

**Understanding the Lived Experience of Illusory Social Agents in Psychosis: A
Corpus Linguistics Analysis**

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D.Clin.Psy Thesis (Volume 1), 2020

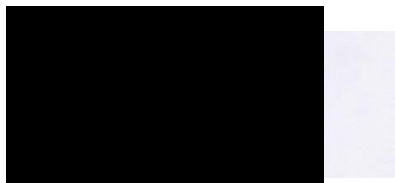
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Thesis declaration form

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Overview

Several studies have shown that positive symptoms of psychosis are highly social in nature. The presence of illusory social agents in psychosis have been reported in studies spanning a number of years in different cultures and etiologies. However, there is currently a limited understanding of the social phenomenology of psychosis and the presence of illusory social agents in the positive symptoms.

Part 1 of this thesis is a conceptual introduction that provides an overview of the literature on the social phenomenology of psychosis. The introduction highlights gaps in the literature, including a need for more research that explores illusory social agent representation in the lived experience of psychosis.

Part 2 is an interdisciplinary study exploring the characterisation of illusory social agents in the lived experience of community and ward based participants. Corpus linguistics was used to analyze phenomenological data that was gathered using semi-structured interviews. Frameworks from Clinical Psychology and Corpus Linguistics were used to interpret the findings. Illusory social agents were represented as active and dynamic beings that engaged in a range of verbal, mental, behavioural and material processes. Part 2 discusses the impact of these behaviours on participants lives. It concludes with clinical and research implications and ideas for future research.

Part 3 offers the considered thoughts on the process of undertaking the study. It considers the strengths and limitation of the study and offers thoughts on how these could be addressed by future researchers.

Impact Statement

Part 1 of this thesis provides an overview of the literature on the social phenomenology of psychosis. It highlights findings on the presence of illusory social agents in positive symptoms, and identifies the methodological limitations and conceptual gaps that have resulted in a limited understanding of the social phenomenology of psychosis. The need for further research grounded in phenomenological accounts of psychosis utilizing systematic methods is identified. This has implications for shaping future research and extending the explanatory power of dominant models of psychosis.

Part 2 of this thesis provides a characterisation of illusory social agents in the positive symptoms of psychosis. The findings of this study offer a deeper understanding of how illusory social agents are experienced including the different behaviours and linguistic choices associated with them. It provides an analysis of how these representations influence participants' levels of distress and contribute to power asymmetries in the relationship. These findings have implications for clinical practice. It can be used to develop assessment tools that enable clinicians to get a comprehensive understanding of the types, roles and behaviours of illusory social agents in psychosis. This could contribute to tailoring existing interventions to meet the individual needs of people living with psychosis. These findings could also be used to develop and refine interventions that place the focus on live interactions between the person and illusory social agents to better address the various interpersonal aspects that increase levels of distress.

These findings also have implications within academia. The insights to illusory social agent representation could contribute to the development of theories that go beyond describing hallucinations and delusions as perceptual errors and also focus on

understanding the intersubjective nature of these experiences. Understanding illusory social agents as arising from a breakdown in social agent representation might also provide important insights to normal social cognition which could have implications for other diagnoses. The application of corpus linguistics and linguistic frameworks in the analysis has highlighted the benefits of interdisciplinary research. Adopting a similar approach could enhance future research because models in corpus linguistics offer different ways of understanding the phenomenon which could lead to novel insights.

The dissemination of these findings in conferences, national journals, and sources that are accessible to service users could contribute to an incremental understanding of the social phenomenology of psychosis.

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Acknowledgements

I am grateful to the participants who gave up their time to take part in this study. It was a privilege to have heard their experiences, without which this project would not have been possible.

My deepest thanks to Dr Vaughan Bell and Dr Zsófia Demjén for being generous and nurturing supervisors. Their encouragement, attentiveness, and enthusiasm for their work and the study helped me remain motivated throughout. I found Vaughan's supervision to be stimulating and his knowledge and passion for the field to be inspiring. I am grateful to Zsófia for her expert supervision on corpus linguistics and her patience as I developed my knowledge. I am grateful to them both for always making me feel capable, even when I did not always feel like it, and for helping me stay on track.

I would like to extend my gratitude to the ward staff for being welcoming and supportive despite their busy schedules. Thank you to Jessica Lynch and Fidelia Baah, research assistants, for their support with recruitment and data collection.

To my parents for always having faith in my abilities, and for reminding me of the end goal.

Lastly, thank you to Richard and Maya for being constant and endless sources of affection, laughter, and encouragement. It would not have been the same without them.

Part 1: Conceptual Introduction
Social Phenomenology of Psychosis

Abstract

Several studies have shown that the positive symptoms of psychosis have a strong social component and involves the experience of illusory social agents. Yet our current understanding of psychosis do not adequately account for the social nature of these experiences.

In this conceptual introduction, existing literature from a variety of sources was reviewed to provide an overview of the social phenomenology of psychosis. Literature relevant to the topic was gathered from a search utilizing the database PubMed, articles shared by supervisors, and the inclusion of relevant books. This conceptual review offers a detailed introduction to the research topic. The review of the literature highlighted the strong social nature of hallucinations and delusions, the illusory social agents that dominate these experiences, and explanations offered by current theories of psychosis.

The conceptual introduction identified gaps in the literature, including a need for more studies exploring the social phenomenology of psychosis by better understanding illusory social agent representation. It concludes with implications for clinical and research practice, and makes suggestions for further research.

Introduction

A large body of literature has highlighted that the experience of psychosis has a strong social component and the presence of illusory social agents is a dominant theme. Themes in hallucinations and delusions are often concerned with the person's place in the social universe (e.g. Bentall, 1991; Fuchs, 2015) and reflect wider relationships (Badcock and Chhabra, 2013; Paulik 2012). Despite this, current dominant theories of psychosis do not attempt to explain the social phenomenology of psychosis.

Current cognitive and neurocognitive theories of psychosis have focused on understanding of why positive symptoms arise and how they come to be experienced as passive, externally occurring phenomena. Many offer explanations as to why these experiences are interpreted as 'not me' (e.g. Fernyhough, 2004; Kapur, 2003) but do not attempt to explain why the alternative conclusion is 'somebody else' (Bell et al, 2017). These accounts also do not explain why processing and/or prediction errors result in experiences that are typically social in nature (Wilkinson and Bell, 2016). Some implicitly refer to the social nature of these experiences but do not elaborate on it (e.g. Coltheart et al, 2011) while others do not acknowledge the social phenomenology of psychosis at all (e.g. Braun and Suffre, 2011). Existing accounts that have addressed the social experience of psychosis have restricted themselves to specific phenomenon such as persecutory delusions (e.g. Freeman, 2002) or delusions of communication (e.g. Startup, Bucci and Langdon, 2009).

Understanding and accounting for the social phenomenology of psychosis may have several benefits in that it could (i) lead to more accurate and richer descriptions of the phenomenology of psychosis, (ii) contribute to the development of new models of understanding that have more explanatory power, and (iii) contribute to the development

of more refined assessment tools and interventions that meaningfully engage with the distress experienced by people living with psychosis.

Although illusory social experiences in psychosis are well documented in past research, this work has not been synthesized to give an overview of the social phenomenology in psychosis. This paper will aim to provide an overview of the literature on social phenomenology in psychosis. It will begin by outlining the current perspectives in the area of phenomenological psychopathology and then review literature from qualitative, linguistic, and epidemiological studies of psychosis. It will highlight the centrality of social experiences of psychosis in neurodegenerative disorders and substance misuse. The paper will end with a review of existing models and theories of psychosis and suggestions for future research.

Method of Literature Review

A conceptual review was conducted over a systematic review because studies that offer information about social agent representation in psychosis were not explicitly on the social experiences of psychosis. As such, a key word search would not have been an effective way to identify to identify relevant literature.

Key papers relevant to the research topic were identified based on a scoping search of the literature and in consultation with experts in the field. This was supplemented by manually searching reference lists to identify other key literature and theories that were not covered in the first step. As I was interested in exploring the social nature of psychosis, only papers that contained information about the social experiences in psychosis and profiles of social agents in the phenomenology of hallucinations and delusions were included in this study.

Overview of Literature

Phenomenological Psychopathology Studies

Phenomenological psychopathology applies the work of philosophers such as Husserl, Heidegger and Scheler, who aimed to understand the structure of subjective experience, to the field of psychiatry. It arose as a response to dominant third person approaches to psychopathology which tended to overlook the subjective experience of mental illnesses (i.e. 'what is it like') and attribute these experiences solely to disordered brains or unconscious psychological processes (Broome et al, 2012). As a research method, phenomenology aims to describe the subjective experience of psychosis and one considerable focus has been on the social experiences that occur as part of psychotic symptoms.

According to literature on illusory self-experiences, psychosis involves a disturbance of the person's most basic sense of self, and what is eroded is a sense of first person perspective (Sass & Parnas, 2003). The basic self-disturbance model (Sass & Parnas, 2003) postulates that there are three main dimensions to illusory self-experience in schizophrenia. The first is *hyperreflexivity* which refers to exaggerated self-consciousness and increased self-monitoring in which aspects of the person are experienced as being those from an external object. The second is *diminished self-presence* which refers to a loss of the sense of inhabiting one's own thoughts and feelings, as well as feelings of inner void. The third is *disturbed "grip" or "hold"* which concerns a loss of salience, significance or stability of objects in the cognitive or perceptual field of awareness. Ratcliffe (2017) suggests that it is in the context of this that seemingly more localized symptoms such as delusions and hallucinations emerge and are to be understood. Similarly, Raballo (2017) suggests that

psychotic end phenomena arise from a global transformation of consciousness which alters the lived experience of time, space, self and immersion in the immediate world, all of which informs the experiences of psychosis. Previous studies have shown that in hallucinations, these experiential changes follow a coherent sequence that include (i) basic disturbances of the thought stream (e.g. thought block, pressurized thought), (ii) progressive depersonalization with intensified experience of thought spatialization and alienation of the internal dialogue. For example, repeated inner “self-comments” become sonorised and may be experienced as interfering, and (iii) loss of ego boundaries that culminate in omnipotent and omniscient alien voices and/or transitive experiences (Raballo, 2017; Poletti et al, 2019).

These changes to the self has an impact for the intersubjective dimensions of existence and undermine the person’s sense of being grounded in a shared world with others (Sass et al, 2018). Psychosis is seen as a disorder of intersubjectivity, not just because the intersubjective dimension of experience and life in general alters, but because it also disturbs relationships and involves illusory others that are often superior, inaccessible, and hidden or disguised (Van Duppen, 2017). In the early stages of psychosis, the alienation of perception and loss of significance extends to the person’s social sphere, and results in persons perceiving the behaviours and gazes of others as highly ambiguous which can fundamentally disturb the circles of social interaction and perception. This in turn leads to a breakdown of basic trust in others that could help to restore a mutual understanding of the situation and co-create a shared reality (Fuchs, 2015).

Theorists in this field argue that current neurocognitive models tend to conceive hallucinations and delusions at surface content level, that is as products of altered cognitive

processing (Poletti et al, 2017; Raballo, 2017). These explanations overlook the experiences of psychosis as intersubjective phenomena in form and content (Fuchs, 2015) and do not adequately reflect the subjective experience of living with psychosis (Raballo, 2017).

Qualitative Studies

Several qualitative studies have focused on the phenomenology of psychosis and have highlighted the strong interpersonal component in the lived experience. The majority of these studies have focused on auditory verbal hallucinations and offer important insights on how illusory social agents are experienced. Someone or something is represented as a social agent when it is perceived to have an informational profile, perspectives, mental states, and is ascribed with beliefs and desires (Wilkinson & Bell, 2016). Illusory social agents interact with the individual in various ways including through verbal communication, gestures, and other behaviours (Rhodes et al., 2005; Fenekou & Georgaca, 2010). Previous findings have shown that individuals have an interpersonal and coherent relationship with their voices that is established in the first encounter and is generally stable, however, it can also evolve and change over time (Beavan, 2011). The way illusory social agents are perceived and what is said to the individual has an influence on levels of distress and wellbeing. Voices who are perceived as well-meaning and tended to say nice things were experienced as positive and enriching, whereas negative voices were characterised as malicious beings that impacted on the person's self-worth (Beavan, 2011).

In terms of verbal interactions, illusory social agents were described as speaking in complex sentences, sometimes in multiple languages, engaged in turn taking behaviours, and were experienced as an "intimate and personal communication" (Upthegrove et al., 2016). Illusory social agents have been shown to engage in a range of communicative acts

such as making negative comments, suggestions about what to eat and drink, offering advice concerning real-world relationships and daily activities, instructing individuals to do things they did not want to do, and motivating the person (Fenekou & Georgaca, 2010). The content of voices has personal significance to the person experiencing them (Beavan and Read, 2010). The majority of participants experienced the contents as negative and attempted to cope by talking back, ignoring, or resisting the instructions given by agents (Fenekou & Georgaca, 2010). The experience of hearing voices has also been reported among prelingually deaf people living with psychosis which suggests that verbal communications from illusory social agents might be more than an auditory experience. In their study with prelingually deaf people, DuFeu and McKenna (1999) found that over half gave accounts of hearing voices accompanied by content descriptions. Participants reported that they could hear the voices talking, as opposed to lip reading, and were able to recognise the language used by voices.

Few qualitative studies have sought to explore the experience of people living with delusions. Consequently, little is known about the ways in which illusory social agents are represented in these experiences. One study that has explored content of delusions found that illusory social agents interacted with individuals in verbal and non-verbal ways. In terms of non-verbal behaviours, participants reported illusory social agents watching them, harassing the individual by manipulating their body and environment (e.g. putting chemicals in their room), attempting to control the individual by influencing the person's thought processes (e.g. thought withdrawal/insertion) (Rhodes et al., 2005). This study highlighted that the experience of delusions also has a strong social component as participants' focus was often on other people (e.g. believing neighbours could transform into monsters), and relationships (e.g. believing someone was in love with them).

Several studies have shown that illusory social agents are often personified in various ways. Illusory social agents have been personified by being assigned names, gender, age, and ascribed with intentions (Holt and Tickle, 2014; Upthegrove et al, 2016; Woods et al, 2015). Participants described voices as second and third hand persons and perceived them as coming from particular individuals with distinct and unchanging tones (DuFeu & McKenna, 1999; Kalhovde et al, 2013). The identity of illusory social agents reflected those in the person's social world and participants experienced a perceived familiarity of the voices (Upthegrove et al, 2016; Holt & Tickle, 2014). Illusory social agents were described as "speaking with all the features of characters, interaction and individuality of a living being" (Upthegrove et al, 2016) and individuals felt they were able to influence their voices. The illusory social agents in these experiences included God, ghosts, family members, and unknown people.

The findings of these studies offer important insights to centrality and dominance of illusory social agents in hallucinations and delusions. While these phenomenological studies offer a richer understanding of the different ways in which these agents are represented in people's experiences, the limitations of qualitative methodology restrict their generalisability and reliability.

Linguistic Studies

Corpus linguistics is the systematic study of language that utilizes quantitative and qualitative methods to understand what linguistic choices are made, how these pattern together, and the implications of these choices (Demjén et al, 2020). It differs from traditional quantitative methods in that it utilizes corpora (qualitative data) and focuses on *how* people say what they say with a view to exploring content and emerging themes

from a different perspective. It differs from traditional qualitative methods in that it uses computational approaches to identify statistically significant themes in the corpus and uses qualitative techniques to examine these. The combination of these techniques allows for a deeper analysis of the data and offer a more fully evidence-based approach that is systematic, replicable, and time effective.

Corpus linguistics has been applied in mental health research to increase understanding of the phenomenology of voices hearers and the experience of psychosis. Studies showed that the language and experience of verbal hallucinations had the same dialogical structures found in ordinary speech (Leudar et al., 1997). Similar to qualitative findings, illusory social agents were represented as recurring characters that were similar to a known person, were individuated by physical characteristics (e.g. age, gender), and highlighted that participants and illusory social agents interacted with each other (e.g. asking questions and receiving relevant responses) (Leudar et al., 1997). Exploration of word use patterns in first person written accounts of schizophrenia found that authors living with schizophrenia more frequently used external referents by employing more third person plural pronouns (e.g. they) and had more referents to external agents including more words describing humans and religion (Fineberg et al, 2015). Linguistic profile of the speech of hallucinated voices in psychosis showed a similar under-use of first person pronouns by the voices when compared to second and third person pronouns (Tovar et al, 2019). These findings highlight that the experience of voices occur in quasi conversational settings where the hearer is addressed in second person or talked about in the third person, and majority of the content was directed to the hearer (Tovar et al, 2019).

More recent studies have used first person accounts to better understand the characteristics of illusory social agents in hallucinations. Linguistic analysis of phenomenological accounts have shed light on the types of social agents that feature in people's experiences, speech acts produced by agents, and the implications of these for people living with psychosis. Illusory social agents have been shown to be represented with different degrees of person-ness in the experience of psychosis (Semino et al, under review). They were perceived to have a clear physical presence, were individuated by physical characteristics or names, had "online" emotions, superior knowledge, and possessed mental states that were inaccessible to the participant (Semino et al, under review). This suggests that some illusory social agents are personified in ways that are similar to the ways in which people in the external social world are perceived (Semino et al., under review).

By examining the use of metaphors in the phenomenological accounts of hallucinations, Demjén et al (2019) found that the most distressed participants used violence metaphors to characterize their relationship with the voices and represented these agents as malicious beings. Illusory social agents in the experience of these participants were described as "aggressive and "powerful" whereas less distressed participants used positive metaphors such as "support" and "group gathering" to describe their relationship to voices (Demjén et al, 2019). Using linguistic models of politeness, Demjén et al (2020) illustrated how the linguistic choices of illusory social agents can serve to attack participants' sense of self-worth and breach different rights, such as the right to be unimpeded or to maintain relationships with others in the external social world. They highlight how even those agents who were perceived to have positive intentions by the participants (e.g. voices are trying to keep me safe) can have the impact of socially isolating participants by imbuing

them with overwhelming fear and a distrust of their environment and others in their external social world. In another study, Demjén & Semino (2015) noted the use of the word 'feel' in a participant's account of hearing voices (e.g. "I felt the tree telling me to take my shoes off"). They hypothesized that participant might have experienced 'soundless voices' where something is communicated to the person but not through verbal means which might make it more difficult for voice hearers to describe the experience through language.

These studies offer a richer understanding of illusory social agent representation in psychosis. The application of linguistic frameworks offer new ways of understanding the speech acts of illusory social agents and the impact they have on participants lives.

Epidemiological Studies

Delusional Themes

Despite varying in exact content, delusions often reflect common themes. These are reflected in both the categories used in diagnostic manuals, as well as those used in the literature to classify common delusion types. Additionally, other studies have looked at the content of delusions in terms of specific social characteristics and have reported on the number and types of illusory social agents within them. Social themes in delusions are commonly reported in studies. Persecutory delusions are consistently reported as the most common type of delusions reported in studies in a diverse range of countries and cultures (Stompe et al, 1999; Rajapske et al, 2011; Suhail, 2003). The persecutors are often described as human and, in majority of the cases, were personally known to the person (Green et al, 2006; Sundag et al, 2015; Rössler, Walter & Richter, 2019). Most frequently identified persecutors were family/partner, friends, neighbours, police, healthcare workers, unknown persons, and unspecified persecutors (Gecici et al., 2010; Freeman et al, 2001; Stompe et al,

1999; Suhail, 2003), however studies differ in the extent to which they are the most common. Due to the small scale of some studies it difficult to ascertain if the variability is due to methodological approaches or cultural differences. Higher levels of emotional distress were associated with higher ratings of the power of the persecutor (Freeman et al, 2001).

According to Applebaum et al. (1999), next to persecutory delusions, beliefs of body/mind control and grandiosity were the most common among acute psychiatric inpatients. Both these delusions have a strong social component as they often involve illusory social agents. Grandiose delusions are defined as false beliefs about having inflated worth, power, knowledge or a special identity (Knowles, McCarthy-Jones, & Rowse, 2011). They can also include beliefs about being related to or having a special connection with prominent figures. For example, “I can communicate and have a special relationship with God. I am also cousin of Tony Blair and I can fly” (Smith, Freeman, Kupiers, 2005). People with beliefs of body/mind control believe that their thoughts and/or actions are being controlled by an external agent (Pacherie, Green & Bayne, 2006) or have been replaced by those of an “other” (Spence, 2001). Many delusions of misidentification are social by nature. A recent systematic review by Pandis, Agarwal and Poole (2019) on Capgras delusion found that it was more frequently reported among those with a diagnosis of schizophrenia (32%), organic delusional disorder (19%) and dementia (15%). Multiple imposters were reported by 39% of all cases with the misidentifications concerning spouse (38%) and parent (27%) being the most frequent.

Delusions of reference often involve other illusory social agents. They pertain to the belief that others are attempting to communicate with them by subtle means such as gestures or that they are being monitored by others who are gossiping about them. Some

may even have the belief that they are being referred to in the media or that situations or objects have been arranged in a specific way to convey a message to them (Startup, Bucci, & Langdon, 2009). In their study investigating different types of delusions of reference, Startup & Startup (2005) found the belief that others were gossiping about them was the most common theme followed by belief that others were monitoring them. Delusions of reference and persecution are also common in many neurocognitive disorders including Alzheimer's, post stroke psychosis, and PD (Coltheart et al, 2011). These are covered in later sections.

In an exploration of the evolution of delusions across the 20th century, Brooke, Cannon and Kramer (2011) found that delusion content reflected the culture of the associated time period and paralleled sociocultural changes. Suhail (2003) found there were significant gender and class differences in the content of delusions. They reported that men and those from higher class were more likely to report delusions of grandiosity and religiousness, whereas women and those from lower social class commonly reported themes of persecution, fantasy lovers, and being controlled by others. Most common themes among adolescents and young adults were of being monitored by others through hidden cameras or their phones being tapped or being sent messages through the television (Rajapske et al., 2011).

The findings here show that the social phenomenology of psychosis is ubiquitous across cultures and types of delusions. It also suggests that types, behaviours and roles of the social agents that feature in the experience of psychosis might be influenced by culture, time period, social class and gender. Table 1 lists various delusional themes, definitions, prevalence and studies. There are some delusional themes that do not involve illusory social

agents and are therefore not social in nature (e.g. Cotard's delusion, Anton's syndrome), however, these are in the minority.

Table 1*Definitions and Prevalence of Delusional Themes*

Theme	Definition	Prevalence	Studies
Persecutory	Belief that others are intending harm or a threat to oneself (Freeman & Garety, 2000)	73.2% at first admission 74.3% in first episode psychosis 78.4% among acute psychiatric inpatients 48% in people with depressive psychoses 28% in manic episodes of bipolar.	Guitérrez- Lobos et al (2001). Paolini et al (2016) Applebaum et al (1999) Frangos et al (1983) Goodwin & Jamison (1990).
Delusions of Reference - Referential delusions of communication - Referential delusions of observation	Belief that common place events have special personal significance to the person. Referential delusions of communication are the belief that they are being communicated with via hints or gestures. Referential delusions of observation are the belief that they are being monitored or followed by others who are spreading rumors about them (Coltheart et al, 2011)	67.4% in first episode psychosis 67% prevalence in people with psychosis	Paolini et al (2016) Coltheart et al, 2011
Grandiosity	Beliefs about having inflated worth, power, knowledge or special identity. Belief that they have links with prominent people (Knowles, Rowse, &	4.7% at first admission 46.2% first episode psychosis 43% among acute psychiatric inpatients	Guitérrez- Lobos et al (2001) Paolini et al (2016) Applebaum et al (1999)

Theme	Definition	Prevalence	Studies
Jealousy	Belief that their partner is being unfaithful	4.4% at first admission 10.2% in first episode psychosis 1.1% among psychiatric inpatients	Guitérrez- Lobos et al (2001) Paolini et al (2016) Soyka et al (1991)
Thought interference	Thoughts are being inserted, broadcast or withdrawn by others	82.4% in first episode psychosis 40-55% prevalence in schizophrenia spectrum conditions 35.1% among acute psychiatric inpatients	Paolini et al (2016) Applebaum et al (1999)
Mind Reading	Belief that other people can read one's thoughts.	44.9% in first episode psychosis	Paolini et al (2016)
External control and passivity	Belief that the following are being controlled by an external agent or group: <ul style="list-style-type: none">- Feelings- Impulses- Actions- Bodily sensations (Spence, 2001)	33.9% in first episode psychosis 59.5% among acute psychiatric inpatients	Paolini et al (2016) Applebaum et al (1999)
Delusions of Guilt	Beliefs about the exaggerated severity of past sins leading to thoughts that punishment is imminent (Lake, 2008)	13% in first episode psychosis 9.8% among acute psychiatric inpatients	Paolini et al (2016) Applebaum et al (1999)
Religious	Strongly held religiously themed beliefs that are not shared within an existing religious or spiritual context (Iyassu et al, 2014)	6.6% at first admission 35.6% in first episode psychosis 28.4% among acute psychiatric inpatients	Guitérrez- Lobos et al (2001) Paolini et al (2016) Applebaum et al (1999)

Theme	Definition	Prevalence	Studies
Somatic Delusions	Unusual beliefs and experiences about the body.	18% in first episode psychosis 9.1% among acute psychiatric inpatients	Paolini et al (2016) Applebaum et al (1999)
Capgras	Belief that a highly familiar person (close relative or spouse) person has been replaced by an impostor (Salvatore et al, 2014)	14% in first episode psychosis 3 – 28%% among hospitalized psychiatric patients 32% among those with an underlying diagnosis of schizophrenia. 5.9% in Alzheimer’s disease 8.3% in Dementia with Lewy Body	Salvatore et al (2014) Pandis, Agarwal, & Poole (2019) Harciarek & Andrew (2008)

Hallucination themes

Several studies in a range of countries have found that the experience of hallucinations have a strong social component and frequently feature illusory social agents.

Most commonly reported types of social agents in these experiences were family, such as parents, in-law, siblings or spouse, the voice of God, and unknown persons (Thomas et al., 2007; Luhrmann et al, 2015). Like the findings in qualitative and linguistic studies, majority felt the voices sounded like someone they had spoken to before and thought the voices were linked to someone in their external social world (McCarthy Jones et al, 2014; Nayani and David, 1996). People frequently described the identity of the voices as male and middle aged, although children and female voices were also heard (Corstens and Longden, 2013; Nayani and David, 1996). In terms of content, voices used second person addresses

(e.g. “you are bad”) and were reported saying things that were derogatory, threatening and abusive, or issued commands (McCarthy-Jones et al, 2014; Rajapske et al, 2011; Corstens & Langdon, 2013). In one study, voices were described as behaving as relatives do in that they scolded, gave guidance, as well as commands to do domestic tasks. The authors noted that participants often described what seemed like a social relationship with the voices (Luhmann et al, 2015).

There are power differentials present in the relationship with voices, and beliefs about the identity of the voices are more decisive in provoking distress than the content (Chadwick & Birchwood, 1994; Badcock & Chhabra, 2013). Those with clinically significant levels of distress were more likely to have a bias towards describing voices as male, middle aged, dominant/omnipotent, malevolent, and judged the voices to have a higher social rank than the person (Badcock & Chhabra, 2013). A review of the literature by Paulik (2012) found that these power imbalances and ways of relating mirror social ranks and processes present in real life. People who generally perceived themselves to be of a lower rank than others also related in the same way with the voices which likely elicits more fear, distress and resistance (Badcock and Chhabra, 2013).

On the phenomenology of visual hallucinations, Gauntlett- Gilbert & Kupiers (2003) found that majority of visions were ‘humanoid’ in content of which the most common were whole figures of individuals or groups. Visions were characterised as being those of powerful people, strangers, and acquaintances. A minority reported seeing animals, objects and unformed visions (e.g. electric currents). In their study, Dudley et al (2018) reported that visual hallucinations were rarely experienced independent of other hallucinations. The most frequent combination was of three senses (auditory, visual and tactile) with the most

common visual hallucination being of a person that talked to and touched the experiencer. The most commonly reported image was of fully formed figures that looked identical to real-life humans and reported auditory hallucinations that were perceived as an image talking to them.

Social Phenomenology of Hallucinations and Delusions in Neurocognitive disorders

Parkinson's Disease

Parkinson's Disease includes a range of non-motor symptoms including hallucination and psychosis. Studies have shown that hallucinations affect approximately to 25- 30% of people living with Parkinson's and are predominantly thought to be visual and/or auditory in nature (Sanchez-Ramos et al, 1996; Graham et al, 1997).

Visual hallucinations appear to be more commonly reported than auditory hallucinations. Illusory social agents in visual hallucinations commonly involved seeing people who were familiar to the person such as family, and deceased relatives, unfamiliar persons such as soldiers and unknown children, and mistaking inanimate objects for people or parts of people, animals, and non-specific shadows or flashing lights (Kulick et al, 2018; Barnes and David, 2001). In a cohort of outpatients with Parkinson's, Fénelon et al (2000) reported that presence hallucinations were experienced by over half the participants. In these experiences the person had the vivid sensation of the presence of someone in the room or behind them. All cases, except one, reported the presence was of a person, with majority stating they did not know the identity of the person and a minority identifying it as a relative's presence. A minority experienced auditory hallucinations that were commonly verbal and in most cases were combined with visual hallucinations (e.g. hallucinated person heard speaking).

