



Published in final edited form as:

Psychopathology. 2016 ; 49(3): 163–171. doi:10.1159/000446546.

Listening to Schneiderian Voices: A Novel Phenomenological Analysis

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Abstract

Background/Aims—This paper reports on analyses designed to elucidate phenomenological characteristics, content and experience specifically targeting participants with Schneiderian voices conversing/commenting (VC) while exploring difference in clinical presentation and quality of life compared to those with voices not conversing (VNC).

Methods—This mixed-method investigation of Schneiderian voices included standardized clinical metrics and exploratory phenomenological interviews designed to elicit in-depth information about characteristics, content, meaning and personification of AVHs.

Results—The subjective experience of VC show a striking pattern of VC that are experienced as internal at initial onset and during longer-term course of illness when compared to the VNC group. Participants in the VC group were more likely to attribute origins of their voices to an external source such as God, telepathic communication, or mediumistic sources. VC and VNC were described as characterological entities that were distinct from self (I/we versus you). We also found an association between VC and positive, cognitive, and depression symptom profile. However, we did not find a significant group difference in overall quality of life.

Conclusions—The clinical portrait of VC is complex, multisensory, and distinct, and suggests a need for further research into biopsychosocial interface between subjective experience,

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Conflict of interest statement: There are no conflicts of interest.

Financial disclosure statement: There are no financial interests to disclose.

socioenvironmental constraints, individual psychology, and biological architecture of intersecting symptoms.

Keywords

Psychosis; Auditory Verbal Hallucinations; Phenomenology; Subjective Experience

Background

Auditory verbal hallucinations (AVHs) are a dynamic and heterogeneous phenomenon. They exist along a continuum spanning the nonclinical and clinical population. AVHs are found in the general non-clinical population at a prevalence rate of 13-15%, or approximately one in 20 people (1,2,3,4,5). AVHs are considered one of the primary symptoms of psychosis, and are predominately reported within the schizophrenia disorder spectrum (6,7).

Kurt Schneider classified the phenomena of “voices conversing with one another and voices heard commenting on one's actions” as First Rank Symptoms (FRS) of schizophrenia (8). However, it is now widely accepted that FRS are not pathognomonic for schizophrenia, but also present in other diagnostic groups (9,10). A recent publication concluded that FRS alone without collateral information have only 60% sensitivity to detect schizophrenia (11). Our previous research (12) has shown that FRS are transdiagnostic rather than diagnostically specific. Reflecting changes in the scientific framing of both FRS and AVHs more broadly, the DSM-5 states that “hallucinations may be a normal part of religious experience in certain cultural contexts,” and all FRS that were still retained in DSM-IV have been removed from DSM-5 diagnostic criteria for schizophrenia (8,13,14). In keeping with a broader turn to transdiagnostic symptoms and symptom continua rather than categorical diagnoses, the RDoC framework describes “dimensional” traits believed to exist within a continuum from non-clinical to pathologic (15,16,17). Within this model, dimensional traits such as AVHs can be studied independently of diagnosis. The turn to broad symptom dimensions nevertheless leaves open the question of potentially etiologically distinct AVH sub-types (4). From this perspective, regardless of the diagnostic specificity, FRS such as “voices conversing” or “voices commenting” may indicate useful dimensional sub-types (or sub-type markers). To date, however, with the exception of hypervigilance AVHs, little work has examined the phenomenology and clinical correlates (including quality of life) of potential AVH sub-types and/or forms (18). The novel translational analyses presented here set out to do precisely this, combining qualitative phenomenology, standardized clinical metrics, and quality of life assessments examining specifically Schneiderian voices.

Specifically, this paper reports on analyses designed to elucidate the following research questions:

1. What are the phenomenological characteristics, content and experience of voices conversing/commenting compared to voices not conversing?
2. Do Schneiderian FRS of voices conversing/commenting differ in clinical presentation when compared to voices not conversing?

3. Does quality of life differ in persons who experience voices conversing/ commenting when compared to voices not conversing?

