

Word use in first-person accounts of schizophrenia†

S. K. Fineberg, S. Deutsch-Link, M. Ichinose, T. McGuinness, A. J. Bessette, C. K. Chung and P. R. Corlett

Background

Language use is often disrupted in patients with schizophrenia; novel computational approaches may provide new insights.

Aims

To test word use patterns as markers of the perceptual, cognitive and social experiences characteristic of schizophrenia.

Method

Word counting software was applied to first-person accounts of schizophrenia and mood disorder.

Results

More third-person plural pronouns ('they') and fewer first-person singular pronouns ('I') were used in schizophrenia

than mood disorder accounts. Schizophrenia accounts included fewer words related to the body and ingestion, and more related to religion. Perceptual and causal language were negatively correlated in schizophrenia accounts but positively correlated in mood disorder accounts.

Conclusions

Differences in pronouns suggest decreased self-focus or perhaps even an understanding of self as other in schizophrenia. Differences in how perceptual and causal words are correlated suggest that long-held delusions represent a decreased coupling of explanations with sensory experience over time.

Declaration of interest

None.

In the rich history of speech and language analysis in schizophrenia, researchers have described the errors, structures and meanings in the language of people with schizophrenia,^{1–3} focusing on particular symptoms, such as thought disorder, and their manifestation in speech.^{1–3} First-person accounts are an invaluable source for increasing empathic understanding; they are not only used in psychiatric training, but are relevant to garnering public awareness. Today, first-person narratives by writers such as Elyn Saks (*The Center Cannot Hold*⁴) and Kay Redfield Jamison (*An Unquiet Mind*⁵) have changed public perceptions of mental illness. However, preconceptions and interpretive frame colour how readers interpret these accounts. Even grounded theory⁶ approaches, which purport to draw out themes and meaning, are susceptible to bias, no matter how principled. We thought it would be useful to go back to a more fundamental question: 'What are the words used?'

There are many ways to attempt to explain how psychotic symptoms arise. In the present study, we tested the hypothesis that, relative to people with mood disorders, people with schizophrenia write with a particular word-use profile reflective of the cognitive disturbances that characterise psychotic symptoms. Cognitive neuroscience models of psychosis focus on the roles of odd perceptual experiences.^{7,8} Delusions in particular result from attempts to explain these experiences.^{8–11} Those attempts involve disrupted perceptions and inappropriate causal inferences, and are often pervaded with biases, such as external attributions – blaming these odd experiences on outside factors such as other people and out-groups.¹² According to one such theory, prediction errors (the mismatches between expectation and experience that drive learning, attentional allocation and belief formation) may be signalled inappropriately in patients with psychosis.¹³ These aberrant signals drive delusion formation as a means of explaining these odd experiences. We examined whether the key tenets of the cognitive neuroscience frameworks (externalising attributions, aberrant causal inferences, perceptual

disturbances) were evident in the written language of patients with schizophrenia compared with those with mood disorder. Our hypotheses were:

- (a) H₁: People with mood disorder use more first-person singular pronouns and affect words. First, as an internal control, we expected, based on prior published work with word counts,¹⁴ that patients with mood disorder would be self-focused and so would use first-person singular pronouns ('I') more frequently than patients with schizophrenia. Given that patients with mood disorder experience predominantly affective symptoms, we also predicted that they would use words describing mood – and particularly some negative mood states – more frequently (i.e. 'affect', 'negative emotions', 'sadness' and 'anxiety').
- (b) H₂: People with schizophrenia use more external referents as measured by function word use. Consistent with the external attributions that people with schizophrenia tend to make, we predicted that writers with schizophrenia would use function words (e.g. articles, prepositions, pronouns) that relate to external others (e.g. third-person plural pronouns, hereon referred to as 'they') more frequently than patients with mood disorder. We expected that 'they' would be enriched relative to third-person singular ('he'/'she'), because psychotic symptoms commonly refer to the nefarious intentions of powerful out-groups,¹⁵ although there are of course cases of delusions about specific individuals (e.g. the Othello delusion – the delusion that one's partner is being unfaithful).¹⁶ Also, sense of self is disrupted in phenomenological reports from patients with schizophrenia.¹⁷ We therefore predicted, as in H₁, that writers with schizophrenia would use 'I' less often than persons with mood disorder.
- (c) H₃: People with schizophrenia use more external referents as measured by content word use. We expected that external attributions would be manifest in content word use – for example words about other humans or human-like agents (e.g. 'human', 'religion'). These predictions are grounded in