Delusions are less commonly reported among people living with Parkinson's disease. Among those who endorse delusions the most common type are persecutory delusions followed by delusions of reference. Themes included people breaking into homes, people were against them, or that other people were talking about them (Kulick et al, 2018). Delusions of misidentification have also been reported in Parkinson's although they are uncommon in this etiology (Cercy and Marasia, 2012). Hermanowicz (2018) reported the cases of two people living with Parkinson's who showed Capgras syndrome. In one case an elderly woman mistook her husband for her deceased mother and in the second case an elderly man mistook his husband for an old co-worker and friend. In the second case, Capgras was accompanied by paranoia as the person believed his husband was trying to poison him with medication. Stewart (2008) wrote of a 57 year old man who exhibited Fregoli syndrome while in an inpatient unit. The person mistook another 79 year old inpatient for his young son-in-law and believed that this person had been made up in clay and make up to appear as an older man. He also misidentified another 23 year old female patient for his older sister who he believed had lost weight and undergone plastic surgery. Pagonabarraga et al (2008) investigated the prevalence and nature of delusional misidentification in 30 people with Parkinson's with dementia. Only five participants experienced misidentification delusions. Two people displayed intermetamorphosis which included a mother who spoke and behaved towards her daughter as if the daughter was her mother and a man who misidentified his wife for his sister. One person experienced reduplication of person and believed that that his wife had been duplicated, one of whom he treated as a caregiver and the second as his lover.

Dementias

Symptoms such as hallucinations, delusions and misinterpretations are recognized comorbid features of dementia (Leroi et al, 2003). Visual hallucinations, paranoid delusions, delusions of jealousy, and misidentification delusions are commonly reported experiences (Ballard et al, 1997). The prevalence of hallucinations in Alzheimer's disease (AD) range from 10% to 73% and delusions range from 4% to 76% (Bassiony and Lyskestos, 2003) with paranoid delusions and visual hallucinations being the most common experience (Holroyd, 2000). In a comparison of hallucinations and delusions among people living with AD and Vascular Dementia (VD), Leroi et al (2003) reported a higher proportion of the delusions and hallucinations in the AD group (22% and 13% , respectively) compared to the VD group (13% and 16%, respectively).

In AD and VD, dominant themes in paranoid delusions were those of theft (e.g. other people came into their house to steal things) and suspicion (e.g. possessions are being hidden) (Mirzahi et al, 2006; Burns et al, 1990; Leroi et al., 2003). Among those with VD, other delusional themes also included beliefs that unwelcome guests were in their home, family were planning to abandon them, and others were not who they claimed to be (Leroi et al., 2003). Delusions of jealousy is a common problem in dementia and can be found in various dementia subtypes (Tsai, Yang and Liu, 1997). Hashimoto, Sakamoto and Ikedo (2015) reported a significantly higher prevalence among those with Lewy body dementia (LBD)(26%) compared to AD (6%) and VD (5%). A high proportion of those with LBD (80%) endorsed visual hallucinations which included images of their spouse having an affair in the house, spouse in a sexual situation, and spouse having a child with their lover.

The prevalence of misidentification delusions in dementia range from 5.2% (Kwak et al, 2013) to 81.6% (Nedelec-Ciceri et al, 2006). Capgras syndrome is commonly associated

with neurodegenerative disease with majority of the experiences relating to participants' spouse, children, or relatives (Josephs, 2007). According to Perini et al (2016), Capgras' for people was the second most frequent misidentification, preceded by misidentification of house, among those with LBD (33%) and VD (31%). Splitting of people was the second most common in AD (9%). The most common belief was that an imposter of the same sex had replaced their spouse. Many participants reported multiple imposters and over half had additional delusions such as belief that other unseen people were living in the house (Josephs, 2007).

Visual hallucinations are commonly reported among people living with AD (54%) ,VD (56%), and LBD (93%) and include visions of humans, including children, who were general and unknown to the person, familiar persons such as spouse or relatives, or parts of a human (Assche et al., 2019; Ballard et al, 1997). Human visions were seen around the house, garden or garage and appeared to be involved in actions including stealing or damaging objects and laying in the participant's bed (Assche et al., 2019). Auditory hallucinations are generally less common in the dementias; however, they are considered an important feature for the diagnosis of LBD. Among those living with LBD, visual hallucinations were accompanied by auditory hallucinations (e.g. they heard the vision speak or make a noise) (Tsunoda et al., 2018) and broader beliefs about the visual hallucinations. These included beliefs that strangers were visiting or living in their homes (Ballard et al, 1997). Those who heard voices described them as humans who were unpleasant or bad. Voice contents included speaking ill of the person, planning to frame the person, humans speaking in different languages, or consisted of indistinct noises from people (Tsunoda et al, 2018; Assche et al., 2019).

Substance Induced Psychosis

Chronic stimulant use can result in the development of paranoid psychosis that is similar to acute paranoid schizophrenia (Brady et al, 1991). Prevalence rates of stimulant psychosis can range from 7% (McKetin et al, 2006) to 76% (Salo et al, 2013) with symptoms including auditory and tactile hallucinations, delusions of persecution and ideas of reference (Glasner-Edwards and Mooney, 2014).

In delusions of persecution in stimulant related psychosis, paranoia has been found to be a constant symptom accompanied by ideas of reference (McKetin, 2018; Mitchell and Vierkant, 1991). Delusional content included fear of police and people, beliefs that hit men were hired to kill the person, others were accusing the person of sexual crimes, medical staff wanted to torture the person, and of being spied on (McKetin, 2018; Mitchell and Vierkant, 1991). A few case studies have shown that the drug Dextromethorphan (DXM), a cough medicine, when consumed in high doses can induce psychosis with symptoms including delusions, hallucinations and paranoia (Martinak et al, 2017). Price and Lebel (2000) reported a case study of an 18 year old who experienced psychosis after taking one to two bottles of DXM over several days. The person presented with persecutory beliefs that their employer was trying to kill them and fears that strangers might hurt them, delusions of telepathy such as they could communicate with others without speaking and could read others' thoughts, and dissociative beliefs including that they had died and had become just their thoughts. Amaladoss and O'Brien (2011) report another case study of a 20 year old female who presented with paranoia and somatic delusions following DXM use. The person reported that in a twenty minute procedure medical staff had injected her with "salium" until it shocked her and held beliefs that people were taking money from her bank account.

Other case studies have reported similar findings on the presentation of DXM induced psychosis (Martinak et al, 2017; Alam et al, 2013).

Auditory and visual hallucinations are frequently reported in the experience of stimulant psychosis. Some reported hearing multiple voices with the most common voice being of an unknown person (Harris and Batki, 2000; Mitchell and Vierkant, 1991). Voice content mainly included commands (e.g. to buy drugs), criticisms, running commentary, and communications (e.g. giving the person warnings) (Bell, 1965; Harris & Batki, 2000; Mitchell & Vierkant, 1991). Visual hallucinations consisted of seeing people and shadowy figures, and human beings in sexual situations (Bell, 1965; Mitchell & Vierkant, 1991).

Stroke

Stangeland, Orgeta and Bell (2018) estimate that post stroke psychosis affects approximately one in twenty people in the post-acute stage. In a large scale cohort study, cumulative incidence was estimated as 7% in years following first stroke (Almeida and Xiao, 2007). Delusional disorder and schizophrenia like psychosis are the most common types of post stroke psychosis (Stangeland et al, 2018). Mixed delusions (e.g. persecutory plus jealousy), persecutory ideas including beliefs that their caregiver is an impostor, delusions of jealousy and suspicions of abandonment were reported among first stroke patients (Kumral and Ozturk, 2004).

Barboza et al (2013) reported the case of a 54 year old woman with delayed onset post stroke delusion. One year post stroke the person began experiencing persecutory delusions consisting of beliefs that people were coming into their home and stealing property and relatives were trying to steal money. Bielawski and Bondurant (2015) wrote of a cerebellar stroke survivor who developed persistent persecutory delusions and

hallucinations. The person described seeing cameras and police in his room at night and had beliefs that the Russians were out to get him, police were stealing people away at night, and had suspicions that his partner was committing adultery. He also experienced auditory hallucinations in which he described hearing people being shot at night. Persecutory delusions, visual and auditory hallucinations were also reported in two cases of basal ganglia stroke (Srivastava, Agarwal and Gautam, 2017). In one case the persecutor was an unknown person who wanted to kill the patient and the person reported seeing 'images' that others could not see. In the second case the person became suspicious of their neighbours and reported hearing two voices discussing her work performance in the third person. She also reported hearing a third voice telling her to not do any work (Srivastava et al, 2017). Delusions of jealousy have also been reported in post stroke psychosis (Westlake and Weeks, 1999; Luauté & Saladini, 2008). Akinci, Oncu and Topcular (2016) described the case of a person who developed tactile hallucinations following ischemic stroke. The person experienced being pushed by the neck and reported grabbing the illusory agent by his finger. Visual hallucinations of human and animal body parts have also been reported in a separate case study by Poetter et al. (2012).

Darby and Prasad (2016) carried out a systematic examination of characteristics of misidentification delusions after acute neurological injury. Etiologies included stroke, trauma (contusions and/or traumatic hemorrhages), and other etiologies (infections, tumors). Their results showed that 59% of post stroke participants experience misidentification delusions of whom 28% experienced delusions of hypofamiliarity (Capgras) and 26% experienced hyperfamiliarity (Fregoli). Over half (59%) of the hypofamiliar misidentifications were of a person known to the participant where beliefs of hyperfamiliarity frequently related to a place (74%) followed by person (45%). A minority of

participants (10%) exhibited multiple delusional misidentifications simultaneously (e.g. misidentification of a person and a place). Other participants experienced both hypo and hyperfamiliar delusions such as beliefs that one's close relative was an imposter while a stranger was a relative or close friend in disguise.

Theories of Psychosis

As illustrated above, several studies have shown that experiences of hallucinations and delusions have a strong social component and frequently involve the presence of illusory social agents. Despite these findings, existing cognitive and neurobiological models do not account for this aspect of the experience. In this section I will review some of the dominant theories of psychosis in light of their capacity to explain the social phenomenology of psychosis.

Neurocognitive Models of Psychosis

The aberrant salience model (Kapur, 2003) postulates that the experience of psychosis is a dynamic interaction between bottom up neurochemical changes, namely mesolimbic dopamine dysregulation, and top down cognitive and psychological processes imposed by the person to make sense of the altered experiences. It states that in psychosis there is stimulus independent dopamine release which disrupts normal contextually driven salience attribution resulting in inappropriate salience attribution and significance to internal and external stimuli. Delusions are the explanations constructed by the person to understand these changes and develop a schema to guide further thoughts and actions. These explanations are situated in the person's individual, cultural and relational contexts leading to variable personal experiences of psychosis.

While this theory offers a reasonable explanation of how the symptoms of psychosis may arise in individuals, it does not attempt to explain why the altered experiences are dominated by social and relational themes. According to this theory, aberrant salience could be attributed to anything in the person's world and does not place any emphasis on the social nature of the experiences, even though epidemiological and phenomenological studies have long shown that the experiences are dominated by the presence of illusory social agents. Similarly, other neurocognitive accounts of psychosis such as Allen et al (2012) review of neuroimaging studies, Braun and Suffre (2011) general neuropsychological model of delusions, and Coltheart, Langdon and McKay (2011) two factory theory of monothematic delusions have all overlooked the presence of illusory social agents in psychosis.

Cognitive Models of Psychosis

This explanation of positive symptoms by Garety et al (2001) is a multifactorial model which incorporates past experiences, pre-existing beliefs, affective states, and cognitive biases in understanding the development of psychosis. They suggest that there are two proximal routes to the development of positive symptoms. In one route, triggering events lead to alterations in the cognitive and affective processes of those pre-disposed to psychosis which contributes to a breakdown of 'willed intention' and results in illusory experiences. To make sense of these experiences the person recruits several cognitive biases (e.g. jumping to conclusions) which contribute to the person perceiving these experiences as externally driven. The second route is through affective disturbances alone wherein unusual beliefs are more firmly held if they are congruent with pre-existing negative beliefs about the self (e.g. I'm bad), others (e.g. others are out to get me), and the

world (e.g. the world is dangerous). Once a delusion is formed they serve to strengthen pre-existing beliefs which in turn reinforces the delusion.

This model offers a cognitive and affective explanation of the development of positive symptoms in psychosis. There are several references to how social environment and past experiences can influence thinking styles, affective states and influence content of unusual experiences. Thus it alludes to the relational element of the positive symptoms of psychosis, however, there is no acknowledgement of or attempt to explain why the majority of experiences in psychosis are highly social in nature and involve illusory social agents.

Other models relating to persecutory delusions have built on the above work. The cognitive model of persecutory delusions (Freeman et al, 2002) and the threat anticipation cognitive model of persecutory delusions (Freeman, 2007) propose that in people with a vulnerability to psychosis, specific events (e.g. stressful life events, drug misuse) trigger high levels of arousal that is exacerbated by sleep disturbances. These lead to illusory experiences that cause internal and external confusion. In a responsive search for meaning, ambiguous or discrepant information from the environment is drawn in to make sense of the internal experience which result in high levels of arousal. Freeman (2007) posits that unusual internal feelings and external events (e.g. odd facial expressions) are used as evidence that there is a threat to the person. Similar to Garety (2001), this theory proposes that interpretations of feelings and events are shaped by the person's previous knowledge, mental states, beliefs about the self, others and the world. Unusual experiences are often precipitated by high levels of affect and often occur in the background of negative beliefs of the world. The explanation chosen by the person is mediated by three factors: (i) social isolation/withdrawal which could reduce opportunities to revise initial explanations; (ii)

beliefs about mental illnesses: external attributions to illusory experiences are likely to be less distressing than believing that something may be wrong with themselves; and (iii) reduced capacity to consider alternatives which may lead to ready acceptance of the initial explanation (Freeman, 2002).

These two models are different to the Garety (2001) model in that the emphasis is specifically on processes that are typically associated with anxiety (i.e. anticipation of danger). While this model attempts to offer an explanation as to how others in a person's social sphere come to feature in their experiences of psychosis, explanations of the social agents are restricted to the experience of persecutory delusions alone.

An alternative model to understanding persecutory delusions was put forward by Bentall et al (1991). They found that people who experienced persecutory delusions were more likely to make external person attributions for negatively valued events and made higher internal attributions for positively valued events. This attributional bias leaves people vulnerable to persecutory and grandiose explanations for life events, however, it has a protective function in that external attributions reduces access to underlying negative self-representation that might affect self-esteem (Bentall et al, 1991). They highlight that many of the delusions experienced by people are concerned with their place in the social universe, however, similar to Freeman's explanations there is limited generalizability due to the explanation being restricted to specific phenomena in psychosis. Studies have also suggested that this model does not fully explain the lived experience of psychosis as persons experiencing persecutory delusions also perceive neutral (e.g. glance), positive (e.g. smile), or unusual (e.g. perceptual anomalies) events as threatening (Freeman, 2007; Garety and Freeman, 1999).

The theoretical model of delusions of referential communication (Startup, Bucci and Langdon, 2009) offers a two factor account of the phenomenology of delusions. Similar to Coltheart, Langdon and McKay's (2011) model, they posit that cognitive disturbances (first factor) explains the specific content of the delusions. Further impairments (second factor) in the belief evaluation processes accounts for the adoption and persistence of the beliefs by causing the person to accept the reality of the self-referent messages, rather than dismissing them as implausible. This model makes no reference to the dominant social themes or illusory social agents in the experiences of psychosis and focus solely on understanding the cognitive mechanisms that underpin positive symptoms.

The integrated cognitive model of auditory hallucinations by Waters et al (2012) combines cognitive and neuroscience models. They suggest that hallucinations arise from an interaction between bottom up aberrant auditory signals and top down mechanisms including information processing errors, prior experiences/knowledge, and cognitive control that give content, form and meaning to the auditory hallucinations. Specific forms of auditory signals (e.g. inner speech) are more likely to be converted to auditory hallucinations which may account for the verbal properties of the experience. The model proposes that prior experience/knowledge, expectations and mental imagery determine the content and shape a personalized experience.

This model offers an understanding of how auditory stimuli comes to be experienced as verbal content from an external source, however, besides from the brief reference that voice hearers may come to recognize the voices of known or familiar persons/sounds it does not attempt to explain why social agents become a core part of the experience.

Vygotskian approaches to understanding auditory verbal hallucinations suggest that these arise as a result of misattributed inner speech. According to the inner speech model by Fernyhough (2004), there are two routes to the development of auditory hallucinations. In the disruption to internalization model, the normal process of internalizing inner speech is disrupted whereby the structure of inner speech is inappropriately expanded and consequently retains many of the superficial properties of external dialogue. In the re-expansion model, fully internalized inner speech is temporarily re-expanded under conditions of stress. This results in inner speech resembling the give-and-take structure of external dialogue. In both models because the experiences arise in the absence of external input, it is perceived as alien resulting in reports of auditory verbal hallucinations (Fernyhough, 2004). While this theory offers an explanation of how auditory verbal hallucinations occur, it does not address the representation of illusory social agents in the experience (Wilkinson and Bell, 2014).

Theory of Mind and Psychosis

Frith (1992) suggested that the positive symptoms of psychosis arise when people fail to maintain representations of their own and others' mental states, also referred to as metarepresentation or mentalising. According to his theory there are three types of cognitive impairments underlying the signs and symptoms of schizophrenia: (i) lack of awareness of goals which results in a 'poverty of will'. This leads to behavioural abnormalities (e.g. incoherent speech, flat affect); (ii) lack of awareness of intentions which results in low level of self-monitoring, which in turn leads to abnormalities in the experience of action; and (iii) faulty awareness of the intentions of others which accounts for delusions of persecution and delusions of reference (Frith, 1992). While this theory offers an

understanding as to why intentions may be misattributed to existing social agents in the person's shared social world, it does not explain the presence of illusory social agents in the positive symptoms of psychosis (Bell et al, 2017).

People living with psychosis have clearly been shown to have social cognition deficits including in mentalizing abilities, when compared with normal individuals (Ventura et al, 2013), however difficulties with theory of mind do not explain why illusory social agents are represented in positive symptoms rather than misattributing intentions of existing agents in the shared social world (Bell et al, 2017). The evidence for the primacy of the role of impaired mentalizing in schizophrenia is inconclusive (Langdon and Coltheart, 1999). A meta-analysis by Ventura, Wood and Hellemann (2013) showed a minimal relationship between reality distortion (hallucinations and delusions) and theory of mind ($r = -.08$). Some studies have shown that people with paranoia exhibit impaired mentalizing abilities whereas those with symptoms of passivity and in remission show no such impairment (Firth & Corcoran, 1996). Other studies found greater mentalizing deficits among those with passivity experiences and those with behavioural symptoms, and reported that people with paranoia had the same level of mentalizing difficulties as those living with depression (Corcoran et al, 1997). Yet other studies have found no evidence between defective mentalizing and positive symptoms of psychosis, suggesting instead that impaired metarepresentation was linked to negative symptoms of flat affect and social dysfunction (Langdon et al, 1997).

Social Agent Representation

Newer theories have sought to address the conceptual gap between research findings and theories of psychosis. Recently, Bell et al (2017) suggested a place for social

agent representation in our understanding of the social phenomenology of psychosis.

According to this theory, social agent representation is an important organizing principle for normal social cognition and one that is cognitive and neurally distinct from nonsocial representation. Social agent representation is the innate cognitive ability to create, use and maintain internal representations of social actors for use in implicit and explicit cognitive function. It is present in differing degrees of complexity and specificity throughout development, involves the capacity to internalise models of social actors including physical and psychological characteristics, is used for “online” and “offline” social reasoning to predict behaviour, and could be drawn on for reasoning about hypothetical individuals as needed (Bell et al., 2017). They suggest that the experience of illusory social agents in psychosis reflects a breakdown in the ability to create and maintain representations of social agents. Based on past literature on the experience of voice hearing, Wilkinson and Bell (2016) identified four levels of agent representation that vary in richness: (i) Absent agency where there is no agency attached to non vocal hallucinations (e.g. knocking sounds, music); (ii) Agency without individuation where in agency is represented as a collective and not individuated to specific character (e.g. sounds from crowds); (iii) Internally individuated agency where the represented agent is bound to a specific agent in the mind of the voice hearer. In these cases the hearers identify social agents by individual characteristics such as physical traits, race, and/or stature. These agents may also be named by voice hearers; (iv) Externally individuated agency where voices are associated with specific identities from the voice hearer’s real social world. These can include family members, celebrities, or ‘non corporeal individuals’ from religion or pop culture.

This model has the potential to offer a more nuanced understanding of the experience of illusory social agents in psychosis that goes beyond explanations of perceptual

errors. It highlights a core aspect of the experience of psychosis that has been demonstrated in research findings, but has been overlooked in dominant theories of psychosis. Newer studies have sought to explore personification of voices in the experience of psychosis and lend support to the different levels of agent representation in the experience of hallucinations.

Conclusion

The aim of this paper was to highlight and synthesise literature on the social phenomenology of psychosis. It showed that studies spanning several years from different fields and methods have highlighted that (i) illusory social agents are central in the experience of psychosis, and (ii) the social phenomenology of psychosis is present across cultures, gender, class, and etiologies. Despite these findings, few studies have attempted to characterise and understand how social agents are represented in psychosis. Qualitative studies have offered important insights; however, the methodological limitations restricts generalizability, reliability, and replicability of the findings. Epidemiological studies have quantified the types of social agents, however, offer limited understanding on how they are experienced by participants. Studies from the field of linguistics have offered novel insights to the characteristics and experience of illusory social agents in psychosis. These have the advantage of being grounded in the phenomenological accounts of psychosis and utilizing systematic methods to gain a better understanding of the experience. The drawback, however, is that linguistic studies of psychosis to date have had very small sample sizes and have largely focused on the experience of voice hearers.

A review of the dominant explanatory models of psychosis show that they have increased our understanding of the neurocognitive and biological underpinnings of unusual

experiences in psychosis. However, despite the breadth of literature on the topic, few have adequately accounted for the social phenomenology of psychosis. Most have instead focused on understanding the experience from a surface content level of hallucinations and delusions in a way that is not always grounded in human experience of psychosis (Raballo, 2017). Much of the dominant explanatory models continue to adhere to the third person approaches to understanding psychopathology in which there is an over attribution of experiences to disordered brains or psychological processes. Overlooking the role of illusory social agents in the experience of psychosis is to ignore significant parts of the lived experience (Wilkinson and Bell, 2016). The lack of integration of knowledge from phenomenological studies can limit the ability of cognitive models to advance our understanding of the process of symptom development in psychosis (Poletti et al, 2017).

Given the centrality of illusory social agents in the phenomenology of psychosis, exploring the characteristics of these social agents is an important step to advance our understanding of psychosis. Focusing on the social phenomenology of psychosis could have implications for clinical and theoretical understanding. Studies have reported that the identity of illusory social agents, relationship between the person and the social agent, as well as the dynamics within these relationships are key determinants of distress for the person living with psychosis. Understanding how agents are characterized in people's experiences may offer specific hypotheses which could lead to new and better explanatory models that are rooted in the human experience of psychosis. This in turn could result in more robust assessment tools and new treatment options that are more effective and tailored to individual needs.

Studies from the field of linguistics have shown the potential to offer a richer and more systematic understanding of illusory social agent representation in psychosis. The application of linguistic frameworks of character representation in fictional worlds, models of impoliteness, and the role of linguistic choices in negotiating power dynamics have led to novel insights to the social phenomenology of psychosis and illusory social agent representation. There is increasing recognition of the benefits of interdisciplinary research and large studies such as 'Hearing the Voice' based in Durham university include researchers from the field of linguistics working alongside clinicians and experts by experience to better understand the impact and experience of voice hearing. The study presented in chapter 2 utilized computational approaches in corpus linguistics to explore the characteristics of illusory social agent representation in psychosis.

There is a relationship is present between the person and these illusory social agents, however, the ways in which this relationship is established and maintained is less understood. Future studies could explore this aspect of social agent representation to develop a deeper understanding of the social phenomenology of psychosis. There is a dearth of studies exploring the phenomenological experience of delusions. Future researchers could aim to better understand illusory social agents in delusions and explore if cultural and/or spiritual differences play a role in the type of social agents represented in these experiences.

References

- Akinci, E., Oncu, F., & Topcular, B. (2016). Tactile Hallucination and Delusion Following Acute Stroke: A Case Report. *The Journal of Psychiatry and Neurological Sciences*, *29*, 79-84.
- Alam, L. Y., Nelson, A., & Bastiampillai, T. (2013). Cough syrup psychosis: Is it under-recognised? *Australian & New Zealand Journal of Psychiatry*, *47*(12), 1209–1210.
DOI: <https://doi.org/10.1177/0004867413495927>
- Allen, P., Modinos, G., Hubl, D., Shields, G., Cachia, A., Jardri, R., Thomas, P., Woodward, T., Shotbolt, P., Plaze, M., & Hoffman R. (2012). Neuroimaging Auditory Hallucinations in Schizophrenia: From Neuroanatomy to Neurochemistry and Beyond. *Schizophrenia Bulletin*, *38*(4), 695-703. DOI: 10.1093/schbul/sbs066
- Almeida, O. P., & Xiao, J. (2007). Mortality Associated with Incident Mental Health Disorders After Stroke. *Australian & New Zealand Journal of Psychiatry*, *41* (3), 274–281. DOI: <https://doi.org/10.1080/00048670601172772>.
- Amaladoss, A., & O'Brien, S. (2011). Cough Syrup Psychosis. *Canadian Journal of Emergency Medicine*, *13* (1), 53-56. DOI:10.2310/8000.2011.100216
- Applebaum, P.S, Robbins, P.C., & Roth, L.H. (1999). Dimensional Approach to Delusions: Comparison Across Types and Diagnoses. *The American Journal of Psychiatry*, *156* (12), 1938-1944.
- Assche, L.V., Van Aubel, E., Van de Ven, L., Bouckaert, F., Luyten, P., Vandenbulcke, M. (2019). The Neuropsychological Profile and Phenomenology of Late Onset Psychosis: A Cross-sectional Study on the Differential Diagnosis of Very-Late-Onset Schizophrenia-Like Psychosis, Dementia with Lewy Bodies and Alzheimer's Type

Dementia with Psychosis. *Archives of Clinical Neuropsychology*, 34 (2), 183–199. DOI:
<https://doi.org/10.1093/arclin/acy034>

Badcock, J.C., & Chhabra, S. (2013). Voices to reckon with: perceptions of voice identity in clinical and non-clinical voice hearers. *Frontiers in Human Neuroscience*, 7. DOI:
<https://doi.org/10.3389/fnhum.2013.00114>

Barboza, R. B., De Freitas, G.R., Tovar-Moll, F., & Fontanelle, L.F. (2013). Delayed-onset Post-stroke Delusional Disorder: A Case Report. *Behavioural Neurology*, 27 (3), 287 – 291. DOI: 10.3233/BEN-120315

Barnes, J., & David, A.S. (2001). Visual hallucinations in Parkinson's disease: a review and phenomenological survey. *Journal of Neurology, Neurosurgery & Psychiatry*, 70 (6), 727-733.

Ballard, C., McKeith, I., Harrison, R., O'Brien, J., Thompson, P., Lowery, K., Perry, R., & Ince, P. (1997). A Detailed Phenomenological Comparison of Complex Visual Hallucinations in Dementia With Lewy Bodies and Alzheimer's Disease. *International Psychogeriatrics*, 9(4), 381-388. DOI:10.1017/S1041610297004523

Ballard, C., O'Brien, J., Coope, B., Fairbairn, A., Abid, F., & Wilcock, G. (1997). A Prospective Study of Psychotic Symptoms in Dementia Sufferers: Psychosis in Dementia. *International Psychogeriatrics*, 9 (1), 57-64.
DOI:10.1017/S1041610297004201

Bassiony, M.M., & Lyketsos, C.G. (2003). Delusions and Hallucinations in Alzheimer's Disease: Review of the Brain Decade. *Psychosomatics*, 44 (5), 388-401. DOI:
<https://doi.org/10.1176/appi.psy.44.5.388>.

Beavan, V. (2011). Towards a definition of “hearing voices”: A phenomenological approach.

Psychosis 3(1), 63-73. DOI: <https://doi.org/10.1080/17522431003615622>

Beavan, V., & Read, J. (2010). Hearing Voices and Listening to What They Say: The Importance of Voice Content in Understanding and Working With Distressing Voices.

Journal of Nervous and Mental Disease, 198 (3), 201-205. DOI:

10.1097/NMD.0b013e3181d14612

Bell, D. (1965). Comparison of Amphetamine Psychosis and Schizophrenia. *British Journal of*

Psychiatry, 111(477), 701-707. doi:10.1192/bjp.111.477.701

Bell, V., Mills, K.L., Modinos, G., & Wilkinson, S. (2017). Rethinking Social Cognition in Light

of Psychosis: Reciprocal Implications for Cognition and Psychopathology. *Clinical*

Psychological Science, 5(3), 537-550

Bentall, R., Kaney, S., & Dewey, M. (1991). Paranoia and social reasoning: An attribution

theory analysis. *British Journal of Clinical Psychology* (30), 13-23. DOI:

<https://doi.org/10.1111/j.2044-8260.1991.tb00915.x>

Bielawski, M., & Bondurant, H. (2015). Psychosis following a stroke to the cerebellum and

midbrain: a case report. *Cerebellum Ataxias* 2. DOI: [https://doi.org/10.1186/s40673-](https://doi.org/10.1186/s40673-015-0037-8)

015-0037-8

Brady, K. T., Lydiard, R. B., Malcolm, R., & Ballenger, J. C. (1991). Cocaine-induced

psychosis. *The Journal of clinical psychiatry*, 52 (12), 509–512.