Methods

This paper reports the findings from an innovative concurrent mixed-method investigation of Schneiderian voices. A battery of standardized clinical measures, specifically the PANSS and Heinrich–Carpenter Quality of Life Scale (QLS) were administered to all study participants. A subset of the total sample also participated open-ended phenomenological interviews designed to elicit in-depth information about the characteristics, content, meaning and personification of AVHs.

Subjects

Seventy-four participants with present-state psychosis who were actively experiencing AVHs were recruited from the University of Illinois at Chicago. Inclusion criteria for the study included persons between the ages of 21 – 60 who were currently experiencing Schneiderian AVHs of voices commenting or conversing. ‘Currently experiencing’ was operationalized to include persons who had experienced Schneiderian voices daily for the past two-weeks. Exclusion criteria included substance dependence, seizure disorders, and neurological conditions. Additionally, participants with non-voice auditory hallucinations, or with voices that did not comment or converse, in the absence of Schneiderian voices, were excluded from the study. Demographic characteristics for the sample and duration of untreated psychosis (DUP) were obtained at the study evaluation. DUP was defined as the number of months between onset of psychosis and initiation of antipsychotic medication. The study was approved by the internal review board, and signed consent was obtained prior to initiation of study procedures. Consensus diagnoses were determined by both the clinical and research team using the Structured Clinical Interview for DSM-IVTR (19), and available collateral information. Of the 74 study-eligible persons, 54 (73%) reported voices conversing and 20 (27%) reported voices not conversing. All 54 subjects in the voices conversing group also reported voices commenting. All 20 subjects in the voices not conversing group reported voices commenting but not voices conversing.

Measures

Measure used to assess the clinical evaluation of voices conversing—The assessments of voices conversing were based on the Structured Clinical Interview for DSM-IV-TR and was scored as absent (score of “1”), subthreshold (“2”) and threshold or truly present (“3”) (19). Subthreshold scores were converted to threshold scores in the analysis.

Clinical Measures used to assess Voices Conversing—The primary clinical measure for this study was the Positive and Negative Syndrome Scale (PANSS) (20). PANSS items were scored along a continuum of severity between 1 (asymptomatic) to 7 (extreme symptom severity). The coefficient alpha for inter-rater reliability was between 0.83 and 0.87. Analysis was conducted via data reduction strategies guided by prior empirical studies of symptom domains assessed by the PANSS. First, scores were calculated for five-factors assessing Positive symptoms (delusions, grandiosity, suspiciousness/

persecution, unusual thought content), Negative symptoms (blunted affect, emotional withdrawal, poor rapport, passive/apathetic social withdrawal, lack of spontaneity and flow of conversation, and active social avoidance), Cognitive Disorganization (conceptual disorganization, difficulty in abstract thinking, mannerisms and posturing, disorientation, and poor attention), Excitement (excitement, hostility, tension, and poor impulse control), and Depression (somatic concern, anxiety, guilt feelings, depression, and preoccupation). Items were grouped in this way based on previous factor analytic findings (21) (22).

Second, PANSS items that have been shown to identify related symptom domains in cluster analyses that assess Anergia (blunted affect, emotional withdrawal, motor retardation, and disorientation), Thought Disturbance (conceptual disorganization, hallucinatory behavior, grandiosity, and unusual thought content), and Paranoia (suspiciousness/persecution, hostility, and uncooperativeness) were obtained. PANSS items were pooled into these dimensions based on previous cluster analysis research (23,24,25).

Measure used to explore the subjective experience of Schneiderian voices—

The primary measure used to evaluate the exploratory subjective experience of voices conversing was the Maastricht Interview (MI) for Voice Hearers (26,27). The MI is a semistructured interview evaluating a) specific characteristics of voices, b) triggers, c) content, d) understanding of origin of voices, e) impact of voices, f) relationship with voices, and g) cognitive, behavioral, and physiological coping strategies (26). For the purposes of this research, we focused specifically on characteristics, content, meaning, and personification of voices conversing in comparison to voices not conversing.