†See invited commentary, pp. 39–40, this issue.

the cognitive neuroscience of psychotic symptoms, which has demonstrated a bias towards external attributions, consistent with corollary discharge theories of the psychopathology of hallucinations and delusions. In those theories, patients tend to attribute self-generated stimuli and cognitive processes (e.g. motor predictions, inner speech) to external agents.¹⁸ We also predicted that less inward focus would manifest as use of fewer content words related to self (e.g. the body) in the writing of people with schizophrenia.

- (d) H₄: People with schizophrenia have different relationships between perceptual and causal words than do people with mood disorder. Early in schizophrenia, patients are overwhelmed by odd experiences that are difficult for them to figure out. This phase of the illness is described as delusional mood.^{19,20} During delusional mood, the world takes on an unexpected and irrepressible significance: it is pregnant with new meaning, significance and salience (Fig. 1).^{11,21–23} Some patients experience an ‘Aha!’ moment^{20,24,25} when a new idea arises to explain their strange unpredictable experiences. The crystallising delusion carries extraordinary explanatory power, diminishing the need for patients to continue their struggle with odd perceptions because the delusion explains them.^{11,22,23,26–29}

The profundity of perceptual experience in schizophrenia will likely increase perceptual word use. We had more difficulty predicting how use of words in the Linguistic Inquiry and Word Count category ‘cognitive’ (tentative, certain, causal) might change: patients overwhelmed by confusing perceptual data might use more tentative or circumspect language (e.g. ‘perhaps’), consistent with their uncertain state. They might also use more causal language (‘because’, ‘therefore’, etc.) as they struggle to figure out odd experiences.

In an exploratory analysis, we considered the relationship between perceptual and causal word use across authors. There were at least two possibilities:

- (a) Perceptual and causal words would be positively correlated: authors in the midst of delusional mood (Fig. 1) might use more causal language as they seek explanations for their aberrantly salient experiences.^{11,22}
- (b) Perceptual and causal words would be negatively correlated: once delusions form, people might work less to explain their aberrant experiences, as their delusions are explanatory schema (narratives or world models) for subsequent psychotic experiences (Fig. 1).^{9,30} Since the authors in our study are publishing essays in a major psychiatric journal, they may be past the chaotic perceptual experiences of early psychosis. We might therefore expect a negative correlation between perceptual and causal word counts.

Method

Text samples

First-person accounts ($n = 77$; 45 women, 24 men, 8 unclear) describing the experiences of schizophrenia in the ‘First Person Accounts’ section of the journal *Schizophrenia Bulletin* between 1979 and 2012 were collected. The essays were edited prior to publication, and the authors also noted pre-submission assistance from family, friends and mentors. Sample writers identified themselves as having schizophrenia.

As a non-psychotic psychiatric control group, we collected first-person accounts written by people with mood and anxiety disorders which were published on the internet ($n = 29$; 19 women, 10 men), mostly on the Anxiety and Depression