Braun, C.M.J., & Suffre, S. (2011) A general neuropsychological model of delusion. *Cognitive*

Neuropsychiatry, 16 (1), 1-39, DOI: [10.1080/13546800903442314](https://doi.org/10.1080/13546800903442314)

- Brooke, J.C., & Kramer, L.M. (2011). Delusion content across the 20th century in an American psychiatric hospital. *International Journal of Social Psychiatry*, 58 (3), 323 -327.
- Broome, M.R., Harland, R., Owen, G.S., & Stringaris, A. (Eds.). (2012). *The Maudsley Reader in Phenomenological Psychiatry*. Cambridge University Press.
- Burns, A., Jacoby, R., & Levy, R. (1990). Behavioral Abnormalities and Psychiatric Symptoms in Alzheimer's Disease: Preliminary Findings. *International Psychogeriatrics*, 2(1), 25-36. DOI: 10.1017/S1041610290000278
- Cercy, S.P. & Marasia, J.C. (2012). Combined Delusional Misidentification Syndrome in a Patient With Parkinson's Disease. *The Journal of Neuropsychiatry and Clinical Neurosciences*, 24 (1), E3-E4. DOI: <https://doi.org/10.1176/appi.neuropsych.11010016>
- Chadwick, P., & Birchwood, M. (1994). The Omnipotence of Voices: A Cognitive Approach to Auditory Hallucinations. *British Journal of Psychiatry*, 164, 190-201
- Coltheart, M., Langdon, R., & McKay, R. (2011). Delusional Belief. *Annual Review of Psychology*, 62, 271-298. DOI: 10.1146/annurev.psych.121208.131622
- Corcoran, R., Cahill, C. & Frith, C.D. (1997). The appreciation of visual jokes in people with schizophrenia: a study of 'mentalizing' ability, *Schizophrenia Research*, 24 (3), 319-327, DOI: 10.1016/S0920-9964(96)00117-X.
- Corstens, D., & Longden, E. (2013). The origins of voices: links between life history and voice hearing in a survey of 100 cases. *Psychosis*, 5(3), 270-285. DOI: <https://doi.org/10.1080/17522439.2013.816337>

- Darby, R. & Shashank, P. (2016). Lesion-Related Delusional Misidentification Syndromes: A Comprehensive Review of Reported Cases. *The Journal of Neuropsychiatry and Clinical Neurosciences*, 28, 217-222. DOI: 10.1176/appi.neuropsych.15100376
- Demjén, Z., Marszalek, A., Semino, E., & Varese, F. (2019). Metaphor framing and distress in lived-experience accounts of voice-hearing. *Psychosis*, 11(1), 16-27, DOI: 10.1080/17522439.2018.1563626:
- Demjén, Z., & Semino, E. (2015). Henry's voices: the representation of auditory verbal hallucinations in an autobiographical narrative. *Medical Humanities*, 41(1), 57–62.
- Demjén, Z., Marszalek, A., Semino, E., & Varese, F. (2020). 'One gives bad compliments about me, and the other one is telling me to do things' – (Im)politeness and power in reported interactions between voice hearers and their voices. In Z. Demjén (Ed.), *Applying Linguistics in Illness and Healthcare Contexts* (pp. 17-43). Bloomsbury Academic.
- Dudley, R., Aynsworth, C., Cheetham, R., McCarthy-Jones, S., & Collerton, D. (2018). Prevalence and characteristics of multi-modal hallucinations in people with psychosis who experience visual hallucinations. *Psychiatry Research*, 269, 25-30. DOI: <https://doi.org/10.1016/j.psychres.2018.08.032>.
- DuFeu, M., & McKenna, P.J. (1999). Prelingually profoundly deaf schizophrenic patients who hear voices: a phenomenological analysis. *Acta Psychiatrica Scandinavica*, 99(6), 453-459. DOI: <https://doi.org/10.1111/j.1600-0447.1999.tb00992.x>

- Frangos, E., Athanassenas, G., Tsitourides, S., Psilolignos, P., & Katsanou, N. (1983).
Psychotic depressive disorder: A separate entity?. *Journal of Affective Disorders*, 5
(3), 259-265. DOI: [https://doi.org/10.1016/0165-0327\(83\)90049-6](https://doi.org/10.1016/0165-0327(83)90049-6).
- Frith, C. D. (1992). *The Cognitive Neuropsychology of Schizophrenia*. London: Psychology
Press Ltd.
- Frith, C.D., & Corcoran, R. (1996). Exploring 'theory of mind' in people with schizophrenia.
Psychological Medicine, 26, 521-530.
- Fenekou, V., & Georgaca, E. (2010) Exploring the experience of hearing voices: A qualitative
study. *Psychosis*, 2 (2), 134-143, DOI: 10.1080/17522430903191783
- Fernyhough, C. (2004). Alien voices and inner dialogue: towards a developmental account of
auditory verbal hallucinations. *New Ideas in Psychology*, 22, 49-68
- Fénelon, G., Mahieux, F., Huon, R., & Ziélgler, M. (2000). Hallucinations in Parkinson's
disease: Prevalence, phenomenology and risk factors. *Brain*, 123, 733-745.
- Fineberg, S.K., Deutsch-Link, S., Ichinose, M., McGuinness, T., Bessette, A.J., Chung, C.K., and
Corlett, P.K. (2015). Word use in first person accounts of schizophrenia. *The British
Journal of Psychiatry*, 206(1), 32-38. DOI: 10.1192/bjp.bp.113.140046
- Freeman, D., Garety, P.A., & Kupiers, E. (2001). Persecutory delusions: developing the
understanding of belief maintenance and emotional distress. *Psychological Medicine*,
31, 1293-1306. DOI: 10.1017/S003329170100455X
- Freeman, D., Garety, P.A., Kuipers, E., & Bebbington, P.E. (2002). A cognitive model of
persecutory delusions. *British Journal of Clinical Psychology*, 41 (4), 331-347. DOI:
<https://doi.org/10.1348/014466502760387461>

- Freeman, D. (2007). Suspicious minds: The psychology of persecutory delusions. *Clinical Psychology Review, 27* (4), 425-457. DOI: <https://doi.org/10.1016/j.cpr.2006.10.004>.
- Fuchs, T. (2015). The intersubjectivity of delusions. *World Psychiatry, 14* (2), 178-179.
DOI: 10.1002/wps.20209
- Garety, P., Kuipers, E., Fowler, D., Freeman, D., & Bebbington, P. (2001). A cognitive model of the positive symptoms of psychosis. *Psychological Medicine, 31* (2), 189-195.
DOI:10.1017/S0033291701003312
- Garety, P.A., & Freeman, D. (1999). Cognitive approaches to delusions: A critical review of theories and evidence. *British Journal of Clinical Psychology, 38*, 113-154.
- Gauntlett-Gilbert, J. & Kupiers, E. (2003). Phenomenology of Visual Hallucinations in Psychiatric Conditions. *The Journal of Nervous and Mental Disease, 191* (3), 203-205.
- Gecici, O., Kuloglu, M., Guler, O., Ozbulut, O., Kurt, E., Onen, S., Ekinici, O., Yesilbas, D., Caykoylu, A., Emül, M., Alatas, G., & Albayrak, Y. Phenomenology of Delusions and Hallucinations in Patients with Schizophrenia. *Bulletin of Clinical Psychopharmacology, 20* (3), 204-212. DOI: <https://doi.org/10.1080/10177833.2010.11790661>
- Glasner-Edwards, S., & Mooney, L.J. (2014). Methamphetamine Psychosis: Epidemiology and Management. *CNS Drugs, 28*, 1115–1126. DOI: <https://doi.org/10.1007/s40263-014-0209-8>
- Goodwin, F., & Jamison, K. (1990). *Manic-Depressive Illness*. Oxford University Press.
- Graham, J.M., Grünewald, R.A., & Sagar, H.J. (1997). Hallucinosi s in idiopathic Parkinson’s disease, *Journal of Neurology, Neurosurgery & Psychiatry, 63* (4), 434-440.

- Green, C., Garety, P.A., Freeman, D., Fowler, D., Bebbington, P., Dunn, G., & Kuipers, E. (2006). Content and affect in persecutory delusions. *British Journal of Clinical Psychology, 45* (4), 561 -577. DOI: <https://doi.org/10.1348/014466506X98768>
- Gutiérrez-Lobos, K., Schmid-Siegel, B., Bankier, B., & Walter, H. (2001). Delusions in First-Admitted Patients: Gender, Themes and Diagnoses. *Psychopathology, 341* (1), 1-7. DOI: 10.1159/000049273
- Harciarek, M., & Kertesz, A. (2008). The Prevalence of Misidentification Syndromes in Neurodegenerative Diseases. *Alzheimer Disease & Associated Disorders, 22* (2), 163-169. DOI: 10.1097/WAD.0b013e3181641341
- Harris, D. & Batki, S.L. (2000). Stimulant Psychosis: Symptom Profile and Acute Clinical Course. *The American Journal on Addictions, 9*, 28 -37
- Hashimoto, M., Sakamoto, S., & Ikeda, M. (2015). Clinical Features of Delusional Jealousy in Elderly Patients with Dementia. *The Journal of Clinical Psychiatry, 76* (6), 691-695.
- Hermanowicz, N. (2018). Delusional misidentification in Parkinson's disease: report of two cases and a review. *Postgraduate Medicine, 130* (2), 280-283. DOI: 10.1080/00325481.2018.1411161
- Holt, L., & Tickle, A. (2014). Exploring the experience of hearing voices from a first person perspective: A meta-ethnographic synthesis. *Psychology and Psychotherapy: Theory, Research and Practice, 87*, 278-297.
- Iyassu, R., Jolley, S., Bebbington, P., Dunn, G., Emsley, R., Freeman, D., Fowler, D., Hardy, A., Waller, H., Kuipers, E., & Garety, P. (2014). Psychological characteristics of religious

delusions. *Social psychiatry and psychiatric epidemiology*, 49 (7), 1051–1061. DOI: 10.1007/s00127-013-0811-y

Josephs, K.A. (2007). Capgras Syndrome and Its Relationship to Neurodegenerative Disease. *JAMA Neurology*, 64 (12), 1762–1766. DOI: 10.1001/archneur.64.12.1762

Kalhovde, A., Elstad, I., & Talset, A-G. (2013). Understanding the Experiences of Hearing Voices and Sounds Others Do Not Hear. *Qualitative Health Research*, 23 (11), 1470 - 1480.

Kapur, S. (2003). Psychosis as a State of Aberrant Salience: A Framework Linking Biology, Phenomenology, and Pharmacology in Schizophrenia. *American Journal of Psychiatry*, 160, 13-23. DOI: 10.1176/appi.ajp.160.1.13

Knowles, R., McCarthy-Jones, S., & Rowse, G. (2011). Grandiose delusions: A review and theoretical integration of cognitive and affective perspectives. *Clinical Psychology Review*, 31, 684-696. DOI: <http://dx.doi.org/10.1016/j.cpr.2011.02.009>

Kulick, C.V., Montgomery, K.M., & Nirenberg, M.J. (2018). Comprehensive identification of delusions and olfactory, tactile, gustatory, and minor hallucinations in Parkinson's disease psychosis. *Parkinsonism & Related Disorders*, 54, 40-45. DOI: <https://doi.org/10.1016/j.parkreldis.2018.04.008>.

Kumral, E., & Öztürk, Ö. (2004). Delusional state following acute stroke. *Neurology*, 62 (1), 110-113. DOI: 10.1212/WNL.62.1.110

Kwak, Y.T., Yang, Y., Kwak, S.G., Koo, M.S. (2013). Delusions of Korean patients with Alzheimer's disease: Study of drug-naive patients. *Geriatrics Gerontology*

International, 13 (2), 307–313. DOI: <https://doi.org/10.1111/j.1447->

0594.2012.00897.x

Lake, C. R. (2008). Hypothesis: grandiosity and guilt cause paranoia; paranoid schizophrenia is a psychotic mood disorder; a review. *Schizophrenia bulletin*, 34(6), 1151–1162.

DOI: 10.1093/schbul/sbm132

Langdon, R., Michie, P.T., Ward, P.B., McConaghy, N., Catts, S.V., & Coltheart,

M. (1997) Defective Self and/or Other Mentalising in Schizophrenia: A Cognitive Neuropsychological Approach, *Cognitive Neuropsychiatry*, 2(3), 167-

193, DOI: [10.1080/135468097396324](https://doi.org/10.1080/135468097396324)

Luauté, J-P., & Saladini, O. (2008). Neuroimaging Correlates of Chronic Delusional Jealousy after Right Cerebral Infarction. *The Journal of Neuropsychiatry and Clinical*

Neurosciences, 20 (2), 245 -247. DOI: <https://doi.org/10.1176/jnp.2008.20.2.245>

Leroi, I., Voulgari, A., Breitner, J.C.S., & Lyketsos, C.G. (2003). The Epidemiology of Psychosis in Dementia. *The American Journal of Geriatric Psychiatry*, 11 (1), 83-91. DOI:

<https://doi.org/10.1097/00019442-200301000-00011>.

Leudar, I., Thomas, P., McNally, D., & Glinski, A. (1997). What voices can do with words:

Pragmatics of verbal hallucinations. *Psychological Medicine*, 27(4), 885-898.

DOI:10.1017/S0033291797005138

Luhrmann, T.M., Padmavati, R., Tharoor, H., & Osei, A. (2015). Difference in voice-hearing experiences of people with psychosis in USA, India, and Ghana: interview- based

study. *The British Journal of Psychiatry*, 206, 41-44. DOI: 10.1192/bjp.bp.113.139048

- Martinak, B., Bolis, R. A., Black, J. R., Fargason, R. E., & Birur, B. (2017). Dextromethorphan in Cough Syrup: The Poor Man's Psychosis. *Psychopharmacology bulletin*, *47*(4), 59–63.
- McCarthy-Jones, S., Trauer, T., Mackinnon, A., Sims, E., Thomas, N., & Copolov, D. L. (2014). A new phenomenological survey of auditory hallucinations: Evidence for subtypes and implications for theory and practice. *Schizophrenia Bulletin*, *40*(1), 231–235. doi:10.1093/schbul/sbs156
- McKetin, R., McLaren, J., Lubman, D.I., & Hides, L. (2003). The prevalence of psychotic symptoms among methamphetamine users. *Addiction*, *101*, 1473–8. DOI: 10.1111/j.1360-0443.2006.01496.
- McKetin, R. (2018). Methamphetamine psychosis: insights from the past. *Addiction*, *113* (8), 1522-1527. DOI: <https://doi.org/10.1111/add.14170>
- Mizrahi, R., Starkstein, S.E., Jorge, R., & Robinson, R.G. (2006). Phenomenology and Clinical Correlates of Delusions in Alzheimer Disease. *The American Journal of Geriatric Psychiatry*, *14* (7), 573-581. DOI: <https://doi.org/10.1097/01.JGP.0000214559.61700.1c>.
- Mitchell, J., & Vierkant, A.D. (1991). Delusions and Hallucinations of Cocaine Abusers and Paranoid Schizophrenics: A Comparative Study. *The Journal of Psychology*, *125* (3), 301 -310. DOI: <https://doi.org/10.1080/00223980.1991.10543294>
- Nayani, T. H., David, A. S. (1996). The auditory hallucination: A phenomenological survey. *Psychological Medicine*, *26*, 177–189. doi:10.1017/S003329170003381X
- Nedelec-Ciceri, C., Chaumier, J. A., Lussier, M.D., Merlet-Chicoine, I., Bouche, G., Paccalin, M., & Gil, R. (2006). Identification errors and delusions of false identification in

- Alzheimer's disease: a regional survey. *Revue Neurologique*, 162(5), 628–636. DOI: [https://doi.org/10.1016/s0035-3787\(06\)75057-3](https://doi.org/10.1016/s0035-3787(06)75057-3)
- Pagonabarraga, J., Llebaria, G., García-Sánchez, C., Pascual-Sedano, B., Gironell, A., & Kulisevsky, J. (2008). A prospective study of delusional misidentification syndromes in Parkinson's disease with dementia. *Movement Disorders*, 23(3), 443-448. DOI: <https://doi.org/10.1002/mds.21864>
- Pacherie, E., Green, M., & Bayne, T. (2006). Phenomenology and delusions: Who put the 'alien' in alien control? *Consciousness and Cognition*, 15 (3), 566-577. DOI: <https://doi.org/10.1016/j.concog.2005.11.008>
- Pandis, C., Agrawal, N., & Poole, N. A. (2019). Capgras' Delusion: A Systematic Review of 255 Published Cases. *Psychopathology*, 52, 161-173. DOI: 10.1159/000500474
- Paolini, E., Moretti, P., & Compton, M.T. (2016). Delusions in first-episode psychosis: Principal component analysis of twelve types of delusions and demographic and clinical correlates of resulting domains. *Psychiatry Research*, 243, 5-13.
- Paulik, G. (2012). The Role of Social Schema in the Experience of Auditory Hallucinations: A Systematic Review and a Proposal for the Inclusion of Social schema in a Cognitive Behavioural Model of Voice Hearing. *Clinical Psychology and Psychotherapy*, 19, 459-472.
- Perini, G., Carlini, A., Pomati, S., Alberoni, M., Mariani, C., Nemni, R., & Farina, E. (2016). Misidentification Delusions: Prevalence in Different Types of Dementia and Validation of a Structured Questionnaire. *Alzheimer Disease & Associated Disorders*, 36, 331-337.

- Price, L.H., & Lebel, J. (2000). Dextromethorphan-Induced Psychosis. *The American Journal of Psychiatry*, 157 (2), 304.
- Poetter, C.E., Vyas, B.B., & Stewart, J.T. (2012). An Unusual Case of Poststroke Hallucinations. *Journal of American Geriatrics Society*, 60(1), 165-166. DOI: <https://doi.org/10.1111/j.1532-5415.2011.03709.x>
- Poletti, M., Gebhardt, E., Krueger, J., & Raballo, A. (2017). Rethinking Social Agent Representation in light of Phenomenology. *Association for Psychological Science*.
- Poletti, M., Tortorella, A., & Raballo, A. (2019). Impaired Corollary Discharge in Psychosis and At-Risk States: Integrating Neurodevelopmental, Phenomenological, and Clinical Perspectives. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 4 (9), 832-841. DOI: <https://doi.org/10.1016/j.bpsc.2019.05.008>.
- Raballo, A. (2017). From Perception to Thought: A Phenomenological Approach to Hallucinatory Experience. *Schizophrenia Bulletin*, 43(1), 18-20.
- Rajapske, T., Garcia-Rosales, A., Weerawardene, S., Cotton, S., & Fraser, R. (2011). Themes of delusions and hallucinations in first-episode psychosis. *Early Intervention in Psychiatry*, 5, 254-258. DOI: <https://doi.org/10.1111/j.1751-7893.2011.00281.x>
- Ratcliffe, M. (2017). Selfhood, Schizophrenia, and the Interpersonal Regulation of Experience. In Durt, C., Fuchs, T., & Tewes, C. (Eds.), *Embodiment, enaction, and culture: Investigating the constitution of the shared world* (pp. 1-26). MIT Press.
- Rhodes, J., Jakes, S. & Robinson, J. (2005) A qualitative analysis of delusional content. *Journal of Mental Health*, 14 (4), 383-398, DOI: 10.1080/09638230500195445

- Rössler, V., Walter, M.H., Richter, R. (2019). The phenomenology of delusions of poisoning in persons with paranoid schizophrenia. *Fortschritte der Neurologie-psychiatrie*, 87, 695 -701. DOI: 10.1055/a-0846-3950.
- Salo, R., Fassbender, C., Iosif, A.M., Ursu, S., Leamon, M.H., & Carter, C. (2013). Predictors of methamphetamine psychosis: history of ADHD-relevant childhood behaviors and drug exposure. *Psychiatry Res*, 210, 529–535. DOI: 10.1016/j.psychres.2013.06.030
- Salvatore, P., Bhuvaneshwar, C., Tohen, M., Khalsa, H-M. K., Maggini, C., Baldessarini, R.J. (2014). Capgras' Syndrome in First-Episode Psychotic Disorders. *Psychopathology* 47, 261-269. DOI: 10.1159/000357813.
- Sanchez-Ramos, J.R., Ortoll, R., & Paulson, G.W. (1996). Visual Hallucinations Associated With Parkinson Disease. *JAMA Neurology*, 53 (12), 1265–1268.
DOI:10.1001/archneur.1996.00550120077019
- Sass, L.A., & Parnas, J. (2003). Schizophrenia, Consciousness, and the Self. *Schizophrenia Bulletin*, 29 (3), 247-444
- Sass, L.A., Borda, J.P., Madeira, L., Pienkos, E., & Nelson, B. (2018). Varieties of Self Disorder: A Bio-Pheno-Social Model of Schizophrenia. *Schizophrenia Bulletin*, 44 (4), 720-727.
- Semino, E., Demjén, Z., & Collins, L. (under review). Person-ness of voices in lived experience accounts of psychosis: Combining literary linguistics and clinical psychology. *BMJ Medical Humanities*.
- Smith, N., Freeman, D., & Kupiers, E. (2005). Grandiose delusions: An experimental investigation of the delusion as defense. *The Journal of Nervous and Mental Disease*, 193 (7), 480 -487.

- Spence, S. (2001). Alien Control: From Phenomenology to Cognitive Neurobiology. *Philosophy, Psychiatry, & Psychology, 8* (2), 163-172. DOI: <http://doi.org/10.1353/ppp.2001.0017>
- Srivastava, S., Agarwal, M. P., & Gautam, A. (2017). Post Stroke Psychosis Following Lesions in Basal Ganglion. *Journal of clinical and diagnostic research, 11*(5), VD01–VD02. DOI: <https://doi.org/10.7860/JCDR/2017/24142.9790>
- Stangeland, H., Orgeta, V., & Bell V (2018). Poststroke psychosis: a systematic review. *Journal of Neurology, Neurosurgery & Psychiatry, 89* (8), 879-885. DOI: <http://dx.doi.org/10.1136/jnnp-2017-317327>
- Startup, M., Bucci, S., & Langdon, R. (2009). Delusions of reference: A new theoretical model. *Cognitive Neuropsychiatry, 14*(2), 110-126. DOI: <https://doi.org/10.1080/13546800902864229>
- Startup, M., & Startup, S. (2005). On two kinds of delusion of reference. *Psychiatry Research, 137*, 87-92.
- Stewart, J.T. (2008). Frégoli syndrome associated with levodopa treatment. *Movement Disorders, 23* (2), 308-309. DOI: <https://doi.org/10.1002/mds.21843>
- Stompe, T., Friedman, A., Ortwein, G., Strobl, R., Chaudhry, H. R., Najam, N., Chaudhry, M. R. (1999) Comparison of Delusions among Schizophrenics in Austria and in Pakistan. *Psychopathology, 32* (5), 225-234. DOI: 10.1159/000029094
- Soyka, M., Naber, G., & Völcker, A. (1991). Prevalence of Delusional Jealousy in Different Psychiatric Disorders: An Analysis of 93 Cases. *British Journal of Psychiatry, 158*(4), 549-553. doi:10.1192/bjp.158.4.549

- Suhail, K. (2003). Phenomenology of delusions in Pakistani patients: Effect of gender and social class. *Psychopathology*, 36, 195-199.
- Sundag, J., Lincoln, T.M., Hartmann, M.M., & Moritz, S. (2015) Is the content of persecutory delusions relevant to self-esteem?, *Psychosis*, 7 (3), 237-248. DOI: 10.1080/17522439.2014.947616
- Thomas, P., Mathur, P., Gottesman, I.I., Nagpal, R., Nimgaonkar, V.L., & Deshpande, S.N. (2007). Correlates of hallucinations in schizophrenia: A cross-cultural evaluation. *Schizophrenia Research*, 92 (1), 41-49. DOI: <https://doi.org/10.1016/j.schres.2007.01.017>.
- Tsai, S.J., Hwang, J.P., Yang, C.H., & Liu, K.M. (1997). Delusional jealousy in dementia. *The Journal of Clinical Psychiatry*, 58 (11), 492-494. DOI: <https://doi.org/10.4088/jcp.v58n1105>
- Tsunoda, N., Hashimoto, M., Ishikawa, T., Fukuhara, R., Yuki, S., Tanaka, H., Hatada, Y., Miyagawa, Y., & Ikeda, M. (2018). Clinical Features of Auditory Hallucinations in Patients With Dementia With Lewy Bodies: A Soundtrack of Visual Hallucinations. *The Journal of Clinical Psychiatry*, 79 (3) . DOI:10.4088/jcp.17m11623.
- Tovar, A., Fuentes-Claramonte, P., Soler-Vidal, J., Ramiro-Sousa, N., Rodriguez-Martinez, A., Sarri-Clossa, C., Sarro, S., Larrubia, J., Andrés-Bergareche, H., Miguel-Cesma, M.C., Padilla, P.P., Salvador, R., Pomarol-Clotet, E., & Hinzen, W. (2019). The linguistic signature of hallucinated voice talk in schizophrenia. *Schizophrenia Research*, 206, 111-117. DOI: <https://doi.org/10.1016/j.schres.2018.12.004>

- Upthegrove, R., Ives, J., Broome, M., Caldwell, K., Wood, S., & Oyeboode, F. (2016). Auditory verbal hallucinations in first-episode psychosis: A phenomenological investigation. *BJPsych Open*, *2*(1), 88-95. doi:10.1192/bjpo.bp.115.002303
- Van Duppen, Z. (2017). The Intersubjective Dimension of Schizophrenia. *Philosophy, Psychiatry, & Psychology*, *4*(4), 399-418
- Ventura, J., Wood, R.C., & Helleman, G.S. (2013). Symptom Domains and Neurocognitive Functioning Can Help Differentiate Social Cognitive Processes in Schizophrenia: A Meta- Analysis. *Schizophrenia Bulletin*, *39*(1), 102-111
- Waters, F., Allen, P., Aleman, A., Fernyhough, C., Woodward, T. S., Badcock, J. C., Larøi, F. (2012). Auditory hallucinations in schizophrenia and nonschizophrenia populations: A review and integrated model of cognitive mechanisms. *Schizophrenia Bulletin*, *38*, 683–693. doi:10.1093/schbul/sbs045
- Westlake, R. J., & Weeks, S. M. (1999). Pathological Jealousy Appearing After Cerebrovascular Infarction in a 25-Year-Old Woman. *Australian & New Zealand Journal of Psychiatry*, *33*(1), 105–107. DOI: <https://doi.org/10.1046/j.1440-1614.1999.00530.x>
- Wilkinson, S., & Bell, V. (2016). The representation of agents in auditory verbal hallucinations. *Mind & Language*, *31* (1), 104-126.
- Woods, A., Jones, N., Alderson- Day, B., Callard, F., & Fernyhough, C. (2015). Experiences of hearing voices: analysis of a novel phenomenological survey. *Lancet Psychiatry*, *2*, 323-31.

Part 2: Empirical Paper

Understanding the Lived Experience of Illusory Social Agents in Psychosis: A

Corpus Linguistics Analysis

Abstract

Aims: Previous studies have shown that the experience of psychosis has a strong social component and often involve the experience of being affected by ‘illusory social agents’. Recent work in social cognition has started to characterise social agent representation in normal cognition, and suggest that illusory social agents in psychosis reflects a breakdown in this ability. The experience of illusory social agents remain under-characterised in psychosis. This study aimed to gain a systematic and rich understanding of the characteristics of illusory social agents in psychosis.

Methods: Twenty people living with psychosis were recruited from community and inpatient psychosis services. They participated in open interviews and completed measures of psychotic symptoms. Computational approaches in corpus linguistics were then used to analyze the interviews.

Results: The findings highlighted important properties of illusory social agents. It offered insights to the range of verbal, mental, behavioural and material processes they engage in, as well as the intentions and mental states attributed to them. Models from clinical psychology and corpus linguistics enabled a deeper understanding of the impact illusory social agents have on participants’ lives.

Conclusions: This study validates existing views that illusory social agents play a central role in the lived experience of psychosis. It offers insights to how the behaviours of social agents influence and maintain power asymmetries in the relationships with the person. Implications for treatment and ideas for future research are outlined.

