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Prosodic Cues Are Linked to Peculiar Subjective Experiences in schizophrenia: A Combined Acoustic and Phenomenological Analysis

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SUBMISSION DETAILS

Secondary Category Diagnosis, Psychopathology, Phenomenology & Philosophical Psychiatry

Abstract Details We investigated the prosodic patterns of patients with schizophrenia compared to Italian-speaking controls. In addition, we used a very accurate experimental set up to obtain good quality audio, adopted an automated extraction method involving a very large set of cues, and thoroughly investigated the subjective experience of patients with the EASE and ARS phenomenological scales.

Poster or Oral Presentation Both Poster and Oral

Background Automated linguistic analysis in patients with schizophrenia is an extremely rapidly evolving research field. Peculiarities in patients' speech have been identified at various levels, including prosody, also referred to as tone of voice. Although there is evidence of different prosodic patterns between patients and healthy controls, results are contradictory, analyses are often limited to few cues, and the association with psychopathological dimensions has been poorly investigated. Moreover, the relationship with experiential anomalies, considered by the phenomenological tradition to be at the core of schizophrenia but still scarcely assessed in clinical and research contexts, has never been explored.

Methods We enrolled 58 participants, all native Italian speakers (29 healthy controls - HC; 29 patients with schizophrenia - SCZ) at the University Hospital of Parma. We obtained high-quality dual channel audio files from recorded interviews between each participant and a clinician. Praat software was used to extract an extensive range of acoustic features from 4 prosodic domains (temporal profile, intonation range, intonation variability, voice quality). Patients underwent a thorough psychopathological exploration with the Positive and Negative Syndrome Scale for Schizophrenia (PANSS), the Examination of Anomalous Self Experience scale (EASE) and the Autism Rating Scale (ARS). (Protocol approved by the AVEN, Emilia-Romagna region ethics committee, 05/05/2021 code:1235/2020/SPER/AUSLPRLANG_20.)

Results SCZ and HC significantly differed in temporal profile and intonation variability (e.g. speech

rate $t = 2.72$, $p < .01$; total nuclei duration $t = 3.32$, $p < .01$; total internuclei duration $t = 4.59$, $p < .001$; total pause duration $U = 169$, $p < .001$; glissando $t = 2.51$, $p < .01$; intrasyllabic trajectory $t = 2.39$, $p < .05$). We did not find differences in intonation range and voice quality patterns. Prosodic patterns were correlated with negative (e.g. pitch range and PANSS negative score $\rho = -0.599$, $p < 0.001$) and disorganization dimensions (e.g. pitch range and PANSS disorganization score $\rho = -0.510$, $p < 0.001$, F0 mean and PANSS disorganization score $\rho = -0.421$, $p < 0.001$) but not with positive symptoms. Moreover, we found significant associations with the EASE and ARS scores, especially with stream of consciousness, ipseity and attunement anomalies (e.g. speech rate and EASE total score $\rho = -0.460$, $p < 0.01$, total internuclei duration and EASE total score $\rho = -0.486$, $p < 0.001$).

Discussion We showed for the first time that Italian-speaking patients with schizophrenia display significant differences from healthy controls in a number of prosodic patterns, prosodic cues being associated with negative and disorganization symptoms. Also for the first time, we showed significant associations in the relationship between prosody and subjective experiential anomalies. Our results suggest that communication features are deeply intertwined with core symptoms and subtle deep subjective peculiar experiences in schizophrenia. This underscores the need for research projects on speech analyses in psychiatric conditions that are strongly interdisciplinary in both design and conduct, using appropriate linguistic techniques and including accurate psychopathological evaluations.

Keyword

Keywords
Prosody
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Psychopathology dimensions
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Poster Award Eligibility - Young Investigator Yes

Poster Award Eligibility - SIRS Membership Yes

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DISCLOSURE

Financial Relationships

Disclosure No, I have nothing to disclose.