

# Dissociation, Trauma, and the Role of Lived Experience: Toward a New Conceptualization of Voice Hearing

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Voice hearing (VH) is often regarded as pathognomic for schizophrenia. The purpose of this article is to review and integrate historical, clinical, epidemiological, and phenomenological evidence in order to suggest that VH may be more appropriately understood as a dissociative rather than a psychotic phenomenon. First, we discuss the lifetime prevalence of VH in the general population, which is estimated to range between 1% and 16% for adult nonclinical populations and 2% and 41% in healthy adolescent samples. Second, we demonstrate how the ubiquity of VH phenomenology, including variables like voice location, content, and frequency, limits its diagnostic and prognostic utility for differentiating psychotic from trauma-spectrum and nonclinical populations. Finally, we report on the empirical associations between VH, measures of dissociation, and trauma particularly (though not exclusively) childhood sexual abuse. There are 2 main conclusions from this review. First, we argue that available evidence suggests that VH experiences, including those in the context of psychotic disorders, can be most appropriately understood as dissociated or disowned components of the self (or self–other relationships) that result from trauma, loss, or other interpersonal stressors. Second, we provide a rationale for clinicians to use psychotherapeutic methods for integrating life events as precipitating and/or maintaining factors for distressing voices. Potential mechanisms for the relationship between trauma, dissociation, VH, and clinical diagnosis are described, including the relevance of literature from the field of attachment in providing a diathesis for dissociation. Suggestions for future research are also discussed.

*Keywords:* auditory hallucinations, psychosis, dissociation, trauma

Voice hearing (VH) is a singular human experience that is referred to in many ways: *auditory or verbal hallucinations*, *splitter psyches*, *locutions*, and *language magic* being four examples (Watkins, 2008).<sup>1</sup> For some it may be a fleeting and dispassionate event, yet in others inspire such profound and fundamental changes in their social, emotional, and cultural experience as to possess the equivalent “primitive immediacy” of a genuine sensory incident (Bell, Raballo, & Larøi, 2010, p. 378). The phenomenon has been described and understood in a myriad of ways: as psychic or paranormal, as spiritual or devotional,<sup>2</sup> as psychiatric incident, and even as psychologically normal and natural. From the elevating and inspirational to the malevolent and persecutory, VH has been portrayed as a source of comfort, instruction, and guidance or as a critical, commanding presence that threatens, terrorizes, and attacks. VH experiences have been documented throughout human history, and the number of reported voice hearers is striking: from

Socrates and Joan of Arc (Leudar & Thomas, 2000) to Carl Jung, Mahatma Gandhi (Watkins, 2008), and Virginia Woolf (D. B. Smith, 2007). Jaynes (1976) has even argued that VH is an evolutionary adaptation that played an essential role in the origins of human consciousness.

For the purposes of this review, VH will be defined according to the following parameters: (a) a percept-like experience in the absence of appropriate stimulus, which manifests as (b) a human vocalization, which is experienced in (c) a conscious state and is (d) not induced by organic or state-dependent circumstances (see Bentall, 1990; Slade & Bentall, 1988). According to Liester (1996, 1998), VH anchors a continuum with other mental events, with “inner speech,”<sup>3</sup> or the “inner voice” (“true” perceptions associ-

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<sup>1</sup> Although auditory and/or verbal hallucinations are favored terminology in professional literature, the term *voice hearing* is deemed more neutral and subjective (James, 2001; Romme & Escher, 1993, 2000) and, as such, is preferred here.

<sup>2</sup> Whether VH may represent an authentic spiritual event in certain instances is beyond the scope of this article. As noted by Moskowitz and Corstens (2007), “Adequate means to distinguish such experiences from [those] better explained by psychological (dissociative) mechanisms remain to be established” (pp. 58–59).

<sup>3</sup> *Inner speech* is an ambiguous term that has been defined in an assortment of ways, including “the overlapping region of thought and speech” (S. R. Jones & Fernyhough, 2007, p. 148), “thinking in words” (McGuire et al., 1995, p. 596), verbal thought (Vygotsky, 1934/1987), and simply “speech without sound” (de Guerrero, 2005, p. 22).

ated with the ego), at one end of the spectrum and hallucinations (a more extreme complement to the transcendent experiences of revelation, imagination, and intuition) at the other. However, within this formulation, as in others (e.g., Bentall, 1990; Leudar & Thomas, 2000; Romme & Escher, 1993, 2000; Watkins, 2008), the degree of pathology exhibited by an individual may be independent of the degree of intensity of his or her VH experiences. Early understandings of VH saw no a priori reason to restrict its definition to mental imbalance (indeed, for the majority of its history, it was primarily conceived as either demonic possession or divine inspiration; Sarbin & Juhasz, 1967). However, at least in Western societies, increased secularization led to the ascendance of medical perspectives, and for the last 100 years VH has been principally considered in terms of psychiatric illness and associated with disordered emotion, bizarre thoughts, and chaotic, disturbed behavior. It was the criterion Rosenhan (1974) infamously used to feign insanity, and in the news media (Leudar & Thomas, 2000) and popular culture (D. B. Smith, 2007) is frequently portrayed as a concomitant of psychic disturbance and instability. Yet, although VH can be experienced in the context of psychotic disorder, growing evidence suggests that assumptions of it as a core symptom of psychosis should be reappraised and its dissociative origins more fully investigated.

### Historical Perspectives on Dissociation and Psychosis

According to the American Psychiatric Association (APA, 2000), dissociation is a psychological defense to trauma that is expressed as disruption to the normal integration of psychobiological functioning. Although the discontinuities characterized by dissociation can also be induced by substance use (Giannini, 1997) or some spiritual practices (Castillo, 2003), dissociative fragmentation is conceptualized as a protective mechanism that permits individuals to psychologically detach from events that are too overwhelming for the psyche to process (van der Hart, Nijenhuis, & Steele, 2006). Consequent manifestations may include symptoms like depersonalization (a sense of detachment and alienation from one's body), derealization (a sense of unreality about the external world), identity confusion, and psychogenic amnesia. In the short term this can function as a survival strategy by reducing conscious awareness for intolerable information. However, the autonomous, sometimes extreme nature of dissociative intrusions means that considerable distress and impairment can result if dissociation becomes a habitual way of responding to anxiety or threat (Dell, 2002).

Psychosis, in contrast, is a generic psychiatric term for a loss of contact with reality, including false ideas (delusions) and sensory experiences without objective origin (hallucinations). Although psychotic states may be a consequence of a general medical condition or psychoactive substance use (APA, 2000), functional psychotic syndromes (e.g., schizophrenia) are understood as brain disorders that may be triggered or exacerbated by psychosocial events, but are principally biogenetic in etiology.

However, despite their current clinical estrangement, dissociation and psychosis were not always independent concepts. Understanding contemporary interpretations of these terms requires an awareness of the historical influences that wrought their development, because in the years since the giants of 19th-century psychiatry first forged them, the links between trauma, dissociation,

and psychotic experience have been relatively neglected, and at some points forgotten entirely (Moskowitz, 2011; Moskowitz, Schäfer, & Dorahy, 2008).

### Nineteenth-Century Theorists

As early as the mid-1800s, the great French psychiatrist Moreau de Tours (1865) observed that severe manifestations of psychosis (including VH) were provoked by intense psychological distress. Simultaneously, his celebrated contemporary, Charcot (1868), alluded to connections between VH and dissociation-based "hysteria" including their shared source in terms of shocking and overwhelming events. Forel's (1907/1927) formative text on hypnotism (considered to be induced dissociation) observed that "one can produce many phenomena (hallucinations, false beliefs . . . and the like) in the hypnotized which are also to be observed in the insane" (pp. 170–171). In turn Janet (1907), a pioneering figure generally credited with authoring the concept of dissociation (van der Hart & Dorahy, 2009), deemed acute psychosis a dissociative condition related to the expression of unconscious emotions. In addition to those of the European theorists, Janet's ideas were pursued by a small but diligent group of North American clinicians including the prestigious figures of William James and Morton Prince. For example, Prince's fascination with the role of the subconscious in hysterical symptoms would lead him to characterize VH (including that experienced in the context of psychosis) as dissociated subconscious thoughts and introspections (Prince, 1922).

Kraepelin, as a very pure type of empiricist, sought to derive a precise, somatic nosology of psychiatric disorders from what he deemed a bewildering and chaotic array of terminology, definitions, and diagnostic practice (Bentall, 2004b). As such, he did not credit dissociation (or other psychological processes) within his concept of dementia praecox (Decker, 2007). However, many of his contemporaries maintained that dissociation-like processes, such as *ego-fragmentation* and *dissolution of self-experience*, were indispensable for a more precise understanding of its etiology (Middleton, Dorahy, & Moskowitz, 2008). One such theorist was Jung, an early enthusiast of Janet's work (as was Bleuler), who drew unequivocal links with dissociation in *The Psychology of Dementia Praecox* (Jung, 1907/1909). Referred to by Bob, Susta, Glaslova, & Chladek (2010) as a "dynamic concept" of psychosis (p. 71), Jung's book suggested, among other observations, that the psychic chaos of schizophrenia resulted from dissociative divisions in the personality, wherein psychological functioning became pathologically fragmented and noncohesive (see also E. Bleuler & Jung, 1908). Jung's work, in turn, guided Bleuler's conceptualization of schizophrenia, whose emphasis on the splitting and fragmentation of psychological capacities (according to him, the key impairment in schizophrenia and the inspiration for its name *split mind*) supplies a remarkably powerful fusion of psychotic and dissociative concepts (Middleton et al., 2008; Moskowitz & Heim, 2011).