Introduction

Understanding illusory social agents is important to advance understanding of psychosis. Something is represented as an agent when it is perceived to have an informational profile, perspectives, mental states, and is ascribed with beliefs and desires (Wilkinson & Bell, 2016). Previous findings have highlighted the presence of various illusory social agents in psychosis (Freeman, Garety and Kupiers, 2001; Rajapske et al. 2011). Studies grounded in the phenomenology of psychosis have increased understanding of the interpersonal nature and the centrality of illusory social agents in hallucinations and delusions (Beavan, 2011; Beavan and Read, 2010). Theorists in the field of phenomenological psychopathology have suggested that hallucinations and delusions are intersubjective phenomena in form and content in that they usually have relational themes, are concerned with the person's place in the social world, and involves others that are often superior, inaccessible, and hidden or disguised (Fuchs, 2015; Van Duppen, 2017). Understanding the experience of illusory social agents is important because how they are perceived and experienced influences levels of distress and help seeking among people living with psychosis (Chadwick & Birchwood, 1994; Beavan, 2011; Badcock & Chhabra, 2013).

There are limitations to the current literature on the social phenomenology of psychosis. Though epidemiological studies highlight the presence of illusory social agents in psychosis, these studies tend to overlook the richness of the lived experience of social agents. Methodological limitations of qualitative studies restrict the generalizability of the insights gained from the findings on illusory social agent representation. Phenomenological studies have largely focused on the experience of auditory verbal hallucinations and few

have included the experience of delusions. Consequently, dominant theories of psychosis have disregarded the role of illusory social agents in the experience of psychosis. The focus has primarily been on understanding how hallucinations and delusions come about and explaining these as perceptual errors that arise from cognitive biases and misattributions. These explanations minimize the experiential depth of the lived experience of psychosis (Raballo, 2017) and might have resulted in the development of interventions that primarily focus on correcting cognitions rather than on the interpersonal impact of illusory social agents in the lives of people living with psychosis.

Recently Bell et al. (2017) highlighted this gap in the understanding of illusory social agents in psychosis literature and proposed social agent representation as a framework to better understand illusory social agents in psychosis. They suggest that the presence of illusory social agents in psychosis might reflect a breakdown in social agent representation, an innate cognitive ability. According to Wilkinson and Bell (2016) there are four levels of agent representation in the experience of hallucinations that vary in richness: (i) Absent agency where there is no agency attached to non vocal hallucinations (e.g. knocking sounds, music); (ii) Agency without individuation where in agency is represented as a collective and not individuated to specific character (e.g. sounds from crowds); (iii) Internally individuated agency where the represented agent is bound to a specific agent in the mind of the voice hearer. In these cases the hearers identify social agents by individual characteristics such as physical traits, race, and/or stature. These agents may also be named by voice hearers; (iv) Externally individuated agency where voices are associated with specific identities from the voice hearer's real social world. These can include family members, celebrities, or 'non corporeal individuals' from religion or pop culture.

Studies from the field of corpus linguistics have examined characterization of illusory social agents in psychosis. Corpus linguistics is a field which focuses on a set of methods to study language (McEnery and Hardie, 2011). It is the computer-aided study of systematic linguistic patterns in large data sets. It looks at what linguistic choices are made in contrast to what other choices could have been made, how these choices pattern systematically, and the implications of these choices (Demjén et al. 2020). Qualitative and quantitative forms of analysis are equally important to corpus linguistics. It works with qualitative data and techniques which maintains the focus on phenomenological accounts, however, also utilizes statistical calculations to systematically extract themes and statistically significant words in the dataset. This allows researchers to gain insights that might have been overlooked by traditional quantitative or qualitative methods. The use of computational approaches to analyze the data has added benefits of being able to process large datasets in short amounts of time, increasing the reliability of findings and makes it easier for future researchers to replicate the study.

The field of linguistics utilizes theories from social and cognitive psychology to better understand the different ways in which language can be used to represent characters, construct relationships, negotiate power dynamics in interpersonal relationships, and influence decision making. Previous linguistic studies have applied these models to phenomenological accounts of psychosis which has led to novel insights and different ways of understanding illusory social agent representation in psychosis (e.g. Demjén et al, 2020; Semino et al., under review). Using corpus linguistics to understand illusory social agent representation has the potential to deepen our understand of the social phenomenology of psychosis. The exploration of linguistic choices in participants accounts can offer a more

sophisticated understanding of how illusory social agents are characterised in the experience of psychosis.

Studies have shown that interdisciplinary approaches to research is beneficial to the understanding of complex health problems (Gavens et al., 2018). Recently Woods et al. (2015) called for more interdisciplinary approaches to the phenomenology of psychosis because it can offer richer and more empowering ways for people to make sense of their experiences. Better understanding the representation of illusory social agents has the potential to extend current theories to include an explanation of why they come about (Wilkinson & Bell, 2016). To capture the experiential depth of illusory social agents it is important that research is grounded in participants' phenomenological accounts. As such, the aims of this exploratory study is to better characterise illusory social agents in the lived experience of psychosis. It is grounded in the phenomenological accounts of twenty people living with psychosis and uses corpus linguistics to gain a systematic and richer understanding of the representation of illusory social agents. The findings highlight important properties of illusory social agents including the roles they occupy in hallucinations and delusions, the behaviours and communicative acts they engage in, and the motivations and mental states ascribed to them by participants. Implications for treatment and theories, and ideas for future studies are discussed.

Method

Setting

The study recruited participants from inpatient and community settings.

Ethical Approval

The study was approved by an NHS Ethics board (REF: 210323, see appendix 1) and the local NHS Research and Development team.

Participants

For this study 27 participants (14 men and 13 women) living with psychosis who experienced hallucinations and/or delusions were recruited. All participants were linked to inpatient or outpatient psychiatric services and had mental capacity for informed consent. Twelve participants were living in the community and fifteen participants were in inpatient psychiatric wards at the time of the interviews.

The interviews of seven people (5 men and 2 women) residing in inpatient units were excluded because after starting the interview they either reported not hearing voices or delusions or were reluctant to openly discuss their experiences with the researcher in the course of the interview. Consequently, these interviews had an insufficient amount of data related to the research question and were excluded from further analysis. The interviews of 20 participants were used in this study.

People invited to participate in the study were those who were: a) under the age of 65 or over the age of 18; b) living with psychosis; c) English language speakers; and d) had capacity to consent to the research.

Recruitment

Recruitment took place in two ways:

1. Psychological Interventions Clinic for outpatients with Psychosis (PICuP) Research

Register: Community based participants had previously consented for their details to

be included in this research register for the purposes of being invited for research studies. An invitation letter (appendix 2) and information sheet (appendix 3) were sent to participants. Participants signed a consent form (appendix 4) prior to the interview.

2. Inpatient wards at Whittington NHS Foundation Trust, and Camden and Islington Foundation Trust: The research team visited psychiatric wards regularly during the week to recruit participants. At each visit the researcher met with a senior nurse and provided them with information about the study. Inpatient participants suitable for the study were recommended by the clinical team and had given informed consent (appendix 5) for participation.

Data collection

Data was collected through a clinical assessment instrument, the Psychotic Symptom Ratings Scales: Auditory Hallucination subscale (PSYRATS-V) and delusion subscale (PSYRATS-D) (Haddock et al., 1999), and a qualitative interview led by a topic guide (appendix 6). The topic guide was designed by the principal investigator to ensure that areas relevant to the research questions were covered in the interview. It was agreed beforehand that to ensure an in-depth understanding of the experience, the researcher could ask additional follow up questions.

Meetings took place either in a community setting (room in UCL or the Maudsley) or in the inpatient ward. They lasted approximately 60 to 90 minutes depending on break and time taken to answer questions.

In the first part of the meeting, participants engaged in a qualitative interview with the researcher which lasted approximately one hour. The interview was audio recorded on an encrypted, password-protected audio device. The interview explored participants experience of psychosis and broadly covered the following areas: experiences of hearing things that others cannot hear, characteristics of the voice/thing that is heard, nature of the relationship between the person and the voice, experience of delusions, exploration of any characters in the delusions and how the participant relates to them, and exploration of links between past experiences and delusions.

In the second part, participants provided brief demographic information (age, sex, race) and completed the PSYRATS.

Interviews were later transcribed verbatim and any references to specific names, addresses and other personally identifying information were removed. Recordings were securely deleted after they had been transcribed. The transcriptions and questionnaire data were labelled solely by participant code and without any identifying details. Anonymised questionnaire data and transcripts was archived by the research team.

Data analysis

Verbatim transcripts were analysed using computational corpus linguistics methods which combines quantitative and qualitative techniques. Corpus linguistics uses statistical calculations to identify keywords, i.e. significantly overused words, in the corpus in comparison to a reference corpus, and to highlight words that typically co-occur in the dataset- a function called collocation (O'Brien, 2015). An important qualitative technique in corpus linguistics is concordancing as it allows for more nuanced analyses of large datasets.

Concordances allow the researcher to search a corpus for a specific word (e.g. voices) or sequence of characters which is then displayed in a way where the co-text before and after the word of interest can be clearly seen (McEnery and Hardie, 2011. Figure 1 is a screenshot of concordancing being done in the software used for analysis.

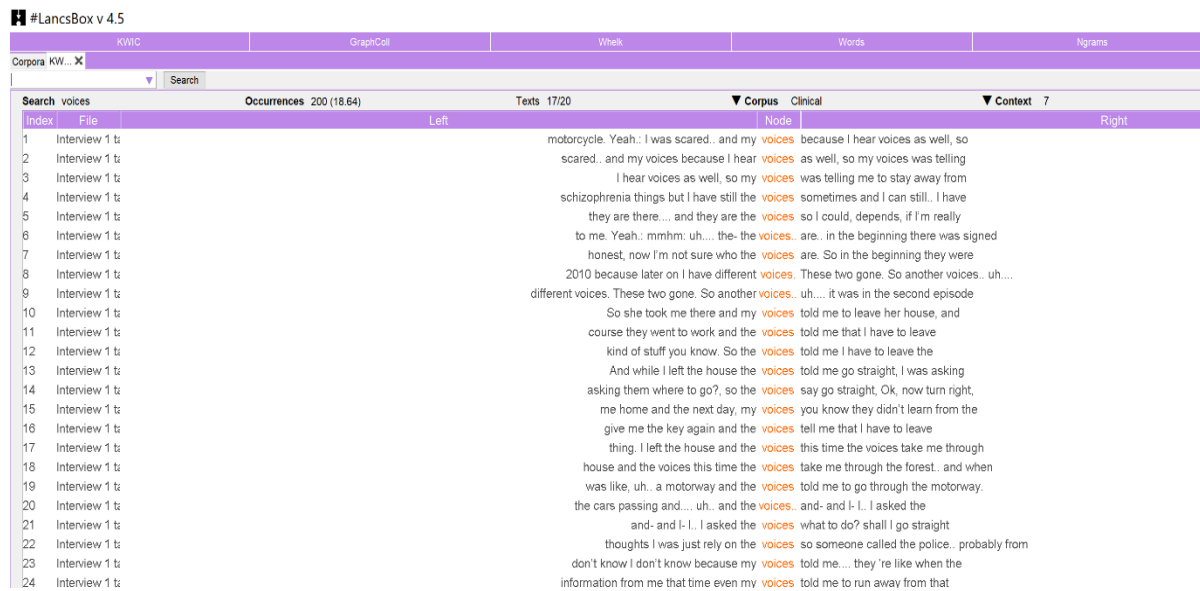


Figure 1. Concordancing in #LancsBox

There are types of metadata within corpora that facilitate linguistic analysis (McEnery & Hardie, 2012). Some corpus analysis tools, including the one used in this study, automatically add annotations/tags to the corpus to provide specific linguistic/grammatical information (Gries & Berez, 2017). One of the most commonly used annotation is part-of-speech tagging which involves assigning to each word a grammatical category (e.g. pronouns, verbs) (Gries & Berez, 2017). Researchers can search for these categories in the corpus analysis tool for further analysis. Researchers also have the option to manually assign their own tags that are relevant to the research question. The advantage of corpus annotations is that researchers can run searches for the tags which will bring up all words assigned to them rather than individually searching for different word forms (McEnery &

Hardie, 2012). In this study's corpus all references to illusory social agents were manually given a particular tag which allowed the researcher to see all of these instances in their context, as shown in figure 1.

The key benefits of corpus analysis are that it is a cost-effective way to quickly and reliably examine large sets of data. The ability to switch between the qualitative view and the wider context allows for a more discourse-oriented approach to understanding language use (Boulton, 2011). Compared to manual qualitative methods, computational linguistics are closer to empirical methods because they are statistically reliable and are replicable by future researchers. A number of large corpora of language have been developed which can be used as a reference corpus to explore similarities and differences between corpora. These reference corpora can be used to examine how language varies by social context, demographics (e.g. gender, age), and how language changes over time (Adolphs, 1998).

A new generation software package called #LancsBox was used to analyse the corpus. Developed at Lancaster university by Brezina, Timperley, and McEnery (2018), #LancsBox can deal with large data sets and allows researchers to apply corpus techniques to their own data. The following steps were applied to the transcribed interviews

1. Corpus Annotation: The researcher went through all transcripts and tagged any references to social agents that the participant reported hearing as 'AvhAgent', where 'Avh' stands for Auditory Verbal Hallucinations. Social agents that participants saw or experienced in other ways (e.g. felt presence) were tagged as "Agent". Tags were added because they enabled us to capture all references to social agents regardless of their different linguistic form (e.g. voice, s/he, they, demon etc). This in turn facilitated concordance and collocation analyses of the corpus in #LancsBox.

2. Loading Transcripts and Comparison Corpus to #LancsBox: Tagged transcripts were loaded into #LancsBox for analysis. A general English Language reference corpus was also uploaded to the software for comparison to the clinical corpus. The reference corpus consisted of Oral History Interviews (OHI), which is similar in format to the data in this study in terms of it being transcriptions of semi-structured interviews with people from different demographics and in a range of contexts. This allowed us to be confident that significant differences in the corpora were not the result of 'noise' arising from genre differences between corpora. It was extracted from the spoken part of the British National Corpus (BNC). The BNC is a 100-million-word collection of samples of written and spoken language designed to represent a wide cross section of British English. The spoken part of the corpus consists of transcriptions of different types of spoken data, including oral history interviews (British National Corpus, 2009).
3. Keyword analysis: The first step of the analysis was to understand the characteristics of the data set using the 'Words' function in #LancsBox. Words that are statistically significantly more frequent in the clinical corpus when compared to the reference corpus were considered keywords. Keywords can be useful to identify the important sites of linguistic variation between corpora (Baker, 2010) and are often used as the first step in corpus analysis (Baker, 2013). Two types of statistical measures built in to #LancsBox were used to generate keywords: (i) Log Likelihood (LL) is a test for statistically significant differences in frequency between corpora. This measure is used on every word in the corpus to identify keywords. The LL must be above 3.84 for the difference to be significant at the $p < 0.05$ level (McEneary and Hardie, 2011) and a value of 10.83 or higher is significant at $p < 0.001$ (Rayson, undated). In this

study, all keywords below the 10.83 cut off were excluded. (ii) Log Ratio, an effect size statistic, represents the size of the difference between two corpora for a keyword. As Log Ratio tends to be biased towards low frequency words (Peters and Dykes, 2018), it was stipulated that keywords should be a minimum of three times more common in the clinical corpus. Thus, all words below the Log Ratio cut off point of 1.5 were excluded from the list. Together these statistics generated a list of 637 keywords whose frequency is significantly higher than the reference corpus and had bigger differences in the effect size between corpora.

4. Semantic Grouping: Keywords were then manually grouped into categories based on semantic relationships to extract broader themes in the corpus (e.g. healthcare jargon). As the research question is about the experience and characterisation of social agents in psychosis, the focus in this step was on content words, i.e. words that communicate meaning, (e.g. see, hear). Function words, i.e., words that create grammatical or structural relationships (e.g. the, if) were excluded from semantic grouping as they did not add information relevant to the research question. When grouping keywords, the researcher used concordancing to look at words in context to understand how they were being used. Keywords and their semantic groupings show the broader themes present in the clinical corpus. The words in these lists do not exclusively pertain to the experience of illusory social agents, rather to the broader experience of psychosis and participants relationships with others (i.e. real people) in their social world. To gain a fuller characterisation of social agents and insights to how they are experienced, it is important to look at words associated with social agents and the context in which these words are used. This is done using a technique called collocation which is described in step 6 of the analysis.

5. Types of Social Agents: The next step was to examine the corpus for all references to social agents. The key word in context ('KWIC') tool in #LancsBox was used to carry out two searches of the clinical corpus. The first search was for the tag 'AvhAgent' which brought up all referent terms in the corpus that were tagged as such. The second search was for the tag "Agents". The two sets of results were exported to an Excel in which the researcher grouped referents and extracted frequency data for the different terms.
6. Collocation: These are combinations of words that frequently co-occur in corpora (Brezina, 2018). It represents the idea that the important aspects of the meaning of a word are not within the isolated word itself but is to be found in the characteristic associations of that word including other words and structure with which it frequently co-occurs (Hardie and McEnery, 2012). To understand how social agents are experienced and perceived by participants we looked at adjective collocates that highlighted how social agents are described in the corpus. Verb collocates were also examined to get a sense of the activities and behaviours that social agents reportedly engaged in.

According to Brezina, McEnery and Wattam (2015), three criteria have been proposed for identifying collocations: (i) *distance*, also called collocation window, specifies the number of words to the left and to the right of the word of interest to look for collocates; (ii) *frequency* of use is an important indicator of the typicality of a word association; and (iii) *exclusivity* which focuses on the relationship of the co-occurrence of words in each other's company and their occurrence separately in the corpus (Messaoudi, 2019). The more likely two words are to only occur together, the stronger their exclusivity. As a first step in the collocation analysis, the researcher

decided on the collocation window to be used on either side of the tags AvhAgent and Agent. Majority of corpus linguists working in English use the span of +/- 4 (Hardie and McEnery, 2012), this span was used in this study. For adjective collocates a collocation span of 4 to the left and 0 to the right were used on the basis that adjectives generally tend to precede referents (e.g. “good spirit”; “big woman”). A collocation span of 4 to either side of the tags were used for verb collocates. Collocates are determined by considering the above criteria which can be depicted by association measures, a statistical measure that quantifies the strength of association between words (Brezina, 2018). No single measure can capture all the criteria for determining collocates as individual measures differ in their emphasis on the different criteria (Brezina et al., 2015). The researcher is therefore required to make a choice on which association measure to use that will extract collocates that are relevant to the research question. In this study, the squared variant of the Mutual Information metric (MI^2) was used. MI determines collocation strength by comparing the observed frequency of a pairing against what would be expected based on the relative frequency of each word and the size of the corpus (Brookes, 2020). The drawback of MI is that it favours collocates that occur exclusively in the company of each other even though they may be rare in the corpus. To mitigate this, MI^2 was used in this study because it highlights collocates that occur exclusively in the company of the word of interest but does not have to be rare in the corpus (Brezina, 2018). Additionally, a minimum collocation frequency of 5, following McEnery (2006a), was also applied to further mitigate any propensity to only highlight rare collocations that appear once or twice in the entire corpus. Previous studies that have used MI^2 have applied a statistical cut off value of 3 (e.g. McEnery, 2006a;

Brezina et al., 2015) and the same cut off was used in this study. Thus, the final parameters used for the collocation analysis of this study was a collocation window of 4 to either side of the tag, minimum collocation frequency of 5, and a statistical cut off value of $MI^2 = 3$. The analysis was done using the 'Graphcoll' function in #LancsBox.

Average scores of PSYRATS-V and PSYRATS-D were calculated in excel to understand the general severity of hallucinations and delusions in the cohort.

Results

Demographics and PSYRATS Scores

Interviews with twenty participants (9 men and 11 women) were used in this study. Twelve were community based participants and eight were inpatient residents. The average age of participants was 46 years old. In terms of ethnicity of participants included in the study, the majority identified as being White British (n=11) followed by British African or Caribbean (n=3). The remaining participants were made up people who were White European (n=2), British Asian (n=2), British Latino (n=1), and mixed heritage (n=1).

Fourteen participants completed PSYRATS- V scoring an average of 19.4. The mean length of time hearing voices was 17.4 years. Reports on the number of voices heard by participants ranged from 1 to 284 voices. Six participants scored 0 on the PSYRATS-V as they either reported not hearing voices or had not heard voices in the two weeks prior to the interview.

Twelve participants completed the PSYRATS-D and scored an average of 9.5. The mean length of time of the beliefs was 16.1 years. Eight participants scored 0 on this measure as they did not report or display delusions.

Of the seven excluded participants, three completed the PSYRATS-V and scored an average of 23. The remaining four denied hearing voices or delusions. All excluded participants scored 0 on the PSYRATS-D subscale.

Characteristics of Corpus

Keyword analysis of the clinical corpus against the reference corpus generated a keyword list comprising 637 words (appendix 7) that were statistically significantly overused in the clinical corpus when compared to the general English language corpus ($LL > 10.83$) and had a large effect size ($\text{Log ratio} > 1.5$). It was the first entry point into understanding the differences between the corpora. By semantically grouping content keywords, as described more fully in step 4 in the methods section, a number of broad categories were extracted from the dataset (appendix 8 for full list). As keywords are not restricted exclusively to the experience of social agents the semantic groupings provided insight to the participants' broader experience of living with psychosis, part of which included social agents. Below is a snapshot of the themes generated by the analyses:

1. **Communication:** This group included keywords that pertained to communication and associated functions. It included communication acts carried out by the social agent with either another social agent or the person living with psychosis, as well as participants' communications with real people in their lives. Words in this category included tell (e.g. "voices *tell* me to stay away), talk (e.g. "people *talk* about me"; "I

was *talking* to the psychiatrist"); arguing (e.g. "the voices are *arguing* with each other"), listen ("they can *listen*, they can hear anything").

2. Broader experience of psychosis: This group included words that illustrated participants' broader experience of living with psychosis, including how they experienced the social agents. Participants described their experience of social agents as aggressive (e.g. "they're very loud, *aggressive*"); and nasty ("they say horrible, *nasty* things"). Experience of psychosis was described as unpleasant ("it is most *unpleasant* to live with"), weird ("It's so *weird* and hard to explain"), and difficulties with distinguishing reality ("it becomes hard to tell what's *real* and what isn't").
3. Emotional and Practical Impact: These groups are related to the one above as it was made up of words which described the emotional and practical impact the experience of living with psychosis, including experience of social agents and side effects of medication, had on participants' lives. These included words such as sad/depressed, suffering (e.g. "I've been *suffering* a long time"); and petrified/scared/scary (e.g. "physically shaking because I was *petrified*"). Words capturing the practical impact on people's lives included difficult (e.g. "it became *difficult* to talk to people"), panic ("I couldn't go out because of the *panic* attacks); sleeping ("I was having trouble *sleeping*"); and isolated ("my psychosis has *isolated* me").
4. Health Jargon: These included all words that are frequently used in health settings. Broadly, words in this category included health care professionals (i.e., "psychiatrist", "psychologist"), names of medication, diagnostic terms (e.g., "symptoms", "psychotic", "disorder", "assessment"), diagnoses, and other words (e.g. "acute"

“patient”, “precognitive trauma”).

Characterisation of Social Agents

This section outlines the different types of social agents in hallucinations and delusions. To identify the types of social agents, the researcher concordanced the tags ‘AvhAgent’ and ‘Agent’ that were added to the corpus. A search for the tag ‘AvhAgent’ in the ‘KWIC’ function of #LancsBox brought up all references in the corpus to agents that were experienced aurally by participants. There were 1551 tagged references to ‘AvhAgent’ in the clinical corpus. A second search for the tag ‘Agent’ brought up all references to social agents that were seen, felt and experienced in other ways. These agents were experienced by participants in ways that were not aural majority of the time. There were 1365 references to “Agents” in the clinical corpus.

With both tags, third person singular (he, she, it) and plural pronouns (they, them) were the most commonly used in the corpus. The noun ‘voice(s)’ was the second most common referent (n=236) in the AvhAgent tag. The pronoun ‘they’ and the noun ‘voices’ were also present in the keyword list indicating that these words were significantly overused in the clinical corpus than the reference corpus. Both tags had frequent use of the noun ‘people’ (AvhAgent n =93; Agent n=81). For brevity, only the most frequent referents associated with both tags are listed in table 1. A full list of referents is provided in appendices 9 and 10.

Table 1*Most Frequent Referents for Social Agents*

Referent Term	Frequency in AvhAgent	Frequency in Agent
They	404	291
Voice(s)	236	0
It (s)	75	139
He	192	128
She	76	117
Them	125	89
People	93	81

Overall, the pronoun 'they' was the most frequent in both tags with a count of 404 for 'AvhAgent' and 291 associated with 'Agent'. This pronoun was used in reference to human and supernatural social agents which were the most common type of social agents in participants' experiences. Perdue et al. (1990) suggest that collective pronouns such as we, us, they, them are linked to categorization of people or agents as part of ingroup or outgroup. Third person plural pronouns such as 'they' and 'them' are referents for outgroups members. In the corpus, ingroup designator 'we' was only used a total of 30 times and in all cases, except one, were in the context of the illusory social agents' direct speech referencing their collective (e.g. "we will kill you", "we know what you've done"). Only one participant used the pronoun 'we' in reference to the activities of an army that she felt part of ("we're involved in new world order" -P13). According to Darics and Koller (2019), social actors can either be referred to as individuals or as a collective. They highlight that 'elite' social actors are likely to be represented as individuals whereas those who are less prominent or 'ordinary' tend to be assimilated. Among participants whose experiences involved numerous social agents, only those agents who had certain qualities appear to have been individuated as indicated by third person singular pronouns such as 'he', 'she', 'it'. For example, social agents who were experienced positively by the participants, or those that were perceived to be particularly powerful, frightening or to have higher levels of intelligence were referred to in third person singular pronouns. References to social agents as a group can be seen in referents such as voices, people, they, them. The male third person singular pronoun 'he' was frequent in both 'AvhAgent' and 'Agent' tags. This finding is line with the results of previous voice hearing studies which found that although participants report hearing male, female and children's voices, the identity of voices was frequently described as male (McCarthy Jones et al., 2014; Corstens and Longden,2013).

Further details about the characteristics of the different agents are provided in the next two sections.

Vocal Social Agents

This section provides additional information about social agents that were tagged as 'AvhAgent'. Due to the high count of referent terms and the difficulty with individuating each referent, only a broad estimate of the types of social agents featured in the corpus was obtained. Additionally, some participants were living with several types illusory social agents (e.g. ghosts, people, animals) and tended to use plural forms and third person pronouns when describing agents. This made it difficult to get an accurate count of the different types of social agents and how often each type was reported in the corpus. The broad estimates extracted from the corpus were based on participants use of nouns (e.g. proper names, terms such as 'spirits', 'ghosts', 'man') to identify social agents.

In their model of social actor analysis, Darics & Koller (2019) propose that identifying social actors in texts starts with noticing who is absent and implicitly or explicitly present in the corpus. Social actors can be included or excluded by referring to them in personal or impersonal ways which can have the effects of foregrounding or backgrounding their presence in the corpus. Personal references would be instances where participants use the names of illusory social agents, or they can be categorized and referred to by: (i) their function (e.g. profession), (ii) some social classification (e.g. gender, age, physical appearance), or (iii) in relation to another social agent.

In the clinical corpus, the most common type of illusory social agents experienced aurally were human, with approximately 40 referent terms (e.g. "person", "guy") used to

describe them. Majority of these were internally individuated agents recognized by individual characteristics and were referred to in personal ways by participants. These agents were often identified by some social classification such as physical traits, gender, or race (e.g. “guy very short”, “white girl”). Only two participants used first names to identify these social agents. In both cases although the participants heard multiple voices, only the social agents who were experienced as supportive were named. According to Darics & Koller (2019), halfway between personal and impersonal references, social actors are specified. Where social agents are being specified they can be referred to as individuals or assimilated into groups and referred to by their collective. Wilkinson and Bell (2016) refer to the latter as agency without individuation. There are several instances in the clinical corpus where social agents are aggregated into groups or referred to by a collective and represented without individuation (e.g. “two others”, “people”, “bunch of guys”).

Nearly half of the human social agents were externally individuated, i.e. they were associated with specific identities from the participants’ real social world (Wilkinson and Bell, 2016). These included relatives, neighbours, former acquaintances, and service people from places such as cafes and public services frequented by the participant. Externally individuated illusory social agents were often referred to by their relation to another social actor (e.g. “dad”, “sister in law”, “the wife”). In a minority of instances social agents were also identified by their function (e.g. “waitress”, “head of information sciences”, “interviewer”).

Illusory social agents that were supernatural or animals were reported using just 8 and 4 referents, respectively. Supernatural beings were variously described by participants as “demons”, “spirits”, “ghosts”, and “black nanses”. Others were less clear on what the

social agents were, however, felt that they were more than human. These social agents were simply referred to as “things”, “something” of a demonic nature or part of a higher power. Only one participant reported illusory social agents that were animals that spoke to him. There were a minority of instances, captured by 4 referents (e.g. refrigerator), where participants reported hearing sounds from inanimate objects.

Other Agents

This section details references to those agents that were not experienced aurally majority of the time. This encompassed experiences of illusory social agents in delusions as well as visual and tactile hallucinations. There were 1365 referents to these agents in the clinical corpus. This was obtained using the process described in step 5 in the methods section. As described above, broad estimates of the types of social agents were obtained based on the nouns used to identify illusory social agents.