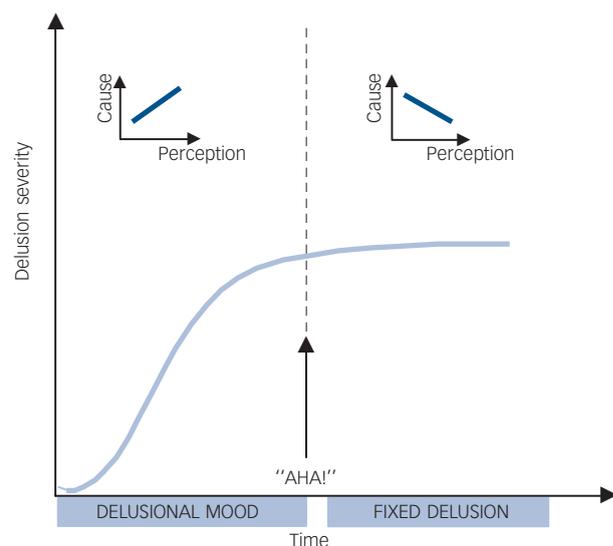


Fig. 1 Model for possible phases of delusion formation and maintenance.

Early in the process, aberrantly salient experiences of the delusional mood provide the impetus for delusions to form. Here, perceptual words and causal words should be positively correlated. Once the delusional explanation is formed, patients report a feeling of insight or an ‘Aha!’ moment in which they arrive at an explanation. Once the explanation has been generated, it becomes a way to organise future experiences, such that perceptual data are sculpted to fit the schema. Hence, the relationship between causal and perceptual language will change, becoming negative.

Association of America (ADAA) website ($n = 22/29$ samples). The editors of the ADAA website were contacted and they confirmed that the essays were professionally edited. Sample writers identified themselves as having depression, generalised anxiety, panic disorder or obsessive–compulsive disorder. See online Table DS1 for sample details.

Inclusion criteria for all essays were: originally written in English, published after 1975, and written about first-person experience.

Each essay was read by either S.K.F. or S.D.-L. for inclusion criteria and processing. Each essay was formatted into a single plain text file using standard procedures, including correcting spelling errors when the intended word was obvious. In addition, we removed quotations longer than two sentences and citations. We placed spaces around dashes and hyphens to separate connected words that were together not recognised by Merriam Webster Dictionary (www.merriam-webster.com). Linguistic Inquiry and Word Count 2007 (LIWC)^{31,32} – a simple word-counting software – assessed texts for the usage rates of particular word categories. Essays differed in mean length: 2172.55 words (s.e. = 156.31) in schizophrenia and 780.76 words (s.e. = 102.52) in mood disorder essays ($F(1,106) = 27.97$, adjusted $P = 1.15 \times 10^{-5}$).

Statistics

LIWC reports the percentage of words in each of 68 categories as a function of total words in a text file for function word and content categories. These categories were validated during LIWC development.³² We considered counts of both function word categories (i.e. words that provide structure in the sentence, such as pronouns and prepositions) and content word categories (i.e. words that indicate topic, such as nouns, regular verbs, and some adverbs and adjectives). One-way ANOVAs were conducted to examine group differences across categories.³² We determined our significance level to be $P < 0.05$ after false discovery rate

(FDR)³³ correction (based on all 70 compared variables) to reduce the likelihood of Type I error.

Correlations between LIWC's cognitive and perceptual categories were assessed using bivariate analysis with Pearson's correlation coefficient (*r*). Two outliers (with percentages of perceptual words more than two standard deviations above the mean) were removed from this analysis. We determined our significance level to be $P < 0.05$ after FDR correction (based on pairwise comparisons between variables for cognitive mechanisms and variables for perception, 24 possible comparisons). Significant differences between groups in correlations were assessed using Fisher's *r* to *z* transformation.

Results

H₁: People with mood disorder use more first-person singular pronouns and affect words

As expected from previous research on word use in samples with mood disorder, our mood disorder sample used 'I' more than the schizophrenia sample (Fig. 2) ($F(1,106) = 14.45$, adjusted $P = 2.70 \times 10^{-3}$). We further found that the mood disorder group used more words to describe affect ($F(1,106) = 69.32$, adjusted $P = 1.18 \times 10^{-11}$), negative emotion ($F(1,106) = 87.45$, adjusted $P = 1.89 \times 10^{-13}$), sadness ($F(1,106) = 28.38$, adjusted $P = 1.14 \times 10^{-5}$) and anxiety ($F(1,106) = 82.73$, adjusted $P = 3.51 \times 10^{-13}$) (see online Table DS2).