Indeed, Ross (2008) argued that many cases deemed schizophrenic by Bleuler would be classed as dissociative by today's standards, and there are certainly aspects of his clinical descriptions that strongly resemble modern conceptions of dissociative identity disorder (DID). For example, *Dementia Praecox Oder Gruppe der Schizophrenien* features numerous examples of pa-

tients shifting executive control, manifested by changes in mannerisms, facial expression, voice, and identity whereby “the splitting of the psyche into several different souls . . . leads to the greatest inconsistencies” (E. Bleuler, 1911/1960, pp. 129–130) and in which “the patient thinks, feels, and acts in many respects as if . . . he consisted of different personalities, that he becomes ‘split’ to a psychotic degree” (M. Bleuler & Bleuler, 1986, p. 663). Despite his enthusiastic advocacy of schizophrenia’s somatogenic origins, Bleuler himself conceded that this new entity might be “the effect of a particularly powerful psychological trauma on a very sensitive person rather than . . . a disease in the narrow sense of the word” (E. Bleuler, 1911/1960, p. 300). Correspondingly, some theorists have argued that Bleuler’s emphasis on “splitting” within schizophrenia should be historically and conceptually re-evaluated in terms of stress-induced dissociative ruptures in the personality (see Moskowitz & Heim, 2011).

### The Rise and Fall of Kraepelinian Psychiatry

By the early 20th century, numerous theorists were using dissociative mechanisms to interpret psychotic symptomatology. What had begun as two imperatives was now a realm of fused and intersecting paradigms as understandings of functional psychoses/schizophrenia and hysteria/dissociative conditions began, tentatively, to converge (Middleton et al., 2008). In some respects, this line of theorizing reached its pinnacle with the work of Bleuler and his synonymous use of splitting and dissociation in the concept of schizophrenia (Moskowitz, 2008; Ross, 2008). Ironically, however, Bleuler was also the partial architect of its dissolution: His implacable belief in schizophrenia’s biogenetic origins prompted the medicalization of psychosis while hastening a declining interest in trauma-based dissociation (Moskowitz et al., 2008). From the 1950s onward, psychiatry would witness the ascendance of taxonomic neo-Kraepelin models (Klerman, 1978) that advocated operational diagnostic criteria and emphasized somatogenesis over the notion of a continuum of psychological functioning.

However, despite their dominance, many of the assumptions inherited from Kraepelin are increasingly contested. Foremost of these are three tenets originally underpinning modern diagnostic systems: (a) the discreteness of psychiatric conditions in terms of specific symptoms and underlying pathologies, (b) their biogenetic origins, and (c) the incongruence between normal and abnormal mental states. To an extent, it was two novel entries in the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-III*; APA, 1980)—schizoaffective disorder and posttraumatic stress disorder (PTSD)—that accelerated this critique and began to destabilize the foundations of neo-Kraepelinian theory (Moskowitz, 2011; Moskowitz et al., 2008). First, schizoaffective disorder (characterized as inveterate episodes of depressed and elevated affect, alternating or co-occurring with hallucinations, delusions, and disorganized cognition) undermined the presumed independence of the “twin pillars” of the neo-Kraepelinian edifice: schizophrenia and bipolar disorder (Greene, 2007, p. 361). Second, PTSD, a severe and potentially debilitating anxiety disorder that develops in response to trauma exposure, appears to confirm the perspective that extreme experiences can induce mental chaos in the apparent absence of biogenetic predisposition (Brewin, 2003). Furthermore, an increasing body of literature suggests that psychotic symptoms are not in fact dichotomous, but rather part of an

experiential continuum that manifests throughout the general population (Johns et al., 2004; van Os, Hanssen, Bijl, & Ravelli, 2000). For example, Johns and van Os (2001) argued that the distribution of phenomena such as VH can be seen as dimensional rather than categorical in that its community frequency is much greater than the prevalence of clinical cases for psychotic disorder.

### Reintegrating Psychosis and Dissociation

Such challenges to the Kraepelinian credo have encouraged the exploration of new, dynamic avenues within psychiatric literature, and in recent years the question of comorbidity between dissociative and psychotic syndromes has again become a focus of interest (see Moskowitz et al., 2008). For example, a recent cross-sectional study with 71 patients diagnosed with *DSM-IV* (4th ed.; APA, 1994) criteria schizophrenia (Vogel et al., 2009) found that measures of dissociation had a stronger proximal impact on the number of first-rank symptoms (i.e., voices commenting and/or conversing, thought broadcasting, thought withdrawal, and delusional ideation) than measures of PTSD or levels of trauma exposure (see also Vogel et al., 2011). Şar et al. (2010) have similarly reported significant associations between childhood trauma, concurrent dissociation, secondary features of DID, and increased first-rank symptoms of schizophrenia among a random sample of 70 patients with chronic psychosis. Likewise, strong correlations between measures of dissociative and psychotic experience have been confirmed in clinical (e.g., Kilcommons & Morrison, 2005; Schäfer, Reitmeier, Langer, Aderhold, & Harfst, 2008; Vogel et al., 2011; Yu et al., 2010) and nonclinical populations (e.g., Giesbrecht, Merckelbach, Kater, & Sluis, 2007; Kilcommons, Morrison, Knight, & Lobban, 2008; Moskowitz, Barker-Collo, & Ellison, 2005; Pope & Kwapil, 2000).

Growing research has also made plausible claims for the role of trauma in psychotic etiology. For example, retrospective studies reporting significant childhood adversity among individuals diagnosed with psychotic disorders (e.g., Cutajar et al., 2010; Hollowka, King, Saheb, Pukall, & Brunet, 2003; Lysaker, Beattie, Strasburger, & Davis, 2005; Lysaker, Buck, & LaRocco, 2007; Read, Fink, Rudegeair, Felitti, & Whitfield, 2008; Rubino, Nanni, Pozzi, & Siracusano, 2009) have been augmented by prospective investigations relating early trauma to a heightened risk of developing psychotic symptomatology, including VH (e.g., Bak, Krabbendam, et al., 2005; Janssen et al., 2004; Schreier et al., 2009; Spauwen, Krabbendam, Lieb, Wittchen, & van Os, 2006). Indeed, the past decade has witnessed a rapidly expanding literature devoted to exploring associations between adverse life events and psychosis (e.g., Larkin & Morrison, 2006; Moskowitz et al., 2008; Read, van Os, Morrison, & Ross, 2005). For example, Read, Perry, Moskowitz, and Connolly (2001), have claimed schizophrenia’s etiology is best understood as a psychogenic posttraumatic syndrome. Their model suggests possible pathways for positive (e.g., VH) and negative (e.g., flattened affect) symptoms of schizophrenia, as well as associations between dissociative and psychotic experience, by exploring parallels between the effects of trauma on the developing brain and the neurological abnormalities evident in psychosis (e.g., dopamine, serotonin, and norepinephrine irregularities; reversed cerebral asymmetry; hippocampal damage; ventricular enlargement; cerebral atrophy; see also Bremner, 2002; Kapur, 2003; Nemeroff, 2004; Teicher et al., 2003). Proposals

have even been made for hybrid diagnostic categories (e.g., dissociative subtypes of schizophrenia, Ross, 2004, 2008; and psychotic subtypes of PTSD, Braakman, Kortmann, & van den Brink, 2009). There is certainly a sense of a new convergent paradigm emerging (see Moskowitz, 2011). Nevertheless, despite these developments, comparatively little consideration has been given to the possible mediating role of dissociation in the development of VH (with the exception of Moskowitz & Corstens, 2007).

### Toward a New Understanding of Voice Hearing

Despite its close contemporary associations with psychosis, VH was not a principal attribute of Kraepelin's dementia praecox. It was minimized even further in Bleuler's schizophrenia. Indeed, he considered VH characteristic of so many conditions that it was more appropriately understood as a by-product of "loosened associations" than as a major psychotic symptom (E. Bleuler, 1911/1960). Today over 50 conditions in *DSM-IV-TR* (4th ed., text rev.; APA, 2000) cite VH as a potential diagnostic feature, including many not counted as primary psychotic syndromes (e.g., delirium, vascular dementia, various substance-related disorders, PTSD, acute stress disorder, DID, dissociative disorder not otherwise specified [DDNOS], major depressive disorder, bipolar disorder, borderline personality disorder [BPD], and schizotypal personality disorder). Stronger associations between VH and schizophrenia were established by Schneider (1959), a gifted diagnostician with a taste for pragmatism, whose "first-rank symptoms" were a simple yet structured approach to help doctors identify latent cases of schizophrenia. Although he was careful to refute that these were "crucially important features" of the syndrome (Bentall, 2004b, p. 31), Schneider's perspective still underlies contemporary diagnostic systems. Under his recommendation, voices commenting and/or conversing, bizarre delusions, and believing one's thoughts are audible, delimit schizophrenia's major pathognomic symptoms. Significantly, however, Schneider concurred with Kraepelin and Bleuler that VH was not fundamental to schizophrenia. He included it primarily because it was clearly recognizable and thus easy for clinicians to detect (see Bentall, 2004b; Moskowitz & Heim, 2011; D. B. Smith, 2007).

In this respect, some studies suggest that voices commenting and/or conversing are not only prevalent in individuals meeting diagnostic criteria for dissociative disorders, they may occur more frequently in these populations than in those designated schizophrenic, even after excluding patients with comorbid psychosis from research samples. For example, early work by Ross et al. (1990) found that patients diagnosed with DID ( $n = 368$ ) reported significantly more Schneiderian symptoms at clinical interview than 1,739 subjects diagnosed with schizophrenia (an average of 4.9 compared with 1.3). In terms of VH, 71% of the DID group heard voices commenting, and 74% heard voices arguing—significantly higher than the schizophrenia sample. Similar findings have been reported by Kluft (1987); Putnam (1989); Ross, Heber, Norton, and Anderson (1989); Ross, Norton, and Wozney (1989); and van der Hart, Nijenhuis, and Steele (2005). More recently, a well-designed study by Dorahy, Shannon, et al. (2009) compared VH experiences in a population of DID patients ( $n = 29$ ) with two samples of patients designated schizophrenic, one with a history of childhood maltreatment ( $n = 16$ ) and one without ( $n = 18$ ). The groups were similar in that voice location was more

likely to be internally than externally located and content to be mood incongruent. However, compared with the patients with schizophrenia, the DID group was significantly more likely to have started hearing voices before the age of 18, hear more than two voices, hear both child and adult voices, experience multimodal hallucinations, and report Schneiderian-type voices. The frequency of command hallucinations was similar in the patients diagnosed with DID and patients diagnosed with schizophrenia who had experienced childhood abuse, but less common in patients with schizophrenia and no history of maltreatment.

