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Articles

**From the Categorical to the Dimensional Approach in Psychopathology:
The Case of Auditory Hallucinations**

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Abstract

Our paper is aimed at showing that the dimensional approach, when applied to mental disorders, is more powerful and empirically-based than the categorical one, even when it concerns symptoms that seem to be restricted to psychotic people, like auditory hallucinations. We will argue that, when properly investigated, hearing voices can be present not only in very different mental disorders, but also in non-clinical individuals. Moreover, even if hallucinations are a typical symptom of psychosis, they do not *cause* the psychosis, and are not *caused* by the psychosis. This approach could explain the cognitive sciences' difficulties in investigating auditory hallucinations, in that they try to identify a specific anomaly, a defect in some specific mechanism, which differentiates psychotic and healthy people. The aim of this paper is to show that the dimensional approach, explaining symptoms by other symptoms, may help us to reach a much more complex vision of the metacognitive, relational, and social dynamics that underlie psychotic symptoms.

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1. Introduction

In psychiatry, mental disorders are defined in terms of patterns of symptoms that occur in an individual (APA, 2012). As it is well known, the standard classification of mental disorders is the DSM, a diagnostic manual used by mental health professionals, which claims to be atheoretical. Since the theories on the aetiology of mental disorders are, in fact, very different, the DSM refrains from specifying the causes of mental disorder, and tries to stick to descriptions of disorders, avoiding speculation about the aetiology. Nevertheless, the fourth edition of the DSM gives a specific idea of what a mental disorder is; it considers psychiatric disorders as discrete categories, which one can identify by diagnostic criteria. The introduction of this manual seems to be particularly relevant in this sense: the DSM IV is defined as “a categorical classification that divides mental disorders into types based on criterion sets with defining features” (APA, 2000, p. xxxi). The categorical approach to psychosis dates back to the work of

Kraepelin (1883), who considered the distinction between dementia praecox and manic-depressive illnesses as clear cut. Although the categorical approach has some limitations, as noticed by the same authors, it is particularly useful for clearly defining the boundary between normality and pathology, and creating a sharp line between individuals meeting criteria for a disorder and those not meeting criteria (Potuzak et al., 2013).

However, in recent years, research has challenged the classic way of thinking about mental disorder. For example, recent laboratory research in molecular genetics and brain imaging has demonstrated that the current classification system is actually imposing arbitrary categorical distinctions, not only between different disorders but also within disorders (Esterberg & Compton, 2009). Several studies have demonstrated a symptomatic continuum that extends from psychotic-like experiences, such as delusions or hallucinations, within the non clinical population, to psychoticism, and psychotic symptoms in individuals affected by mental disorders (Freeman et al., 2005; Johns & van Os, 2001; Verdoux & van Os, 2002).

Following this research line, the last edition of the DSM has shifted from a categorical to a dimensional approach. In fact, the DSM-5 asserts:

Because the previous DSM approach considered each diagnosis as categorically separate from health and from other diagnoses, it did not capture the widespread sharing of symptoms and risk factors across many disorders that is apparent in studies of comorbidity. [...] The historical aspiration of achieving diagnostic homogeneity by progressive subtyping within disorder categories no longer is sensible; like most common human ills, mental disorders are heterogeneous at many levels ranging from genetic risk factors to symptoms (APA, 2013b, p. 12).

Thus, mental disorders are heterogeneous. There is great inner variability among psychiatric syndromes, regarding their specific features and the way they display and develop. As highlighted by Frith and Johnson (2003), one individual with schizophrenia can believe that Queen Elizabeth is persecuting him, while another one can hear voices and accuse others of robbing him of his thoughts. Although the symptoms are very different, the diagnosis is the same. The example of schizophrenia is not accidental, since this kind of variability is particularly high in this mental disorder, so much so that some authors have started to be suspicious of the very existence of this disease. It is possible that, as Shean (2004) claims, we only keep on using the term schizophrenia because we don't have a better alternative. However, forcing aside these "extremist" positions, it seems incontrovertible that mental disorders are too heterogeneous to be subtyped within narrower categories and to be differentiated categorically. The dimensional approach seems to better fit the purpose of characterizing psychopathologies. For example, in the case of schizophrenia, DSM-5 eliminated the different subtypes and highlighted the

importance of rating the severity of core symptoms, thus, suggesting a dimensional approach (APA, 2013a, p.733,810). The dimensional view, applied to mental disorders, represents these conditions as extreme variants of normal continua.