H₂: People with schizophrenia use more external referents as measured by function word use

To test our hypothesis that external referents would be greater in schizophrenia, consistent with an external attribution bias, we examined 'they'. As we predicted, 'they' was more frequent ($F(1,106) = 12.55$, adjusted $P = 5.95 \times 10^{-3}$) in the schizophrenia group relative to the mood disorder group (Fig. 2).

H₃: People with schizophrenia use more external referents as measured by content word use

A further test of our prediction about external attribution concerned content word use in schizophrenia. The schizophrenia essays did indeed use significantly more referents to external agents, including more words describing humans ($F(1,106) = 7.01$, adjusted $P = 0.04$) (Fig. 3) and religion ($F(1,106) = 8.23$, adjusted $P = 0.02$). Consistent with their perturbed sense of self,

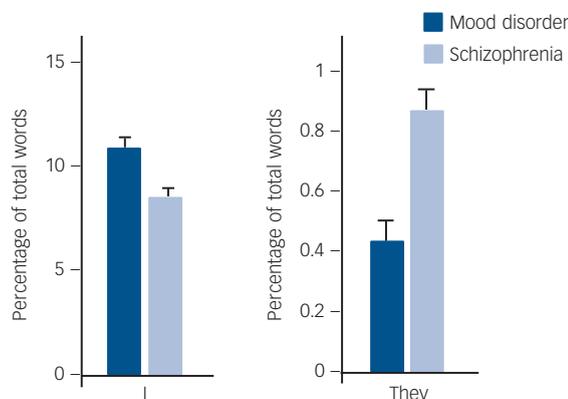


Fig. 2 Use of function words by the mood disorder and schizophrenia groups.

Writers with schizophrenia used the first-person singular pronoun ('I') less frequently and the third-person plural pronoun ('they') more frequently than did writers with mood disorders. Bars represent mean value and error bars represent standard error.

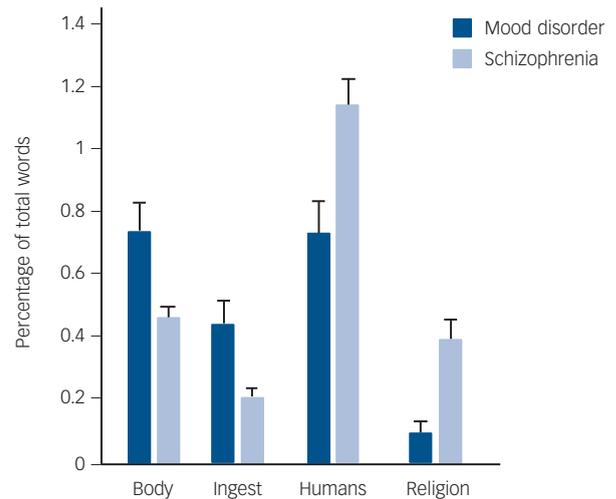


Fig. 3 Use of content words by the mood disorder and schizophrenia groups.

Writers with schizophrenia used words describing the body and ingestion less and words describing humans and religion more than did writers with mood disorders. Bars represent mean value and error bars represent standard error.

patients with schizophrenia used fewer words describing the body ($F(1,106) = 11.86$, adjusted $P = 7.52 \times 10^{-3}$) and ingestion ($F(1,106) = 11.44$, adjusted $P = 7.79 \times 10^{-3}$).

H₄: People with schizophrenia have different relationships between perceptual and causal words than do people with mood disorder

Next, we examined the essays for differences in perceptual and causal language. We did not observe a significant difference in perceptual words. However, both causal language ($F(1,106) = 9.45$, adjusted $P = 0.016$) and tentative language ($F(1,106) = 8.30$, adjusted $P = 0.020$) were less frequent in the schizophrenia essays than in the mood disorder essays (Fig. 4).