The claim that mechanisms underlying VH should be understood as psychological and dissociative rather than biogenetic and psychotic is supported by both clinical and epidemiological research. This includes the prevalence of VH in various clinical and nonclinical populations, the difficulty of adequately differentiating VH characteristics between these groups, and the epidemiological associations between VH and traumatic life events (particularly, though not exclusively, childhood abuse). On this and other evidence discussed below, we argue that such limited phenomenological, clinical, and empirical utility suggests that assumptions of VH as a core indicator of psychosis should be reappraised and its dissociative origins more fully investigated.

### Research Evidence for the Dissociative Nature of Voice Hearing

The following sections present evidence to demonstrate how VH can be most appropriately understood as a dissociative phenomenon, specifically in relation to (a) VH in the general population, (b) voice phenomenology, and (c) associations between VH, trauma, and dissociative experiences.

#### Voice Hearing in the General Population

There is no doubt that VH, particularly when experienced as abusive and menacing, can cause significant distress and demoralization. Yet a simple, powerful demonstration that VH is not an inherent indicator of psychotic illness is its pervasiveness within nonclinical groups. This contention is reflected by historical opinion. As early as 1838, Esquirol (1965) declared that if hallucinatory experiences, including VH, were "most frequently the lot of feeble minds, men remarkable for their . . . depth of reason and vigor of thought are not always free from this symptom" (p. 110), whereas Galton (1883/1973) reflected that "the familiar hallucinations of the insane are to be met with far more frequently than is commonly supposed among people moving in society and in good working health" (p. 121). Indeed, rather than being an exceptional or rare phenomenon, VH has been identified in a remarkably wide range of scenarios, including at the boundaries of consciousness leading out of sleep (hypnopompia), or at sleep onset (hypnagogia), and in association with bereavement, sensory deprivation, migraines, near-death experiences, hypnosis, psychotropic drugs, and spiritual reflection (see Watkins, 2008).

Studies using standardized and validated measures of hallucinatory proneness or predisposition (a multidimensional construct characterized by vivid mental events such as daydreams, auditory and/or visual hallucinatory experiences, and religious hallucinatory experiences; Paulik, Badcock, & Maybery, 2006) indicate that between 10% and 25% of the general population have experienced



at least one instance of VH at some point in their lives (e.g., Bentall & Slade, 1985; A. P. Morrison, Wells, & Nothard, 2000; Slade & Bentall, 1988). Furthermore, several large-scale investigations have identified rates of up to 16% lifetime prevalence of VH in adult nonclinical community populations, and up to 41% in healthy student and/or adolescent samples (see Table 1). Schizophrenia is suggested to affect 1% of the population (Johns & van Os, 2001), whereas the U.S. National Comorbidity Survey (Kessler, Gallagher, Abelson, & Kessler, 1996) estimated the lifetime prevalence of clinically identified, nonaffective psychotic syndromes to range between 0.2% (narrowly defined criteria) and 0.7% (broadly defined criteria). This exposure bias—the possibility that only distressed voice hearers typically come to the attention of clinicians and researchers—may well be a contributory factor for the dominant pathological models of VH (Ritsher, Lucksted, Otilingam, & Grajales, 2004).

Assessments of VH in the general population yield somewhat discrepant results with rates ranging from 5% (e.g., Eaton, Romanoski, Anthony, & Nestadt, 1991) to as high as 41% (e.g., Pearson et al., 2008). The most significant distinction appears to be in the age group examined, with appraisals in adolescents and young adults producing much higher rates. Methodological variations may also influence prevalence estimates. For example, some studies categorize VH in quite generic ways (e.g., Preti, Bonventre, Ledda, Petretto, & Masala, 2007, received a 3%–6% endorsement of the statement “I have been troubled by hearing voices in my head”), whereas other investigators provide precise definitions of VH experiences (e.g., Barrett & Etheridge, 1992, queried respondents about 13 possible VH scenarios, including hearing the voice of a dead relative or an absent friend and hearing conversations while driving, and found positive response rates of 6%–37%). With the unexpected exception of Schneiderian-type voices speaking one’s thoughts aloud (see below), explorations of different VH circumstances show that more advanced states of VH are endorsed less frequently. For example, 6% of participants (Barrett & Etheridge, 1992; Posey & Losch, 1983–1984) acknowledged hearing entire conversations compared with 15% (Barrett & Etheridge, 1992) and 14% (Posey & Losch, 1983–1984) hearing single phrases. Surprisingly, however, studies using self-report measures of VH (e.g., Preti et al., 2007; Tien, 1991) do not inevitably yield higher estimates than those employing more stringent, clinician-rated assessments (e.g., Eaton et al., 1991; van Os et al., 2000).

**Samples from the general population.** The first comprehensive attempt to assess community distribution of VH was conducted in 1894 under the auspices of the Society for Psychical Research (Sidgwick, Johnson, Myers, Podmore, & Sidgwick, 1894), wherein 3% of 17,000 respondents endorsed VH experiences. Given that the investigators sought the verification of “psychic phenomena,” it might be assumed that some bias existed toward confirming VH in nonpsychiatric groups. However, the study was approved by the International Congress of Experimental Psychology, and did include a selection of appropriate exclusion criteria within its design (see Table 1). In the century that has elapsed since this original investigation, other researchers have produced fundamentally similar findings. For example, the National Institute of Mental Health in the United States organized a descriptive survey to compare with Sidgwick et al.’s (1894) results (Tien, 1991). Structured interviews were conducted with 18,000 members of the general public, revealing an average lifetime

prevalence for VH of 2% (incidence peaked in the 18- to 19-year-old group at 3%). VH-associated distress was assessed with the Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981), with the proportion of Level 2 responses (nondistressing) significantly higher than those associated with distress or impaired functioning (Level 5). This finding, replicated in many subsequent studies, implies that VH may often occur in the community without subjective disability or impairment.

Using similar methodology to Tien’s (1991), Eaton et al. (1991) screened 810 randomly sampled members of the general population with a combination of psychiatrist-administered interviews and self-report data in order to determine community rates of psychosis. VH was endorsed by 5% of the sample, yet less than half of these persons met the criteria for any diagnosable psychiatric condition, leading the authors to observe that “an important and intriguing substantive issue . . . is the unexpectedly high prevalence of reported hallucinations among individuals who do not meet criteria for diagnosis” (p. 692). Similarly, van Os et al. (2000) found a lifetime prevalence of 8% for hallucinations (principally verbal) within a random sample of 7,076 adults from the general population. Respondents were interviewed with the Composite International Diagnostic Interview (CIDI; Robins et al., 1988). For VH, as well as other core positive psychosis items, the authors examined four possible ratings: (a) “true” psychiatrist verified symptom presence, (b) symptom presence in the absence of any distress, (c) symptom presence as a result of substance use and/or a physical disorder, and (d) symptom presence deemed to have “a plausible explanation.” Of the 1,237 individuals with true VH (17.5%), only 26 (2.1%) met the criteria for a psychiatrist-rated diagnosis of clinical psychosis. Consistent with Tien’s results, the majority of respondents (78%) purported to be untroubled by their VH experiences and had not sought psychiatric treatment on the grounds that it neither distressed them nor compromised their functioning. More recently, Preti et al. (2007) examined hallucinatory experiences, delusional thought proneness, and psychological distress in a nonclinical population of 250 adults. Lifetime hallucinatory experiences were assessed with the Launay–Slade Hallucination Scale (Launay & Slade, 1981). The most pathological item, “I have been troubled by hearing voices in my head,” was endorsed as “certainly applies to me” by 3% of participants and “possibly applies to me” by 6%. However, there was no overlap between these scores and any measures of psychosis proneness.

Two studies have examined specific subgroups within the general population. The first, designed to assess psychotic symptomatology in primary care patients, distributed self-report questionnaires to 790 randomly sampled adults attending French general practitioner surgeries (Verdoux et al., 1998). Questions were derived from the Peters et al. Delusions Inventory (Peters & Garety, 1996), a measure designed to assess psychotic phenomena in nonclinical groups. General practitioners, who were blind to questionnaire results, subsequently distinguished patients with a lifetime history of psychiatric disorder ( $n = 116$ ), including nonpsychotic conditions, from those with no identifiable psychological disturbance ( $n = 462$ ). Of this latter group, the researchers found 74 (16%) who endorsed hearing hallucinated human voices, 22 (4.8%) to hearing one or more voices conversing, and 22 (4.8%) to hearing voices issuing commands. In contrast, Johns, Nazroo, Bebbington, and Kuipers (2002) assessed 8,063 individuals in a