Measure used to explore the relationship between Schneiderian voices and quality of life—The secondary measure selected was the Heinrich Carpenter Quality of Life Scale (QLS) (28). The QLS is a 21-item semistructured interview designed to evaluate four theoretical constructs (a) interpersonal relations (family, friends, acquaintances, social activity, social network, social initiative, withdrawal, sociosexual), (b) instrumental role functioning (occupational role, level of accomplishment, degree of underemployment, and work satisfaction), (c) intrapsychic foundations (sense of purpose, motivation, curiosity, anhedonia, aimless inactivity, empathy, and emotional interaction) and (d) commonplace objectives and activities. Coefficient alpha, for inter-rater reliability was 0.86. QLS is a seven-point measure that rates questions along a continuum of 0-1 (severe impairment) to 5-6 (normal and unimpaired functioning) (28).

Results

Data Analyses

Participants were divided into two groups: individuals with voices conversing (VC) and those without voices conversing (VNC). Demographic metrics for the full sample (n=72) were analyzed using Chi Square and Fisher exact tests were used to analyze the clinical metrics in the exploratory sub-sample (n=35). Independent sample t-test were used to compare differences in clinical symptomatology between VC and VNC. Bivariate correlations were conducted to determine separate associations between PANSS factor scores and QLS for both the VC and VNC groups.

Qualitative analyses for our subsample followed a priority-sequence model of complementarity in order to probe emergent themes identified in the principal qualitative analyses (29,30,31). Narrative interviews were tape-recorded, transcribed verbatim, and the research team developed a comprehensive coding framework that we then used in further analysis. We utilized the Atlas.ti software, a qualitative package designed to facilitate qualitative data management and coding (32). Qualitative analysis of the MI consisted of identification of categories, coding of emergent themes, identification of overarching themes, and final interpretation of these themes. Inter-coder reliability was established at 0.80. These analyses facilitated systematic mapping of first-person descriptions of the specific phenomena and articulation of common aspects missed in highly structured or closed-ended research (33,34,35). After identifying primary themes, we conducted Fisher exact tests using SPSS in order to examine quantitative supporting structures.

Sample Characteristics

Demographic characteristics of subjects with VC and VNC are reported in Table 1. Fifty-seven (77%) participants were diagnosed with schizophrenia and 17 (23%) with bipolar disorder with psychosis. Fifty-six (76%) were African-American, and 31 (42%) were female. Mean age was 40, mean age of onset of psychotic symptoms was 22, and average duration of illness was 18 months. The VC and VNC groups differed significantly in age of onset ($F(1,67)=4.60, p<0.04$) with VC participants reporting earlier age of onset compared to the VNC group. There was no significance difference between groups for age, sex, race, diagnosis, or duration of untreated psychosis.

Voices and Quantitative Phenomenological Characteristics

The full sample PANSS Five-Factor and Cluster scores for the group with voices conversing (VC) versus those with voices not conversing (VNC) are presented in Table 2. Group differences were found for positive symptoms $t(72)=2.99, p<0.004$, cognitive disorganization $t(72)=3.41, p<0.001$, depressive symptoms $t(72)=2.35, p<0.02$ and thought disturbance $t(72)=3.86, p<0.001$. The data show that persons with VC scored higher on positive symptoms, cognitive disorganization, depressive symptoms and thought disturbance. There were no significant group differences in negative symptoms or levels of excitement, anergia, or paranoia. Interestingly, when the individual items within the paranoia cluster were analyzed (suspiciousness/persecution, hostility, and uncooperativeness), we found a significant difference between groups in suspiciousness/persecution $t(72)=2.10, p<0.04$, showing that the VC group were more likely to experience suspiciousness/persecution. There was no significant difference between groups in hostility or uncooperativeness.

When studied more closely, the individual items within the positive factor scores showed that the VC group was also significantly more likely to report delusions $t(72)=2.47, p<0.02$, suspiciousness/persecution $t(72)=2.10, p<0.04$, and to display unusual thought content $t(72)=3.64, p<0.001$ when compared to the VNC group. Individual PANSS items for cognitive disorganization also differed significantly between groups regarding conceptual disorganization $t(72)=4.08, p<0.001$, difficulty in abstract thinking $t(72)=2.15, p<0.04$, mannerisms $t(72)=2.07, p<0.04$, disorientation $t(72)=2.64, p<0.01$, and poor attention

$t(72)=2.58, p<0.01$); all were significantly higher in VC compared to VNC. The “preoccupation with internally generated thoughts and feelings” item within the PANNS depression factor was also significantly higher for VC compared to VNC $t(72)=2.31, p<0.02$).