We predicted that aberrant salience and subsequent causal inference in schizophrenia¹³ might manifest in written language as a correlation between perceptual and causal words. We computed Pearson's correlation between these two categories as measured by LIWC. We found that causal and perceptual words were significantly negatively correlated in the schizophrenia essays ($r = -0.276$, FDR adjusted $P = 0.02$) (Fig. 4), and significantly positively correlated in the mood disorder essays ($r = 0.524$, FDR adjusted $P = 0.02$). These correlations were significantly different between the two groups (Fisher's *z*-transformed $r = 3.29$, $P = 2 \times 10^{-4}$).

Post-hoc analyses

To test whether any of the differences between the two groups were influenced by differences in essay length (as measured by word count), we conducted a MANCOVA on the 12 variables described earlier, with word count as a covariate. The two groups were significantly different (Wilk's lambda test, $F(1,12) = 10.94$, $P = 3.43 \times 10^{-13}$). The subsequent ANCOVAs with word count as a covariate for each variable revealed that word count significantly altered the result only for affect ($F(1,12) = 9.76$, $P = 0.002$, partial eta squared = 0.09). All between-group differences remained statistically significant after FDR correction (adjusted $P < 0.05$) for all 12 variables (details in online Table DS3).

To test whether the differences between the correlations in causal and perceptual words for the two groups (H₄) were

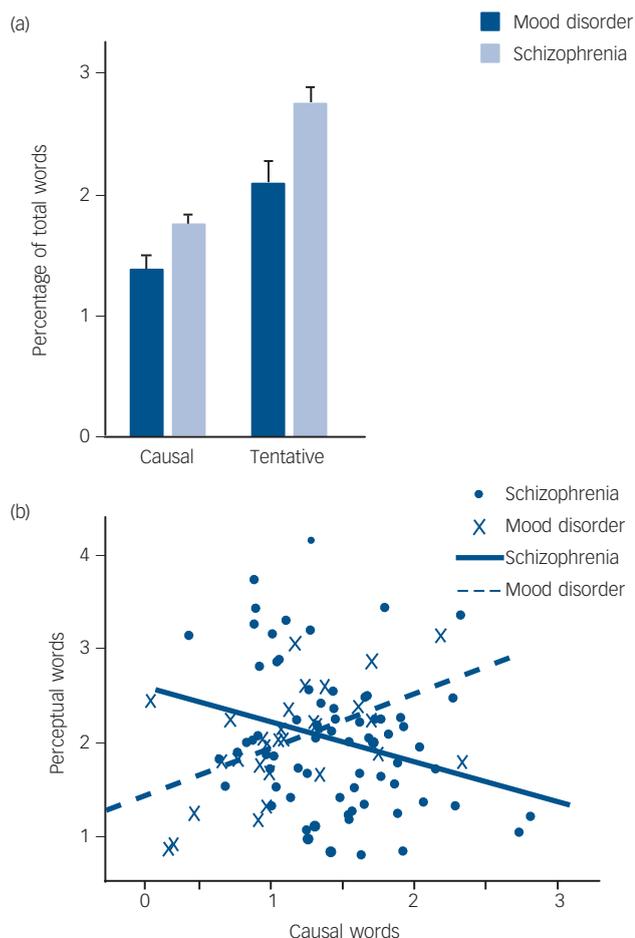


Fig. 4 (a) Use of causal and tentative words by the mood disorder and schizophrenia groups (bars represent mean value; error bars represent standard error) and (b) percentage of words describing perception and causality by the two groups (data points represent values in individual essays; lines represent linear fit).

influenced by differences in essay length, we conducted partial correlations with word count as a covariate. The observed correlations between causal and perceptual words remained significant for mood disorder essays ($r=0.546$, adjusted $P=0.003$) and for schizophrenia essays ($r=-0.356$, adjusted $P=0.002$).