Table 1  
*Studies Assessing the Prevalence of Voice Hearing in Nonclinical Populations*

| Investigator           | Sample and location  | n      | Study definition  | Voice hearing dimensions  |  |  | Prevalence estimate        |
|------------------------|--|--------|---|---|--|--|----------------------------|
|                        |  |        |   | Content   | Frequency                                | Exclusion criteria   |                            |
| Sidgwick et al. (1894) | Epidemiological; nonrandom adult sample; screening and exclusion for psychiatric patients (United Kingdom, Russia, Brazil) | 17,000 | "Hearing a voice which is not due to any external physical cause"                       | General population<br>Clear, audible human speech   | At least once a month                    | Occurrence during illnesses in which delirium is known to occur; sleep-related hallucinations  | 3% lifetime prevalence     |
| Eaton et al. (1991)    | Probability adult sample; screening and exclusion for psychosis (United States)  | 810    | Verbal auditory hallucinations in a conscious state                                     | "True" psychiatrist-rated hallucinations  | Brief and occasional                     | Use of drugs, medications, or medical/physical conditions that may cause hallucinations; hallucinations in a nonconscious state; hallucinations with a "plausible explanation" | 5% lifetime prevalence     |
| Tien (1991)            | Epidemiological and longitudinal; random adult sample; screening and exclusion for psychosis (United States)               | 18,000 | "A vivid impression of hearing a voice which is not due to any external physical cause" | Clear, audible human speech   | Occur between once a day to once a month | Use of drugs, medications, or medical/physical conditions that may cause hallucinations; sleep-related hallucinations  | 2%–3% lifetime prevalence  |
| Verdoux et al. (1998)  | Epidemiological; random adult sample; screening and exclusion for psychosis (France)                                       | 462    | Assessed according to questions from the PDI-21   | Audible human speech from a single voice; one or more voices conversing; voices issuing commands      | —  | Use of drugs, medications, or medical/physical conditions that may cause hallucinations  | 4.8%–16% annual prevalence |
| van Os et al. (2000)   | Epidemiological; random adult sample; screening and exclusion for psychosis (the Netherlands)                              | 7,076  | Verbal auditory hallucinations in a conscious state                                     | "True" psychiatrist-rated hallucinations  | Occur regularly                          | Use of drugs, medications, or medical/physical conditions that may cause hallucinations; hallucinations in a nonconscious state; hallucinations with a "plausible explanation" | 8% lifetime prevalence     |
| Johns et al. (2002)    | Epidemiological; random adult sample; screening and exclusion for psychosis (United Kingdom)                               | 8,000  | Assessed according to questions from the CIS-R and the PSQ                              | "Voices saying quite a few words or sentences when there was no one around that might account for it" | Occasionally to very often               | —  | 0.6%–3% annual prevalence  |
| Preti et al. (2007)    | Convenience adult sample; screening for delusional-thought proneness (Italy)   | 250    | Verbal auditory hallucinations in a conscious state                                     | "I have been troubled by hearing voices in my head"   | Brief and occasional                     | Sleep-related hallucinations   | 3%–6%                      |

(table continues)

Table 1 (continued)

| Investigator               | Sample and location  | n   | Voice hearing dimensions   |   |   | Prevalence estimate  |                            |
|----------------------------|--|-----|--|---|---|--|----------------------------|
|                            |  |     | Study definition   | Content   | Frequency   |  | Exclusion criteria         |
| Posey & Losch (1983–1984)  | Convenience student sample; screening and exclusion for psychosis (United States)                    | 375 | Student and/or adolescent samples<br>Hearing a voice outside the head with no objective source | Hearing the following: whole phrases, voices speaking one's thoughts aloud, an absent friend or the voice of a dead relative, God's voice, a comforting or advising voice, conducting conversations with voices | At least once a month   | Hearing one's name being called; sleep-related hallucinations  | 5%–39% lifetime prevalence |
| Barrett & Etheridge (1992) | Convenience student sample; screening and exclusion for psychiatric disorders (United States)        | 586 | Hearing a voice outside the head with no objective source                                      | Hearing the following: whole phrases, voices speaking one's thoughts aloud, an absent friend or the voice of a dead relative, a conversation while driving  | 45% once a day to once a month  | Hearing one's name being called; spiritual and/or religious experience; sleep-related hallucinations   | 6%–37% lifetime prevalence |
| Dhossche et al. (2002)     | Epidemiological and prospective; random adolescent sample; screening for psychosis (the Netherlands) | 914 | Assessed according to questions from the YSR   | "I hear sounds or voices that other people think aren't there"  | Occasionally to very often  | —  | 5% lifetime prevalence     |
| Glicksohn & Barrett (2003) | Convenience student sample (Israel)  | 656 | A voice articulated aloud "as if someone had spoken"   | Hearing the following: whole phrases, voices speaking one's thoughts aloud, an absent friend or the voice of a dead relative, the voice of God, a conversation while driving                                    | Occasionally to very often  | Hearing one's name called; nonverbal hallucinations; sleep-related hallucinations; paranormal beliefs or experiences (e.g., communicating with the dead) | 9%–28% lifetime prevalence |
| Pearson et al. (2008)      | Convenience adolescent and student sample (United Kingdom)   | 500 | Verbal auditory hallucinations in a conscious state  | Hearing the following: whole phrases, voices speaking one's thoughts aloud, an absent friend or the voice of a dead relative, the voice of God, a conversation while driving                                    | Adolescents: 39.2% once a day to once a month; adults: 29% once a day to once a month | Hearing one's name called; hearing sounds; hearing voices in a nonconscious state  | 2%–41% lifetime prevalence |

Table 1 (continued)

| Investigator                                | Sample and location   | n     | Voice hearing dimensions                                      |  |   | Prevalence estimate          |
|---|---|-------|---|--|---|------------------------------|
|   |   |       | Study definition  | Content  | Frequency                                   |                              |
| Horwood et al. (2008); Zammit et al. (2008) | Epidemiological and longitudinal; random adolescent sample (United Kingdom) | 6,356 | Assessed according to questions from the DISC-IV and the SCAN | Auditory hallucinations in a conscious state, including Schneiderian-type hallucinations | 18.8% reported weekly verbal hallucinations | 3.6%–11.6% annual prevalence |

Note. Dash indicates information not assessed. PDI-21 = Peters et al. Delusions Inventory (Peters & Garety, 1996); CIS-R = Clinical Interview Schedule-Revised (Lewis et al., 1990); PSQ = Psychosis Screening Questionnaire (Bebbington & Nayani, 1995); YSR = Youth Self-Report Questionnaire (Achenbach, 1991); DISC-IV = Diagnostic Interview Schedule for Children Version IV (Shaffer et al., 2000); SCAN = Schedules for Clinical Assessment in Neuropsychiatry (World Health Organization, 1994).

national U.K. community sample. Annual VH prevalence rates were organized according to ethnicity and reported at 0.6% for the Asian group, 2% for the Caucasian sample, and 3% for the Afro-Caribbean sample. Respondents were subsequently screened for mental health problems (by telephone), yet only 25% met the diagnostic criteria for psychosis, and no statistically significant associations between VH and a reported history of psychiatric diagnosis or treatment were found.

Although its small sample size precludes it as a population-based survey, a final study worthy of mention is Davies, Griffin, and Vice's (2001) assessment of VH incidence in patients with psychosis ( $n = 18$ ), evangelical Christians ( $n = 29$ ), and controls (nonpsychotic, nonevangelical;  $n = 55$ ). The aim of the study was not to assess VH prevalence, but to compare delusional ideation between psychotic and religious populations. Although 100% of the clinical group and 59% of the religious group claimed to hear voices, to the authors' surprise, 27% of controls reported hearing a voice outside the head when no one was present. This unexpectedly high endorsement rate prompted the researchers to observe that "it is certainly not the case that auditory hallucinations are unique to psychotic individuals" (p. 366).

**Student and adolescent samples.** Six large-scale studies have investigated VH prevalence in samples of healthy college students and/or adolescents. The results are consistent, suggesting that a significant minority of individuals experience VH independent of psychotic pathology. Indeed, Fonseca-Pedrero et al. (2009), whose review examined the prevalence of "attenuated psychotic experience," including VH, in adolescent populations, concluded that such phenomena "are common and . . . not necessarily associated with the presence of psychopathology or later risk for psychosis" (p. 63).

In a famous analysis, Posey and Losch (1983–1984) administered a survey emphasizing that VH should not be conflated with inner speech but considered a voice articulated aloud "as if someone had spoken." In total, 11% of 375 respondents reported hearing "the voice of God," 10% to hearing "a comforting or advising voice," and 5% to conducting conversations with voices. The Schneiderian item of hearing a voice speaking one's thoughts aloud was endorsed by 39% of the sample, leading the authors to conclude that VH in itself should not be deemed suggestive of psychiatric disorder. Barrett and Etheridge (1992) later replicated the study with a larger sample ( $n = 586$ ) and using measures that controlled for experimental demand characteristics, specifically social conformity. VH experiences that were not sleep related, one's name being called, or attributable to spiritual and/or religious experiences were endorsed by a sizable number of respondents, with 37% claiming to hear voices articulating their thoughts and almost half claiming to hear voices at least once a month. After screening for both overt and incipient mental illness with standardized scales, the authors endorsed Posey and Losch's conclusion that community reports of VH cannot reasonably be explained in terms of psychosis. This methodology was later adapted to derive a measure of lifetime VH prevalence among 656 Israeli students (Glicksohn & Barrett, 2003). In a finding broadly consistent with previous studies, 28% of participants responded positively to the item "I have had the experience of hearing a person's voice and then found that no one was there." In addition, 17% reported hearing voices speaking their thoughts aloud and 9% to hearing an absent friend talking to them. However, it should be noted that this



sample was not formally assessed for the presence of psychiatric disorder.

In contrast, Dhossche, Ferdinand, van der Ende, Hofstra, and Verhulst (2002) conducted a prospective study with a random sample of 914 adolescents in the general population. A baseline rate of 5% for VH was reported. Eight years later, *DSM-IV* diagnoses were assessed within the same sample with the CIDI (86% of the cohort was successfully contacted). Compared with controls, adolescents who had previously endorsed VH exhibited higher levels of depression (39%), PTSD (28%), substance abuse disorders (17%), and social phobia (11%). However, there was no statistically significant difference in rates of schizophreniform disorders or schizophrenia. More recently, Pearson et al. (2008) interviewed 250 randomly sampled adolescents (mean age 14 years) and 250 college students (mean age 21 years) with no history of psychiatric system contact and found that 70% endorsed some manner of VH experience in their lifetime, about half of which occurred between weekly and monthly. Among reported events were hearing one's thoughts spoken aloud (41% of adolescents, 49% of adults), conversing with a deceased relative (16% of adolescents, 8% of adults), conversing with imaginary companions (10% of adolescents, 4% of adults), hearing God's voice (8% of adults), and hearing other people conversing while driving (2% of adults).