Similar to the reports of vocal agents, majority of these social agents were described as human using approximately 45 different referents. Of these, over half were externally individuated agents. These agents included relatives, former acquaintances, members of a former cult, and ex-partners. Applying Darics & Koller’s labels for identifying social actors to these referents show that illusory social agents were more often referred to by their personal names and by their relation to another social agent or the participant (e.g. “mother-in-law”, “daughter”, “neighbour”). In several instances, illusory social agents were identified based on their function (e.g. “doctors”, “prison guards”, “telepaths”, “umpires”) and specific traits, such as gender, stature, in this case gender, (e.g. “little boy”; “girl”, “black woman”). There were two instances where internally individuated agents were referred to as a collective (e.g. “my army”, “members of the cult”).

Unknown human social agents were more often talked about as a collective (e.g. “people”, “people in black jackets”). Three participants identified social agents by their first or full names (e.g. “Ralph McTell”, “Jimi Hendrix”, “Robbie”). Nominations were only observed in cases where the social agents were celebrities. In a minority of cases, social agents were identified by their physical traits such as age, race, and gender (e.g. “white person”, “girl”). One participant identified the same social agent by their function (“IT guy”, “personal trainer”) and in terms of their relation to another social agent (“lover”).

Supernatural beings that were all, with the exception of one, described as evil were involved in a minority of experiences and described using 24 referents (e.g. “skeleton”, “spirit”). In two instances, participants described knowing the supernatural being with one participant stating that the “devil” came to her in her sister’s form and another saying that the “evil spirit” was his own soul. Illusory social agents that were animals were in the minority and described using approximately 12 referents. These included anthropomorphous animals (e.g. “monkey man” who refused to leave, “mice with glasses on with buck teeth” peering around corners) as well as general animals (e.g. birds, slugs). A minority of experiences, captured by 11 referents, involved social agents grouped as ‘other’ which included references to cartoon characters and objects that moved (e.g. “popeye”, “dancing flashing lights”).

Description of Social Agents

This section will detail the ways in which social agents were perceived and experienced by participants by focusing on the adjectives used to describe social agents. Descriptions were extracted by means of collocation analysis, that is looking at words that frequently co-occur in the corpora, described more fully in step 6 of the methods section.

collocates that also featured in the key word list indicate that these words were significantly more used in the clinical corpus when compared to the general English language data set.

Descriptor collocates of social agents were mainly related to the demeanor of the social agents.

Table 2*Adjective Collocates associated with Illusory Social Agents*

Collocate	Statistical Value (MI ²) (AvhAgent)	Statistical Value (MI ²) (Agent)	Dispersion in corpus	Context
Black	8.71	8.15	4	"this <u>black</u> man or brown man keeps bringing more" -P17
Other	8.72	6.47	9	"the <u>other</u> voices screaming" -P8
Different	7.53	-	5	"it's <u>different</u> voices" -P4
Bad	5.85	5.01	4	" <u>bad</u> people that follow me around" -P14
Nice	6.60	-	3	"I sometimes get <u>nice</u> voices" -P3
White	-	7.30	4	"he was a <u>white</u> person" -P11
New	5.24	5.95	3	"these <u>new</u> voices I cannot tell who they are" -P1
Good	4.88	7.24	4	"they were <u>good</u> ghosts" -P17
Little	4.10	7.46	4	"I would see <u>little</u> things climb out the window" -P2
Real	-	5.33	3	"this is actually <u>real</u> people"-P9
Horrible	-	6.27	1	"they're just <u>horrible</u> people" -P14
Big	-	5.74	2	" <u>big</u> cartoon characters" -P15

Seven out of twelve of the adjectives collocates related to the demeanor of the social agents. Two collocates portrayed the social agents in a negative light (bad, horrible). Both collocates were also present in the key word list indicating that these words are significantly overused in the clinical corpus when compared to the general English data set. Five of the seven collocates portrayed the social agents in either positive (nice, good) or neutral terms (new, different, other). Four collocates described the physical appearances of the social agents in terms of race (black, white), and stature (little, big). One collocate related to the realness of the social agent to the participant.

Intentions, Behaviours and Activities of Social Agents

This section explores how illusory social agents are represented, what they are reported as doing, and the intentions ascribed to them by participants. On representing social actors, Halliday & Matthiessen (1985) offer six categories of verb processes to make sense of interactions. The six categories are: material, mental, verbal, relational, behavioural, and existential processes. In the following sections four of these categories are used to analyze the behaviours and representation of illusory social agents. Brief definitions of the four categories are outlined below:

- (i) *Material processes* relate to physical action and have a material outcome. They can be either creative (i.e., brings about something new) or transformative (i.e., doing something to/changing something that already exists) processes. These processes have two main participants: the doer and the entity affected by the process (Thompson, 2014).
- (ii) *Mental processes* refer to the going-ons in the internal world and are grouped into four subcategories: perception (e.g. seeing, hearing); cognition (e.g.

knowing), emotion, and desire/wanting (Thompson, 2014). These processes involve at least one conscious participant (senser) in whose mind the mental processes occur and another participant that is involved in the mental processes, that is the phenomenon that triggered or is at the centre of the mental processes (Ezina, 2015).

- (iii) *Verbal processes* relate to communications more broadly. These can include verbs like scream which indicates volume and lie which indicates something about the speaker's intention. Verbal processes usually involve a speaker and a receiver, the latter being the entity to whom the saying is directed.
- (iv) *Behavioural processes* relate specifically to physiological actions and typically only have one participant: the behavior. These processes allow the distinction between mental processes (e.g. see) and the outward manifestation of these (e.g. watch). They also include physical actions for mental states (e.g. laugh, cry) (Thompson, 2014).

Vocal Agents

Provided in table 3 is a list of all the activities vocal social agents were involved in, their statistical value, and examples in context. As in above sections, collocates that also featured in the key words list are highlighted in bold.

Predictably nearly half the collocates associated with these social agents were verbal processes that took place either between social agents or social agents and participants. Seven collocates (*say, tell, talk, explain, speak, ask, take*) represented illusory social agents as engaging in interactive conversations either with other agents or with the participants. The collocate *take* was counted as a verbal process because it was used as a colloquial

expression to describe the voices giving navigational directions to the participant as she fled from perceived imminent danger.

Nine collocates capture verbal processes which showed illusory social agents in acts that could be described as negative or unpleasant for the participants: *argue, shout, insult, bully, lie, call* (name calling), *kill, goes, and make*. Certain acts such as insults and bullying (by means of name calling and spreading rumors) were particularly prominent for one participant (P9) whose experience was dominated by public shaming. Although the verb *kill* is not a communicative act in itself, it was counted as a verbal process because it only featured in direct quotes from illusory social agents when issuing threats and commands to harm others. The collocate *make* was counted as a verbal as well as a material process due to the different ways in which it was used. As a verbal process it showed illusory social agents belittling participants (e.g. “they make rude comments about me” -P3). The verb *start* was used in a colloquial way to indicate the beginning or intensifying of harassment from social agents (e.g. “they start on me even more” -P15). The verb *goes* was used similarly to describe the social agent narrating, and possibly discussing, passages from a bible chapter which the participant disliked because of the apocalyptic themes within.

Table 3*Activities of Vocal Social Agents*

Verb Collocates	Statistical Value (MI ²)	Dispersion in corpus	Context
Say*	9.63-11.46	15	"they say different things you know the voices" - P15
Tell*	8.46-9.69	10	"they're uh .. just...telling me how it is you know" - P4 "the voices told me that I have to leave because I'm not safe" -P1
Talk*	8.84-10.16	10	"they talk amongst themselves if you like" -P10
Argue*	9.3-9.8	3	"group of people that lived next door that would argue about me" -P9
Do*	4.81-8.65	8	"he can do my head in" -P8
don't	10.41	5	"they don't let me out" -P2 "they don't really care" -P9
Know	10.05	6	"they know I'm talking about them" P2
Can*	9.64-9.81	7	"he could be American using a London accent" - P18
Have	7.83	5	"they can have a conversation between themselves" -P6
Start*	8.30-9.23	5	"they start on me even more" -P15
Think*	6.44-8.46	5	"he goes pahaha at whatever he thinks is funny"- P18
Insult*	8.09-9.32	1	"people insulting or bullying me" -P9
Defend	9.12	1	"he was defending me as a friend" -P9
Listen*	6.64-8.84	2	"they say they can listen" -P8
Get*	9.12	6	"We'll get you out of your flat if it's the last thing we do" -P3
Go*	7.44-8.24	7	"they go away sometimes" -P2 "he goes through the bible revelations with me" - P8

Verb Collocates	Statistical Value (MI ²)	Dispersion in corpus	Context
Bring*	7.24-8.93	1	"they bring me down sometimes"- P17
Call*	6.47-8.92	3	"she calls me names"-P8
Shouting	8.09	3	"they're shouting"-P5
Keeps	11.15	2	"he keeps disturbing my life" -P17
Come	6.54	5	"she'll come and help me" -P8
Make	7.87	8	"voices make me out to be inadequate" -P3 "they try and make me cry" -P4
See	7.41	4	"people can see me watching it" -P9
Pull	8.15	2	"they will pull you" -P5
Laughing	8.43	3	"he is laughing through me" -P18
Leave	7.51	2	"he won't leave me alone" -P17
Crying	6.61	2	"I heard people crying" -P9
Give	6.90	2	"they give me bad thoughts"- P2
Sat	7.01	2	"he's sat there listening now" -P18
Kill	6.73	5	"he said kill him kill him"- P7
Lied	9.15	1	"they lied to me" -P17
Speak	6.62	4	"people speak to me in the street" -P3
Asked	6.80	1	"he asked how I was" -P11
Bullying	6.92	1	"they were bullying me about rape" -P9
Explain	6.09	4	"he was explaining to me that angels are- are always po- portrayed as a white person" -P10
Work	7.42	1	"I haven't got multiple voices.. it's all his own work" -P18
Help	6.04	5	"his voice will help me" -P14
Take	5.89	5	"the voices take me through the forest" -P1

Note: The notation of a word plus the asterisk represents the lemma of the word.

A number of collocates represented the material processes of the social agents. Ten collocates (*do, keep, pull, bring, go, leave, come, make, help, don't*) were transformative material processes as they portrayed illusory social agents as influencing participants' mental and physical wellbeing and environment. Eight of these collocates characterised the agents as intrusive and unwelcome characters that negatively impacted on participants' mental wellbeing (e.g. "they *bring* me down" -P4). Three participants reported social agents being able to physically touch by pulling on or attacking their bodies and were able to restrict participants' movements (e.g. "they *don't* let me out" -P2). Illusory social agents were also represented as independent beings that were able to come and go from participants' physical and mental spaces of their own volition. The collocate *help* portrayed social agents as offering support and comfort to participants. One collocate (*give*) was a creative material process because illusory social agents were represented as bringing about something to the participants' cognition (e.g. "they give me bad thoughts" -P2).

Three collocates (*laugh, cry, listen*) highlighted behavioural processes of illusory social agents. As described by Thompson (2014), behavioural processes capture outward signs of mental processes and mental states. These collocates could be indicative of illusory social agents' mental processes such as being able to hear, experience different mental states (e.g. sadness) and humour. However, these mental processes were not explicitly spoken of by participants.

Five collocates (*see, know, think, want, and try*) captured mental processes of illusory social agents. In terms of perception, participants reported social agents being able to see participants' activities and bodies. Participants experienced this as intrusive because it was against their wishes and interfered with their ability to engage in certain activities

(e.g. being intimate with partners). Social agents were characterised as knowing and thinking beings that were aware of the participants history (e.g. “they *know* already about me... that I’m bad” -P1) and present activities (e.g. “they *know* I am talking about them” - P1). One participant described her voice as having plans (e.g. “he *thinks* he’s going to get the money back” -P18) and being able to physically laugh through the participant at things the social agent thought funny. Participants made inferences about the intentions and/or desires of the social agents. These are presented in table 4.

Table 4

Intentions and Desires of Vocal Social Agents

Verb Collocate	Statistical Value (MI ²)	Dispersion in corpus	Examples in Context
Want*	7.31-7.87	6	“they want to protect me from bad people” -P1
Try*	8.07-8.49	5	“they try to provoke you” -P5

Other Agents

Verb collocates associated with illusory social agents with the tag ‘Agent’ are shown in table 5. Collocates showed these agents were engaged in more material and behavioural processes than those in the above section. They were involved in verbal processes, however, to a much lesser degree than vocal agents. Only seven collocates (*talk, cuss, say, spoke, tell, kill, and pass*) were associated with verbal processes. With these agents, communications directed at participants did not always come directly in spoken form. Rather they were often transmitted through various modes (e.g. television, lights, intuition). Some participants did not hear agents communicating but felt certain that social agents

were talking about them while others could hear social agents mocking or making plans to harm them. One participant communicated with illusory social agents through online chat forums. Similar to the above section, the collocate *kill* only featured in direct quotes from illusory social agents. *Pass* was used to describe illusory social agents sharing information with other unknown agents. A full list of the collocates associated with these agents are provided in table 5.

Table 5*Activities of Other Social Agents*

Verb Collocate	Statistical Value (MI ²)	Dispersion in Corpus	Context
Bring	6.46	1	"they bring stink" -P17
Come*	6.96-9.83	10	"minds coming into my own" -P7
Cuss	10.30	1	"they cuss me" -P17
Digging	8.64	1	"they are digging and digging and what are they digging for" -P14
Do*	5.78 - 8.89	5	"they'll do whatever they have to do" -P2 "they are doing my head in" -P14
Eat	7.34	1	"some of them eat to become strong" -P14
Find	6.81	1	"they find me so sexy" -P17
Float	9.86	1	"this woman can float in the air"- P17
Flying	8.30	1	"little lizards flying about the room" -P2
Follow*	11.04	4	"people following me" -P11
Get*	7.85-8.63	6	"they get on so well together" -P6 "they get into my mind and attack the nervous system" -P14
Go*	5.62-8.27	9	"she was going across the road to the car" -P16
Harm	7.86	2	"spiders trying to harm me" -P14
Hear	7.31	2	"they can hear my thoughts" -P1
Help	6.47	1	"she will help children having bad dreams" -P14
Hold	7.11	2	"someone want to hold you" -P5
Hurt	8.06	1	"they hurt me" -P14
Involved	7.75	2	"Rob's got involved again" -P20
Keep*	8.67	4	"I saw the guy keeping an eye on her" -P16
Kill	8.54	4	"we're going to kill her" -P1
Knocked	9.29	1	"they knocked one of them [windpipe] out" -P17
Know*	8.03-9.70	6	"they know where I'm living" -P1

Verb Collocate	Statistical Value (MI ²)	Dispersion in Corpus	Context
			"everybody knows what's wrong with me" -P2
Leave	8.16	4	"they can leave you" - P5
Look*	6.59-7.33	4	"they were looking at me but there were no words" -P8
Make*	5.50-6.59	2	"we will make him buy things" -P16
Pass	7.22	2	"they pass on information" -P17
Persecute	8.92	1	"they persecute me for it" -P14
Pretending	8.72	3	"he was pretending he didn't know" -P9
Put	7.69	4	"she put police on me twice" -P16
Saying	6.30	3	"they were saying something about me" -P12
See*	7.61-10.88	3	"my men can see us through the lights" -P13
Spoke	7.46	2	"he spoke to me" -P11
Stand	8.12	2	"they stand altogether" -P1
Start*	6.79-6.79	3	"they start on me" -P14
Take*	6.07-6.92	5	"they want to take you" -P5
			"someone had taken naked pictures of me" -P9
Talk*	7.45-7.83	4	"it was talking to me" -P12
Tell*	5.14-7.45	4	"something was telling me they're not my family" - P12
Think	6.50	1	"when they think that person has done enough" - P14
Touch	6.64	1	"their fingers touch me there" -P17
Walk*	6.11-7.43	4	"people walk through walls" -P8
Watching	8.37	4	"they were watching me" -P11
Went	6.64	2	"she went to that corner in my room" -P17
Work	5.43	1	"he work in a hospital" -P16

Note: The notation of a word plus the asterisk represents the lemma of the word.

Twenty one collocates associated with these agents related to material processes where an activated social agent was doing something to a passivated participant or another social agent. Most of these collocates were transformative material processes as they represented illusory social agents affecting participants' bodies and environments. Eleven of these (*hurt, harm, persecute, start, knocked, hold, do, stand, get, touch and kill*) represented the agents as causing physical hurt and mental distress to participants. The collocate *stand* is counted as a transformative process because one participant described illusory social agents as standing in his way which prevented access to his kitchen and from him opening his front door. The collocate *get* is considered a material and mental process due to the different contexts. As a material process it portrays social agents entering the minds of participants and attacking them from within. Eight collocates of transformative processes (*come, go, went, leave, float, flying, walk, follow*) depicted the movements of social agents. Similar to the agents in the previous section, agents were portrayed as independent and mobile beings who were able to freely enter and leave physical and mental spaces regardless of participants' wishes. Three collocates (*make, involved, help*) illustrated social agents' attempts to influence the actions/situations of real and illusory agents. For example, the collocate *involved* was used in the context of an illusory social agent intervening to prevent the hospital admission of a participant. The collocate *help* was used to characterise an illusory social agent's abilities to support people in need. Three collocates (*bring, taken, put*) were creative material processes because the context suggested that these brought about something (e.g. smells on bodies or environment) or someone (e.g. police) new. The collocate *taken* was used in the context of illusory social agents taking naked pictures of a participant and distributing it among other illusory social agents.

Seven collocates highlighted behavioural processes of social agents. These verbs portrayed social agents engaging in activities to sustain themselves (*eat, work*) and observing participants (*keep, watch, look*). The collocate *keep* is considered a behavioural process because the way it was used indicated illusory social agents monitoring the activities of participants and/or other agents (e.g. “they were *keeping* tabs on me” -P11). The collocate *pretend* could be considered an outward sign of internal mental processes (e.g. intention to deceive).

More mental processes were attributed to the social agents in this section when compared to vocal agents. In terms of perception, social agents were able to *hear and see* participants. Cognitively these agents were also portrayed as *knowing* and *thinking* beings who were aware of participants history and current activities. A minority of participants commented on the mental states of illusory social agents as captured by two collocates (*get, find*). One participant felt her social agents were attracted to her (“they *find* me so sexy” - P17) and associated these feelings to be the driver behind the social agents constantly trying to touch her body. Another participant reported social agent got angry with him and a third commented on social agents’ affections for each other (“they *get* on so well together” -P6). Social agents were perceived to have motivations, plans and desires. A list of collocates depicting ascribed intentions are shown in table 6.

Table 6*Intentions and Desires of Other Social Agents*

Verb Collocate	Statistical Value (MI ²)	Dispersion in corpus	Context
Want*	5.74-9.42	5	“he wants the flat and he wants my garden” - P3 “they want to harm me” -P1
Try*	4.56-7.03	6	“they were trying to contact me” -P8
Going	7.62	5	“they’re going to give me a new home” -P4

Discussion

This descriptive study sought to offer a characterization of illusory social agents in the experience of psychosis. The findings were based on interviews with twenty participants that was analyzed using computational approaches in corpus linguistics. It provided a nuanced insight to how social agents are perceived, the types of behaviours they engage in, and intentions ascribed to them by participants. In line with the observations made by Bell (2013) and Wilkinson and Bell (2016), the results showed that social agents: (i) are represented with varying levels of richness in participants’ experiences, (ii) are attributed with different kinds of identities including physical characteristics and names, (iii) are perceived to have internal states and motivations that are different from those of the participants, and (iv) interact with participants in various ways including through communicative speech acts.

Overall, illusory social agents were characterised in participants’ experiences as active and dynamic beings who engaged in a range of verbal, mental, behavioural and

material processes. Collocation analysis showed that illusory social agents were represented as omniscient, powerful, independent, and often malicious characters. Majority of participants experienced the actions and intentions of social agents as intrusive and/or distressing. Material and verbal processes represented agents as having the power to influence and create changes to participants' environment and wellbeing. These processes signify richer social agent representation because they have an impact on participants' external environment. The analysis highlighted that it is not just what the illusory social agents do that matter, rather what they do not do (e.g. "they don't care") was also important to the way they were experienced by participants. Illusory social agents were endowed with motivations and mental states that were not fully accessible to the participants. The intentions and desires of social agents were perceived to be malevolent and involved plans to harm or kill participants, however, a minority felt the social agents wanted to help them. Attributing mental processes to agents, even those that are not human, bestows them with a degree of humanness (Thompson, 2014). In the case of illusory social agents, it conveys their sense of power and authority (Semino et al., under review). Analysis of pronouns used to refer to illusory social agents showed that only those that were perceived to have certain qualities, such as higher levels of intelligence or power to manipulate, were individualized using specific names or characteristics by participants. The pattern of these findings are consistent with previous studies which show that voice hearers judged voices in terms of power and intent (Chadwick and Birchwood, 1994), and those with clinically significant levels of distress were more likely to perceive voices as omnipotent and malevolent (Badcock & Chhabra, 2013).

According to Demjén et al. (2020), linguistic choices in communication are one of the key means to exercise power in relationships. In a study which applied models of impoliteness to the experience of voice hearing, Demjén et al. (2020) illustrated how linguistic choices can be used to attack, maintain or boost voice hearers' sense of self, relationship rapport, and contribute to the (a)symmetry of power dynamics in the voice-hearer relationship. For this study they drew on linguistics concepts of 'face', sociality rights, and rapport enhancing/damaging acts by Spencer-Oatey (2008). 'Face' is related to a person's sense of worth, reputation, and competence and is based on one's own communicative behaviour and other's reactions to these (Semino et al., under review). Sociality rights relate to the social expectation of fairness and appropriate behaviours and highlight how communicative acts can serve the function of damaging or enhancing rapport (Goffman 1967, cited in Demjén et al., 2020). Rapport damaging communicative acts are those that infringe on the face and sociality rights of the hearer. These can include acts such as insults, criticism, negative references, dismissals, and silencers. Rapport enhancing acts are those that minimize threats to the hearer's face or sociality rights and enhance these (e.g. praise, encouragement). These concepts are helpful to understand the impact of the actions of illusory social agents on participants' lives.

Examining the collocates from this lens highlights that majority of the speech acts by illusory social agents were rapport damaging acts designed to attack participants 'face', that is their sense of self-worth and their reputation. These included insults directed to or within ear shot of participant, name calling, criticizing participants' appearances ("get it off! It looks too horrible! your bum looks fat in that look at your legs they're all bandy" -P8), and using dismissals ("I heard the waitress say push off" -P3). Social agents were frequently

represented as infringing on participants' sociality rights. Acts such as making threats, telling participants to harm others, warning participants that their environment is dangerous, and warning participants to not trust or communicate with others in their social world all interfere with participants' right to associate with others and to be treated fairly. There were a minority of instances in the corpus where participants interpreted the social agents' warnings, instructions/commands, and intimidations as being driven by an underlying motivation to protect the participants from harm or to keep participants on track to live a 'good' life. Despite the positive intention attributed to these agents, these acts violate participants' sociality rights because they likely elicit anxiety and fear of others among participants (Demjén et al., 2020). Understanding the nuances of these communicative acts matter given past research by Beavan and Read (2010) have shown that negative voice content increases the likelihood of hearers experiencing negative emotional reactions. They found that these voice hearers were more likely to have voices that talk or argue with each other, comment on them, disturb their contact with others, and over which they have little control.

Although the linguistics concepts of face and sociality rights have been primarily used to understand the lived experience of voice hearing, they can also be applied to the non-verbal behaviours of illusory social agents. As detailed in the results section, social agents engaged in a number of non-verbal processes that could be constituted as attacks on face and sociality rights. For example, several participants commented on the relentlessness of the social agents (e.g. "he keeps disturbing my life"- P17), feeling watched, being followed, and social agents attempting to touch intimate body parts against participants' consent. All of these acts breached participants' sociality rights to be unimpeded or

exploited. In some cases illusory social agents imbued participants with an overwhelming sense of fear which meant participants actively avoided looking at other people or socializing with others in the external world. Illusory social agents were also shown to prevent participants from going out and putting bad smells on their bodies. These acts interfered with participants' ability and rights to create and maintain relationships with others in their real social world.

Representing social agents and understanding the motivations of agents is essential to predict behaviour and to make sense of the ways in which agents behave (Wilkinson and Bell, 2016). According to Culpeper and Fernandez-Quintanilla (2017), representation of characters and inferences about their intentions can be influenced by pre-existing social schemas. They suggest that some imaginary characters have a closer relationship with actual people and may even be modelled on a specific or actual person. Wilkinson & Bell (2016) refer to these types of agents as externally individuated. Several illusory social agents in the clinical corpus were externally individuated. The behaviours and inferred intentions of these agents aligned with those attributed to the persons in the real social world.

However, schema-based approach to understanding social agents are not always effective because it does not account for situations where there is no obvious schema to fit incoming information or there is a lack of fit as more information becomes available (Culpeper and Fernandez-Quintanilla, 2017). This absence or lack of fit of schema to incoming information when trying to make sense of the social agents was not uncommon among participants. For example, when asked about her voices one participant said "I don't honestly know what the voices are" -P10. The presence of keywords such as "weird" (e.g.

“it’s so weird and confusing to explain” -P12), “strange, and “random” used by participants trying to describe the experience may also be indicative of an ongoing processing of social agent representation and the extent to which they do or do not align with existing schemas. This suggests that in many cases participants are using bottom up processes to integrate available information of social agents to build up agent representation. Culpeper and Fernandez- Quintilla (2017) refer to these as person based impressions, a process that is cognitively more effortful but provides richer impressions of characters that can be described as ‘round’. Characters can be considered round if they appear frequently, have an inner life (i.e. mental processes), motivations, and they have the ability to surprise in a convincing way (Culpeper, 2001).

The collocates which highlight mental processes showed that many illusory social agents in the corpus could be considered round characters. They were represented in the corpus as having an inner life consisting of thoughts, feelings, knowledge, intentions, and plans. There were examples in the corpus of social agents being deceitful, captured by collocates such as *lie* and *pretend*, which represented them as having minds and motivations that were separate to those of the participants. Participants spoke of illusory social agents experiencing a range of feelings including anger, jealousy, sexual attraction, and pain/sadness, however, not all of these were captured in the collocates or keyword analysis. For the majority of the participants, particularly those on the wards, illusory social agents appeared frequently and were relatively dynamic characters that sometimes irritated or angered the participants but at other times offered comfort and humour. Based on the scalar model of minimal to complex personification of voices developed by Semino et al. (under review), these qualities of (i) having ‘online’ emotions, (ii) possessing internal states

and motivations that are not accessible to the participants, (iii) engaging in interactions with participants, and (iv) having different behaviours, suggest that many social agents are personified in complex ways that are similar to the way real people are perceived in the shared external social world.

A few participants commented on their surprise at the behaviours of the social agents, however, these participants were in the minority. There are a number of reasons that might explain the lack of surprise at the behaviours of illusory social agents. Firstly, the researchers did not explicitly enquire about how agents had developed over time which might have provided insight to the level of behaviour predictability. Secondly, it might be because all participants in the study had been living with these social agents for a significant number of years and were able to anticipate the behaviours. Alternatively, it might be that participants made correspondent inferences about social agents' behaviours based on their perception of the social agents' dispositions and motivations (Culpeper and Fernandez-Quintanilla, 2017). That is, "bad" social agents do bad things because they intend to cause harm or distress. The minority of participants who expressed surprise at the behaviours of the social agents were those who perceived the agent's behaviours to be incongruent with the participant's judgement of their disposition or differed from the participants generalization of how agents behave. For example, one participant expressed surprise at the behaviour of a particular illusory social agent because it was defending her. This behaviour was in stark contrast with the behaviours of all other social agents in the participant's experience who regularly insulted and shamed her. Instances such as these suggest that participants had developed a schema about the behaviours of illusory social based on

previous experiences and then encountered illusory social agents that did not fit this schema.

Conclusion

Implications

The findings of this study might have implications for the treatment of psychosis. National Institute of Clinical Excellence (NICE) recommends that Cognitive Behavioural Therapy for psychosis (CBTp) should be offered to adults living with psychosis (NICE, 2014). CBTp supports people living with psychosis to re-evaluate the omniscience and omnipotence of social agents and to seek alternative explanations for delusions (Morrison and Barratt, 2010). In CBTp, therapists also work with the content of the voices and the impact these have on the person's sense of self. However, the efficacy of CBTp in improving distressing symptoms of psychosis has been debated (Laws, 2015; Laws, 2016). Studies have shown that service user satisfaction with CBTp was associated with positive therapy expectations and positive therapist qualities rather than with symptom improvement (Lawlor et al., 2017). These findings suggest that this intervention, which focuses primarily on changing the cognitions of the person living with psychosis, may be overlooking important experiential and interpersonal aspects of the lived experience of social agents which might be contributing to the limited benefits. Newer interventions such as AVATAR therapy (Leff et al., 2014) that places the emphasis on the interpersonal relationship and power dynamics in live interactions between the person and illusory social agent appear to have better outcomes (Craig et al., 2018).

Understanding the nuances of illusory social agent representation in psychosis could contribute to the refinement and/or development of similar interventions that more adequately address the depth of the lived experience and improve treatment outcomes. Improved insight to social agent representation could also contribute to the development of theories that go beyond describing hallucinations and delusions as perceptual errors and also focus on understanding the intersubjective nature of social agents in these experiences. Bell et al. (2017) have also suggested that attending to the form and content of illusory social agents could lead to the identification of new cognitive mechanisms that might provide important insights to normal social cognition. They suggest that this in turn could have implications for other diagnoses with social cognition impairments such as autism.