Following this new framework, our paper is aimed at showing that a dimensional approach is more powerful and empirically-based than the categorical one, even when it concerns symptoms that seem to be restricted to psychotic people. We will focus on one of the typical symptoms of psychosis, auditory hallucinations. The analysis of this symptom seems to provide the possibility to discriminate normality and pathology because auditory hallucinations seem to affect only people who are mentally ill. Nevertheless, hallucinations show the difficulties that classical psychiatry has, both in distinguishing among different mental disorders and between normality and psychopathology. We will argue that, when properly investigated, hearing voices (1) can be present in many mental disorders that are very different, and, for that reason, auditory hallucinations do little to account for this diversity; and (2) can only be considered as a psychopathological symptom under some conditions, as they are also present in non-clinical individuals, for example, during the process of grief.

Thus, a dimensional approach seems to be more adequate than the categorical one. However it gives rise to some unpleasant consequences. For example, if taken too literally, it could end up eliminating the difference between normality and pathology. In other words, by claiming that the difference between normality and psychopathology is only a matter of degree, this approach leaves another question unexplained: how can it be possible that two people, one mentally ill and one perfectly sane, can share the same symptom? We will argue that a single symptom can only become a sign of psychosis in specific situations; when it is surrounded by other symptoms or when it is sustained by a certain metacognitive style. In both cases, a symptom seems to be better explained by other symptoms, rather than by an elusive dysfunction in some processes underlying mental functioning (the so called “mental disorder”).

2. There's Someone in my Head, but it's Not Me

Auditory hallucinations are one of the most severe symptoms of psychosis. They are most common in schizophrenia but they feature in many psychiatric disorders, such as depression, delusional disorder, mania, dissociative identity disorder, or bipolar disorder. Voices have great inner variability (Beck & Rector, 2003). They can be questions, worries, orders, comments, criticisms, or ruminations. They can be constant one day and disappear the next, they can whisper or scream. They can belong to strangers or to relatives, to persecutors or lovers, to gods, angels, demons, machines, radio, or television, and they usually have distinctive timbres

and tones. Subjects report that the voices are involuntary, intrusive, and unwanted; and perceive them as coming from the outside or from a specific area inside their head. In the vast majority of cases, voices have a negative content, they insult, menace, or mock the subject. However, “good” voices can also be present, voices that protect and support the patient (but it is interesting that these voices are “the first to disappear when taking medications”), (Bertrando, 1999, p.96).

At first glance, voices seem to be equivalent to mental disorder; if someone hears voices, there is obviously something wrong with him. Nevertheless, some elements seem to suggest that the “continuum” approach is the most reliable (Johns & van Os, 2001). There are people that hear voices without being psychotic (Beck & Rector, 2003), such as widows, who, in an English study, have been shown to hear their dead partner’s voice in a very high percentage of cases (around 50%) (Grimby, 1998). Other studies showed, through the testing of normal subjects, that between 4 and 25 percent of normal people had at least one hallucinatory experience of the auditory kind in his life (Barrett & Etheridge, 1992; Johns et al. 2002; Slade & Bentall 1988; Tien, 1991). The percentage rose to 70% in another study involving university students (Posey & Losch, 1983). There is also more data compatible with the continuum hypothesis, for example, the fact that the voices activate the same cerebral regions in psychotic and non-psychotic subjects (the right inferior frontal area) (Diederer et al., 2012; Sommer et al., 2008), and their tendency to appear when people are particularly stressed.

