

## DISCOURSE in Psychosis

### Speech Bank Protocol

#### GENERAL INSTRUCTIONS

This protocol is intended to elicit speech samples for compiling a multilingual, benchmark dataset for studying language in psychosis. We compiled this with the following principles:

1. To generate data at settings where routine healthcare is offered.
2. Tasks cover various forms of speech, from more spontaneous to more constrained, but are mutually exclusive.
3. Procedures requiring minimal resources and low interviewer speech intervention.
4. Materials that are culturally inclusive.
5. No personal content such as any person's name or address elicited.

The following detailed script can be used by any research or clinical personnel. There are 14 interviewer prompts/questions in total. For each section, a **minimum speech time** allowed has been specified, to allow as full a response as possible. It is estimated that the full protocol can be administered in 20 minutes, on average.

To facilitate transcription, the examiner's speech, including verbal encouragers, should be kept to a minimum. It is preferable to use nonverbal encouragers (e.g., head nods, facial expressions, eye contact) instead of verbal (e.g., "I see", "mhm", "yeah").

If a participant fails to initiate speech output for 30 seconds or has a pause for more than 10 seconds, prompts can be used to encourage the participant. These should be non-directive rather than providing any clues or pointing to any objects in the picture. Some prompts could be: "Can you tell me more"; "Anything else?"; "Please continue", and for picture-based tasks: "What else can you see"; "What do you think is happening"; "Can you give a fuller description", etc.

#### RECORDING INSTRUCTIONS<sup>1</sup>

Ideally use a calibrated head-mounted microphone with a preamplifier for conversion to a digital format (preferably .wav). Recordings with a head-mounted omnidirectional microphone should be made such that this microphone is positioned at 4–10 cm from the lips at an angle of 45°–90° away from the front of the mouth. To ensure both sides of a conversation are distinctly captured for every speech event, it is recommended that two channels of recording (e.g., separate body-recorders worn by the subject and the interviewer) are used whenever possible. If a single channel is used, ensure that it is positioned close enough to both speakers to capture the discourse.

### **SECTION 1: FREE CONVERSATIONAL SPEECH** (Min 3 min)

*Rationale:* To begin, we use personally familiar, age- and culture-appropriate topics of conversation that do not strain one's learned knowledge.

*Instructions:* "I would like you to talk about a few things related to your daily life. You don't have to use anyone's names when describing this event."

To pick the appropriate focus of conversation a general inquisitive question is recommended:

Q1. **"Can you tell me a bit about yourself?"**.

If no descriptive response came forth for Q1, rephrase "How would you describe yourself?"  
"What kind of person do you see yourself as?"

Q2. **"Let us talk about your work / studies / your city/town / family"** (pick the appropriate stream from the response to Q1).

Q3. **"Let us talk about some of your favourite things now"**

1. "What is your favourite city/country? Why?"
2. "What is your favourite food". "Tell me how to prepare it."
3. "Let us talk about your favourite TV show/movie"

To develop a discourse, guiding questions need to be generated about the same topic. The follow-up questions can focus on comparison with another item [place (city/country), food or movie/TV show] to continue elaborating.

### **SECTION 2. PERSONAL NARRATIVE** ( Min. 2 min)

*Rationale:* The participant is asked about events from their life. This provides a linguistic window on narratives in a first-person perspective<sup>2</sup>.

*Instructions:* Q4: **"Thinking back, can you tell me a story about something important that happened to you in your life? It could be from any time of your life -- from when you were a child or more recently. You don't have to use anyone's names when describing this event."**

If Q4 does not elicit any response despite rephrasing – ask "Can you take me through how the last week has been?"

### **SECTION 3: HEALTH NARRATIVE** (Min. 3 min)

*Rationale:* The participant is asked about their health. This provides symptom related content as well as a historical narrative<sup>3</sup>.

*Instructions:* **"I would like you to talk about a few things related to your health. You can describe what happened and how you felt. You don't have to use anyone's names."**

Q5. **"Do you think you have a mental illness? If so, what do you think it is?"**

Q6. If the answer to Q5 is 'yes', then **"Can you say more about the experience?" "How did it start, what caused these problems, and how do you feel about having this illness?"** If No: then **"Have**

you ever been asked to take treatments for your mental health? If yes, why was that suggestion made?”

Q7. “Since these problems started, how has your life changed?” Or “Since starting treatment, how has your life changed?”

#### **SECTION 4. PICTURE DESCRIPTIONS** (Min. 3 min)

*Rationale:* The participant is shown 3 pictures and asked to describe what they see. This provides a referent, with multiple descriptive components<sup>4</sup>.

*Instructions:* The pictures are presented one at a time and the interviewer says: “I am going to show you 3 pictures, one at a time. When I put each picture in front of you, I want you to describe the picture to me, as fully as you can. Tell me what you see in the picture, and what you think might be happening. Keep talking until I stop you”.

**Q8.** Place the picture of (A woman holding a book in a country scene watching a man working in a field in the background) **“This is your first picture. Tell me what you see in this picture”**

**Q9.** Place the picture of (A man turning away from a woman who is grabbing his shoulders) **“This is your second picture. Tell me what you see in this picture”**

**Q10.** Place the picture of (The sun is shining from between the clouds with a building over the bridge. A woman is standing on the bridge looking at the water) **“This is your third picture. Tell me what you see in this picture.”**

Set a time limit with a maximum speaking time of 2 minutes and a minimum of 30 seconds per picture.

#### **SECTION 5: STORY BOARD** (Min 2 mins)

*Rationale:* The participant is shown pictures that illustrate central events from a story. This supports a narrative with external focus that does not rely on personal experience<sup>5</sup>.