Voices and Quality of Life

There was no significant difference between groups on any of the QLS subscale or total scores (Table 2). Further analyses also failed to demonstrate any significant correlation between PANSS hallucination items and QLS total scores within the VC group. However, for the VNC group, PANSS hallucinations item and QLS total score showed a strong negative correlation, $(r(20)=-0.48, p<0.03)$ indicating that as the severity of hallucinations increased, the overall quality of life decreased.

Exploratory Analysis of Voices and Qualitative Phenomenological characteristics

Of the 35 persons who participated in the exploratory qualitative analysis of the subjective experience using the Maastricht Interview, 27 (77%) reported voices conversing (VC) and 8 (23%) reported voices not conversing (VNC). There was no significant difference between the groups in age, age of onset, duration of untreated psychosis, sex, race, or diagnosis. Additionally, there was no significant difference in age of onset of voices, number of voices at onset, number of current voices, number of times the voices were experienced per day and length of time the voices were experienced per day.

Quantitative items from the Maastricht Interview were used to generate additional comparisons between VC and VNC. We found significant differences between groups in voice location (originating inside the head or originating outside the head) at onset ($p<0.05$, Fisher exact test) and at the time of data collection ($p<0.03$, Fisher exact test). At both time-points, participants with VC were more likely to experience internal voices when compared to VNC.

Location: Voices Conversing Narratives—VC1 (originating inside the head): “It first started my freshman year of high school, I was being harassed and bullied. It had gotten to the point where I started having these violent nightmares about me getting eaten by the bully's mother and a few days later, I started hearing voices in my head. The first voice was my late aunt and then I started hearing other voices. All in my head, talking to me and talking to each other.”

VC2 (originating inside the head): “I would describe them as little air bubbles that would just pop up in my mind and have their own little intention of saying something to me. Normally they would just pop out and talk to each other, just know each other or meet each other and then just say something to me and make me feel lesser or the inferior part of life because I was not like them. But then again, they were supposed to be the stranger to me, not me the stranger, I think. They are just like individual little voices.”

Location: Voices Not Conversing Narratives—VNC1 (originating outside the head): “In the beginning of the breakdown when I was first diagnosed with schizophrenia, I thought

I was laughing, I actually heard myself laughing but I wasn't laughing. The TV was talking to me, actually talking to ME and it was just a regular news channel on. I heard laughing and a voice of someone in the room that was pretty much agreeing with the television.”

VNC2 (originating outside the head): “The voices don't talk to each other but they talk to me. Like I could be lying in bed and be looking in the sky and I hear a voice hovering above me, talking to me. It kind of shocks me because it would go with my thinking. I could be thinking about something and then all of a sudden I hear an interpretation of what I was thinking from the voice.”

Compared to the VNC group, there was also a significant association between VC and causal attributions of AVHs to God, ghosts, or angels ($p<0.04$, Fisher exact test), as well as to paranormal phenomena such as telepathy or mediums ($p<0.01$, Fisher exact test). Interestingly, those with VC were also more likely to describe their voices as “affirming” and “inspiring” ($p<0.01$, Fisher exact test).

Understanding: Voices Conversing Narratives—VC3 (causal attribution to angels with affirming voices): “They are angels. That's how I look at it. They is protecting me from like all of the horrible things that I have been through and stuff. They stuck with me and been with me for years and years.”

VC4 (causal attribution to demons): “They are wicked forces from the demons that put voices in my head. The paranoia takes over me or consumes me almost. And I learned to ignore it, sit still and ignore it when I is in public. I learned that. It feels like the voices are crawling in my scalp.”

Understanding: Voices Not Conversing Narratives—VNC3 (causal attribution to biology): “I know that I have schizophrenia. I looked up that diagnosis on the internet and they talked about the people who have this disorder sometimes have rich fantasy lives and when I read that I said that's me and no wonder I have these things with the voices inside of my head.”