Voices usually occur in two, opposite situations: when the subject is alone and focuses on his thoughts, and when he is surrounded by a crowd of people (Delespaul et al., 2002). For this reason, he can adopt strategies in order to reduce the occurrence of voices (for example, avoiding crowded places). When voices occur, they are felt as real (as it is difficult to doubt the existence of a voice shouting inside one’s own mind), and as coming from an external source. Moreover, the emotive responses they elicit (the subject typically relaxes when the voices are good, and feels anxious when they’re evil) confirm their existence, as well as their being alien. In other words, the subject’s emotional state when he hears the voices activates a sort of emotional reasoning in which the emotion is used as the proof of the voices’ reality (Arntz et al., 1995). As patients often say, “if voices make me feel bad, then they must be real”. There is no doubt that the voices are one of the most severe symptoms of schizophrenia, as we can understand through this lucid description by the brother of a schizophrenic girl:

She experiences constant auditory hallucinations that have not responded to any known treatment, ranging from medication to therapy to electroshock. Occasionally, she repeats aloud what her hallucinations say to her, screaming out insults in horribly contorted voices. I find it hard to endure listening to these voices for minutes. She endures them constantly.

She screams at them every day and is capable of carrying on only short conversations before she lapses back into hallucinations. These voices cause her to act out in other ways, ranging from the bizarre to the violent, and yet she still graduated with honors from a local college last spring. My sister taught me to never take my mind for granted. (Sundstrom, 2004, p. 191)

3. Cognitive Explanations of Auditory Hallucinations: Where do the Voices Come From?

In the area of cognitive studies, two theories about auditory hallucinations are the most popular. The first one claims that voices are memories, and the second one claims that they are a sort of inner speech. Both models share one feature: they both take hallucinations to be inner, self-generated events, which, as a result of some kind of defect, are perceived as external.

According to the first theory, auditory hallucinations are memories of traumatic events that the subject fails to inhibit (Waters et al., 2006). The orders, threats, and comments, experienced as voices, present again what happened during the traumatic event. Subjects fail to control the interference of memories linked to the traumatic event, and consider these memories as external, as a result of a deficit in their ability to contextualise memories (Longden et al., 2011; Read et al., 2005; Waters et al., 2006). However, the relationship between trauma and hallucinations still remains controversial. It is known that voices' content very seldom recalls the traumatic event (Hardy et al., 2005), and it should be noted that many subjects with hallucinations haven't experienced any sort of trauma during their life.

The alternative theory about the origin of auditory hallucinations, which is also much more popular than the previous one, postulates an impaired self-monitoring (Allen et al., 2007; Frith & Done, 1989; Jones & Fernyhough, 2007; Seal et al., 2004). Self-monitoring is the ability to monitor self-willed intentions and actions. According to this theory, an impairment of this ability would bring hallucinators to mistake inner speech for an external event and to misattribute their inner voices to an external source. In some sense, it seems obvious that voices are self-generated. However, this theory doesn't seem to explain how and why this happens. Some authors failed to find a link between impaired self-monitoring and psychosis (Versmissen et al., 2007). Others (Wu, 2012) wonder why hallucinators perceive inner speech and voices as different, when, according to the theory, they are the same thing. Jones (2010) points out that, if voices were misidentified inner speech, people who hear voices should report less inner speech than healthy people, however, this is not the case. All things considered, the scientific consensus about the

existence of impaired self-monitoring and the link between this impairment and hallucinations don't seem to be grounded in facts.

Thus, both theories fail to furnish an exhaustive account of auditory hallucinations. This is the reason why, in a recent review, Stinson and colleagues claim that the mechanisms underlying auditory hallucinations still remain a “black box” (Stinson et al., 2010, p. 179).

4. Cognitive Accounts of Auditory Hallucinations: How Do Voices Sustain Themselves?

All things considered, it seems that a satisfactory cognitive theory of the origin of hallucinations is still lacking. For this reason, we turn to the area of research that focuses on the maintenance of hallucinations, rather than on their emergence. Studies in this area, which are making a positive contribution to the analysis of auditory hallucinations, highlight the role of metacognitive factors. In fact, according to some authors (Krabbendam et al., 2004; van Os & Krabbendam, 2002), it is not the simple fact of experiencing a hallucination that leads to psychosis, but, rather, it is the development of connected beliefs and delusions (e.g. attributing a peculiar meaning to the voices, or considering them as coming from an external source). When coming to hallucinations, it seems that the trigger is not founded on the perceptual experience but on the beliefs linked to this experience.