A second study sampling young adolescents (mean age 12.9 years) derived its participants from the Avon Longitudinal Study of Parents and Children, a cohort established in the United Kingdom to examine environmental and genetic determinants of health and development. Six thousand four hundred and fifty-five respondents were assessed over a 21-month period with a mixture of semistructured observer-rated assessment and standardized self-report screening questionnaires (Horwood et al., 2008). Auditory hallucinations (principally verbal) were endorsed by 7.3% of the sample, of which 18.8% claimed to experience them weekly. Interestingly, this study suggested that self-report measures of VH are valid, as auditory hallucinations were the only psychotic symptom to demonstrate high positive predictive values when the screen questionnaires and observer-rated scores were compared. The same sample was later assessed by Zammit et al. (2008) to determine whether psychosis-like symptoms (PLIKS) shared common etiological mechanisms with schizophrenia. Out of the entire sample, 734 (11.6%) children were rated as having suspected or definite PLIKS, of which 400 (4.7%) exhibited definite symptoms and 165 (2.6%) had definite, frequent symptoms (i.e., weekly). Furthermore, 233 children (3.6%) were rated as having suspected or definite "bizarre" PLIKS, including Schneiderian-type VH. Unfortunately, the authors did not stipulate what exact proportion of these PLIKS were VH, although given that auditory hallucinations were the most frequent observer-rated symptom (Horwood et al., 2008), it seems reasonable to assume that a significant proportion of the children heard voices. The authors examined two established risk factors for psychosis: a family history of schizophrenia and advancing paternal age (assumed to exert an effect through the accumulation of novel mutations in paternal germ cells and/or delayed fatherhood as a result of heritable schizotypal traits). Analysis controlled for a number of relevant variables, including gender, maternal marital status during pregnancy, financial difficulty during pregnancy, parental social class, and urban-rural index at birth. However, no significant associations were

found, leading the authors to conclude that "the presence of PLIKS is unlikely to be a strong marker of early expression of the pathology underlying schizophrenia" (Zammit et al., 2008, p. 279).

In some respects, this prevalence seems incongruous. How can a prototypic symptom of psychosis be so ubiquitous among those in otherwise seemingly good psychological health, or in persons with nonpsychotic disorders? One solution is to suggest that such individuals may be latently psychotic (e.g., Sommer et al., 2010). However, an alternative and more common assumption is that VH in the context of psychosis is qualitatively and clinically distinct from nonpsychiatric or trauma-induced voices: in effect, that different types of VH exist, whereby phenomenological voice characteristics can be distinguished in accordance with diagnostic and prognostic variables. The validity of this assumption is explored within the next section.

### Voice Phenomenology

The multitude of ways in which VH is experienced makes its phenomenology an important concern from clinical and research perspectives, in both the objective sense of symptoms and the broader meaning of subjectivity. The clinical significance of different VH characteristics has a lengthy and confusing history dating back to at least 1855 (Berrios & Dening, 1996). However, current understandings are generally derived from the parameters ascribed by Jaspers (1913/1963) to pseudohallucinations (PH) and true hallucinations (TH). PH (generally ascribed to PTSD, DID, and nonclinical groups) are characterized as "errors of the senses" that are experienced within the mind as opposed to the outside world, lack sensory clarity, and are accompanied by intact reality testing. In contrast, TH are distinguished as manifesting in external, objective space and experienced as concretely real. Jaspers's theory has traditionally been employed in the differential diagnosis of psychotic from dissociative and other disorders, with TH generally considered the singular province of psychotic syndromes (van der Zwaard & Polak, 2001). However, the validity of the PH construct has been contested, with various authors arguing that it is confusing, clinically unhelpful, and conceptually misleading. For example, evidence suggests that so-called PH cannot readily be distinguished from TH in that both can coexist with insight, be experienced internally and involuntarily, be explained psychologically, manifest as sensorially vivid, and be experienced as equally compelling and real (Adams & Sanders, 2011; Berrios & Dening, 1996; Cottam et al., 2011; Dening & Berrios, 1996; Moskowitz & Corstens, 2007; Oulis, Mamounas, Hatzimanolis, & Christodoulou, 1997; Rojo-Moreno et al., 2011; van der Zwaard & Polak, 2001; Yee, Korner, McSwiggan, Meares, & Stevenson, 2005). Indeed, as described below, VH may be nonspecific in that no structural characteristics appear to reliably discriminate voices in the context of psychosis from voices experienced in other populations.

**Voice location.** One quality persistently used to determine VH's clinical consequence is localization, with voices perceived through the ears deemed conceptually further from normal thought, and therefore more pathological, than those experienced inside the head (Moskowitz & Corstens, 2007). Most studies demonstrating results contrary to this position are derived from small samples of unknown generalizability; meaning opposing interpretations can only be cautiously drawn (see Table 2). Nev-

Table 2  
*Perceived Location of Voices in Clinical and Nonclinical Samples*

| Investigator                     | <i>n</i>                           | External voices (%) | Internal voices (%) | Both (%) |
|----------------------------------|------------------------------------|---------------------|---------------------|----------|
| Schizophrenia                    |                                    |                     |                     |          |
| Judkins & Slade (1981)           | 26                                 | 31                  | 27                  | 42       |
| Leudar et al. (1997)             | 14                                 | 29                  | 57                  | 14       |
| Honig et al. (1998) <sup>a</sup> | 18                                 | 78                  | 50                  | —        |
| Andrew et al. (2008)             | 22                                 | 41                  | 59                  | —        |
| Dorahy, Shannon, et al. (2009)   | 18 <sup>b</sup><br>14 <sup>c</sup> | 44<br>29            | 56<br>64            | 0<br>7   |
| Mixed psychotic disorders        |                                    |                     |                     |          |
| Junginger & Frame (1985)         | 52 <sup>d</sup>                    | 50                  | 38                  | 12       |
| Nayani & David (1996)            | 100 <sup>e</sup>                   | 49                  | 38                  | 13       |
| Scott et al. (2007)              | 16 <sup>f</sup>                    | 18                  | 13                  | 69       |
| Dissociative disorders           |                                    |                     |                     |          |
| Honig et al. (1998) <sup>a</sup> | 15                                 | 67                  | 73                  | —        |
| Dorahy, Shannon, et al. (2009)   | 27                                 | 15                  | 74                  | 11       |
| Posttraumatic stress disorder    |                                    |                     |                     |          |
| Scott et al. (2007)              | 16                                 | 12                  | 44                  | 44       |
| Nonclinical                      |                                    |                     |                     |          |
| Leudar et al. (1997)             | 14 <sup>g</sup>                    | 7                   | 86                  | 7        |
| Honig et al. (1998) <sup>a</sup> | 15 <sup>h</sup>                    | 57                  | 60                  | 13       |
| Andrew et al. (2008)             | 21 <sup>i</sup>                    | 34                  | 66                  | —        |

*Note.* All clinical groups diagnosed by consultant psychiatrists using *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; 4th ed.; and 4th ed., rev. text) or *International Classification of Diseases* (10th revision) criteria. Dash indicates information not assessed.

<sup>a</sup> In this study, an individual reporting both internal and external locus voices was categorized twice as both *internal* and *external*; hence the frequencies equal more than 100%. <sup>b</sup> Participants did not report a history of childhood maltreatment. <sup>c</sup> Participants reported a history of childhood maltreatment. <sup>d</sup> Schizophrenia (52%), affective disorder with psychotic features (25%) and “other,” including schizoaffective disorder (23%). <sup>e</sup> Schizophrenia (61%), bipolar disorder (11%), depressive psychosis (9%), alcohol hallucinosis (4%), schizoaffective disorder (8%), paranoid psychosis (8%), paraphrenia (1%), puerperal psychosis (1%), postictal psychosis (1%), drug-induced psychosis (1%). <sup>f</sup> Schizophrenia, bipolar disorder, schizophreniform disorder, schizoaffective disorder, brief psychotic disorder, major depressive disorder with psychotic features, psychotic disorder due to a medical condition. <sup>g</sup> Undergraduate students with no history of mental health system contact or substance misuse. Screened for psychiatric symptoms during the study by a consultant psychiatrist. <sup>h</sup> Adults with no previous psychiatric history, a Dissociative Experiences Scale score below 30, and no recent onset of a psychiatric disorder definable on formal psychiatric interview. <sup>i</sup> Primarily individuals using “clairaudience” in a professional capacity (i.e., mediums and spiritualists). Participants screened prior to study and had no past or current history of mental health service contact.

ertheless, available evidence has queried the level of diagnostic significance that can be attached to perceived voice location by consistently showing large variability across different clinical and nonclinical groups. Indeed, the most recent edition of the *DSM* (APA, 2000) has ceased to specifically associate external voices with schizophrenia, despite doing so in earlier versions.

As the data from Table 2 indicate, investigations into VH locus suggest that although exclusively external voices are reported by an average 42% of patients diagnosed with schizophrenia and 39% of persons with psychotic diagnoses (including, but not limited to, schizophrenia), 41% of those with dissociative conditions and 33% of nonpatients also hear external voices. Similarly, exclusively internal voices are reported by an average 52% of persons designated schizophrenic, 31% of patients with assorted psychotic diagnoses, 73% of those with dissociative disorders, and 61% of nonpatients. Such overlaps

are also apparent in the percentage of those reporting a blend of internal and external VH (see Table 2). Indeed, Copolov, Trauer, and Mackinnon (2004), who addressed the question within a sizable cross-sectional cohort ( $n = 199$ ), concluded that perceived VH locus lacks both “conceptual clarity and clinical utility” (p. 5). In an article entitled “On the Non-Significance of Internal Versus External Auditory Hallucinations,” these authors reported that malevolent–benevolent content, diagnostic category, and medication reliance were all nonsignificantly associated with externally or internally located voices.

**Other voice characteristics.** In addition to perceived location, researchers have investigated other kinds of VH features in attempts to demonstrate clinical correlates. As with voice locus, findings have consistently shown that such qualities have limited clinically predictive value, with one early study reporting that “no

type of hallucination is diagnostic in the sense of occurring significantly more often in one illness than in another" (Goodwin & Rosenthal, 1971, p. 76).