VNC4 (causal attribution to deceased mother): “My mother is constantly talking to me. Sometimes she yells at me and is quite abusive and at other times when she is quiet she says nice things.”

There was no significant differences between the VC and VNC groups in voices experienced as distinct entities in relation to the participant's self (e.g. “We don't want to go to the store, you want to go to the store”) regardless if the voices were internal, external, egosyntonic or ego-dystonic.

Distinct Entities: Voices Conversing Narratives—VC5 (distinct entity with auditory, tactile and olfactory experience): “When I smell cigar smoke, I know it's my friend Lloyd. Once when I was lying down I could feel his body on top of mine and him talking to me and I embraced him, gave him a hug and enjoyed his company”

VC6 (distinct entity): “I was a sex addict and I would have very sexual voices in my head; very sensual, very seductive voices. I could be sitting in a room with a woman and the voices would be telling me what they wanted to do to the woman. Like, I want to touch her breasts and so I would start staring at her breasts and the voices would get descriptive.”

Distinct Entities: Voices Not Conversing Narratives—VNC5 (distinct entity with auditory, visual and olfactory experience): “I picture my voices in my head when they are talking, they are all old men, and I can smell them”

VNC6 (distinct entity): “I get my voices drunk sometimes at night when they are loud and keeping me awake.”

Discussion

It is widely accepted that AVHs are transdiagnostic and are no longer used as a primary discriminatory diagnostic indicator for schizophrenia spectrum disorders (10,14,36). FRS, including AVHs are understood along the lines of a dimensional phenotypic classification defining a symptom of psychosis rather than a symptom specific to schizophrenia (37,38,39). Historically, the phenomenology of AVHs was a major focus of early psychopathology research (8,40,41,42,43). More recent contributions building on this foundational work have begun to differentiate potential AVH subtypes, with renewed emphasis on their phenomenological nuances and complexities (4,44,45,46). Our findings contribute to this growing body of work by further elucidating phenomenological differences and overlap between individuals with voices conversing (VC) and individuals with voices commenting but not conversing (VNC). Our study targeted Schneiderian voices specifically to unpack the nuances of the experience of VC/VNC and to further build on historical research in this area. Using an innovative mixed methods approach, we found significant differences across a number of dimensions including first person narratives, clinical manifestation, and quality of life measures. We summarize each of these major findings below.

Voices and Phenomenological Characteristics

Phenomenologically, AVHs exist along a continuum spanning the non-clinical and clinical population, and are highly heterogeneous, complex and rich phenomena (47). The characteristic features of auditory verbal hallucinations in clinical and nonclinical groups: state-of-the-art overview and future directions. This study's results foreground this complexity. Our descriptive phenomenological analyses of VC compared to VNC is a novel contribution to the scientific literature that de-emphasizes categorical diagnosis and re-engages phenomenological and first-person narrative. The nuanced descriptions of persons with lived experience of AVHs are not typically included in research designs, and consequently under-represented or absent in the scientific literature. Historically, in contrast, the exploration of subjective experience formed the contextual foundation of psychological research on psychopathology, particularly in Europe (48,49).

The VC group reported an earlier age of onset when compared to the VNC group. This finding supports other studies that have reported that earlier age of onset may predict worse

outcome, although other studies do not support this causal effect (50). In our sample, the VC group does exhibit increased positive symptoms of psychosis. However, the earlier age of onset in the VC group is not significantly different in decreased social functioning or quality of life when compared to the VNC group. Showing that although the clinical profile was more symptomatic in the VC group this did not translate into differences in social functioning or overall quality of life.

In keeping with previous studies of AVHs, we also found an association between VC and positive, cognitive, and depression symptom profiles (7). The individual PANSS items linked to the factor and cluster total scores that contributed to the overall clinical portrait include the association between VC and increased delusional content (especially suspiciousness and persecutory beliefs). While the co-occurrence of AVHs and delusions has long been noted, our analyses suggest a potentially strong link between persecutory delusions and VC (versus VNC). While our project was not designed to unpack the temporal relationship between delusions and VC, past research has proposed that AVHs play a causative role in the development of delusions (51,52), underscoring the value of follow-up research focused on this association.