Several theories are starting to stress the role of metacognitive factors which are also present in delusory people. Vulnerability towards hallucinations is connected to a series of mechanisms, such as an excess of self-focused attention, ruminative processing, attentional bias, dysfunctional self-beliefs, and hypervigilance to idiosyncratic threat cues (Cangas et al., 2006). In other words, subject who hear voices are particularly prone to reflect on and judge their cognitive processes, for example, thinking “worrying helps me to work good”, “it is no good to have some thoughts”, “worrying will make me sick”, or “I have to control my thoughts” (Morrison, 2001). According to some authors (Jones & Fernyhough, 2006; Larøi & Van der Linden, 2005):

When the occurrence of intrusive thoughts does not comply with the person's metacognitive beliefs, an aversive state of arousal results (cognitive dissonance), which the person tries to escape by externalising the intrusive thoughts (resulting in hallucinatory experiences), thus maintaining consistency in his/her belief system. For instance, a person who believes that one should control all thoughts yet at the same time frequently experiences uncontrollable thoughts would tend to attribute these thoughts as stemming from something other than him or herself (Larøi & Van der Linden, 2005, p. 1426).

This provides the reason why hallucinators don't misattribute all of their thoughts or actions to an external source, something they should do if there were a deficit in the entire self-monitoring ability.

These recent theories don't explain how voices arise, they contribute to pointing out the way in which voices sustain themselves and become a psychotic symptom. In fact, it will be the initial interpretation of a single event, be this an intrusive thought or a real hallucination (which, as we saw in the first paragraph, is a much more common event than expected), to guide the reactions to this event and facilitate its reappearance. As claimed by Morrison:

Thus, if someone interprets an auditory hallucination as the result of stress or sleep deprivation, they may reduce arousal or get some sleep but not give the hallucination any further thought. However, if the same person were to interpret it as being a sign of madness or indicative of their neighbour's attempts to harm them, they may engage in hypervigilance for similar experiences, attempt to suppress the experience, punish themselves for it or adopt safety behaviours to prevent the feared outcome, all of which may contribute to the maintenance of further hallucinations (Morrison, 2001, p. 264).

Developing hypervigilance to similar cues, punishing oneself for hearing voices, and considering voices as highly dangerous for being signs of madness, will all contribute to maintaining them, creating a vicious cycle, impossible to escape from. Focusing on the voices in the attempt to stop them, people will focus their attention on them, making the voices more powerful and frequent. The attitude towards hallucinations is crucial from the first episode, as stated by this patient:

On a Sunday morning at 10 o'clock, it suddenly was as if I received a totally unexpected enormous blow on my head. I was alone and there was a message—a message at which even the dogs would turn up their noses. I instantly panicked and couldn't prevent terrible events from happening. My first reaction was: What on earth is happening? The second was: I'm probably just imagining things. Then I thought: No, you're not imagining it; you have to take this seriously (Beck & Rector, 2003, p. 23).

In this example, "you have to take it seriously" marks the beginning of the vicious cycle of hallucinations—delusions—hallucinations. Moreover, emotions, such as anxiety and fear, also play an important role because they will attach meaning to neutral cues and contribute to maintaining the beliefs about voices' reality and their external origin.

Auditory hallucinations seem to be a much more complex phenomenon than commonly believed. They are the result of many different factors, and of various interlaced aspects, such as beliefs, expectations, emotions, hypervigilance, and ruminations.

5. Conclusions: Where is the Boundary?

As a result of these considerations, it seems that it is the way the voices are judged and interpreted, and the beliefs connected to them, rather than the hallucinatory experience in itself, which converts something that belongs to a continuum to an actual psychotic symptom. This seems to be supported by a series of research that identifies the same metacognitive factors in a large spectrum of psychological disorders, including obsessive-compulsive disorder, hypochondria, delusional disorder, generalised anxiety disorder, and post-traumatic stress disorder (Morrison et al. 2011; Morrison & Wells, 2003; Rees & Anderson, 2013; Valiente et al., 2012; Varese & Bentall, 2011). For example, both hypervigilance and selective attention to idiosyncratic clues are features of panic attack and hypochondria, where the cues are bodily sensations interpreted as threatening, and of obsessive-compulsive disorder, where the cues are intrusive thoughts (Morrison, 2001). The influence of metacognitive factors can contribute to explaining the persistence of psychological illnesses and their resistance to simple cures. This resistance is the fundamental paradox of psychological illnesses. For example, individuals who fear catastrophe fail to benefit from their continued survival (Gangemi, Mancini, & Johnson-Laird, 2013; Jonson-Laird et al., 2006).