**Comparisons of psychotic and nonpsychotic psychiatric groups.** An early example of this line of enquiry is a study by Scott, Nurcombe, Sheridan, and McFarland (2007), who compared VH phenomenology (e.g., location, prevalence, form, content, and Schneiderian features) in 20 adolescents diagnosed with PTSD with 18 who were designated psychotic (*DSM-IV* diagnoses of schizophrenia, bipolar disorder, schizophreniform disorder, schizoaffective disorder, brief psychotic disorder, major depressive disorder with psychotic features, psychotic disorder due to a medical condition). VH was endorsed by 85% of the PTSD group and 88% of the schizophrenia sample. However, the lack of significant group differences in clinically assessed voice characteristics led the authors to conclude that the quality and nature of VH is ultimately unreliable for distinguishing between PTSD and psychotic disorders. In a follow-up study, Jessop, Scott, and Nurcombe (2008) designed a questionnaire to analyze VH qualities in more detail using adolescent inpatients with a primary diagnosis of *DSM-IV* schizophrenia or PTSD. The authors found that vivid, externalized, realistic voices that commented on, conversed with, or commanded the subject were equally frequent in both groups. On the basis of this case series, it was concluded that VH phenomenology was of no benefit for discriminating schizophrenia from trauma-spectrum conditions (see also Bentall, 2004a; Ross & Joshi, 1992).

Similarly, Jenner, Rutten, Beuckens, Boonstra, and Sytema (2008) compared prevalence, impact, and course of and attributions about VH in 135 voice hearers diagnosed with schizophrenia, psychotic disorder, or psychotic depression with 65 nonpsychotic voice hearers (diagnosed with DDNOS, PTSD, or BPD). Although the lifetime prevalence of affectively positive voices was higher among nonpsychotic participants, voice characteristics "did not allow for validly discriminating psychotic from non-psychotic disorders" (Jenner et al., 2008, p. 238). Specifically, analyses suggested no statistically significant associations between diagnosis and variables such as frequency and duration of voices, their perceived helpfulness or usefulness, voices commenting in the first or third person, the individual's ability to control voices, the tendency for voices' affective impact to fluctuate over time, or the capacity of "positive" voices to influence "negative" ones. A more recent investigation (Kingdon et al., 2010) using similar methodology examined the VH experiences of patients diagnosed with schizophrenia ( $n = 33$ ) or BPD ( $n = 19$ ) and those who met the criteria for both ( $n = 7$ ). VH was endorsed by 50% of the BPD group, 66% of the schizophrenia group, and 90% of those with both diagnoses. Although negative voice content and associated distress were significantly higher among patients diagnosed with BPD, there were no significant differences between the three groups on any other VH dimension (frequency, duration, volume, location, controllability, disruption, or beliefs about voice origin).

In one of the few studies to use qualitative methods, Adams and Sanders (2011) interviewed seven adults with a primary diagnosis of BPD, all of whom reported a history of sexual and/or physical childhood maltreatment. Participants described a range of psychotic experiences, primarily multimodal hallucinations and anomalous belief systems. On the basis of clinical criteria such as severity, persistence, pervasiveness, and effect on functioning,

these symptoms could not be clearly distinguished from those "described by patients suffering from schizophrenia" (p. 381), although this judgment was based on the authors' clinical experience rather than formal comparison. In terms of VH, all seven participants heard a mixture of internal and external voices, five reported Schneiderian-type voices, and all identified their voices as pejorative, commanding, and menacing. Voice content was not wholly related to traumatic events, although five participants identified thematic similarities between voice utterances and previous abuse experiences. Among other recommendations, the authors advocate abandoning terms such as PH and quasihallucination on the grounds of their limited clarity, utility, and clinical relevance.

**Comparisons of clinical and nonclinical groups.** Several inventively designed studies have compared VH characteristics between patient and nonpatient samples. For example, Barrett and Caylor (1998) explored whether reports of VH in the general population possess sufficient "reality characteristics" to adequately class them as hallucinations. The VH experiences of 24 university students with no history of psychiatric contact (recruited from a previous study on VH prevalence) were compared with those of 20 patients diagnosed with schizophrenia by means of the seven dichotomies specified by Aggernæs (1972): sensation versus ideation (does the person believe he or she heard the voice or simply imagined it?), behavior relevance versus no behavior relevance (does voice content have an emotional impact?), publicness versus privateness (does the person believe that someone else could also have heard the voice?), objectivity versus subjectivity (does the person believe aspects of the voices could be experienced by another sensory system?), existence versus nonexistence (does the person believe the voices would still exist if no one was present to experience them?), independence versus dependence (does the person believe he or she only heard the voice because he or she experienced a particular state, such as anxiety?), and involuntarity versus voluntarity (does the person believe it is possible to alter his or her experience?). All student participants were carefully screened with psychometric assessments and clinical interview to exclude the possibility of latent mental health problems. When participants were asked about their very first VH event (an average of 7.9 years ago for the students and 23.7 years for the patients), the investigators could find no differential pattern of perceived reality characteristics between the two groups. When asked about their most recent VH experience (which had occurred within the last week for both samples), the psychiatric populations were more likely than the students to report theirs as "involuntary," although, surprisingly, the students were more likely than the patients to categorize theirs as "public." Otherwise the groups were also indistinguishable in terms of the reality dimensions of their most recent VH experience.

In a novel study by Leudar, Thomas, McNally, and Glinski (1997), the pragmatic VH speech properties of 14 persons diagnosed with schizophrenia were compared with those of 14 nonpatients. The clinical group experienced more hostile, imperious voices, and engagement with voices was lower than in the nonpatient voice hearers. However, the samples did not differ significantly in terms of perceived voice clarity, volume, recurrence, individuation, and dialogic function. Similarly, Honig et al. (1998) compared structural voice characteristics in patients diagnosed with schizophrenia ( $n = 18$ ) or dissociative disorder ( $n = 15$ ) and persons with no diagnosable mental health problems and no his-

tory of psychiatric contact ( $n = 15$ ). Voice location, the presence of positive voices, and the Schneiderian quality of dialoging or commenting on behavior were consistently similar between the three samples.

Finally, Daalman et al. (2011) compared voice characteristics between 118 patients with a diagnosis of schizophrenia ( $n = 91$ ), psychosis not otherwise specified ( $n = 23$ ), or schizoaffective disorder ( $n = 4$ ) and 111 voice hearers with no history of psychiatric contact and who did not meet criteria for any diagnosable mental disorder. Both groups had experienced VH at least once a month for the past year and were assessed on a number of experiential VH qualities, including perceived location, acoustic volume, affective content and impact, frequency, controllability, Schneiderian features, personification (i.e., attribution to a known person), duration, age of onset, and beliefs about origin. The most prominent differences between the two groups were frequency and controllability (the patients heard more recurrent, ungovernable voices), which were more likely to feature negative content and to have begun at an earlier age. On the basis of logistic regression analysis, the authors suggested that emotional valence of VH (i.e., voices that were negative and distressing) appeared most predictive of psychotic disorder rather than any structural, form-based characteristics.

In this respect, recent research has supplied the intriguing finding that patterns of VH-related brain activation in psychotic voice hearers ( $n = 21$ ) and matched nonclinical controls ( $n = 21$ ) revealed no significant differences (Diederer et al., 2011). The tentative nature of brain imaging research in general, coupled with a small sample size, means these results should be interpreted cautiously. However, as this was the first study of its kind, the notion that common cortical regions govern VH activity in psychotic and nonpsychotic populations may provide an impetus for further exploration.

**Relating to voices.** According to M. Jackson and Fulford (1997), phenomena like VH “cannot be distinguished by form and content alone . . . [but in the way in which they] are embedded in the values and beliefs of the person concerned” (p. 41). This assertion is compatible with the view that psychotic-like symptoms can be comprehended in a multidimensional way, whereby cognitive, affective, and sensory elements comprise distinct components of the experience.

Correspondingly, conceptualizing VH within relational frameworks has recently become an area of psychological inquiry, with numerous authors exploring the reciprocal dynamics between hearer and voice (Pérez-Álvarez, García-Montes, Perona-Garcelán, & Vallina-Fernández, 2008). According to Jenner et al. (2008), both patient and nonpatient groups may consider voices as important and valued personages and, in the case of psychiatric patients, fear having them eradicated as a consequence of treatment. Similarly, Moskowitz (2005) reported that individuals with schizophrenia diagnoses can develop intimate and interpersonally significant exchanges with their voices whose form and content do not appear any more restricted or confined than in DID, with core VH categories (hostile, supportive, sexual) equally prevalent in both conditions.

Hayward, Overton, Dorey, and Denney (2009) have construed the VH experience as that of relating to an interpersonal other in which patients (including those diagnosed with psychotic syndromes) interact with their voices in ways that reflect their more

pervasive patterns of social relating. Using the Voice and You Scale (Hayward, Denney, Vaughan, & Fowler, 2008), a 28-item measure assessing dynamics of the hearer–voice relationship, Hayward et al. (2009) found that reliance and dependence on voices was positively associated with dependency within the social realm, whereas adopting a position of either compliance or control toward voices likewise mirrored submissiveness or dominance within social relationships. Thus an individual who experiences a sense of inferiority, subordination, and/or shame within his or her family or community may be more likely to feel powerless and submissive in response to his or her voices and to experience them as dominant and controlling (see also Birchwood et al., 2004; Mawson, Berry, Murray, & Hayward, 2011; Paulik, 2011; Sorrell, Hayward, & Meddings, 2010; Thomas, McLeod, & Brewin, 2009; Vaughan & Fowler, 2004). Furthermore, such associations appear to be independent of both affective appraisals and perceptions of the voices’ identity and intent (Hayward, 2003). This is consistent with previous research suggesting that convictions about voices are not necessarily content driven. Instead, beliefs about the power and purpose of the voices are frequently constructed by the voice hearer independent of positive or negative content (Benjamin, 1989; Chadwick & Birchwood, 1994; Cottam et al., 2011; Romme & Escher, 1989; Trower, Birchwood, & Meaden, 2010).

In this regard, studies comparing clinical and nonclinical voice hearers have suggested that reaction to VH may be a better discriminating feature than the traditional emphasis on voice characteristics. For example, Andrew, Gray, and Snowden (2008) found no discernible differences between clinical ( $n = 22$ ) and nonclinical ( $n = 21$ ) samples regarding voice localization, yet detected considerable discrepancies in terms of VH response. Most significant was that whereas the majority of patients (82%) were distressed by their voices, felt unable to control them (91%), and attempted to resist them (82%), none of the nonpatients were troubled, only 1% felt imposed upon, and 76% engaged with the voices. Similar results were reported by Honig et al. (1998), who found that 78% of their schizophrenia group ( $n = 18$ ) and 84% of the dissociative disorder group ( $n = 15$ ) felt afraid of their voices, whereas none of the nonpatients ( $n = 15$ ) reported feeling fear. As discerned by Andrew et al., nonpatients were significantly more likely to relate positively with their voices and less likely to resist their presence.