Discussion

We used a computerised text-analysis approach to examine word use in schizophrenia. Our work extends previous findings in language and psychology to suggest that psychiatric patients with different diagnoses (psychotic illness *v.* mood disorder) use language differently, not just in what they say (as marked by content words), but in how they say it (as marked by function words).³⁴

Schizophrenia accounts differ in affective expression relative to mood accounts

Function words are known to differ between individuals enough to profile the demographics and personality of authors³⁵ to identify the authors behind pen names and terrorist threats³⁶

(for a review, see Stamatatos³⁵). Using LIWC, function word use was found to differ in some psychiatric conditions; for example, 'I' is used more by people with depression than healthy controls, indicating greater inward focus.^{14,37,38} Also, Jungnael *et al*³⁹ applied LIWC to language samples from 27 psychiatric and 17 control patients. In this mixed psychiatric group (which included many patients with psychosis), there were significant differences between groups in language describing positive emotions, cognitive processes and relativity. Furthermore, others have established that the relationships between the types of words used may be different in patients with psychosis. Specifically, using acyclic speech graphs to analyse speech from patients with schizophrenia and bipolar disorder, Mota and colleagues found evidence for verbosity and flight of thoughts in patients with mania.⁴⁰ In the present study, we replicated the higher rates of first-person singular pronouns and negative affect word use associated with depression in our writers with mood disorder.^{14,37,38}

Schizophrenia accounts use more external referents as measured by function word use relative to mood accounts

We examined word use in writing by people with schizophrenia and those with mood disorder to test the hypothesis that it would accord with cognitive neuroscience models of psychopathology, such as the prediction error model of delusions¹³ and the corollary discharge theory of disturbed self-agency.¹⁸ Indeed, writers with schizophrenia used 'they' significantly more than writers with mood disorder. We suggest that this is consistent with the externalising bias observed in cognitive neuroscience studies of patients with schizophrenia.⁴¹ It may also reflect a shift in people with schizophrenia towards thinking of self as other.¹⁷

Schizophrenia accounts use more external referents as measured by content word use relative to mood accounts

External bias was also present in the content words used by people with schizophrenia. They wrote with significantly less self-focus (reflected in less talk of the body and ingestion), and they used words about external others (human agents and religion) more. These differences might reflect a mix of explanatory inference and coping. People with psychosis misattribute internally generated processes (e.g. thoughts) to external sources (e.g. the US Central Intelligence Agency (CIA), angels or demons), perhaps because of an attenuated forward model of self, generating surprising experiences that individuals without psychosis would normally disregard.⁴² Such experiences are distressing and alienating. Religious practice and social relationships can help patients with psychosis find a sense of community and belonging.

Schizophrenia accounts have different relationships between perceptual and causal words than do mood accounts

We also found that the schizophrenia essays differed significantly from the mood disorder essays in the use of causal and tentative words, and in the direction of correlation between perceptual and causal words (negative in schizophrenia and positive in mood disorders). It could be that the language used by patients with schizophrenia reflects their phase of illness (see Fig. 1, delusional mood and fixed delusion phases). Early aberrant experiences require explanation,^{11,13,23,42-46} which would lead to increased causal words (e.g. 'because') at the same time as words about their perceptions (positive correlation). After delusions crystallise,

patients no longer seek explanations for their odd experiences (they now rely on their delusion to do explanatory work),³⁰ so they talk less about the reasons when they describe their experiences (negative correlation).⁴⁴ We found a negative correlation, consistent with our authors being further along in their illness and outside of the delusional mood. To be in our group, they have had symptoms for long enough to receive a diagnosis of schizophrenia, and to accept it enough to write as a person with the disorder. We expect that in this post-‘Aha!’ phase, people use the explanation (delusion) as a perceptual schema – a filter through which subsequent perceptual data are viewed – ‘the trail is blazed and the now dominant delusion motivates future apperceptive schema.’³⁰ Confirmation biases and a general tendency towards dogmatism in the face of contradictory evidence prevail (in everyone, not just people with psychosis⁴⁷). Once we endorse a belief, our relationship to evidence changes. We are more likely to refute or ignore evidence than to relinquish a cherished belief or generate a new explanation⁴⁷ (think here not only of patients, but also of scientists).^{23,29}