Strengths

Several studies have highlighted the presence of illusory social agents in psychosis and recognize that they are important in terms of cognitive impairment. Despite this, few have looked at the phenomenology of social agents in the experience of psychosis. Recently more studies have started exploring the properties of illusory social agents in the experiences of auditory verbal hallucinations; however, they often do not include the experience of those living with delusions. The findings of this study are grounded in the first person accounts of people living with psychosis and highlight important properties of social agents that feature in the hallucinations and delusions of participants. Including community and ward based participants means that the experience of people with varying levels of distress and functional abilities were included in the analysis.

The interdisciplinary approach to analysis by means of corpus linguistics techniques to analyze the data enabled in-depth insights to the experiential structure of illusory social

agents in psychosis. Drawing on the frameworks of agent representation, politeness, and verbs processes from this field provided new ways of understanding important properties of illusory social agents, how they are perceived and experienced by participants, and offered nuanced perspectives on the communication and behavioural activities of social agents. Additionally, when compared to other linguistic analysis softwares, #LancsBox has the benefit of data security as the corpus is only saved locally on the researcher's machine and is not communicated with the server.

Limitations

Methodological limitations include small sample size, inadequate representation of participants from different ethnic backgrounds, and the small research team working on the data. These might have limited the scope of agent representation that could be gleaned from the data. The small research team might have resulted in minor errors or missed tags which raises a possibility that certain broader themes might have been overlooked. It was also difficult to neatly and categorically make the distinction between which agents should be annotated with the 'AvhAgent' and 'Agent' tags because of the breadth of activities associated with illusory social agents. A larger research team and more time may have helped with agreeing on definitions that are more precise.

The small sample size was due to the time constraints of conducting the study whilst on the Clinical Psychology programme. More participants from different ethnic backgrounds may have provided insight to variations in agent representation, if any, that might arise from participants' cultural and/or spiritual differences. Although the researcher made a concerted effort to recruit an ethnically diverse sample representative of the London population, several participants declined the invitation. This might be due to the stigma

associated with mental health distress in certain communities and/or due to mistrust of professionals. Others who agreed to take part did not feel able to openly discuss their experiences with the researcher despite reassurances that the interview would not be shared with the clinical team. This might have been because the researcher had their NHS badge on display while on the ward which might have impacted on participants' ability to fully trust the reassurances. It might also have partially been due to fears that openly discussing the experience of psychosis might prolong their stay in wards which were generally perceived to be unpleasant environments.

Ideas for future research

Future studies could look at replicating this study with a larger sample size and bigger research team. It might also be worth examining for differences in social agent representation between community based people living with psychosis and ward based participants who might be in more acute stages. A better understanding of how illusory social agents negotiate and maintain power dynamics in these experiences may offer ideas for more targeted interventions. Exploring how illusory social agents evolve over time and the influence these changes have on the relationship between social agent and participants might also offer important insights.

In this study we used a general reference corpus that was similar in genre but not topic which enabled us to get a sense of the aboutness of the clinical corpus by means of keyword analysis. The general reference corpus was sufficient for the purposes of this study as the bulk of the analysis was based on collocations in the clinical corpus and thus did not call for additional comparisons against the reference corpus. Future researchers could

consider an alternative reference corpus that is closer in topic as it might home in on fewer, but potentially more meaningful characteristics of the data.

References

- Adolphs, S., Brown, B., Carter, R., & Crawford, P. (1998). Clinical Linguistics? Corpus Linguistics in Health Care Settings. *Centre for Health Language Research*. Retrieved from: <http://www.brown.uk.com/teaching/city/datadriven.pdf>
- Badcock, J.C., & Chhabra, S. (2013). Voices to reckon with: perceptions of voice identity in clinical and non clinical voice hearers. *Frontiers in Human Neuroscience*, 7.
- Baker, P. (2010). *Sociolinguistics and Corpus Linguistics*. Edinburgh University Press.
- Baker, P., Gabrielatos, C., & McEnery, T. (2013). *Discourse analysis and media attitudes: The Representation of Islam in the British Press*. Cambridge: Cambridge University Press.
- Beavan, V. (2011). Towards a definition of “hearing voices”: A phenomenological approach. *Psychosis* 3(1), 63-73. DOI: <https://doi.org/10.1080/17522431003615622>
- Beavan, V., & Read, J. (2010). Hearing Voices and Listening to What They Say: The Importance of Voice Content in Understanding and Working With Distressing Voices. *Journal of Nervous and Mental Disease*, 198 (3), 201-205. DOI: 10.1097/NMD.0b013e3181d14612
- Bell, V. (2013). A Community of One: Social Cognition and Auditory Verbal Hallucinations. *PLoS Biology*, 11 (12): e1001723. DOI: <https://dx.doi.org/10.1371%2Fjournal.pbio.1001723>
- Bell, V., Mills, K.L., Modinos, G., & Wilkinson, S. (2017). Rethinking Social Cognition in Light of Psychosis: Reciprocal Implications for Cognition and Psychopathology. *Clinical Psychological Science*, 5(3), 537-550

- Boulton, A. (2011). Blending research methods: Qualitative and quantitative approaches to researching computer corpora for language learning. *Proceedings of KAMALL 2011: New Directions for Blended Learning in EFL*, pp 63-74. Daejeon: Pai Chai University.
URL: <https://hal.archives-ouvertes.fr/hal-00620495/document>
- Brezina, V. (2018). *Statistics in Corpus Linguistics: A Practical Guide*. Cambridge University Press. DOI: <https://doi.org/10.1017/9781316410899>
- British National Corpus: *The British National Corpus*, version 3 (BNC XML Edition). 2007.
Distributed by Bodleian Libraries, University of Oxford, on behalf of the BNC Consortium. URL: <http://www.natcorp.ox.ac.uk/>
- Brookes, G. (2020). Corpus linguistics in illness and healthcare contexts: a case study of diabulimia support groups. In Z. Demjén (Ed.), *Applying Linguistics in Illness and Healthcare Contexts* (pp. 44-72). Bloomsbury Academic.
- Chadwick, P., & Birchwood, M. (1994). The Omnipotence of Voices: A Cognitive Approach to Auditory Hallucinations. *British Journal of Psychiatry*, *164*, 190-201
- Craig, T., Rus-Calafell, M., Ward, T., Leff, J.P., Huckvale, M., Howarth, E., Emsley, R., & Garety, P.A. (2018). AVATAR therapy for auditory verbal hallucinations in people with psychosis: a single blind, randomized controlled trial. *Lancet Psychiatry*, *5*(31), 31-40
- Corstens, D., & Longden, E. (2013). The origins of voices: links between life history and voice hearing in a survey of 100 cases. *Psychosis*, *5*(3), 270-285. DOI: <https://doi.org/10.1080/17522439.2013.816337>

- Culpeper, J., & McIntyre, D. (2010). Activity Types and Characterisation in Dramatic Discourse. In J. Eder, Jannidis, F., & Schneider, R. (Eds.), *Characters in Fictional Worlds* (pp. 176-207). Walter de Gruyter.
- Demjén, Z., Marszalek, A., Semino, E., & Varese, F. (2020). 'One gives bad compliments about me, and the other one is telling me to do things' – (Im)politeness and power in reported interactions between voice hearers and their voices. In Z. Demjén (Ed.), *Applying Linguistics in Illness and Healthcare Contexts* (pp. 17-43). Bloomsbury Academic.
- Ezina, R. (2015). *Transitivity Analysis of <<the Crying lot of 49>> by Thomas Pynchon*. *International Journal of Humanities and Cultural Studies*, 2(3)
- Freeman, D., Garety, P.A., & Kupiers, E. (2001). Persecutory delusions: developing the understanding of belief maintenance and emotional distress. *Psychological Medicine*, 31, 1293-1306. DOI: 10.1017/S003329170100455X
- Fuchs, T. (2015). The intersubjectivity of delusions. *World Psychiatry*, 14 (2), 178-179. DOI: 10.1002/wps.20209
- Gavens, L., Holmes, J., Bühringer, G., McLeod, J., Neumann, M., Lingford-Hughes, A., Hock, E.S., & Meier, P.S. Interdisciplinary working in public health research: a proposed good practice checklist, *Journal of Public Health*, 40(1), 175– 182. DOI: <https://doi.org/10.1093/pubmed/fox027>
- Goffman, E. (1967). *Interaction Ritual: Essays on Face-to-face Interaction*. Aldine Publishing.

- Gries, S. Th., & Berez, A.L. Linguistic Annotation in/for Corpus Linguistics. *Handbook of Linguistic Annotation*, 379-409. DOI: 10.1007/978-94-024-0881-2_15
- Haddock, G., McCarron, J., Tarrier, N., & Faragher, E.B. (1999). Scales to measure dimensions of hallucinations and delusions: the psychotic symptom rating scales (PSYRATS). *Psychological Medicine*, 29(4), 879-889. DOI: 10.1017/s0033291799008661
- Halliday, M.A.K., & Matthiessen, M.I.M. (1985). *An Introduction to Functional Grammar*. Oxford University Press.
- Hardie, A. (2014, April 28). *Log Ratio – an informal introduction*. ESRC Centre for Corpus Approaches to Social Science (CASS). URL: <http://cass.lancs.ac.uk/log-ratio-an-informal-introduction/>
- McCarthy-Jones, S., Trauer, T., Mackinnon, A., Sims, E., Thomas, N., Copolov, D. L. (2014). A new phenomenological survey of auditory hallucinations: Evidence for subtypes and implications for theory and practice. *Schizophrenia Bulletin*, 40 (1), 231–235. DOI: 10.1093/schbul/sbs156
- McEnery, T., & Hardie, A. (2011). *Corpus Linguistics: Method, Theory and Practice* (Cambridge Textbooks in Linguistics). Cambridge: Cambridge University Press.
- Lawlor C., Sharma, B., Khondoker, M., Peters, E., Kuipers, E., & Johns, L. (2017). Service user satisfaction with cognitive behavioural therapy for psychosis: Associations with therapy outcomes and perceptions of the therapist. *British Journal of Clinical Psychology*, 56, 84- 102.

- Laws, K. (2015, March). *Assessing the potential benefits and harm of cognitive behavioural therapy for psychosis*. Mental Health Today. Retrieved from:
<https://www.mentalhealthtoday.co.uk/assessing-the-potential-benefits-and-harm-of-cognitive-behavioural-therapy-for-psychosis>
- Laws, K. (2016). Commentary: Does Cognitive Behaviour Therapy for psychosis (CBTp) show a sustainable effect on delusions? A metal analysis. *Frontiers in Psychology*. DOI:
<https://doi.org/10.3389/fpsyg.2016.00059>
- Leff, J., Williams, G., Huckvale, M., Arbuthnot, M, & Leff, A.P. (2014). AVATAR therapy for persecutory auditory hallucinations: What is it and how does it work?. *Psychosis*, 6(2), 166-176.
- McEnery, T., & Hardie, A. (2011 October 30). *Corpus annotation*. Corpus Linguistics: Method, theory and practice. URL: <http://corpora.lancs.ac.uk/clmtp/2-annot.php>
- McEnery, T. (2006a). *Swearing in English: Bad Language, Purity and Power from 1586 to the Present*. Routledge.
- Messaoudi, S. (2019). The Efficiency of Association Measures in Automatic Extraction of Collocations: Exclusivity and Frequency. *International Journal of Cognitive and Language Sciences*, 13(4), 222-225. DOI: doi.org/10.5281/zenodo.2643974
- Morrison, A.P., & Barratt, S. (2010). What Are the Components of CBT for Psychosis? A Delphi Study. *Schizophrenia Bulletin*, 36 (1), 136-142.
- National Institute for Health and Clinical Excellence (2014). *Psychosis and schizophrenia in adults: prevention and management*. NICE Clinical Guideline 178. London: NICE.

Retrieved from:

<https://www.nice.org.uk/guidance/cg178/chapter/recommendations#how-to-deliver-psychological-interventions>

Perdue, C.W., Dovidio, J.F., Gurtman, M.B., & Tyler, R.B. (1990). Us and Them: Social Categorization and the Process of Intergroup Bias. *Journal of Personality and Social Psychology, 59* (1), 475-486.

Peters, J., & Dykes, N. (2018). From keywords to discourse- towards a systematic approach. *Proceedings of Corpora and Discourse International Conference*, pp 85-87. Lancaster: Lancaster University. URL: http://ucrel.lancs.ac.uk/cad2018/doc/CAD2018_Abstract_Book.pdf

Poletti, M., Gebhardt, E., Krueger, J., & Raballo, A. (2017). Rethinking Social Agent Representation in light of Phenomenology. *Association for Psychological Science*.

Raballo, A. (2017). From Perception to Thought: A Phenomenological Approach to Hallucinatory Experience. *Schizophrenia Bulletin, 43*(1), 18-20.

Rajapske, T., Garcia-Rosales, A., Weerawardene, S., Cotton, S., & Fraser, R. (2011). Themes of delusions and hallucinations in first-episode psychosis. *Early Intervention in Psychiatry, 5*, 254-258. DOI: <https://doi.org/10.1111/j.1751-7893.2011.00281.x>

Rayson, P. (n.d.). *Log-likelihood and effect size calculator*. University Centre for Computer Corpus Research on Language. URL: <http://ucrel.lancs.ac.uk/llwizard.html>

Semino, E., Demjén, Z., & Collins, L. (under review). Person-ness of voices in lived experience accounts of psychosis: Combining literary linguistics and clinical psychology. *BMJ Medical Humanities*.

Spencer-Oatey, H. (2008). Rapport Management: A framework for analysis. In H. Spencer-Oatey (Ed.), *Culturally Speaking: Culture, Communication and Politeness Theory* (pp. 11-47). Continuum

Thompson, G. (2014). *Introducing Functional Grammar* (3rd ed.). Routledge.

Van Duppen, Z. (2017). The Intersubjective Dimension of Schizophrenia. *Philosophy, Psychiatry, & Psychology*, 4(4), 399-418

Wilkinson, S., & Bell, V. (2016). The representation of agents in auditory verbal hallucinations. *Mind & Language*, 31 (1), 104-126. DOI: <https://doi.org/10.1111/mila.12096>

Woods, A., Jones, N., Bernini, M., Callard, F., Alderson-Day, B., Badcock, J.C., Bell, V., Cook, C.C.H., Csordas, T., Humpston, C., Krueger, J., Larøi, F., McCarthy-Jones, S., Moseley, P., Powell, H., Raballo, A., Smailes, D., & Fernyhough, C. (2014). Interdisciplinary Approaches to the Phenomenology of Auditory Verbal Hallucinations. *Schizophrenia Bulletin*, 40 (4), 246-254.

Part 3: Critical Appraisal

Introduction

In this critical appraisal I will offer my considered thoughts on undertaking the study in Part 2. The appraisal begins with my reflections on the ethnic representation of the participants with a focus on barriers to recruitment of people from ethnic minority communities and possible solutions to these. This is followed by my thoughts on the application of corpus linguistics in the study. I will highlight the aspects that helped me, a novice to linguistics, with the process as well as improvements that future researchers could consider. It will conclude with my thoughts on service user involvement in the study and how this could be used in future studies of a similar nature.

Ethnic Representation in Recruitment

The incidence of psychoses, especially schizophrenia, is elevated in several ethnic minority groups when compared to White British population (Kirkbride et al., 2012). This has been shown to be the case in different continents for many decades in both first and second generation migrants (Halvorsrud et al., 2019). Good representation of ethnic minority communities in research can increase the validity and generalizability of findings and can highlight the need for more holistic ways to manage illnesses (Redwood & Gill, 2013). Previous studies suggest that social agent representation and the presence of illusory social agents in psychosis subsequent to a breakdown of this ability is culturally universal (Bell et al., 2017). However, there is currently insufficient understanding of how illusory social agents are characterised in hallucinations and delusions in psychosis. The role of differences in cultural and spiritual beliefs on the types and level of illusory social agent representation, and how they are experienced by people living with psychosis is unclear. The few linguistic studies that have explored characterization of anomalous social agents in psychosis have been based on the phenomenological accounts of a small number of participants ($n < 5$).

Small sample sizes in exploratory studies, such the one in chapter 2, are not uncommon. While they offer important insights and avenues for further research, the findings have limited generalizability and implications for treatment and policies. However, each study of this nature is contributing to the overall picture of the representation of illusory social agents in psychosis. Thus attending to the ethnic diversity of participants, even in small scale studies, is essential to develop an overall understanding that is inclusive of the people who utilize NHS services and prevent the widening of health inequalities.

Despite holding the importance of ethnic representation in mind and making efforts to ensure an inclusive participant group, only 30% of the participants in this study identified as being from an ethnic minority background with the majority identifying as White British.

Community Recruitment

From the beginning of the recruitment process I was keen to recruit an ethnically diverse population and had considered ways in which this could be achieved. Given the increased stigma associated with mental health difficulties in many ethnic minority communities, I had anticipated that several people might decline the invitation to take part in a study seeking to explore the lived experience of psychosis. To mitigate this I initially planned to contact and invite a higher number of people who identified as ethnic minority. There were two main barriers to the recruitment of ethnic minority participants in the community. Firstly, the research register did not include ethnicity information which made it difficult for me to get a sense of the ethnic representation of potential participants. As I did not work for the trust that owned the research register, I did not have access to the necessary clinical systems to obtain this information. With approximately a hundred names on the register, asking the administrator of a busy clinic to add in the information to

facilitate recruitment for my study did not feel like a viable option. The imperfect compromise was that, in addition to systematically working through the list, I made a point of calling everyone with names that indicated an ethnic minority heritage. This was an inadequate solution because (i) there were not many people on the register with ethnic names, and (ii) it is likely that I missed out those who have European sounding names, but have their heritage in former European colonies (e.g. Caribbean Islands). The second barrier was being able to make contact with people. Several did not answer their phone or respond to letters and emails of invitation. Of the few who answered my calls, the majority declined to participate in the research.

There might have been several reasons for participants declining to participate in the study: (i) the researcher's lack of flexibility with the research site and times was likely a significant factor. Interviews were held within weekday working hours in a UCL room. For potential participants, who were all based in South London, this would mean taking time off work, possibly organizing childcare and agreeing to travel up to an hour each way for a 90 minute interview. The maximum payment per participant was £15. These stipulations mean that individuals would have to be considerably motivated to participate in the study. Some participants also had anxieties about travelling on the tube or on public transport. There were insufficient funds to cover the costs of two taxi trips to and from central London which meant these participants were also inadvertently excluded. (ii) I had no prior relationship with participants and reaching out to them via telephone, email or letter might have been perceived as distant and impersonal. This may have limited the success of the recruitment process. (iii) Some participants might not have been willing to re-tell their experiences of living with psychosis, particularly given the higher levels of stigma associated with mental health difficulties in ethnic minority communities.

There are a number of straightforward solutions that could be employed to improve recruitment of people from ethnic minority communities. Firstly, the research register could be updated to include ethnicity information. Having this information explicitly available might prompt researchers to be mindful of who they are recruiting and address underrepresentation of certain communities early on. It might also help the maintainers of the register to monitor for any imbalances in ethnic representation of the participant pool that is being made available to researchers. They can then take proactive steps to ensure that the register is representative of the people who utilize their services. Secondly, prioritizing participant convenience to minimize competing priorities and costs will likely have a positive impact on recruitment. This can be done by having research sites that are located in the community from where people are being recruited and being flexible with research times. Thirdly, studies have shown that personalized approaches to recruitment were better received by ethnic minority communities than impersonalised written approaches (e.g. generic letters, posters) (Rooney et al., 2011). Personalised approaches could include researchers visiting recruitment sites and engaging with potential participants in person. An alternative, albeit resource intensive one, would be for people who already have a trusting relationship with the participant (e.g. healthcare professionals, community leaders, faith leaders) to refer them to the study.

Ward Recruitment

It is well known that minority groups, particularly young black men with diagnosis of schizophrenia, are more likely to be detained under the mental health act (2007) and are over-represented in psychiatric services (Commander et al., 1999; Gajwani et al., 2016). This overrepresentation was visible during ward visits and we were able to recruit more people

from ethnic minority groups than in the community. A number of factors likely helped with this: (i) visiting the wards in person meant that I could proactively try to recruit participants from different ethnicities because this information was visible; (ii) the study was initially discussed with participants by ward staff with whom they had existing relationships; (iii) they were being approached by the researcher in person; (iv) the monetary incentive combined with the lack of activities on the ward likely influenced participants' motivation to take part; and (v) I had the support of two research assistants with ward recruitment. Being based in the hospital and having interacted with several of the inpatient residents for other studies meant that they were able to visit the wards more frequently and benefitted from existing relationships with many of the ward residents.

Although we were able to recruit a more diverse group of people from the wards, this did not always result in usable data. Some participants who agreed to take part were less willing to openly talk about their lived experience of psychosis. While others did not believe that they had experienced hallucinations or delusions. This resulted in interviews being excluded due to an insufficient amount of data that was relevant to the research question. Several factors might have contributed to the lack of openness in the interviews. Firstly, participants may not have fully believed assurances that the interview would not be shared with the clinical team. This might have been compounded by the researchers being required to have their NHS badge on display while on the wards. The badge may have resulted in the researchers understandably being positioned as part of the clinical system rather than as separate professionals. Secondly, it was clear that several participants wanted to be discharged from the ward. Many spoke of the unpleasant conditions including the lack of activities, feeling frustrated by the restrictions placed on them, and their displeasure at how they were being treated by professionals. It might be that some

participants felt that openly discussing their experiences might impede discharge or obtaining leave. Thirdly, it might be that some participants did not believe they had psychosis and therefore the interview questions did not feel applicable to their life experiences and/or perceptions of why they were in hospital.

Mitigating some of these factors are less straightforward due to their systemic nature. It is possible that participants might still have had difficulties with being open about their experiences even if researchers did not have NHS badges visible. Previous studies have shown that service user satisfaction with mental health services were significantly worse among ethnic minorities, particularly black men (Parkman et al., 1997). It is possible that this might have interfered with participants engagement with the researchers, however, addressing this requires broader institutional changes. One possible micro level solution would be to allow more time for recruitment. This might enable researchers to recruit a larger number of people and increase the likelihood of obtaining information that pertains to the research question.

Use of Corpus Linguistics

In this section I will offer my thoughts on using corpus linguistics in research. I will start by outlining the previous applications of corpus linguistics in health research, and the benefits of its application. I will end with reflection on what went well in using corpus linguistics in the empirical study and what could have been done differently.

Corpus linguistics has a diverse range of possible applications to physical and mental health research. Previous studies have used corpus linguistics to understand the use of violence metaphors in relation to cancer and end of life care (Demmen et al., 2015); language used in online support groups for diabulimia (Brookes, 2020); and key themes and areas of

focus in patient feedback about NHS in England (Brookes and Baker, 2017). It has also been used in mental health research to examine the validity of the psychosis continuum (Collins & Semino, 2020); to examine the language of compassion in acute mental health settings (Crawford et al., 2013); and to understand the representation of auditory hallucinations in psychosis (Demjén & Semino, 2015). Corpus linguistics can enhance understanding of the central role of language in negotiating power dynamics in relationships which can influence levels of distress (Demjén et al., 2020) and health outcomes (Adolphs et al., 2004).

Integrating corpus linguistics to health research has the potential to offer novel sources of understanding that could contribute to the development of new theories and improve clinical practice (Adolphs, 2004). The different approaches in corpus linguistics means that it can be used in exploratory studies as well as to test hypotheses. In the corpus-driven approach, themes and linguistic phenomena are extracted from the corpus with no prior expectation or assumptions (Storjohann, 2005). This approach is particularly useful when investigating phenomenological accounts. Computational analysis of the corpus of interest against a reference corpus enables identification of statistically significant similarities and exceptions. This increases the reliability of the findings, limits the need for the researchers to use personal intuition, and will highlight themes that might have been unexpected and/or could have been overlooked in traditional qualitative methods of analysis (Birkner, 2015). Corpus based approaches, on the other hand, uses corpus data to test a hypothesis (McEnery & Hardie, 2011). In this approach the corpus is investigated for specific phenomena that can verify, refute or refine the hypothesis (Storjohann, 2005). These approaches are complimentary and can be combined to get the merits of inductive and deductive approaches (Biria, 2017).

The computational approaches in corpus linguistics combined with the clearly outlined methods in this paper enables quick processing of large datasets and can be easily replicated by future researchers. The transparent and systematic nature of the approach also increases the reliability of the findings and offers a more evidence based approach to the study of language (Adolphs, 1998). Many of the software, such as #LancsBox, are available for free and are accompanied by online tutorials which minimizes costs and does not require the researchers to have high levels of linguistic competence when starting the process. A number of large corpora of language has been developed which can be used as a reference corpus to explore similarities and differences between corpora. These reference corpora can be used to examine how language varies by social context, demographics (e.g. gender, age), and changes over time (Adolphs, 1998).

At the start of this research project, I had no understanding or prior experience of using corpus linguistics. There were several factors that helped with developing my confidence and knowledge of using corpus linguistics for the study. It was beneficial to have a linguistics lecturer with experience of applying corpus linguistics to physical and mental health research as an external supervisor. The supervisor contributed to the development of the topic guide and looked over transcriptions of initial interviews to offer guidance on how questions should be worded to minimize priming participants' language or responses. Together with my internal supervisor, we discussed what counts as an illusory social agent in the corpus, what tags to use, and the distinction between the agents being tagged with 'AvhAgent' or 'Agent'. Both supervisors also checked the first few transcripts to ensure correct tagging and to identify any missed references to social agents. During the analysis stage of the research project, I had regular check ins with my external supervisor to monitor progress and discuss findings. This was hugely beneficial to manage anxieties related to my lack of

knowledge and competence in linguistics as well as to think about the implications of the findings. It helped that my external supervisor had a good understanding of #LancsBox and was able to guide me in person as well as through provision of resources on how to use the software. Prior to and during the writing of the paper, I was directed to relevant and accessible reading and online learning that was appropriate to my level of knowledge and supported my thinking. It was also beneficial that there was a good working relationship between my internal and external supervisors. They both valued the benefits of interdisciplinary working and had mutual respect for their areas of expertise. This enabled us to effectively outline a plan for how the disciplines could be integrated in the different chapters and offered flexibility in shaping the direction of the analysis.

There are a few limitations in the application of corpus linguistics to this study that future researchers could consider and address early on. Firstly, it would have been helpful to have another person to look over transcriptions to ensure that all referents to social agents in the corpus had been tagged appropriately. Though both my supervisors looked through the first few transcripts and highlighted missed references in their feedback, it did not feel viable for me to send them all twenty transcriptions given their busy schedules. Secondly, due to current lack of studies into the representation of illusory social agents it was not always possible to neatly define and distinguish between references that should be tagged as AvhAgent versus Agent. Possible solutions to both of these drawbacks might be to have more time for the project and a second researcher on the same study. This would allow the researchers to recruit a bigger sample size, quality check the annotations, identify missing tags, and discuss uncertainties regarding referents to illusory social agents in more depth.

Service User Involvement

Studies have shown that service user involvement in research has several benefits. Among other things it can help to identify issues that might not have occurred to the researcher, help with recruitment strategies, and with making language in topic guides and information sheets more accessible to participants (Gordon et al., 2018). Service user involvement was considered for this study at various stages. Given that very little is known about illusory social agent representation in psychosis, it is not a phenomenon that is discussed in clinical practice or elsewhere, and the exploratory nature of this study, it was unclear what the researcher would be asking for from a service user panel. To avoid service user involvement as a mere tokenistic gesture, it was decided that as a first step it might be beneficial to use this study to gain preliminary information about agent representation in psychosis. The findings of this might provide us with a foundation from which we can develop further studies which could incorporate service user involvement in more meaningful ways.

It is possible, however, that service user involvement at the start of the study might have helped with identifying the barriers to recruitment which resulted in the inadvertent exclusion of certain people. It might have also helped with thinking about more effective ways of interviewing ward based participants. Future researchers could consider service user involvement to identify and overcome these barriers early on. As our understanding of illusory social agent representation in psychosis develops it might also offer ideas on how to meaningfully engage service users in the various stages of the research process.

Conclusion

Being part of this research has been a stimulating and though provoking experience for me. I feel fortunate to have had the opportunity to work with and learn from two supervisors who are experts in their field. I also appreciated the opportunity to learn about and apply corpus linguistics to Clinical Psychology research. This experience has given me a new appreciation of the benefits of interdisciplinary working. As someone with minimal clinical experience of working with people with psychosis, I felt particularly privileged that many participants felt able to openly share their lived experience with me. I feel that the findings of this research sheds light on a dimension of the lived experience of psychosis that is central to participants' experiences, yet is understudied in research and inadequately explored in clinical practice. I hope that future researchers will build on this work and contribute to a more holistic understanding of psychosis that feels true to the lived experience.