Our exploratory qualitative sub-group analyses of the subjective experience of voices conversing reveal a striking pattern of voices conversing that are experienced as internal (originating inside the mind), both at initial onset and during the longer-term course of illness. Participants were more likely to attribute the origins of their VC to an external source such as God, ghosts, telepathic communication, or mediumistic sources compared to the VNC group. The correlation between self-preoccupation and VC but not VNC was also interesting, and could suggest either a common underlying mechanism such as decreased executive control over thought processes, or a causal relationship.

Both VC and VNC groups experienced their voices as separate and distinct from self. It has been hypothesized that voices may result from a core disturbance in self that can be linked to ego-disturbances that extend into a sense of loss in authorship and control over thoughts and experienced as Schneiderian voices (53,54,55). The phenomenal dimension of voices experienced as characterological entities that are separate and distinct from self, as was found in our exploratory analysis, begins to provide narratives that capture the essence of this demarcation. The fragmentation in the sense of authorship and 'mineness' of one's own thoughts exists in clinical and non-clinical populations as manifested in daydreaming, the process of synthesizing information, or creative thought. However, in the clinical population there are cases in which thoughts are experienced as alien from self, as described in Schneiderian voices (56).

The experience of passivity associated with lack of authorship and lack of control experienced with Schneiderian voices has been causally linked to a fundamental breach in the individual's ego-boundary (8,57,58,59). It has been hypothesized that this core disturbance of basic self is a contributing factor in the pathogenesis in psychosis (55). Regardless of a progressive symptom development or a non-temporal-specific disorder of self, Schneiderian voices are often intertwined with delusions (46,53,60,61). In further unpacking the interrelatedness of voices and delusions, recent research has shown a

distinction between AVHs and thought delusions and AVHs and thematic delusions (62). This formulation suggests that AVHs and thought delusions reflect an alteration of self and internal/external boundaries, and that AVHs with thematic delusions reflect exaggerated processes of social internalization or externalization (62). Building on this research, our study specifically targeting Schniederian voices further contributes to the phenomenological understanding of voices as distinct characterological entities that are a complex multisensory experience that can include auditory; tactile “could feel his body on top of mine” and “voices are crawling in my scalp”; visual “I picture my voices in my head”; and olfactory, “I can smell them” that typically intercept with delusional content. This study and others further support a reframing of voices and delusions as endpoints on a shared continuum of ego-disturbance (45,62,63).

Voices and Quality of Life

There are multiple factors that can contribute to quality of life in persons with AVHs. Multiple studies have hypothesized that the experience of AVHs causes one to become more internally focused on the voices which can, in turn, increase difficulties ignoring the voices or shifting attention away from them in order to better engage in/with the environment (64,65,66). Further, the experience of AVHs carries significant stigma and has been associated with poor outcomes, high level of distress and social isolation (13,67). However, other studies have shown that there is a sub-set of persons who hear voices who are not negatively affected or distressed by their voices (2,68). A recent qualitative study suggested that persons who interact with their voices by listening and responding to their voices felt more empowered and better able to manage their voices (45,69). In our study, we did not find a significant difference in the QLS total score between those with and without voices conversing. However, our findings showed that in VNC, as the severity of the hallucinations increased the quality of life deteriorated but this was not the case in the VC group.

Clinical Implications

In clinical populations, specific characteristics of AVHs have not been found to be specific to particular diagnoses (70,71). The consequent de-emphasis on diagnosis and greater attention to the dimensional differences and their clinical impact further underscore the importance of engaging with the complexities of first person accounts. While this shift is clearly relevant to research on psychopathology, it is also directly relevant to clinical practice. Current clinical practice rarely includes asking people who experience AVHs for a detailed account of their voices or exploring the finer grained contours of these experiences (72,73). Indeed, almost all the participants in our study have confirmed that they had never previously been asked detailed questions about the nature or characteristics of their voices (46). As a recent commentary (74) suggests, phenomenological differences that cut across diagnoses demand the tailoring of interventions to clinically relevant differences and voices sub-types rather than grounding treatment decisions entirely or primarily on categorical diagnosis (62,63,75).

