:

1. **Prayer Habits**
2. **Relationship with Supernatural Agents**
3. **Anthropomorphism**

Study location: **Singapore**

Participants:

	ASD	TD
n	13	13
Mean age	17.24	17.53
Male-female ratio	11:2	9:4
Christian-non Christian ratio	11	9
Mean Verbal IQ	108.95	109.69
Mean Non-verbal IQ	117.00	109.00
Mean Autism Quotient	79.23	55.85
Mean religiosity	5.13	4.95

Main dependent variables:

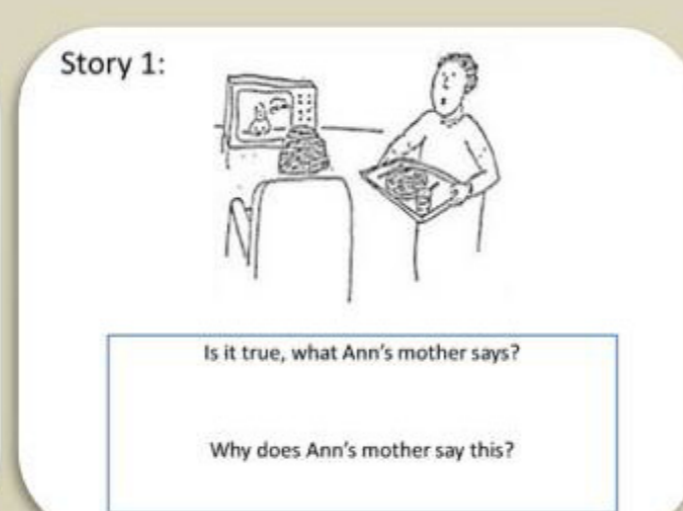
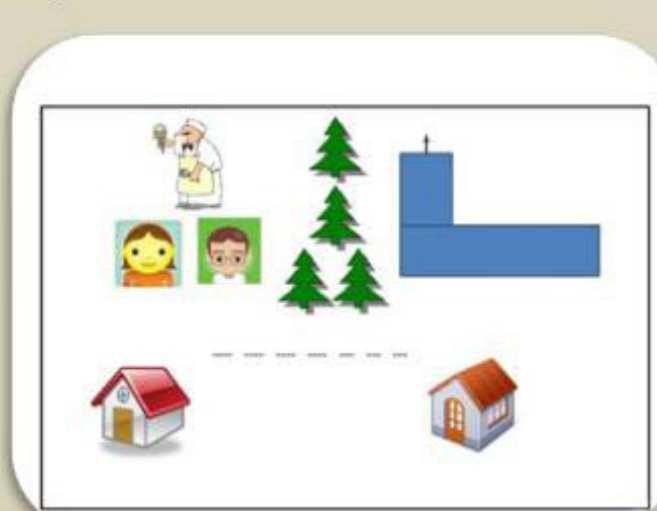
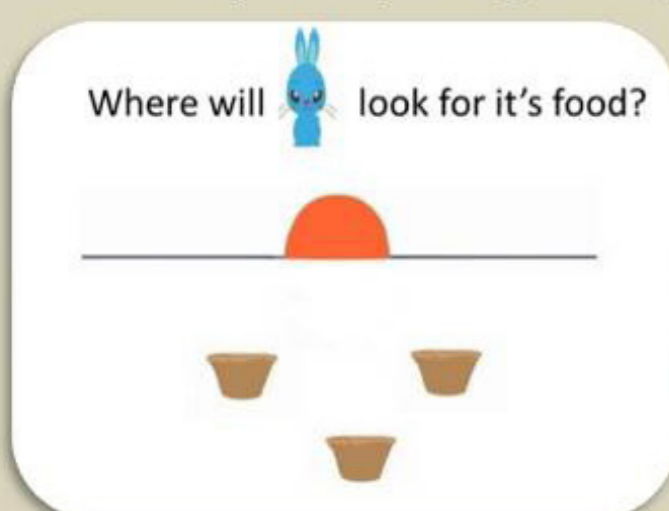
- Questionnaire on prayer habits
- Anthropomorphism of supernatural entities scale
- Felt closeness to supernatural entity scale

Predictor variables

- Autism Spectrum Quotient- short form (AQ-S, Hoekstra et al., 2011). Subscales: social skills, attraction to routine, attraction to numbers, imagination, and switching.
- A Theory of Mind battery (see figures below for examples)

Control variables

- Religiosity
- Frequency taught to pray



Predictions & Results

Hypothesis 1: ASD will perform more scripted versus unscripted prayers compared to the TD group.