References

- Adolphs, S., Brown, B., Carter, R., & Crawford, P. (1998). Clinical Linguistics? Corpus Linguistics in Health Care Settings. *Centre for Health Language Research*. Retrieved from: <http://www.brown.uk.com/teaching/city/datadriven.pdf>
- Adolphs, S., Brown, B., Carter, R., Crawford, P., & Sahota, O. (2004). Applying corpus linguistics in healthcare context. *Journal of Applied Linguistics*, 1. 9-28
- Bell, V., Mills, K.L., Modinos, G., & Wilkinson, S. (2017). Rethinking Social Cognition in Light of Psychosis: Reciprocal Implications for Cognition and Psychopathology. *Clinical Psychological Science*, 5(3), 537-550
- Biria, R. (2017 July 11). *When is a study described as corpus-based, corpus-driven or hybrid?* [Online Forum Post]. ResearchGate. URL: https://www.researchgate.net/post/When_is_as_study_described_corpus-based_corpus-driven_or_hybrid
- Birkner, V. (2015 February 12). The advantages and disadvantages of employing corpus evidence in sociolinguistics studies. *The Teacher Magazine*. URL: https://www.researchgate.net/publication/273257241_The_advantages_and_disadvantages_of_employing_corpus_evidence_in_sociolinguistic_studies
- Brookes, G. (2020). Corpus linguistics in illness and healthcare contexts: a case study of diabulimia support groups. In Z. Demjén (Ed.), *Applying Linguistics in Illness and Healthcare Contexts*. Bloomsbury Academic.

- Brookes, G., & Baker, P. (2017). What does patient feedback reveal about the NHS? A mixed methods study of comments posted to NHS Choices online service. *BMJ Open*, 7(4). DOI: <http://dx.doi.org/10.1136/bmjopen-2016-013821>
- Collins, L. & Semino, E. (2020 January 16). *Corpus Linguistics and clinical psychology: examining the psychosis continuum*. UCREL Corpus Research Seminar, Lancaster University, UK. URL: <http://ucrel.lancs.ac.uk/crs/attachments/UCRELCRS-2020-01-16-CollinsSemino-Slides.pdf>
- Commander, M.J., Cochrane, R., Sashidharan, S.P., Akilu, F., & Wildsmith, E. (1999). Mental health care for Asian, black and white patients with non-affective psychoses: pathways to the psychiatric hospital, in-patient and after-care. *Social Psychiatry and Psychiatric Epidemiology*, 34, 484-491.
- Crawford, P., Gilbert, P., Gilbert, J., Gale, C., & Harvey, K. (2013). The Language of Compassion in Acute Mental Health Care. *Qualitative Health Research*, 23(6), 719-727. DOI: <https://doi.org/10.1177/1049732313482190>
- Demjén, Z., Marszalek, A., Semino, E., & Varese, F. (2020). 'One gives bad compliments about me, and the other one is telling me to do things' – (Im)politeness and power in reported interactions between voice hearers and their voices. In Z. Demjén (Ed.), *Applying Linguistics in Illness and Healthcare Contexts*. Bloomsbury Academic.
- Demmen, J., Semino, E., Demjén, Z., Koller, V., Hardie, A., Rayson, P., & Payne, S. (2015). A computer- assisted study of the use of Violence metaphors for cancer and end of life by patients, family carers and health professionals. *International Journal of Corpus Linguistics*, 20(2), 205-231. DOI: <https://doi.org/10.1075/ijcl.20.2.03dem>

Gajwani, R., Parsons, H., Birchwood, M., & Singh, S.P. (2016). Ethnicity and detention: are Black and minority ethnic (BME) groups disproportionately detained under the Mental Health Act 2007? *Social Psychiatry and Psychiatric Epidemiology*, *51*, 703-711.

Gordon, J., Franklin, S., & Eltringham, S.A. (2018). Service user reflection on the impact of involvement in research. *Research Involvement and Engagement*, *4*. DOI: <https://doi.org/10.1186/s40900-018-0095-1>

Halvorsrud, K., Nazroo, J., Otis, M., Brown Hajdukova, E., & Bhui, K. (2019). Ethnic inequalities in the incidence of diagnosis of severe mental illness in England: a systematic review and new meta-analyses for non-affective and affective psychoses. *Social Psychiatry and Psychiatric Epidemiology*, *54*, 1311–1323. DOI: <https://doi.org/10.1007/s00127-019-01758-y>

Kirkbride, J. B., Errazuriz, A., Croudace, T. J., Morgan, C., Jackson, D., Boydell, J., Murray, R. M., & Jones, P. B. (2012). Incidence of schizophrenia and other psychoses in England, 1950-2009: a systematic review and meta-analyses. *PloS one*, *7*(3). DOI: <https://doi.org/10.1371/journal.pone.0031660>

McEnery, T., Hardie, A. (2011 May 26). *Corpus-based versus corpus-driven linguistics*. Corpus Linguistics: Method, theory and practice. URL: <http://corpora.lancs.ac.uk/clmtp/1-cb-cd.php>

Parkman, S., Davies, S., Leese, M., Phelan, M., & Thornicroft, G. (1997). Ethnic differences in satisfaction with mental health services among representative people with psychosis

in south London: PRISM study 4. *British Journal of Psychiatry*, 4 (171), 260-264.

Doi:10.1192/bjp.171.3.260

Redwood, S., & Gill, P. (2013). Under-representation of minority ethnic groups in research-call for action. *British Journal of General Practice*, 63(612), 342-343. DOI:

10.3399/bjgp13X668456

Rooney, L.R., Bhopal, R., Halani, L., Levy, M.L., Partridge, M.R., Netuveli, G., Car, J., Griffiths, C., Atkinson, J., Lindsay, G., & Sheikh, A. (2011). Promoting recruitment of minority ethnic groups into research: a qualitative study exploring the views of South Asian people with asthma. *Journal of Public Health*, 33(4), 604-615. DOI:

<https://doi.org/10.1093/pubmed/fdq100>

Storjohann, P. (2005). Corpus-driven vs. corpus-based approach to the study of relational patterns. *Proceedings of the Corpus Linguistics Conference 2005*. Birmingham:

University of Birmingham. URL: <https://ids-pub.bsz->

[bw.de/frontdoor/deliver/index/docId/5006/file/Storjohann_Corpus_driven_vs_corpus_based_approach_to_the_study_of_relational_patterns_2005.pdf](https://ids-pub.bsz-bw.de/frontdoor/deliver/index/docId/5006/file/Storjohann_Corpus_driven_vs_corpus_based_approach_to_the_study_of_relational_patterns_2005.pdf)

Appendices

Appendix 1: Health Research Authority Ethical Approval



Health Research Authority

London - Dulwich Research Ethics Committee

Health Research Authority
Skipton House
80 London Road
London
SE1 6LH

Telephone: 020 7972 2561

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

06 March 2017

Dr Vaughan Bell
PO79, Clinical Treatment Centre
Maudsley Hospital
Denmark Hill, London
SE5 8AZ

Dear Dr Bell

Study title: Understanding the lived experience and phenomenology of psychosis: a qualitative investigation
REC reference: 17/LO/0171
IRAS project ID: 210323

Thank you for your letter responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Please include the name of the London-Dulwich Research Ethics Committee in the PIS.

You should notify the REC once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Revised documents should be submitted to the REC electronically from IRAS. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which you can make available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Confirmation of any other Regulatory Approvals (e.g. NIGB) and all correspondence [UCL Data Protection Registration Confirmation]	1.0	13 October 2016
Copies of advertisement materials for research participants [Recruitment poster]	1.0	13 December 2016
Covering letter on headed paper [Cover letter]	1.0	13 December 2016
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [UCL Insurance Confirmation Letter]	1.0	21 December 2016
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [insurance certificate]		
GP/consultant information sheets or letters [Staff information sheet]	1.0	13 December 2016
Interview schedules or topic guides for participants [Topic guide]	1.0	13 December 2016
IRAS Application Form [IRAS_Form_11012017]		11 January 2017
IRAS Checklist XML [Checklist_24022017]		24 February 2017
Letter from funder [Grant confirmation letter from Wellcome]	1.0	20 January 2016
Letter from sponsor [Email confirming sponsorship from UCL]	1.0	22 December 2016
Non-validated questionnaire [Demographics recording sheet]	1.0	13 December 2016
Other [SoA]		25 January 2017
Other [SoE]		25 January 2017
Other [Response letter to provisional reply from ethics committee]	1.0	24 February 2017
Other [Interview Distress Protocol]	1.0	24 February 2017
Participant consent form [Participants Consent Form - Clinical Team Version]	1.0	13 December 2016
Participant consent form [Participant Consent Form - Research Register Version]	1.0	13 December 2016
Participant information sheet (PIS) [Participants Information Sheet -	1.0	13 December 2016

Clinical Team Version]		
Participant information sheet (PIS) [Participants Information Sheet - Research Register Version]	1.0	23 December 2016
Referee's report or other scientific critique report [Peer reviewers comments on study]	1.0	21 October 2016
Research protocol or project proposal [Authorised protocol]	1.0	13 December 2016
Summary CV for Chief Investigator (CI) [Chief Investigator two-page CV]	1.0	13 December 2016
Summary CV for supervisor (student research) [Brief CV for Dr Vaughan Bell]	1.0	13 December 2016
Validated questionnaire [Validated questionnaire (PSYRATS; interviewer delivered)]	1.0	13 December 2016

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:

<http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/>

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at <http://www.hra.nhs.uk/hra-training/>

17/LO/0171

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely


pp
Dr Michael Philpot
Chair

Email: nrescommittee.london-dulwich@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: Ms Misha Ladva
Mrs Jenny Liebscher, South London and Maudsley NHS Foundation
Trust

Appendix 2: Sample Invitation Letter to Participants

PICuP Clinic

«Title» «FirstName»

«LastName»

«Company»

«Address1»

«Address2»

«City» «State»



Date

PICuP RESEARCH REGISTER

Dear «Title» «LastName»,

We are currently supporting a research study on TITLE OF STUDY, being carried out by NAME OF RESEARCHER. Following your phone/e-mail conversation with NAME OF RESEARCHER expressing interest, we are enclosing an information sheet of the study. **If you would like to participate in this study, please contact NAME OF RESEARCHER directly at the number or address provided on the information sheet.** If, however, you do not wish to participate in this study, you don't need to do anything.

If you would like to be removed from the PICuP research register, you can do so by calling PICuP on **020 3228 3524**, e-mailing picup@slam.nhs.uk, or completing and returning the slip below.

We would like to take this opportunity to thank you for your support of the PICuP Research Register so far,

Yours sincerely,

NAME:

DATE:

Please remove my name from the PICuP Research Register until further notice.

Although you don't have to, we would be grateful if you could let us know your reasons for leaving the register, so that we may be able to improve our service:

.....
.....

Send to: Dorothy Abrahams, PICuP, PO79, Maudsley Psychology Centre, Maudsley Hospital, Denmark Hill, LONDON SE5 8AZ



Research Participant Information Sheet (PIS)

Understanding the Experience of Psychosis

You have been sent this information because you have consented to have your name included on the PICUP research register for people interested in being invited to take part in research studies.

Before you decide whether or not to participate, it is important that you know the purpose of the research and what it will involve. Please take time to read the following information and feel free to ask the researcher any questions you may have.

What is the purpose of the study?

The purpose of the study is to understand more about the experience of psychosis, which can involve hallucinations, delusions and / or intense beliefs or fears, by talking to individuals who experience it. The research is being carried out by the Division of Psychiatry, University College London, and led by Dr Vaughan Bell.

What is involved if I decide to take part?

Taking part in this project will involve meeting a researcher or a postgraduate student who is working with the research team who will ask you to complete some brief questionnaires before interviewing you. The meeting should take approximately one hour. This will happen only once and you won't be asked to volunteer any more of your time.

For the interview, there are no questions that you are required to answer but the interviewer will ask about your own experience and opinions on your experience of psychosis, hallucinations and / or unusual experiences. The interviewer will have a list of possible questions in front of him or her, but these are only a guide; and you can discuss your experiences in whichever way you wish.

The interview will be recorded, transcribed and all personal details removed from the text, so no-one will be able to identify you from the text. We will then delete the recording.

We definitely do not expect you to discuss any topics that you don't want to. If you are asked any questions in the interview that you'd rather not answer, please say so and the interviewer will move on to a different question.

The meeting will take place either at an NHS site or at the University at a time and place most convenient for you. You can stop the meeting at any time without giving a reason.

What are the possible benefits of taking part?

Although some people find it helpful to talk about their experiences of psychosis, there are unlikely to be any direct benefits to taking part. However, you will be contributing to a better understanding of mental health problems, which will help to inform researchers, clinical staff and the public about what the experience of psychosis is really like.

What are the possible disadvantages and risks of taking part?

Talking about your experiences in your own way is unlikely to cause any particular difficulties. Very occasionally, people find something they mention unexpectedly upsetting, and if this happens we can talk to your care team on your behalf to have someone discuss it with you if this would be helpful.

Do I need to take part?

No, you do not need to take part, it is entirely your choice, and deciding or not deciding to take part will not affect your care in any way.

If you do decide that you are happy to take part in this study, the researcher will arrange the interview at a time and place convenient for you. In order to arrange the interview, you may consent to give your contact details to the researcher, who will delete them after you have taken part. Nobody outside the research team will ever have access to these details.

If you'd like to get in touch with the researcher for any reason, please use the contact details at the end of this form.

If you agree to participate, you will need to sign a consent form, which you will be given at the time of the interview.

Will anyone be able to find out what answers I give?

Firstly, we will not tell your doctor or clinical team what answers you give. They are entirely confidential. The only exception to this is if you tell us something that suggests there is an immediate risk to your safety or someone else's safety, then we have to pass the information on to your clinical team.

All data is stored anonymously with no personal details. This is how we do it:

Each interview will be recorded. One of the researchers will type up the interview but they will not include any information that could identify you, such as names, addresses or personal details. The recording of the interview will then be deleted.

Instead of your name or personal details, the typed-up interview and the answers you give on the questionnaire will be given a unique number so no one can work out who gave these answers.

We store the information sheets or any contact details separately from the numbers so after the recording is deleted the information you have provided will be anonymous.

Expenses and payments

We are offering £10 to compensate people who volunteer their time to participate in the interview.

What if I want to leave the study?

If you should want to stop participating in this study, you can withdraw at any time without providing a reason. Your decision will be respected. Any data that is collected before it becomes anonymised will be deleted. Your payment won't be affected.

What happens to the results of the research?

The findings from this study will be analysed by the research team and written up into papers for presentation at conferences and for publication, without any reference to any named individual and no-one who take part will be identifiable from the results. The results may also be used by postgraduate students who work with our research team who may include the results in their dissertation in the same way – so no one can be identified from the results they report.

Any encrypted audio or questionnaire data that is recorded will be kept by the chief investigator until it reaches UCL where it will be secure as per the data protection and security requirements of UCL and the NHS.

We feel that it is important that you are able to access the research findings and we welcome your feedback. If you would like to request wider information about the study and the findings so far, please contact the researcher using the details below.

Who has reviewed the study?

This research has been reviewed by the London-Dulwich Research Ethics Committee (IRAS ID 210323). It is being funded by University College London and a charity called the Wellcome Trust.

Contact for further information

If you have any questions, concerns or complaints regarding this project, please contact the researcher Dr Vaughan Bell, the study's lead investigator, on 07816 170 658 or at the email address:

Vaughan.Bell@ucl.ac.uk

If you wish to complain formally, you can do this through Noclor Research Support with the form found on this page: <https://www.noclor.nhs.uk/submit-feedback-or-complaint>

If you would like to contact your Patient and Liaison service (PALS), you can reach them with these details: Freephone 0800 731 2864 or by email at pals@slam.nhs.uk

Appendix 4: Community Consent Form

Study Consent Form

Date: 13th December 2016

IRAS ID: 210323

Chief Investigator: Vaughan Bell

Version 1.0



Consent Form

Understanding The Experience of Psychosis

1. You are invited to take part in a research study that will involve completing some brief questionnaires and an interview. The aim of this study is to better understand the experience of psychosis by talking to the people who experience it.
2. You will have been given an information sheet (version 1.1, 13th December 2016) which describes the purposes of the study and what your participation will entail. This information sheet is for you to keep and refer to. Please read it before deciding whether or not to participate and giving your consent.
3. Please ask the researcher any questions you may have about this project before you decide whether you would like to participate.
4. If you decide, now or at any stage, that you do not wish to participate in this research, this is entirely your right and your treatment will not be affected at all.

Please initial boxes

I confirm that I have read and understood the information sheet (Version1.1/13/12/2016).

I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without my medical care or legal rights being affected. If I decided to withdraw, all of my data will be destroyed.

I am over 18 years of age at the time of signing.

I am happy for the interview to be audio recorded and for anonymised quotations of my interview to be included in write-ups of the research results if appropriate.

I am happy for my identifiable data to be held by the research team at University College London or my local trust and used for the purposes of contacting me in regards to this project.

I understand that the audio recordings will be deleted, any information that could identify me be removed and all the data will be stored anonymously so I cannot be identified from the information I give

I understand the research team may include trained and supervised postgraduate students who may use the results as part of their dissertation research.

Signed (Participant)

Printed

Date

.....

.....

.....

Signed (Researcher)

Printed

Date

.....

.....

.....

Appendix 5: Clinical Consent Form

Study Consent Form
Date: 13th December 2016
IRAS ID: 210323

Chief Investigator: Vaughan Bell

Version 1.0

Camden and Islington 
NHS Foundation Trust



Consent Form

Understanding The Experience of Psychosis

1. You are invited to take part in a research study that will involve completing some brief questionnaires and an interview. The aim of this study is to better understand the experience of psychosis by talking to the people who experience it.
2. You will have been given an information sheet (version 1.1, 13th December 2016) which describes the purposes of the study and what your participation will entail. This information sheet is for you to keep and refer to. Please read it before deciding whether or not to participate and giving your consent.
3. Please ask the researcher any questions you may have about this project before you decide whether you would like to participate.
4. If you decide, now or at any stage, that you do not wish to participate in this research, this is entirely your right and your treatment will not be affected at all.

Please initial boxes

I confirm that I have read and understood the information sheet (Version1.1/13/12/2016).

I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without my medical care or legal rights being affected. If I decided to withdraw, all of my data will be destroyed.

I am over 18 years of age at the time of signing.

I am happy for the interview to be audio recorded and for anonymised quotations of my interview to be included in write-ups of the research results if appropriate.

I am happy for my identifiable data to be held by the research team at University College London or my local trust and used for the purposes of contacting me in regards to this project.

I understand that the audio recordings will be deleted, any information that could identify me be removed and all the data will be stored anonymously so I cannot be identified from the information I give

I understand the research team may include trained and supervised postgraduate students who may use the results as part of their dissertation research

Signed (Participant)

Printed

Date

.....

.....

.....

Signed (Researcher)

Printed

Date

.....

.....

.....

If you are currently an inpatient in hospital, we also require someone to witness your signature

Signed (Witness)

Printed

Date

.....

.....

.....

Appendix 6: Topic Guide

Understanding the Experience of Psychosis: Interviewer Topic Guide

Introduction

- Thank the interviewee for agreeing to the interview.
- Check consent and if it is OK to record the interviews.
- Ask them if they have any questions before the interview begins.

Interview topics to be covered during the interview

Experience of voices [if they hear them]

- How do you interpret/explain what you hear?
- How do you react?
- Do you hear any words, phrases or sentences?
- Can you give as many examples as possible? [Prompt questions could be things like, when was the last time you had this experience? Describe in as much detail as you can remember what happened.]
- What kinds of things do the voice do? What do the voices say? (If you can, give us the exact words that the voices use)
- How do you react?
- Can you tell me as much as you know about each one? What are they / is it like? How do they act / behave? Why do you think they talk the way they do / why do you think it sounds the way it does? Why do you think they / it are / is doing what they're / it's doing?
- How do you feel about each voice/thing you hear? How do they treat you? How do you treat them?

Experience of delusions / fears / concerns [whichever language the person prefers]

- Describing concerns in more detail and their thoughts about them

- Are there distinct people or animals or character involved in these? Tell me about each of them.
- How do you feel about each of them?
- Can you relate these experiences to anything in your life/past?

Ending the interview

- Is there anything else you'd like to say?
- What is the message you'd like me to really take away today?
- Any questions before we finish?
- Close the interview and thank the interviewee for their participation.

Appendix 7: Keyword List

<i>Type</i>	<i>Clinical Corpus Frequency</i>	<i>Clinical Corpus Dispersion</i>	<i>Reference Corpus Frequency (OHI)</i>	<i>Reference Corpus Dispersion (OHI)</i>	<i>Statistic (Log Lik)</i>
a	1857	0.29	18762	0	143.16
a&e	3	3.16	0	0	12.94
abused	4	3.04	0	0	17.25
abusive	6	3.14	0	0	25.87
accent	5	3.08	1	0	16.40
acid	6	3.46	4	0	13.39
acute	3	3.47	0	0	12.94
addict	4	3.18	0	0	17.25
addressing	3	3.20	0	0	12.94
admiral	3	4.36	0	0	12.94
adore	3	4.36	0	0	12.94
aggressive	9	2.12	0	0	38.81
agitated	8	4.36	0	0	34.49
agreeing	3	3.55	0	0	12.94
ahh	3	2.53	0	0	12.94
ain't	4	2.15	0	0	17.25
alone	29	1.55	20	0	63.70
am	66	1.17	83	0	100.39
Angeles	4	4.36	0	0	17.25
angels	6	3.02	1	0	20.37
angry	22	1.55	5	0	70.21
annoying	7	2.39	2	0	21.14
ant	3	4.36	0	0	12.94
ants	3	4.36	0	0	12.94
anxiety	21	2.14	2	0	77.45
anxious	18	2.96	5	0	54.76
anymore	24	1.16	2	0	89.87
anyone	43	1.06	66	0	55.43
app	4	4.36	1	0	12.49
archetype	4	4.36	0	0	17.25
aren't	9	1.38	0	0	38.81
argue	11	2.58	6	0	26.83
arguing	13	2.04	9	0	28.50
around	131	0.77	275	0	121.89
assessment	7	4.36	8	0	11.42
at least	5	3.18	0	0	21.56
attack	8	2.22	7	0	15.49
Audi	3	4.36	0	0	12.94
audio	3	4.36	0	0	12.94
bad	118	0.77	232	0	118.50
banging	5	3.00	2	0	13.68

basically	39	1.24	61	0	49.42
batty	24	4.36	0	0	103.48
because	897	0.50	1870	0	841.60
belief	10	2.11	3	0	29.81
beliefs	4	2.54	0	0	17.25
believe	62	1.43	142	0	51.71
believed	10	2.54	15	0	13.16
believing	5	2.33	0	0	21.56
bikers	4	4.36	0	0	17.25
bipolar	9	3.09	0	0	38.81
bitch	12	2.25	0	0	51.74
bizarre	23	3.98	0	0	99.17
blah	11	4.36	0	0	47.43
bless	6	2.11	4	0	13.39
blonde	5	3.15	0	0	21.56
blood	12	2.39	21	0	13.65
body	24	1.71	54	0	20.48
boom	15	3.20	7	0	38.88
Boris	4	4.36	0	0	17.25
boyfriend	12	3.49	6	0	30.30
brain	37	1.11	12	0	107.93
Brazilian	3	4.36	0	0	12.94
breakdown	6	3.11	2	0	17.37
breathe	6	2.51	0	0	25.87
breathing	8	3.20	9	0	13.20
bruv	3	4.36	0	0	12.94
buck	3	4.36	0	0	12.94
bullet	4	3.42	1	0	12.49
bullied	29	2.63	0	0	125.04
bullying	14	4.36	1	0	53.26
bum	3	3.41	0	0	12.94
bunny	3	4.36	0	0	12.94
burgundy	3	3.65	0	0	12.94
café	18	3.03	0	0	77.61
calling	14	2.46	16	0	22.85
calm	11	1.66	7	0	25.09
calmed	3	4.36	0	0	12.94
Camden	4	3.00	0	0	17.25
Campbell	3	4.36	0	0	12.94
can't	180	1.05	0	0	776.11
cannabis	17	3.02	0	0	73.30
cannot	13	3.27	25	0	13.38
cant	4	3.43	1	0	12.49
care	21	1.62	37	0	23.72
catastrophic	6	4.36	0	0	25.87
cause	33	2.02	20	0	76.96

cbt	4	2.43	0	0	17.25
Celtic	3	4.36	0	0	12.94
centre	3	3.68	0	0	12.94
chair	22	3.10	24	0	37.08
chat	17	3.19	27	0	21.24
chats	3	4.36	0	0	12.94
cherry	5	4.36	2	0	13.68
chest	11	3.16	11	0	19.64
childhood	8	1.96	10	0	12.22
children's	6	2.75	0	0	25.87
Chinese	5	2.16	2	0	13.68
chlorpromazine	3	4.36	0	0	12.94
circle	15	3.24	22	0	20.13
clozaril	5	4.36	0	0	21.56
cockroaches	3	4.36	0	0	12.94
comfortable	22	2.27	16	0	47.07
commenting	7	3.10	0	0	30.18
communicate	6	2.89	5	0	11.94
communicating	4	3.02	1	0	12.49
concentration	6	2.59	2	0	17.37
confused	18	1.88	2	0	65.10
confusing	12	2.07	2	0	40.75
consensual	3	4.36	0	0	12.94
consistently	3	3.03	0	0	12.94
constant	5	2.80	1	0	16.40
constantly	15	1.44	7	0	38.88
continuous	18	3.93	6	0	52.10
conversation	28	1.29	16	0	66.98
conversations	7	2.17	3	0	18.70
convinced	12	1.69	6	0	30.30
cope	25	2.08	21	0	49.54
cops	4	4.36	1	0	12.49
coughs	4	3.84	0	0	17.25
couldn't	96	1.18	0	0	413.92
counselling	8	2.75	2	0	24.98
crack	7	2.79	2	0	21.14
cracking	8	4.36	2	0	24.98
crazy	19	2.55	3	0	65.14
crisis	5	3.73	3	0	11.71
cry	9	2.30	14	0	11.46
crying	25	1.98	6	0	78.81
cult	7	4.36	0	0	30.18
cuss	3	4.36	0	0	12.94
'd-	3	4.36	0	0	12.94
dark	15	1.81	38	0	10.88
dating	9	4.36	2	0	28.87

deeply	7	3.29	0	0	30.18
defending	6	4.36	0	0	25.87
delusion	9	3.00	0	0	38.81
delusional	3	3.04	0	0	12.94
delusions	8	4.36	0	0	34.49
demon	6	4.36	1	0	20.37
demonic	5	3.62	0	0	21.56
demons	6	4.02	0	0	25.87
depressed	15	2.00	2	0	52.85
depression	9	2.87	9	0	16.07
derogatory	5	3.04	0	0	21.56
descendancy	4	4.36	0	0	17.25
detained	5	4.36	0	0	21.56
devil	18	3.00	4	0	57.73
diagnosed	11	2.39	2	0	36.76
diagnosis	5	2.71	0	0	21.56
didn't	183	0.62	0	0	789.04
die	18	1.39	13	0	38.65
difficult	71	1.50	137	0	72.81
dirty	15	1.96	25	0	17.90
disorder	3	2.42	0	0	12.94
dissertation	4	4.36	1	0	12.49
distracting	3	4.36	0	0	12.94
distressing	9	2.46	1	0	32.55
disturb	5	2.45	2	0	13.68
doctors	19	1.79	32	0	22.45
doesn't	57	0.79	0	0	245.77
doesn't	4	4.36	168	0	20.61
dominate	4	4.36	0	0	17.25
dominates	3	3.74	0	0	12.94
don't	761	0.52	0	0	3281.20
dream	11	1.62	7	0	25.09
dreams	7	2.80	1	0	24.40
drinking	12	2.81	14	0	19.30
drizzling	4	4.36	0	0	17.25
drug	11	2.08	7	0	25.09
drugs	30	2.00	37	0	46.31
ears	7	2.41	6	0	13.71
eaten	7	2.97	3	0	18.70
ecstasy	4	3.36	0	0	17.25
emails	3	3.58	0	0	12.94
emotionally	3	3.57	0	0	12.94
emotions	4	3.03	1	0	12.49
encounter	5	2.53	3	0	11.71
episode	12	2.33	2	0	40.75
episodes	5	2.68	0	0	21.56

estranged	3	3.00	0	0	12.94
event	12	4.36	18	0	15.79
everyday	14	1.55	16	0	22.85
everyone	35	1.19	63	0	38.67
everytime	3	3.05	0	0	12.94
everywhere	32	1.56	54	0	37.74
evil	18	1.83	1	0	70.02
ex	11	2.20	20	0	12.03
example	29	1.52	67	0	23.91
experiences	22	2.16	9	0	59.72
experiencing	6	2.09	1	0	20.37
explain	37	1.60	39	0	63.83
explained	9	1.95	9	0	16.07
eye	17	2.30	42	0	12.78
eyes	20	1.65	27	0	28.77
facebook	12	2.60	0	0	51.74
fear	14	1.73	15	0	23.89
feel	171	1.08	269	0	215.56
feeling	56	1.14	96	0	65.02
feelings	13	1.78	19	0	17.50
feels	13	1.75	5	0	36.01
felt	81	1.75	143	0	91.30
flipped	3	3.13	0	0	12.94
fluid	3	3.04	0	0	12.94
forensic	3	3.12	0	0	12.94
Francis	15	4.36	2	0	52.85
freak	3	3.20	0	0	12.94
freemasons	4	4.36	0	0	17.25
friend	53	1.14	58	0	89.14
friend's	7	2.09	0	0	30.18
friendlies	6	4.36	0	0	25.87
fuck	14	2.26	0	0	60.36
fucked	6	2.46	0	0	25.87
fucking	10	2.61	0	0	43.12
funny	33	1.44	72	0	29.29
game	16	2.76	40	0	11.83
gay	8	2.52	2	0	24.98
gets	24	1.31	61	0	17.32
ghosts	13	4.13	0	0	56.05
gibberish	3	3.17	0	0	12.94
girl	36	2.11	94	0	24.95
girlfriend	8	2.54	8	0	14.28
god	51	1.65	71	0	71.54
googled	3	4.36	0	0	12.94
gp	5	2.11	0	0	21.56
guess	17	2.03	18	0	29.24