Limitations

There are limitations to the generalizability of these results in terms of ethnicity and for cultural reasons, our findings may not be generalizable to other regions and populations. In

addition, our study did not directly address potential diagnostic differences (affective versus non-affective psychosis) with respect to course or chronicity (e.g. voices occurring in acute mania versus chronic voices associated with schizophrenia). While we distinguished our groups on the basis of the presence or absence of voices commenting, all participants experienced voices conversing. Additional work would be necessary to further unpack these additional layers of difference and overlap. Finally, our qualitative sub-sample was small and, by definition, exploratory. Future research should seek to confirm the differences we identified in larger and more diverse samples.

Concluding Comments and Future Directions

As a growing body of research has helped highlight, AVHs are a highly heterogeneous phenomenon that can take a variety of forms, interact with other symptom types and impact patients in an equally heterogeneous manner. Listening to Schneiderian voices begins to explore a rich contextual narrative that provides insights into the demarcation of self and voices. A more comprehensive understanding of these phenomena demands nuanced, mixed methods research designs that integrate first-person narratives and structured interviews, as well as data on social context and biological underpinnings (49).

The clinical portrait of individuals with voices conversing that our data helps paint is complex and distinct from that of individuals with no voices conversing. These differences underscore the ongoing need for research located at the biopsychosocial interface between subjective experience, socioenvironmental constraints, and individual psychology and biology, including the psycho-cognitive architecture of intersecting or overlapping symptoms.

Acknowledgements

The authors would like to thank all the subjects who participated in this study. This work was supported in part by PHS grant (NIH) R01MH094358 (RPS).

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Table 1

Participant Demographic Information

	Voices Conversing	Voices Not Conversing	<i>p-value</i>	Qualitative Sample Voices Conversing
Variable	(n=54)	(n=20)		(n=35)
Age (Mean \pm SD)	40 \pm 12.69	40 \pm 14.02	ns	45 \pm 11.39
Age of onset of psychosis (Mean \pm SD)	20.38 \pm 8.52	25.33 \pm 8.02	0.04	22.29 \pm 9.46
Duration of untreated psychosis (months) (Mean \pm SD)	35.92 \pm 76.74	39.08 \pm 51.55	ns	34.89 \pm 57.64
Sex			ns	
Male	32/54 (59%)	11/20 (55%)		15/35 (43%)
Female	22/54 (41%)	9/20 (45%)		20/35 (57%)
Race			ns	
African American	51/54 (76%)	15/20 (75%)		29/35 (83%)
Caucasian	5/54 (9%)	2/20 (10%)		4/35 (11%)
Hispanic	8/54 (15%)	2/20 (10%)		2/35 (6%)
Other	0 (0%)	1/20 (5%)		0 (0%)
DSM-IV Diagnosis			ns	
Schizophrenia	43/54 (80%)	14/20 (70%)		28 (80%)
Bipolar	11/54 (20%)	6/20(30%)		7 (20%)

Table 2

PANSS Five-Factor, Cluster Scores and QLS

	Voices Conversing		Voices Not Conversing		<i>p-value</i>
	N=54		N=20		N=74
PANSS Five-Factor Scores	Mean	(S.D.)	Mean	(S.D.)	
Positive	16.48	3.82	13.30	4.65	0.004
Negative	18.35	7.33	15.15	5.38	ns
Cognitive	15.50	4.61	11.50	4.08	0.001
Excitement	10.09	2.98	8.85	2.51	ns
Depression	15.05	2.89	13.20	3.46	ns
PANSS Cluster Scores	Mean	(S.D.)	Mean	(S.D.)	
Anergia	10.19	4.07	8.50	3.05	ns
Thought Disturbance	15.37	3.88	11.35	4.15	0.000
Paranoia	7.9	2.6	6.75	2.34	ns
Quality of Life (QLS)	Mean	(S.D.)	Mean	(S.D.)	
Interpersonal Relations	22.49	11.12	26.20	11.63	ns
Instrumental Role	8.30	6.01	10.20	7.67	ns
Intrapsychic Foundations	22.79	10.51	27.65	8.55	ns
Total Score	53.01	22.82	64.05	25.37	ns