There was a positive correlation between perceptual and causal words in the mood disorder group. Some studies find that people with mood disorder are less prone to the biases that attend causal inference; they show depressive realism.⁴⁸ For example, they do not have an illusory sense of control of non-contingent positive outcomes. However, controls without mood disorder and patients with psychosis felt they were in control when they were not.⁴⁹ In the absence of benefactance biases, people with mood disorder may make a more straightforward connection between perception and causation, and so be more likely to use them together.

Other factors likely modulate patients’ talk of both perception and causality. In-patients with schizophrenia and delusions do not report more current anomalous percepts than do psychiatric controls without psychosis.⁵⁰ This may be because treatment works: antipsychotic drugs attenuate aberrantly salient experiences.⁵¹ However, patients also learn quickly that talking less about odd experiences and ideas can lessen unwanted clinical attention and unpleasant social interactions.⁵² They may learn to alter what they say about their experiences.

The attenuation of aberrant salience by antipsychotic drugs⁵¹ could disconnect perception and belief, encouraging the adoption of alternative non-delusional explanations.^{44,53} In fact, some recovering patients actually report a kind of double awareness, where they believe and do not believe their delusions.⁵⁴ Presumably this too would change the correlation between perceptual and causal word use.

Future work will help to clarify which, if any, of these explanations holds. Further investigations of spontaneous language across phases of illness and recovery will be critical.

Limitations

The text samples for both disorders may have been edited before publication and perhaps lost some of their original voice and vocabulary through this process. The extent of editing may have been uneven both within and across groups: we did not have access to the unedited initial drafts during the development of this project. Future work with un-edited language samples may identify a broader signature of language changes specific to people with schizophrenia. The schizophrenia and mood disorder essays came from different sources, and although they were on the same topic (‘what it is like to live with my mental illness’), this may contribute to differences. Also, the mood disorder essays were mostly directed at other patients (*v.* schizophrenia essays published in an academic medical journal mostly read by health professionals) and were on average half the length.

We cannot confirm diagnosis or symptomatology of the authors whose essays we included in this project. The authors in the schizophrenia group may have comorbid mood disorder and the authors in the mood disorder group may have psychotic symptoms. Furthermore, the authors of the schizophrenia essays may represent a particularly functional group of people with schizophrenia, as they are aware of this medical journal and have written and submitted essays. Indeed, some are even peer professionals and scientists with lived experience of psychosis⁵⁵ who provide a uniquely relevant perspective on cognitive and neuroscientific approaches to their symptoms.⁵⁵

However, having read the essays, we are certain that most patients’ accounts were not explicitly discussing cognitive neuroscience and that the findings we report reflect the impact of illness mechanisms on language. Importantly, we did note that some language features in these essays that have been previously observed in patients with schizophrenia: the schizophrenia essays included several neologisms (Table DS1) whereas the mood disorder essays contained none.⁵⁶ We also suspect that the observation of fewer punctuation marks in the schizophrenia essays may represent a disorganised quality of the language.⁵⁷

Finally, we note the lack of a non-psychiatric control group. Such a sample would increase our confidence in the direction of our findings – did the people with schizophrenia use ‘I’ less or were the people with mood disorder using it more? We made *a priori* predictions, based on prior data; future work will seek out an appropriate comparison group.