guitar	21	4.36	3	0	73.20
guitars	4	4.36	0	0	17.25
guy	103	1.41	41	0	282.16
guys	14	1.78	20	0	19.22
gym	10	2.50	1	0	36.66
hacked	6	3.14	0	0	25.87
hadn't	11	1.64	0	0	47.43
hair	12	2.42	22	0	13.01
hallucinate	9	3.53	0	0	38.81
hallucinated	5	3.57	0	0	21.56
hallucinating	25	3.40	0	0	107.79
hallucinations	17	3.02	0	0	73.30
happen	70	0.89	125	0	77.99
happened	122	0.93	258	0	112.51
happening	53	1.13	59	0	88.10
happens	32	1.40	32	0	57.13
harm	12	1.59	12	0	21.42
hashtag	4	4.36	0	0	17.25
hasn't	4	2.45	0	0	17.25
hates	3	4.36	0	0	12.94
haven't	44	1.15	0	0	189.71
haven't	4	3.41	0	0	17.25
head	97	0.96	181	0	103.18
healer	4	3.61	0	0	17.25
health	39	1.63	47	0	61.25
hear	229	0.60	141	0	530.29
hearing	73	1.40	12	0	248.50
heart	20	1.17	28	0	27.92
heroin	8	3.18	1	0	28.46
he's	7	4.36	388	0	55.35
hide	12	2.70	12	0	21.42
HIV	3	4.36	0	0	12.94
honest	17	1.77	21	0	26.21
hormones	3	4.36	0	0	12.94
horrible	25	1.72	11	0	66.18
horror	5	4.36	0	0	21.56
horses	4	4.36	198	0	26.69
hospital	86	0.93	86	0	153.53
housing	1	4.36	77	0	12.57
huh	8	2.30	1	0	28.46
humiliating	3	4.36	0	0	12.94
hurt	22	2.20	31	0	30.55
hurting	5	3.37	0	0	21.56
hypnotizing	3	4.36	0	0	12.94
I'd	67	1.30	0	0	288.88
I'll	61	0.97	0	0	263.01

l'm	613	0.58	0	0	2643.07
l've	302	0.80	0	0	1302.13
ignore	20	1.41	4	0	65.59
ill	22	1.66	45	0	21.11
images	6	2.52	0	0	25.87
imagination	5	4.36	3	0	11.71
immature	5	4.36	0	0	21.56
inaudible	8	2.00	0	0	34.49
incase	5	1.90	0	0	21.56
indoors	3	2.45	0	0	12.94
induced	4	4.36	1	0	12.49
infection	4	3.07	0	0	17.25
institutions	5	4.36	0	0	21.56
insult	9	4.36	2	0	28.87
insulting	24	4.36	1	0	95.33
insults	10	4.36	0	0	43.12
intelligent	5	2.44	3	0	11.71
interface	3	4.36	0	0	12.94
internet	3	2.49	0	0	12.94
intuition	4	4.36	0	0	17.25
ira	3	4.36	0	0	12.94
irish	7	4.36	8	0	11.42
irrational	3	3.29	0	0	12.94
isn't	25	1.22	0	0	107.79
isolated	9	2.75	7	0	18.60
it'd	4	3.01	0	0	17.25
it'll	13	1.43	0	0	56.05
it's	805	0.44	0	0	3470.92
itchy	3	4.36	0	0	12.94
jazz	4	4.36	1	0	12.49
jealous	9	3.00	0	0	38.81
Johnson's	3	4.36	0	0	12.94
juju	4	4.36	0	0	17.25
jump	16	2.08	21	0	23.54
just	1001	0.68	2946	0	571.07
karma	4	4.36	0	0	17.25
keeps	12	3.09	15	0	18.34
kill	41	1.21	42	0	72.07
kind	275	1.89	520	0	288.36
kylie	3	4.36	0	0	12.94
Lancelot	3	4.36	0	0	12.94
laptop	6	2.53	0	0	25.87
laugh	15	1.89	18	0	23.63
laughing	16	1.93	2	0	56.92
laughs	75	2.23	0	0	323.38
laughter	6	2.99	1	0	20.37

Laura	5	4.36	1	0	16.40
lesbian	8	3.54	1	0	28.46
let's	14	2.02	0	0	60.36
lied	3	3.41	0	0	12.94
life	103	0.73	241	0	83.49
ligature	3	3.08	0	0	12.94
like	1559	0.77	2853	0	1693.04
lilli	4	4.36	0	0	17.25
lilliputian	3	4.36	0	0	12.94
Lisha	4	2.30	0	0	17.25
listen	18	1.75	31	0	20.80
listening	17	1.63	13	0	35.44
literally	27	2.51	10	0	75.70
ll	16	2.01	1	0	61.63
location	67	1.21	1	0	278.71
logged	6	3.51	0	0	25.87
loud	21	1.60	7	0	60.78
love	30	1.40	50	0	35.81
lover	3	3.48	0	0	12.94
lowers	7	2.59	0	0	30.18
lsd	4	3.45	0	0	17.25
lying	15	1.61	29	0	15.35
maah	3	4.36	0	0	12.94
magic	10	4.36	4	0	27.35
magician	4	4.36	0	0	17.25
magpie	5	4.36	0	0	21.56
makes	29	1.85	53	0	31.54
manoeuvre	3	4.36	0	0	12.94
mastery	3	4.36	0	0	12.94
mate	10	2.51	16	0	12.41
McDonalds	3	3.42	0	0	12.94
mctell	3	4.36	0	0	12.94
me	1381	0.39	2188	0	1729.42
medication	83	1.17	0	0	357.87
meds	7	3.50	0	0	30.18
meh	4	4.36	0	0	17.25
memory	12	1.89	19	0	15.04
mental	60	1.06	8	0	211.41
mentally	13	2.10	2	0	44.76
mentals	3	4.36	0	0	12.94
merlin	4	3.45	0	0	17.25
messages	15	3.76	25	0	17.90
messed	6	3.00	2	0	17.37
mice	12	3.32	4	0	34.73
mirror	8	2.74	7	0	15.49
mmhm	3	3.21	0	0	12.94

mmhmm	6	4.36	0	0	25.87
mmm	29	3.38	1	0	116.52
monkey	6	4.36	2	0	17.37
moon	12	2.51	8	0	26.79
mouse	5	2.80	1	0	16.40
movie	7	2.69	1	0	24.40
multiple	3	3.79	0	0	12.94
mum	85	1.13	56	0	190.82
musician	3	3.45	0	0	12.94
my	1397	0.38	2295	0	1690.79
myself	130	0.95	150	0	210.71
nah	20	2.15	0	0	86.23
naked	18	2.71	4	0	57.73
name	295	1.45	327	0	491.82
nanses	4	4.36	0	0	17.25
nasty	22	1.75	5	0	70.21
negative	15	2.15	5	0	43.41
neighbor	6	1.88	0	0	25.87
neighbours	19	1.62	38	0	18.71
nick	6	3.58	1	0	20.37
nodded	4	3.50	0	0	17.25
normal	22	1.80	54	0	16.69
noticed	14	1.96	24	0	16.26
observed	5	3.16	1	0	16.40
observing	5	3.16	0	0	21.56
oc	4	2.84	0	0	17.25
occult	10	4.36	0	0	43.12
ofcourse	9	1.37	0	0	38.81
ohh	7	2.86	0	0	30.18
ok	77	1.25	1	0	321.55
olanzapine	8	3.33	0	0	34.49
ongoing	5	2.39	2	0	13.68
online	7	2.35	0	0	30.18
ot	3	4.19	0	0	12.94
overheard	5	3.76	0	0	21.56
overthinking	3	3.01	0	0	12.94
panic	5	2.64	1	0	16.40
paranoia	11	2.85	0	0	47.43
paranoid	22	1.26	0	0	94.86
partner	9	2.10	8	0	17.27
patient	12	2.89	4	0	34.73
pedantic	6	4.36	0	0	25.87
persecute	4	4.36	0	0	17.25
person	89	1.28	171	0	91.71
person's	4	2.10	0	0	17.25
petrified	6	4.36	5	0	11.94

phobia	3	3.00	0	0	12.94
phone	38	1.38	56	0	50.79
photos	11	3.49	8	0	23.53
physically	8	1.83	6	0	16.85
pilates	3	4.36	0	0	12.94
positive	16	1.46	11	0	35.20
powers	19	2.61	10	0	47.02
prescribed	4	2.40	0	0	17.25
pretending	9	2.17	3	0	26.05
priest	7	3.21	4	0	16.75
prison	24	2.84	13	0	58.71
prisons	6	3.28	0	0	25.87
privacy	13	3.95	1	0	49.09
profile	6	3.61	2	0	17.37
proof	11	2.04	5	0	28.78
prove	12	2.55	17	0	16.59
psychiatric	13	1.61	0	0	56.05
psychiatrist	25	1.17	0	0	107.79
psychologist	3	2.42	0	0	12.94
psychology	8	2.29	0	0	34.49
psychosis	59	1.61	0	0	254.39
psychotic	12	2.30	0	0	51.74
pulls	7	4.02	5	0	15.11
puzzle	5	4.36	2	0	13.68
quiet	20	2.05	42	0	18.60
radar	4	4.36	0	0	17.25
ralph	3	4.36	0	0	12.94
random	8	2.23	1	0	28.46
rape	16	2.17	2	0	56.92
raped	11	2.40	3	0	33.62
rat	4	4.36	1	0	12.49
rational	3	3.00	0	0	12.94
re	120	1.36	44	0	337.48
're	6	4.36	0	0	25.87
react	7	2.82	7	0	12.50
reading	15	1.60	32	0	13.69
real	69	1.11	97	0	96.00
realise	6	2.17	2	0	17.37
reflective	3	3.03	0	0	12.94
relapse	6	3.09	0	0	25.87
relationship	14	2.42	33	0	11.24
relaxed	3	2.45	0	0	12.94
relentless	3	4.36	0	0	12.94
repeating	6	4.36	2	0	17.37
restaurants	3	2.46	0	0	12.94
revelations	3	4.36	0	0	12.94

risperidone	4	4.36	0	0	17.25
rob	16	4.36	1	0	61.63
robbie	10	4.36	6	0	23.42
s	251	1.86	503	0	246.65
's-	4	3.87	1	0	12.49
sad	12	2.57	19	0	15.04
sadly	10	3.09	3	0	29.81
samsung	4	4.36	0	0	17.25
satellite	6	4.36	4	0	13.39
saville	3	4.36	0	0	12.94
saying	166	0.65	261	0	209.35
scalextric	8	4.36	0	0	34.49
scared	47	1.82	11	0	149.01
scary	12	3.46	0	0	51.74
scenario	4	3.46	0	0	17.25
schizophrenia	25	1.52	0	0	107.79
schizophrenic	7	2.29	0	0	30.18
scooter	3	4.36	0	0	12.94
screen	6	4.36	4	0	13.39
sectioned	9	2.66	1	0	32.55
seeing	43	1.71	55	0	64.56
sees	5	2.24	2	0	13.68
self	15	1.94	26	0	17.23
sex	18	1.70	8	0	47.48
sexual	14	2.63	0	0	60.36
sexuality	4	3.01	0	0	17.25
shaking	8	1.84	1	0	28.46
shank	3	4.36	0	0	12.94
she'd	3	2.57	0	0	12.94
she'll	3	3.38	0	0	12.94
she's	88	1.13	0	0	379.43
shit	10	2.73	2	0	32.80
shoop	3	4.36	0	0	12.94
shouldn't	13	1.70	0	0	56.05
sicker	5	4.36	0	0	21.56
signs	5	2.64	3	0	11.71
silly	13	1.70	14	0	22.11
simon	6	4.36	0	0	25.87
sister	59	1.68	105	0	65.96
six-point	3	4.36	0	0	12.94
skin	16	2.27	20	0	24.45
sleep	77	1.23	73	0	142.13
sleeping	14	1.68	19	0	20.05
slut	12	4.36	0	0	51.74
smell	23	2.74	14	0	53.53
smells	5	2.77	1	0	16.40

smoked	9	2.53	4	0	23.74
smoking	16	3.10	5	0	47.17
snakes	4	3.94	0	0	17.25
softly	5	4.36	2	0	13.68
software	6	4.36	2	0	17.37
someone	114	0.83	94	0	228.25
sometimes	205	1.09	244	0	324.91
son's	7	2.61	0	0	30.18
song	13	3.39	9	0	28.50
soul	31	4.09	4	0	109.77
sound	18	1.31	35	0	18.30
sounds	19	1.40	33	0	21.77
spiders	4	4.36	0	0	17.25
spirits	20	3.34	10	0	50.50
stab	4	3.02	1	0	12.49
starts	19	1.92	13	0	41.89
stelazine	6	4.36	0	0	25.87
stink	10	3.40	2	0	32.80
stonehenge	4	4.36	0	0	17.25
stones	13	3.25	26	0	12.80
stopped	40	1.11	103	0	28.31
stops	15	3.96	3	0	49.19
strange	43	2.39	37	0	84.06
strategies	3	2.58	0	0	12.94
strategy	3	3.11	0	0	12.94
stream	3	2.56	0	0	12.94
stress	30	2.15	6	0	98.39
stressed	14	2.56	0	0	60.36
stressful	4	2.20	1	0	12.49
subconscious	4	4.36	0	0	17.25
suddenly	13	1.57	19	0	17.50
suffering	7	2.19	8	0	11.42
suffocate	3	4.36	0	0	12.94
suicidal	4	2.56	0	0	17.25
suicide	9	1.78	3	0	26.05
sun	15	1.64	17	0	24.62
superconscious	3	4.36	0	0	12.94
sydney	5	4.36	3	0	11.71
symptom	3	4.36	0	0	12.94
symptoms	5	4.01	0	0	21.56
tablet	3	3.24	0	0	12.94
talk	100	0.99	157	0	126.29
talking	110	0.63	258	0	88.88
tannoy	3	4.36	0	0	12.94
tapping	37	4.36	4	0	134.30
telecoms	5	4.36	0	0	21.56

telepathic	4	3.66	0	0	17.25
telepathy	4	3.10	0	0	17.25
telling	55	1.18	87	0	68.98
temples	4	3.02	1	0	12.49
that'll	3	3.02	0	0	12.94
that's	353	0.46	0	0	1522.03
therapies	3	3.00	0	0	12.94
there's	126	0.88	0	0	543.27
the-the	3	3.17	0	0	12.94
they'd	7	2.34	0	0	30.18
they'll	12	1.79	0	0	51.74
they're	120	1.94	0	0	517.40
they've	28	2.88	0	0	120.73
thinking	95	1.44	94	0	170.75
thinks	14	1.44	19	0	20.05
thought	210	1.09	487	0	172.27
thoughts	51	1.84	13	0	158.49
throat	10	2.55	3	0	29.81
touch	28	2.05	46	0	33.89
touchstone	5	4.36	0	0	21.56
tour	9	4.36	2	0	28.87
trauma	5	3.02	1	0	16.40
traumatic	7	2.14	1	0	24.40
treatment	17	2.53	16	0	31.52
tried	43	1.70	93	0	38.58
triggered	8	3.02	0	0	34.49
try	82	1.12	200	0	62.78
trying	100	1.00	148	0	133.15
tv	34	1.60	0	0	146.60
uh	1363	0.69	2	0	5847.24
um	21	2.82	2	0	77.45
uncomfortable	7	2.17	2	0	21.14
uni	15	4.36	0	0	64.68
unintelligible	17	3.42	0	0	73.30
unpleasant	12	2.57	3	0	37.47
unseen	8	4.36	0	0	34.49
unstable	3	4.36	0	0	12.94
unwelcome	4	3.87	0	0	17.25
unwell	10	2.18	0	0	43.12
upbringing	6	3.23	3	0	15.15
upset	23	1.44	26	0	37.82
upsets	5	2.40	1	0	16.40
upsetting	6	2.36	1	0	20.37
vagina	4	4.36	0	0	17.25
ve	17	1.74	7	0	46.05
vegetarian	3	3.89	0	0	12.94

video	14	3.23	2	0	48.80
vintage	3	4.36	0	0	12.94
vision	6	3.15	4	0	13.39
visually	4	4.03	0	0	17.25
voice	113	1.09	15	0	398.43
voices	199	1.01	0	0	858.03
vulnerable	9	3.56	3	0	26.05
want	228	0.69	587	0	161.42
wants	21	2.33	35	0	25.07
ward	38	2.29	30	0	77.90
warlock	3	4.36	0	0	12.94
wasn't	93	0.74	0	0	400.99
wasted	5	3.04	3	0	11.71
watching	15	1.39	34	0	12.68
we'll	13	1.98	0	0	56.05
we're	34	1.25	0	0	146.60
we've	20	1.99	0	0	86.23
weird	35	1.68	5	0	122.00
weren't	16	1.48	0	0	68.99
what's	46	1.58	0	0	198.34
whisper	8	3.48	0	0	34.49
whispers	3	3.01	0	0	12.94
who's	10	2.07	0	0	43.12
whore	5	4.36	0	0	21.56
will	162	1.11	312	0	166.49
witch	15	1.88	4	0	46.10
witchcraft	4	4.36	0	0	17.25
wizard	5	2.98	0	0	21.56
woke	15	1.67	3	0	49.19
wolf	3	3.00	0	0	12.94
won't	31	1.40	0	0	133.66
wont	6	3.07	1	0	20.37
workplace	3	3.00	0	0	12.94
world	67	1.18	160	0	52.83
wouldn't	49	0.76	0	0	211.27
wow	6	1.89	1	0	20.37
yada	4	4.36	0	0	17.25
yoga	3	3.22	0	0	12.94
you'll	15	1.60	0	0	64.68
you're	158	0.89	0	0	681.25
you've	33	1.29	0	0	142.29
you've	3	3.03	584	0	119.05

Appendix 8: Semantic Grouping based on key words

Key Word	Grouping	Context
thinks/thinking	Cognition	"I started thinking all manner of stuff"
thought		"I thought security in my flat was breached"
proof/convinced		"I have my proof"; "I was so convinced it was true"
believe		"I believe a force has come down"; "It's hard to believe what's real"
dream(s)		
intelligent		
irrational		
intuition		
imagination		
superconscious		
subconscious		
voices/voice	Perception	
hear		
smell		
feels		
see/seeing		
vision		
touch		
telling	Communication	
talk/talking		
chat		
conversation(s)		
listening		
lied		
messages		
saying/say		
telepathy		
unpleasant messages		
argue/arguing		
touch		
reading		
voices		
commenting		
communicate/communicating		
calling		

whisper	Volume/Accent/Sounds	"the voice is like a whisper or a mutter"; "listen to my whisper"
loud		"there were like 11 people and they were so loud"; "it was so loud in my head"; "like a tannoy"
accent		"sounds like he has a English London accent"
banging		
quiet		"he's been very quiet since.."; "they're quiet"
privacy	Emotional & Practical Impact of living with psychosis	"invasion of privacy"
thoughts		"anxious thoughts"; "bad thoughts"; "suicidal thoughts"
feel/feeling		"feeling weird/vulnerable/self-conscious"
paranoid/paranoia		"I felt very paranoid"; "I get paranoid I won't go out"
depressed		"became depressed"
unpleasant		"unpleasant to live with"
panic		"panic attacks"
petrified/scared/scary		"scared all the time"
fear		
physically		"physically shaking/scared"
relentless		
constant/constantly		"constant battle"
annoying		
nasty		"I had all these nasty experiences"
sad		"sad all the time"; "family were sad for me"
suffering		"suffering a long time"
suicide/suicidal		"thoughts of suicide come in"
traumatic		"became very traumatic for me"
upset/upsetting		
stress/stressed	"just causing me an overload of stress"; When I'm stressed I have too many thoughts"; "I just got really stressed"	
cope	"difficult to cope"	
horror		
overthinking		

agitated		"I was very agitated when I found out"
		"I get anxiety things like that"; "panic and anxiety seems to be worse when I'm off the ward"
anxious		"I used to get so angry"
angry		
emotions		
jealous		
difficult		"difficult to work/talk to people/explain"
		"couldn't go in shops because of panic attacks" "panic is worse when I'm not on the ward"
panic		"I couldn't prove anything"
prove		"scared of people/to go out"
scared		"concentration is not what it used to be"
concentration		
memory		
freak		"that's why I freak out because the body is not used to the medication"
isolated		
weird	Experience of living with psychosis	"It's so weird and hard to explain"; "it's so confusing and weird"
strange		"I have strange thoughts"; "it's just very strange I don't know why it happens"
bizarre		
random		
real		"it becomes hard to tell what's real and what isn't"
confused/confusing		
listen	Coping attempts	"I don't listen to them"; "I ignore him"; "I don't encourage them"
Ignore		"don't react"
react		"I tried to tell the soul to stop talking"; "I tried to speak to them"; "tried to work out what they.."
tried		"trying to forget"; "trying to move on"
try/trying		

Rebuke		"I rebuke them"
positive		"focus on the positive"
reading		"reading up about manic depression/karma"
repeating		"repeating to myself I'm OK"
cope		"trying to find strategies to cope"
relaxed		
calm		"medication keeps me calm"
doctors	Health Jargon (professions/medication/ diagnosis etc)	
psychiatrist		
psychiatrists		
psychiatric		
psychologist		
psychology		
CBT		
patient (s)		
hospital		
ward		
forensic		
detained		
sectioned		
assessment		
acute		
precognitive		
trauma		
treatment		
medication		
stelazine		
clozaril		
prescribed		
olanzapine		
risperidone		
zopiclone		
fluoxetine		
antidepressants		
injections		
diagnosis		
disorder		
diagnosed		
manic depression		
psychosis		
anxiety		
depression		

bipolar		
anxiety and depression		
hallucinate		
schizophrenia		
psychotic		
bipolar		
delusions		
paranoid		
schizophrenic		
induced		
infection		
relapse		
ligature		
counselling		
a&e		
tablets		"sleeping tablets"
GP		
therapies		
symptom(s)		
health	Physical wellbeing	
HIV		
unwell		
sicker		
head	body parts/physiological functioning	
blood		
brain		
chest		
breathe/breathing		
eye/eyes		
ears		
hair		
hormones		
throat		
bum/batty		
skin		
vagina		
crack	Recreational drugs	
LSD		
acid		
ecstasy		
drug(s)		
addict		
cannabis		

smoke/smoking		
heroin		
occult	Occult/Spiritual/Religion	
witchcraft		
witch		
wizard		
warlock		
nanses		
juju		
freemasons		
demon(s)/demonic		
evil		
angels		
Sun god/moon god		
spirits		
six point		
magic		
magician		
temples		
priest		
healer		
revelations		
touchstone		
soul		
yoga	Exercise related	
gym		
pilates		
telecoms	Digital	
internet		
tablet		"samsung tablet"
facebook		
TV		
emails		
hashtag		
laptop		
googled		
profile		
hacked		
software		
phone		
online		
Robbie	Famous people	

Boris Johnson		
Ralph McTell		
Saville		
Lancelot		
Merlin		
Kylie		
Francis	Individual names of social agents	
Laura		
Simon		
Nick		
Brazilian	Ethnicities/sexualities	
Chinese		
Irish		
sexuality		
Gay		
Lesbians		
Partner	Relationships	
sister		
son		
mum		
friend(s)		
boyfriend		
girlfriend		
lover		
ex		
ant(s)	Animals	
horses		
spider		
snakes		
cockroaches		
magpie		
mouse		
monkey		
wolf		
bikers	Groups/unknown individuals	
cult		
guys		
friendlies		
mentals		
lilliputian		
person		

guy (s)			
girl			
he	Pronouns/referents		
she			
they			
we			
you			
everyone			
my/myself			
someone			
uni	Academia		
dissertation			
Los Angeles	Places		
Sydney			
Stonehenge			
Camden			
Song	Entertainment		
musician			
guitar(s)			
movie			
tour			
restaurants			
café			
jazz			
fuck/fucked/fucking	swear words/derogatory terms		
whore			
slut			
freak		"joker, freak, pussy, that kind of thing"	
shit			
unwelcome	Experience of Social Agents	"I was made to feel unwelcome"	
unpleasant			
humiliating			
distressing			
distracting			
dirty			
horrible			
positive			
uncomfortable			

rational		"they would be calm and say rational things"
real		
telepathic		
nasty		"they would say all these nasty things"
negative		
itchy		"I get this itchy feeling when it's happening"
aggressive		
hurt/ hurting	Attacks by real people and social agents	
attack		
kill		"give me injections to kill me"
disturb		
harm		
persecute		
power/powers		
suffocate		
tried		
rape		
insult(s)/insulting		
cuss		
bullying/bullied		
raped		
stab		
naked		
sounds		
derogatory		
abused		
thoughts	Actions attributed to social agents	"putting thoughts into me"; "taking thoughts out"
smell		"put another smell on me"; I can smell ya"
stab		"stab yourself"; "stab somebody"
relationship		"relationship with my wife"
sexual		"hear people say sexual things"
bullying/bullied		"hear people bullying me"
pretending		"he's pretending to have a good time"
thinks		"he thinks I'm listening to him"; "she thinks he's got money"

touch		"sometimes he touch here down below"
trying		"trying to get me back"; "trying to cause me to do something"; "trying to belittle me"
want/wants		"they want me to join them/to take over/to protect me/to kill me"
won't		"they won't leave me alone"
video		"Rob pops up on video"; "he had seen that video of me"
crying		"everyone start crying"; "I could hear people crying"
defending		"they were defending me"
die		"telling me when I'm going to die/waiting for me to die"
laugh		"laugh through me"; "I made them laugh"
jealous		"voice was getting really jealous"
observed/observing		"these people telepathically observing me"
watching		"people watching me"
listening		"you'll have a sense that you're being listened to"; "he's sat there listening"
Wow	Miscellaneous	
yada		
boom		
bruv		
shoop		
shank		
archetype		
blonde		
Audi		

Appendix 9: 'AvhAgent' Referent Terms

Reference	Frequency
they	404
voice(s)	236
he	192
them	125
people	93
she	76
it	75
him	47
one(s)	32
her	26
guy(s)	16
things	16
we	15
man	11
their	11
girl(s)	10
his	9
person	9
someone	9
other(s)	7
something	7
Francis	6
hallucinations	6
groups	5
horses	5
mum/mother	5
noise(s)	5
spirit(s)	5
that	5
character(s)	4
hear(ing)	4
nanses	4
neighbour(s)	4
somebody	4
you	4
friend (s)	3
Laura	3
waitress(es)	3
animals	2
brother	2
demons	2
dog(s)	2
dream	2

Ex-girlfriend	2
ghosts	2
message(s)	2
nan	2
radio	2
themselves	2
these	2
two	2
who	2
woman	2
bad	1
cat	1
children	1
five	1
head of information sciences	1
himself	1
Jimi	1
lady	1
males	1
manager	1
me	1
musicians	1
patients	1
phone	1
refrigerator	1
sister in law	1
those	1
thoughts	1
visitors	1
wife	1
Total	1551

Appendix 10: 'Agent' Referent Terms

Referents	Frequency
they	291
it(s)	139
he	128
she	117
them	89
people	81
her	41
him	33
guy	28
wife	28
Bob/Rob/Robbie	25
one(s)	25
someone	22
something	22
things	22
spirit(s)	18
woman	16
soul	15
we	14
person	13
ghosts	12
man	11
his	10
their	10
girl	8
somebody	6
ant(s)	5
boy	5
men	5
mum	5
you/your	5
army	4
demon(s)	4
mice	4
slugs	4
spiders	4
being	3
bird (s)	3
devil	3
skeleton(s)	3
that	3
this	3
witch(es)	3

dad	2
daughter	2
everyone	2
lights	2
lines	2
lover	2
mind(s)	2
patient(s)	2
themselves	2
wizard	2
addict	1
animals	1
blue	1
boss	1
brother	1
bug	1
characters	1
doctors	1
dragons	1
everybody	1
ex-boyfriend	1
family	1
flies	1
force	1
freemasons	1
green	1
guards	1
handler	1
Hendrix	1
ladies	1
legs	1
lesbian	1
lizards	1
magpies	1
McTell	1
members	1
monkey	1
moongod	1
mother-in-law	1
neighbours	1
normans	1
observants	1
olive oyl	1
other	1
panther	1
player	1

popeye	1
red	1
robot	1
shadow	1
sister	1
some	1
son	1
sungods	1
telepaths	1
terrorists	1
there	1
these	1
threads	1
top cat	1
trainer	1
trees	1
umpire	1
whoever	1
wolf	1
Total	1365