Social Performance Rating During Social Skills Training in Adults with Autism Spectrum Disorder and Schizophrenia

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Social Communication Skills

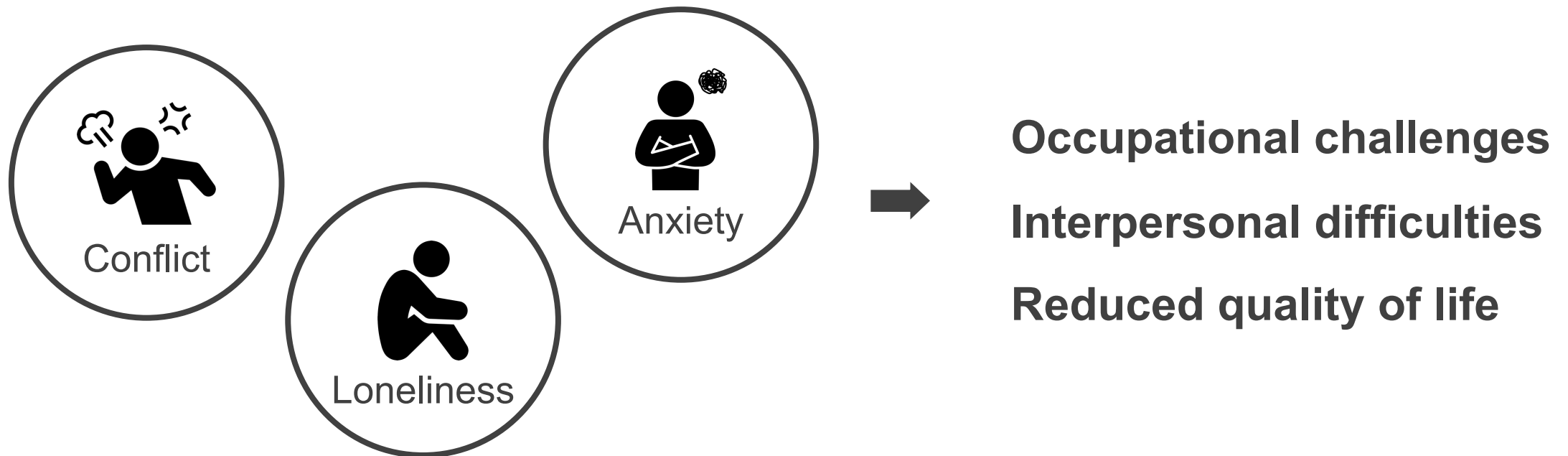Social communication skills are essential in social life [Bellack+ 1984]

- Verbal production : appropriateness of what is said
- Paralinguistic features : voice loudness, tone
- Nonverbal features : facial expressions, eye contact

Performance of the desired response is required
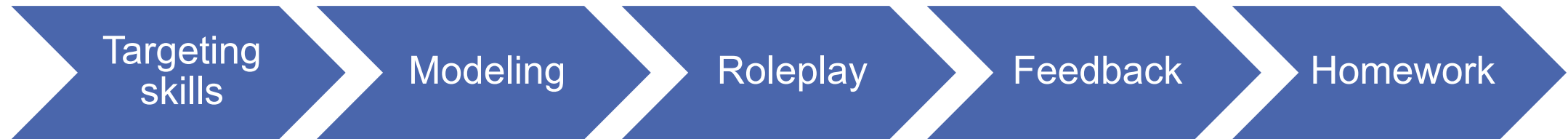
What Lack of Social Communication Skills Lead to

Experience negative situations and causes problems [Marwaha+ 2004]

Conflict

Loneliness

Anxiety

Occupational challenges

Interpersonal difficulties

Reduced quality of life

Autism Spectrum Disorder (ASD) and Schizophrenia (Sz) are characterized by a lack of the social communication skills

Social Skills Training (SST)

Training approach to help people who lack social communication skills

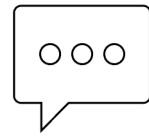**Targeting skills** → **Modeling** → **Roleplay** → **Feedback** → **Homework**