*Instructions:* The subject is shown illustrations of the story, without text materials. The pictures must be introduced in the same order, preferably as a single page with all the sequence. After the subject has had the opportunity to study the sequence, they must retell the story with the picture **in view**.

**Q11.** **“I am going to show you some pictures from a story. You can take as long as you need to browse the pictures. After you have seen all pictures in order, I want you to tell me the story in your own words”.** Present ‘Lighthouse’ picture board. Allow participant to look through the story board (minimum of 15 seconds to view): **“Now put down the story board and tell me as much of the story as you can. You can use any details you know about the story and the pictures you just looked at.”**

If participant gives a response of fewer than three utterances, or seems to falter, allow 10 seconds, then prompt: “What happened next?” or “Go on.” If the participant still struggles, they can refer to the story board to assist their description. Continue until participant concludes story.

#### **SECTION 6. DREAM REPORTS** (Min 1 min)

*Rationale:* Dream reports generate rich descriptions, at times with fantastic qualities of the reported content<sup>6</sup>.

**Instructions: Q12. “People often get the same dreams repeatedly. Do you have any such dreams? Can you describe one of them for me?”**

If participant has no repeated dreams, then ask “What is the most recent dream you have had? Can you describe this to me?”

### **SECTION 7: READING AND RECALL TASK (Min 3 mins)**

**Rationale:** Reading aloud provides articulatory information for a specified text. The read material also provides ‘ground truth’ to compare the speech produced during recall task. The reading task must be independent from the memory demand required for retelling the story.

**Instructions: Q13. “I have a one-page story in this sheet. I want you to read each sentence aloud from beginning to the end.” (Give the Crow and Pitcher story sheet).**

**Q14. “Now you have one minute to review the text, after that you have to put down the sheet and tell me the story in your own words”**

If the participant gives a response of fewer than three utterances, or seems to falter, allow 10 seconds, then prompt: “What happened next?” or “Go on.” Continue until the participant concludes the story.

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<sup>1</sup>Patel et al. Am J Speech Lang Pathol. 2018 Aug 6;27(3):887-905.

<sup>2</sup>Based on <https://aphasia.talkbank.org/> protocol

<sup>3</sup>Based on Indiana Psychiatric Illness Interview; Lysaker et al. Psychiatry: Interpersonal and Biological Processes. 2002 Sep 1;65(3):197-206.

<sup>4</sup>Based on Liddle et al. The British Journal of Psychiatry. 2002 Oct;181(4):326-30 and uses pictures from Murray’s Thematic apperception test 1943.

<sup>5</sup>Based on Allende-Cid et al. IEEE Access. 2019 Apr 1;7:45544-53.

<sup>6</sup>Based on Mota et al., PloS one. 2012 Apr 9;7(4):e34928.

### Demographic and clinical information

<b>Age in Years</b>	<b>Gender</b> as reported by the participant
<b>Age at Psychosis Onset:</b> Record the age at which first psychotic episode that required antipsychotic treatment was documented. Record the earliest age if there is a discrepancy between the participant's stated age of onset and the documented age of onset.	<b>Language spoken at home:</b> What is the language spoken by majority of family members at the participant's home during most of their childhood?
<b>Age when leaving continuous full-time education:</b> Record the age at which the participant left continuous years of full-time education and did not return for more than a year	<b>Language spoken by most neighbours:</b> What is the language spoken by majority of neighbours at the participant's current city/town of residence?
<b>Hospitalisation status:</b> Whether currently admitted in a psychiatric unit or not	<b>Language of instruction at school:</b> What was the language used as medium of instruction during majority of school years?
<b>Current Primary Clinical Diagnosis:</b> Schizophrenia / Schizophreniform Disorder/ Schizoaffective Disorder / Bipolar Disorder / Major Depressive Disorder /Psychosis Not Otherwise Specified / Substance Induced Psychosis (Specify substance)	<b>Best Parental Occupation:</b> Ask which parent has been the highest earner. Record the best paying job that parent has ever held, irrespective of the duration <sup>1</sup> . Parent in this case is the adult under whose care the participant has spent most of their childhood.
<b>Ethnicity</b> (Self-described): The description chosen by the participant to describe the ethnic or cultural origins of the person's ancestors <sup>2</sup> .	<b>Immigrant status</b> (Self-described): If the participant is living in a different country other than the country of birth
<b>Highest educational level of the participant:</b> 0 = No schooling or early childhood education 1= Primary or lower secondary school 2= higher or post-secondary 3= Bachelor's or equivalent level 4 =Master's or equivalent level 5= Doctoral or equivalent level <sup>3</sup>	<b>Current education/employment or training status:</b> In the last 6 months, had the participant been in paid employment (irrespective of the hours of work), full or part-time education or training for most of the time? <sup>4</sup>
<b>Medication Status:</b> List with daily doses all psychotropic medications prescribed to be taken on the day of testing (irrespective of whether the participant has taken them already or not).	<b>PANSS-10 items</b> (over last 7 days: Rate from 1 to 7) <sup>5</sup> Delusions P1 ( ) Conceptual disorganization P2 ( ) Hallucinatory behaviour P3 ( ) Blunted affect N1 ( ) Passive social withdrawal N4 ( ) Lack of spontaneity/flow N6 ( ) Anxiety G2 ( ) Mannerism/Posturing G5 ( ) Unusual thought content G9 ( ) Depression G6 ( )

1. Based on the National Statistics Socio-economic classification (NS-SEC) 2 .Based on the United Nations 2008 description of ethnic ancestry 3. Based on International Standard Classification of Education (ISCED-11) 4.Adapted from the Organisation for Economic Cooperation and Development (OECD) description of NEET status 5. Based on Kay et al. The positive and negative syndrome scale (PANSS) for schizophrenia. Schizophrenia bulletin. 1987 Jan 1;13(2):261-76.