Coming back to auditory hallucinations, Moskowitz and Corstens (2008) close their paper claiming that the voices heard by schizophrenic people, those perceived by depressed or disassociated people, and those experienced by healthy people are qualitatively no different. Voices can be considered as a dissociative experience that, only in certain conditions, leads to psychopathologic consequences. Thus, even if voices can be present in the context of a mental disorder, they are not a psychotic symptom in themselves. The continuum hypothesis, which is the background of this research, is, in this case, based on the clear evidence that hallucinations are much more common than expected. They become a symptom of mental disorder when situated within a metacognitive style that intensifies the phenomenon and triggers a series of vicious circles. This view is in line with a wide literature (van Os & Reininghaus, 2016; Waters & Fernyhough, 2017; Wigman et al., 2017) showing that hallucinations alone fail in making a diagnosis of schizophrenia, because they lack any featural properties specific to this disorder. For example, Waters and Fernyhough (2017), after having conducted a systematic review of 43 articles showing direct comparisons of the featural and clinical characteristics of hallucinations in different population groups (one of which included schizophrenia), found that that no single hallucination feature or characteristic uniquely indicated a diagnosis of schizophrenia, and highlighted that the co-occurrence of other symptoms is the crucial factor instead.

We can turn now to perhaps the most important question of psychiatry. What is mental disorder? The DSM-5 defines mental disorder with these words: “a mental disorder is a syndrome characterised by clinically significant disturbance in an individual’s cognition, emotion regulation, or behaviour that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning” (APA 2013b, p.20). From this definition descends the idea that symptoms are explained by the underlying disorder. However, this is exactly what we question here. We are not yet able to clearly identify some dysfunction in the mental functioning of psychotic people (it is also possible that we’ll never be able to do so), and mental disorders are so heterogeneous that it seems unlikely that a single deficit can cause such a variety of symptoms as we find in many psychoses. Moreover, the case of auditory hallucinations shows that, even if they are a typical symptom of psychosis, they do not *cause* the psychosis or, in the other sense, they are not *caused* by the psychosis. In a recent work, van den Hout discusses the logic of explanation in psychiatry, and asserts:

What we do question is that, in psychopathology, diseases or disorders explain symptoms or that symptoms are causally inert output from deeper problems. Arguments like the latter easily become tautological and we will argue that, perhaps surprisingly, symptoms can be validly explained by other symptoms (van den Hout, 2014, p. 153).

In psychiatry, mental disorders are explained by symptoms, and symptoms are explained by referring to the underlying mental disorder; here lies the tautology. The dimensional approach, on the contrary, explains symptoms by other symptoms, as we have seen in the case of auditory hallucinations. The cognitive sciences’ difficulties in investigating auditory hallucinations might arise from the will to identify a specific anomaly, a defect in some specific mechanism, which differentiates psychotic and healthy people. However, the dimensional approach probably implies giving up on the attempt to find a sharp line between normality and insanity. It is only a matter of degree (as is even acknowledged in the fifth edition of the DSM), and the same difference between psychosis and neurosis might be grounded on the subject’s reality testing and on the impact on his quality of life, rather than on the gravity of symptoms in themselves. In other words, a symptom, even when apparently severe, is not sufficient to cause psychosis. People can have auditory hallucinations and never become psychotic. Thus, adopting a dimensional approach might imply the impossibility of detecting a specific (internal or external) factor that causes either single symptoms or a whole mental disorder. However, this approach may help us reach a much more complex vision of the metacognitive, relational, and social dynamics that underlie psychotic symptoms, which may, one day, explain them.

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