Four basic tasks

1. Asking for requests (Asking)
2. Declining requests (Declining)
3. Telling positive feelings (Telling)
4. Listening to others (Listening)

Participant

Trainer

Evaluation of Social Communication Skills During SST

	Revised roleplay test [Sakai 2006]	**Social Performance Rating Scale (SPRS)** [Fydrich+ 1998, Hamet Bagnou+ 2022]
Items Likert scale 1-5	Seven items (e.g., Eye contact, Clarity)	Five items (e.g., Gaze, Voice quality)
Language	Only Japanese	English and French
Raters	Expert with SST experience	Experience of SST is not required

General and easy to use

We newly developed a Japanese version of the SPRS

Items of SPRS

Item	Description (Score 5: very good case)
Gaze	Participant keeps eye contact during the conversation, does not stare
Voice Quality	Participant is warm and enthusiastic in verbal expression
Length	At most times, participant's utterances are two or more sentences long
Discomfort	Relaxed body posture and natural body movement
Conversation Flow	Participant easily maintains the conversation and responds smoothly

Overview of Our Work

Purpose

- Measuring individual social communication skills during SST

Problems

- Revised roleplay test has only a Japanese version and requires experts with SST experience for evaluation

Contributions

- Developing and validating a Japanese version of SPRS
- Statistical analysis about SPRS   **Today's topics**
  - Differences of ASD, Sz, and control groups
  - Task differences of SST
  - Relationship with questionnaire scores about profiles

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Dataset

Collected with Nara Medical University

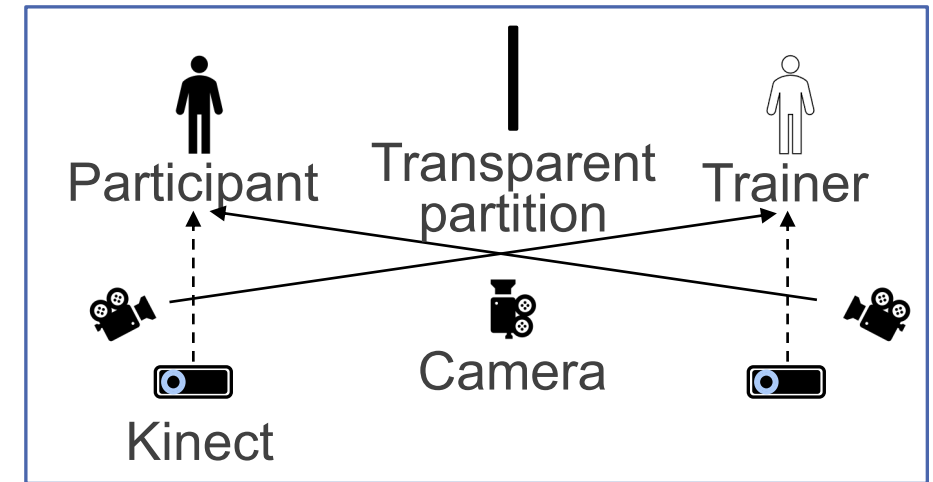# SST Dataset [Saga+ 2022]

Participants

- Control : N=19 (ave. 28.4 years old)
- ASD : N=16 (ave. 26.5 years old)
- Sz : N=15 (ave. 32.0 years old)

SST tasks

- Asking, Declining, Telling and Listening tasks

Questionnaires

- Social skills related : KiSS-18, Self-Construal Scale
- Facial emotion recognition related : FEIT
- ASD related : SRS-2, ADOS-2
- Sz related : BACS-J, PANSS

Annotation of Social Communication Skills

Revised roleplay test

- Evaluated by two experts with SST experience
- Inter-rater agreement was excellent [Saga+ 2023]
- Averaged scores among raters for analysis

SPRS

- Applied forward/backward translation method for a Japanese SPRS
- Blinded evaluation by two non-experts without SST experience
- After validation of inter-rater agreement, averaged scores among raters