No difference between groups in how frequently they perform each type of prayer (prayer type x group interaction: $p = .90$).

Correlation		ASD	TD
Scripted prayer (freq)	ToM	-.77**	-.09
	Social skills	.27	-.12
Unscripted prayer (freq)	ToM	-.17	-.18
	Social skills	.61*	-.19

Hypothesis 2: When compared to the TD group, ASD will like saying scripted prayers more.

No difference between groups in how much they like performing each type of prayer (prayer type x group interaction: $p = .67$). Main effect of group with TDs liking praying in general more than ASD ($p = .05$).

Correlation		ASD	TD
Scripted prayer (like)	ToM	-.71**	.17
Unscripted prayer (like)	ToM	.22	-.29

Hypothesis 3: ASD will have a reduced level of felt closeness towards the supernatural entity they most commonly pray to.

No difference between groups in how close they felt towards the supernatural entity: $M(ASD)=5.02$; $M(TD)=4.29$, $p = .25$.

Hypothesis 4: ASD will be less likely to feel that their prayers are being listened to, that who they are praying to is present with them, and that prayer is similar to talking with another person.

ASD felt that their prayers were significantly more similar to normal conversation than TD ($p = .01$). No difference between groups for feeling that the entity is listening ($p = .86$) or entity being present during prayer ($p = .25$).

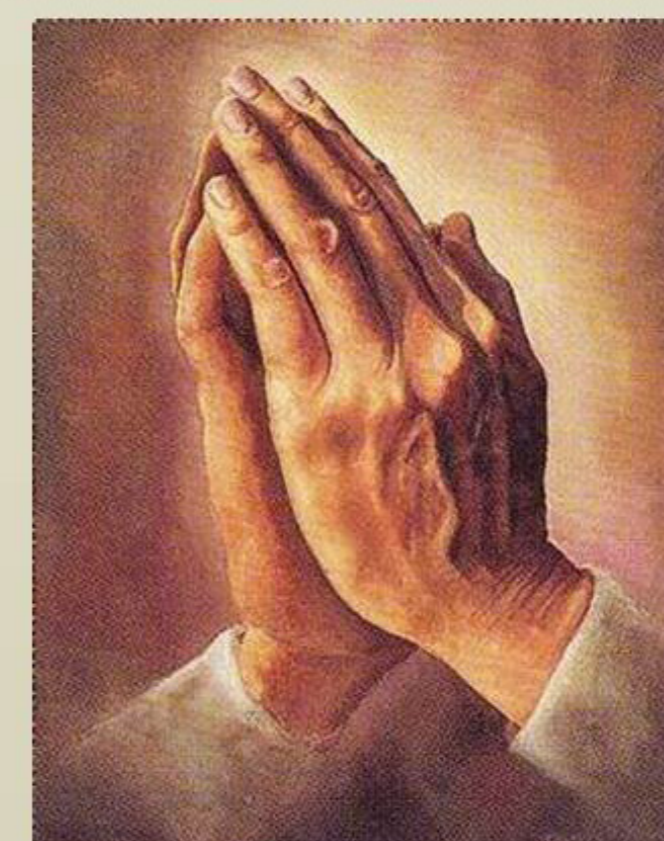
Correlation		ASD	TD
Entity is listening	Social skills	-.56*	-.38
	Imagination	.61*	-.27
Entity is present	Social skills	.71**	-.27
Prayer similar to normal conversation	Imagination	-.40	-.57*

Hypothesis 5: Individuals with ASD will be less likely to agree with anthropomorphic god traits; however, there will be no difference in the extent to which they agree with non-anthropomorphic traits.

No difference in non-anthropomorphic god traits ($p = .37$), but also no difference in anthropomorphic god traits ($p = .47$), $M(ASD)=1.91$, $M(TD)=1.63$.

Future directions

- Increase sample size of current study.
- A larger correlational study with TD further exploring some of the relationships found between ToM and religious belief and behaviour in the current study.
- An experimental study examining the impact of religious or agency primes on prosociality in ASD (with ToM as a mediator).
- An experimental study examining the impact of religious or agency primes on prosociality in young TD children (3-4 y.o. before the full development of ToM) and older children (6-7 y.o.), (with ToM as a mediator).



References

Hoekstra, R. a, Vinkhuyzen, A. a E., Wheelwright, S., Bartels, M., Boomsma, D. I., Baron-Cohen, S., Posthuma, D., et al. (2011). The construction and validation of an abridged version of the autism-spectrum quotient (AQ-Short). *Journal of autism and developmental disorders*, 41(5), 589–96.