Other investigators have reported similar findings among samples of nonclinical voice hearers (e.g., Daalman et al., 2011; Lawrence, Jones, & Cooper, 2010; Leudar et al., 1997; Romme, Honig, Noorthoorn, & Escher, 1992). For example, to explore the transition from psychotic-like experience to clinically relevant symptoms, Brett et al. (2007) compared anomalous experiences associated with psychosis (including Schneiderian-type VH) among individuals who were help-seeking and met criteria for an “at-risk mental state” ( $n = 21$ ) with those who were diagnosed with a psychotic disorder ( $n = 35$ ) or who had never required psychiatric intervention ( $n = 35$ ). Among other findings, the authors reported that although all three groups emotionally engaged with their experiences, the nonpatients were significantly less likely to use avoidance, cognitive control, or immersion strategies. Interestingly, members of this group still identified the controllability of their experiences as only just above “minimal.” Furthermore, their self-rated levels of emotional arousal were the same as those of the clinical groups, with only small (though still



significant) differences between perceived positive and negative content.

Finally, Cottam et al. (2011) compared beliefs about voices, and perceptual and emotional VH qualities, between Christian participants with ( $n = 15$ ) and without ( $n = 20$ ) a psychotic disorder and a group of psychotic patients with no religious beliefs ( $n = 14$ ). Voice characteristics were measured with standardized instruments and included assessment of location, clarity, volume, frequency, distraction, perceived power, and VH-associated distress. Perceptually, VH experiences were phenomenologically similar within the three groups, although the nonpatients heard voices that were quieter, less frequent, and, perhaps surprisingly, of greater clarity than the clinical sample. However, there were significant group differences in emotional response and personal construal of voices. Compared with the group of Christian patients, the non-clinical Christian voice hearers were significantly more likely to assimilate VH experiences within the framework of their faith in order to interpret voices in a positive way, whereas neither patient group appeared able to integrate their experiences in a beneficial fashion. Consistent with previous research (e.g., Benjamin, 1989; Chadwick & Birchwood, 1994; Cottam et al., 2011; Romme & Escher, 1989; Trower et al., 2010), analysis of voice content showed that positive emotional experiences and explanations for voices were not determined exclusively by content, which for the nonpatients was typically neutral (42%), or a mix of positive and negative (47%), with only 11% rated as having purely positive voices. The authors concluded that the use of schematic processing to assimilate VH within existing cognitive representations might be beneficial for relating to voices and coping with their presence. Group differences in cognitive functioning were not assessed, although respective years of education did not significantly differ nor covary with any other measures. This is consistent with the results of Andrew et al. (2008), although not with those of Brett et al. (2007), who found that mean IQ was significantly higher among their nonpatient group. Of possible relevance in this respect is the cognitive dysfunction often characterizing psychosis per se, which may have implications for the ability to acknowledge and integrate voice presence.

If structural voice characteristics are not a reliable way of distinguishing patient from nonpatient voice hearers, what variables might influence the association between VH and clinical need? In the next section, we discuss how trauma exposure may at least partially explain distressed responses to voices (and subsequent psychopathology), as well as the potential role of dissociation in mediating the link between adverse experience and VH.

### **Associations Between Voice Hearing, Trauma, and Dissociation**

The precise nature of the links between VH and childhood trauma are difficult to clarify, not least because of the methodological challenges facing research of this kind (Bendall, Jackson, Hulbert, & McGorry, 2008). If abuse is detected, then appropriate protective action is required from designated authorities. However, outcomes in such cases are not directly comparable to abused children whose circumstances are not discovered, rendering a true prospective examination of the impact of childhood abuse ethically impossible (Hammersley, Read, Woodall, & Dillon, 2007; Read & Hammersley, 2006). Researchers must therefore rely on retrospec-

tive, adulthood accounts of childhood maltreatment. These designs, however, are vulnerable to contamination from such processes as infantile amnesia (Feldman-Summers & Pope, 1994), depressive reinterpretive biases (Lewinsohn & Rosenbaum, 1987), the need to rationalize mental illness (Schacter, 2001), traumatic amnesia (Freyd, 1994), source confusion (Geraerts & McNally, 2008), and repression (Colangelo, 2009). When the groups under consideration are psychotic and/or highly dissociative, the problem is potentially intensified by clinical factors such as impaired reality testing (Lysaker et al., 2005), cognitive deteriorations (Driesen et al., 2008), and delusion formation (M. Young, Read, Barker-Collo, & Harrison, 2001). An additional difficulty is the controversial issue of false memory syndrome, which highlights the possibility that objectively fictitious accounts of trauma may be suggested or reinforced within therapeutic settings, especially through practices such as hypnosis, leading questions, and sedative prescription (Andrews et al., 1999). In this respect, clinical guidelines are now available to help therapists avoid the dual danger of unquestioningly accepting false recollections and summarily rejecting genuine recovered ones (e.g., Andrews et al., 1995; Courtois, 1997; Mollon, 1998).

Concern for the veracity of trauma disclosure among psychiatric patients is understandable. Both delayed and continuous memories are vulnerable to misrepresentation, and there are valid reasons to be cautious of recollections that are provided only after extensive use of suggestive procedures. Nevertheless, accounts of trauma among individuals with serious and enduring mental health problems have generally been shown as sufficiently reliable to justify the use of retrospective research methodology. For example, Fisher et al. (2011) assessed the reliability of retrospective reports of childhood abuse from 84 patients recruited from the U.K. Aetiology and Ethnicity of Schizophrenia and Other Psychoses epidemiological study. High levels of concurrent validity were found between responses on the Childhood Experience of Care and Abuse Questionnaire (Bifulco, Bernazzani, Moran, & Jacobs, 2005) and the Parental Bonding Instrument (Parker, 1990). Good convergent validity was also demonstrated between clinical case notes and the Childhood Experience of Care and Abuse Questionnaire. Patient accounts of childhood neglect, parental antipathy, and sexual or physical abuse also demonstrated good test-retest reliability over a 7-year period. Furthermore, neither levels of depressed mood nor the severity of psychotic symptoms influenced the likelihood of reporting childhood abuse.

In this respect, studies using methods like the Deese paradigm (an immediate free-recall test specifically used to examine false memory) have found no association between the extent of dissociative symptomatology and false recollection or recall among patients with a history of childhood sexual abuse (CSA) compared with nondissociative and/or nonabused controls (e.g., Bremner, Shobe, & Kihlstrom, 2000; Geraerts, Smeets, Jelicic, van Heerden, & Merckelbach, 2005). Other authors using standardized tools and psychometric assessment have reported similar findings. For example, Meyer, Muenzenmaier, Cancienne, and Struening (1996) found high concurrent validity and test-retest reliability among a sample of 70 women with "serious and persistent mental illness" (e.g., schizophrenia, affective psychosis) retrospectively recounting childhood physical or sexual abuse. Goodman et al. (1999) likewise established high rates of consistency and test-retest reliability in reports of violent child- and adulthood victimization



experiences among 50 adults diagnosed with schizophrenia or bipolar disorder. Finally, erroneous allegations of sexual assault have been found to be no different for psychotic patients than for the general population (Darves-Bornoz, Lempérière, Degiovanni, & Gaillard, 1995). Indeed, evidence suggests a strong trend for psychiatric patients to underreport, rather than overreport, abuse (Dill, Chu, Grob, & Eisen, 1991; Fisher & Craig, 2008; Fisher et al., 2011; Goodman et al., 1999; Read, 1997; Spataro, Mullen, Burgess, Wells, & Moss, 2004; Wurr & Partridge, 1996). In light of these findings, this review therefore includes research in which the veracity of self-reported trauma was not empirically assessed.

**Voice hearing and trauma exposure.** Increasing evidence based on various sampling and assessment techniques, as well as cross-sectional, epidemiological, and prospective research designs, suggests that acute psychological stress, or the reactivation of past trauma, may precipitate VH onset in a sizable number of cases. Indeed, the first epidemiological literature review of trauma and psychosis (Read et al., 2005) found more statistically significant associations between childhood maltreatment and adulthood VH than for any other symptom (VH, 22; delusions, 7; thought disorder, 1; negative symptoms, 0). When studies without a control group were included in the analysis, these rates were even higher, leading the authors to suggest a potential causal, dose–effect relationship between childhood abuse and VH.

For example, a retrospective population-based survey of 17,337 adults (Whitfield, Dube, Felitti, & Anda, 2005) found a statistically significant and graded relationship between hallucinations (in all modalities) and self-reported histories of childhood adversity (e.g., emotional, physical, or sexual abuse; witnessing domestic violence; household substance abuse; parental separation). After controlling for gender, race, education, and substance use, the analysis indicated that early trauma exposure increased the likelihood of experiencing hallucinations from 1.2- to 2.5-fold, regardless of the trauma category. Moreover, individuals with seven or more adverse childhood experiences had a fivefold risk of hallucinatory experiences compared with adults with no trauma history. In the United States, the National Comorbidity Survey (Shevlin et al., 2010) similarly reported that rape and sexual or physical assault prior to age 16 predicted incidences of VH among 5,538 members of the general public. A significant dose–response relationship was also found, with respondents who had experienced all three types of childhood trauma 11 times more likely to develop VH than adversity-free participants. The results remained significant after controlling for gender, age, ethnicity, urbanicity, marital status, educational level, employment, and substance use.