Validating a Japanese Version of SPRS

Analysis Methods

Ⅰ. Intraclass correlation coefficient (ICC, 2k)

- To check inter-rater agreement

Ⅱ. Spearman's correlation coefficients

- To examine the homogeneity of SPRS and the revised roleplay test

Ⅲ. Exploratory factor analysis

- To assess the factor structure of SPRS

Ⅳ. Cronbach alpha coefficient and McDonald omega

- To evaluate internal consistency of all items of SPRS

Results for Validation of Japanese SPRS

- Reliability of two raters in Japanese SPRS showed moderate to good (ICC 2k: 0.509-0.804)

- Japanese SPRS was similar to revised roleplay test but not identical (correlation: 0.601-0.814)

- All five items of Japanese SPRS could contribute to the measurement of social communication skills (Factor 1 explained 82.1% of the variance)

- Internal consistency of Japanese SPRS was excellent (Cronbach alpha: 0.957, McDonald omega:0.958)

Our results suggest that Japanese SPRS can be a useful tool to assess social communication skills during SST as well as the revised roleplay test

Differences of ASD, Sz, and Control Groups

Mann-Whitney U Test with Bonferroni Correction
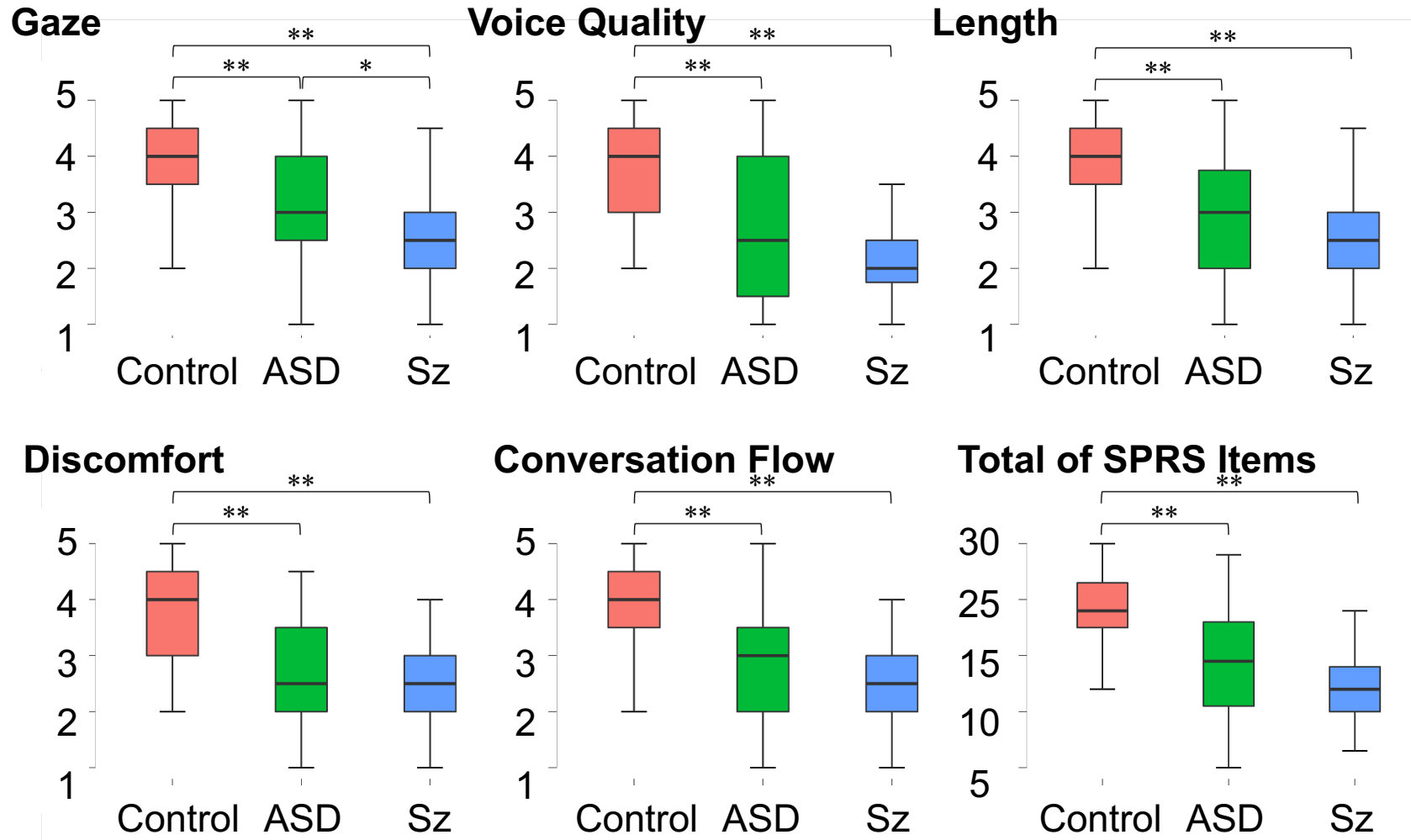
Discussion of SPRS Differences between Groups