Directions for future work

Future work will establish the relationships between the language markers identified presently and the behavioural and neural markers of disrupted learning and inference identified previously.¹³ It will be informative to sample language use across illness course as delusions form and become engrained and resistant to change.⁴⁴ We will also consider people with different symptom dimensions and disease severity. Indeed, we aim in the future to use the written and spoken language of patients with schizophrenia to classify patients not simply into diagnostic categories, but to take a more dimensional approach to specific symptoms – such as delusions – and use language as another means of testing theoretical models of underlying pathology – much like the Research Domain Criteria initiative which the National Institutes of Health have put forth as a way to reorganise pathological categories based on data-driven dimensions.⁵⁸

We also expect that additional computational tools will allow us to delve deeper into text features, such as proximity of word types of interest and proposition density.⁵⁶

Implications

We were able to identify differences in the writing of patients with schizophrenia as compared with patients with mood disorder. Some of these patterns of language use may actually be relevant to the pathophysiology of symptoms. There is clearly more work to do, but we feel this is an important first step towards a more data-driven understanding of what our patients are trying to tell us.

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S. K. Fineberg, MD, PhD, Yale University, Department of Psychiatry, Ribicoff Research Facility, New Haven, Connecticut; **S. Deutsch-Link**, BA, Yale University School of Medicine, New Haven, Connecticut; **M. Ichinose**, BA, **T. McGuinness**, BA, **A. J. Bessette**, BS, Yale University, Department of Psychiatry, New Haven, Connecticut; **C. K. Chung**, PhD, Department of Psychology, University of Texas at Austin, Austin, Texas; **P. R. Corlett**, PhD, Yale University, Department of Psychiatry, New Haven, Connecticut, USA

Correspondence: P. R. Corlett, Connecticut Mental Health Center, Yale University School of Medicine, Department of Psychiatry, 34 Park Street, New Haven, CT 06519, USA. Email: philip.corlett@yale.edu

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reflection

On *Persuasion and Healing: A Comparative Study of Psychotherapy* (1961), by Jerome D. Frank

Scott Henderson

Persuasion and Healing was one of the most significant books for psychiatry and clinical psychology during the 20th century. Thirty years after it was first published, Frank was joined by his daughter, Julia B. Frank, in an expanded edition in 1991. After training in psychology and medicine at Harvard and Berlin, then psychiatry at the Johns Hopkins University, he had come to formulate a truly fundamental question: what is happening when we make a troubled person better? In trying to answer this, Frank took the study of psychotherapy to a conceptually much higher level, doing so in a non-partisan manner in times when psychoanalysis was endemic and highly influential in America. He helped a whole generation think more deeply about psychotherapy, to see beyond the immediacy of the doctor–patient situation. The forces that are at work are also to be seen in religious healing ceremonies, in the prescription of a placebo and in rhetoric using hermeneutics. In each, the recipient is urged to accept the therapist's assumptive world and is expected to be the better for doing so.

As a registrar in 1963, I was encouraged to study *Persuasion and Healing* by a teacher who had known Jerry when they worked briefly together in Australia during the Second World War. It opened my mind to explanations that eclipsed the perplexing psychoanalytic principles I had been exposed to in Aberdeen. Here was a psychiatrist who was using cognitive psychology and social anthropology better to understand an important part of what a doctor tries to do. But at that time, any ambitious trainee in psychiatry was expected to have the physician's Membership. So I had to reconcile *Persuasion and Healing* with the large body of knowledge required for advanced medicine. This made me see that psychiatry offered a wonderful diversity of ideas, although integrating it all proved demanding as well as addictive.

Frank showed that the features shared by all the psychotherapies account for much of their effectiveness. He identified four: an emotionally charged relationship, a healing setting, a rationale or myth providing a plausible explanation for the symptoms, and a procedure to resolve them. Cognitive–behavioural therapy no doubt fits this comfortably. But what about the new internet-based treatments, where no therapist is physically present? Frank would probably suggest that the recipients must think some clever person is behind it.

One further lesson comes from the book, and it is rather chastening. I once took Jerry Frank bird-watching in Tasmania. If I reminisce about that visit, then ask registrars, psychiatrists or clinical psychologists under the age of about 60 years what they think of Frank's book, most have never heard of it. Only a few know his name. Not many names in psychiatry endure across centuries, so perhaps this does not greatly matter in the long term. But what does matter is ignoring the ideas he set out for us, in helping understand a large part of what we do.



Jerome D. Frank, from the author's personal archive.