Control group has higher score than ASD and Sz groups
- Several studies have shown that the control group showed higher social communication skills than the ASD and Sz groups
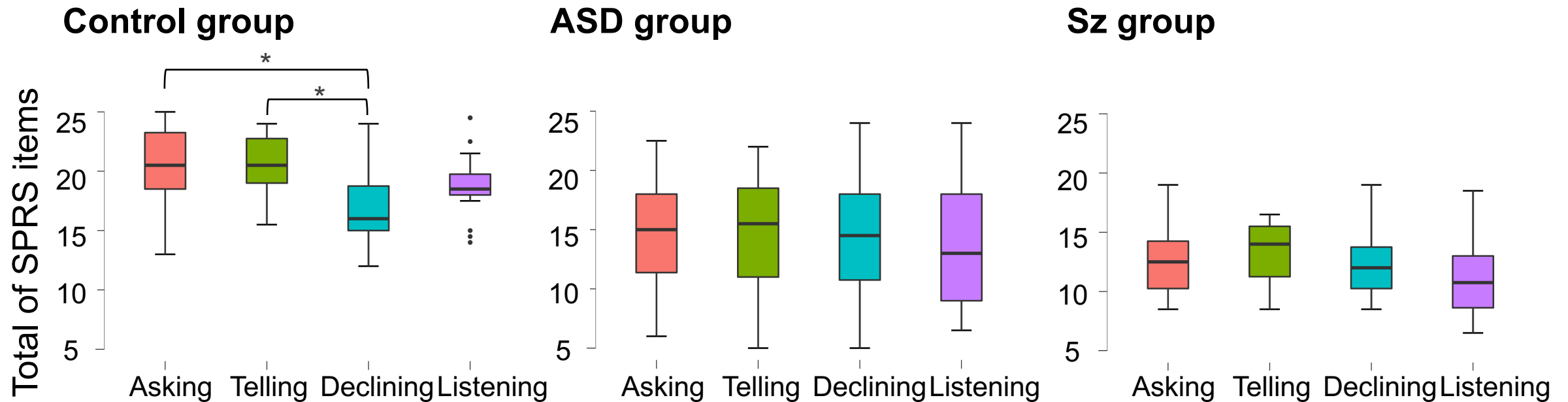
ASD group had a higher gaze score than Sz group
- Eye movement abnormalities are severe in the Sz group [Shiino+ 2020]
- The eye movement abnormalities might influence social communication skills

Task Differences of SST

Wilcoxon Signed-rank Test with Bonferroni Correction

(p* <0.001)

Declining task showed lower scores than asking and telling tasks

- Declining is the most difficult task of the four SST tasks [Belalck+ 2013]

Conclusion

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- Statistical analysis about SPRS

Future works

- Investigation of the relationship between social communication skills and facial expressions for supporting the improvement of the skills

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