Some authors have reported thematic similarities between VH content and trauma experiences, particularly CSA, in both psychotic (e.g., Beck & van der Kolk, 1987; Ensink, 1992; Heins, Gray, & Tennant, 1990; Offen, Waller, & Thomas, 2003; Read & Argyle, 1999; Reiff, Castille, Muenzenmaier, & Link, 2011; Romme & Escher, 2006, 2010) and nonpsychotic psychiatric patients (e.g., Braakman et al., 2009; Ellenson, 1986; Famularo, Kinscherff, & Fenton, 1992; Mueser & Butler, 1987). In one well-known cross-sectional analysis, Read, Agar, Argyle, and Aderhold (2003) examined histories of child- and adulthood maltreatment across 200 outpatients in a New Zealand clinic. Diagnoses within the sample were depression ( $n = 85$ ), schizophrenia ( $n = 28$ ), substance abuse ( $n = 20$ ), bipolar disorder ( $n = 15$ ), personality disorder ( $n = 10$ ), adjustment disorder ( $n = 9$ ), PTSD

( $n = 7$ ) and other anxiety disorders ( $n = 9$ ), schizoaffective disorder ( $n = 5$ ), psychotic episode ( $n = 5$ ), and psychotic disorder not otherwise specified ( $n = 4$ ). Childhood sexual and physical abuse was significantly related to VH prevalence, with survivors ( $n = 92$ ) additionally more likely to experience destructive command hallucinations with sexual content than the nonabused group ( $n = 108$ ). Likewise, Hardy et al. (2005) examined the phenomenological VH characteristics of 40 participants with nonaffective psychosis and found that 45% had hallucinations with themes similar to earlier traumas, most notably sexual abuse and bullying.

A more recent study by Reiff et al. (2011) used thematic content analysis to assess trauma-relevant content of adulthood psychotic symptoms, including VH, among 30 patients with diagnoses of schizoaffective disorder ( $n = 11$ ), schizophrenia ( $n = 9$ ), bipolar disorder ( $n = 7$ ), and major depressive disorder ( $n = 3$ ). Among other findings, the authors reported a congruent pattern between voice utterances and trauma representations in respondents endorsing experiences of physical abuse or sexual abuse in childhood ( $n = 22$ ). These allusions could be actual (e.g., the voice of a past abuser) or symbolic (e.g., malevolent, derogatory voices referring to “shame” or “wickedness”), and included perceptions of harm, threat, and directive commands to self-injure. However, it is not inevitable that VH content will directly reflect either a prior adverse experience or current painful reality. For example, voices in PTSD patients do not always meet the *DSM-IV* symptom criterion of reexperiencing in that content is incongruent with the original trauma (Anketell et al., 2010; Butler, Mueser, Sprock, & Braff, 1996; Hamner, Frueh, Ulmer, & Arana, 1999; Scott et al., 2007; Seedat, Stein, Oosthuizen, Emsley, & Stein, 2003).

According to Kilcommons et al. (2008), the presence of dissociative and PTSD symptoms should be routinely assessed in all individuals presenting to psychiatric services with VH, independent of diagnosis. Although most research has focused on schizophrenia-spectrum and trauma-spectrum conditions, two studies exist that suggest cross-diagnostic associations between trauma and VH. Hammersley et al. (2003) found a significant relationship between childhood trauma exposure, particularly sexual abuse, and adulthood VH in a sample of patients with doubly ratified diagnoses of bipolar disorder. In turn, Hammersley and Fox (2006) detected a virtually identical pattern in unipolar psychotic depression. Future research may hopefully expand and clarify the nature of these preliminary findings.

The reliance of this literature on cross-sectional methodology limits the conclusions that may be drawn regarding the prevalence, predictors, and clinical outcome of VH in response to life adversity. Fortunately, more recent research has addressed similar issues using larger samples and more controlled designs. In the United Kingdom, a retrospective study by Bebbington et al. (2004) assessed 8,580 adults from the National Survey of Psychiatric Morbidity using structured assessments by independent researchers. Respondents were asked to identify early victimization experiences (e.g., CSA, bullying, domestic violence). The study controlled for sociodemographic variables, nonpsychotic disorders, and interactions between different trauma categories. Among other findings, a significant association was detected between all but one of the victimization experiences (expulsion from school) and subsequent psychotic experience, including VH. In contrast, a prospective study in the Netherlands collected interview-based data from 4,045 adults in the general population who were free of either

expressed or subclinical psychotic symptoms (Janssen et al., 2004). The researchers controlled for a broad range of mediating factors including sociodemographic variables, substance abuse, and the presence of nonpsychotic disorders. Two years later, rates of psychosis were calculated with standardized clinical measures. On the basis of these assessments and baseline reports of childhood maltreatment, individuals abused before the age of 16 were significantly more likely to experience VH and/or delusions in the context of psychotic disorder than nonabused participants, even after adjustment for confounding variables.

**Nonclinical groups.** Nonpsychiatric voice hearers may also report traumatic life events. For example, Sommer et al.'s (2010) comparison of 103 nonclinical voice hearers found significantly higher scores on the Childhood Trauma Questionnaire (D. P. Bernstein & Fink, 1998) in the VH group compared with matched controls, whereas Honig et al. (1998) found that a sample of 15 voice hearers with no discernible mental disorder reported higher rates of childhood traumatization than would be expected in the general population, including emotional neglect (67%), physical abuse (47%), and sexual abuse (33%). In the United States, a sizable epidemiological review by Shevlin, Dorahy, and Adamson (2007) found a significant association between CSA and hallucinations in various modalities among 8,000 members of the general public. Age, gender, income, substance use, urbanicity, and depression were all controlled for. By including "noises" in its remit, this study did not limit its definition of auditory hallucination to principally verbal experiences. However, given that VH has been identified as the most common form of aural hallucinatory experience (Leudar & Thomas, 2000; Nayani & David, 1996), it seems reasonable to presume that a significant majority of Shevlin et al.'s participants were referring to hearing voices.

Associations between VH and other types of victimization have also been reported in nonclinical samples. For example, Lataster et al. (2006) administered self-report questionnaires to 1,290 fourteen-year-olds in the Netherlands as part of standard health screenings in the Youth Health Care Division of the Municipal Health Services. Analyses revealed strong and independent associations between nonclinical psychotic experiences, including VH, and self-report measures of bullying and sexual trauma. A prospective cohort study by Schreier et al. (2009) has also reported associations between peer victimization and VH. In a sample of 6,437 respondents (mean age 12.9 years), the risk of psychotic symptoms, including VH, increased twofold among those children who reported frequent and repeated bullying at ages 8 and/or 10 years. The results remained significant after controlling for IQ, adverse family circumstances, and prior psychopathology. Evidence for a dose-response relationship was also found, in that the risk for VH and other psychotic symptoms doubled when bullying was chronic and/or included multiple forms of relational (e.g., social exclusion, rejection, or isolation) and overt victimization (e.g., being physically attacked, being threatened, blackmailed, or having property stolen). In addition to physical and sexual abuse, a population-based survey with 211 adolescents aged 12–15 years identified bullying and witnessing domestic violence as significant predictors of VH, independent of comorbid psychiatric conditions or a family history of mental illness (Kelleher et al., 2008). Comparable results have been reported by other authors using an assortment of cross-sectional (Campbell & Morrison, 2007), prospective (Janssen et al., 2004; Mackie, Castellanos-Ryan, & Con-

rod, 2011), and retrospective (Bebbington et al., 2004) research designs.

In contrast, Andrew et al. (2008) examined whether trauma influences beliefs about voices by comparing the nature and prevalence of reported trauma (and associated psychological sequelae) in psychiatric ( $n = 22$ ) and nonpsychiatric ( $n = 21$ ) voice hearers. The latter were not formally assessed for evidence of mental illness, but were excluded if they reported past or current contact with psychiatric services. With the exception of CSA (which was reported by significantly more patients), assessment of trauma exposure using standardized inventories showed no other significant group differences in the prevalence of adulthood or childhood traumatic events. All the patients had psychotic diagnoses, although 78% exhibited trauma symptoms meeting the criteria for *DSM-IV* PTSD. Unsurprisingly, these symptom levels were significantly higher than in the nonclinical group, implying a greater persistence of the psychological effects of the trauma than in the nonpatients. Furthermore, trauma variables significantly predicted beliefs regarding the affective content and perceived omnipotence of the voices, with greater trauma symptoms associated with greater attributions of power and malevolence and lower rates of benevolence. On the basis of these findings, Andrew et al. suggested that trauma may precipitate VH in many individuals (hence the similar levels of exposure in each group) but that the nature of the trauma and the extent to which it remains unresolved may represent a maintaining factor by influencing an individual's beliefs about his or her voices. Given the small sample size, these findings cannot be reliably generalized, although the general direction of the results is consistent with other research into trauma and VH and provides a promising basis for further exploration.

**Trauma: Clinical and social considerations.** Taken together, the available literature suggests that VH may be linked to life adversity per se rather than to a particular *DSM* diagnosis. Moreover, the seeming influence of trauma in the genesis and mediation of distress provides a rationale for considering the role of life events during formulation and intervention with individuals experiencing VH (see subsequent sections under Therapeutic Implications). An emerging evidence base concerning patient understandings and attributions for their experience supports this contention. Of course, the explanations proffered by patients for their symptoms may or may not correspond to the actual causes. Furthermore, many individuals can derive comfort from illness models (e.g., VH as a symptom of biological disease, such as schizophrenia) and the therapeutic options they confer. However, some psychiatric patients show preferences for social and experiential interpretations of their distress (e.g., VH as a psychological response to adverse life events), arguing that such models value subjectivity, honor lived experience, and promote understandings that are less stigmatizing and disempowering than passive concepts of mental disease (see Geekie & Read, 2009).

For example, Q methodology has found that significant numbers of voice hearers endorse trauma exposure, personal sensitivity and developmental vulnerabilities (Dudley, Siitarinen, James, & Dodgson, 2009) or stress, psychological crisis, and problematic life events (S. Jones, Guy, & Omrod, 2003) as causes of their voices over biomedical explanations. Qualitative data suggest a similar inclination for psychosocial understandings. A large-scale study collating interviews with 50 voice hearers from Western Europe, North America, and New Zealand found that respondents cited the

cause of their VH onset as childhood experiences of sexual abuse (36%), emotional neglect (22%), or a combination of both (6%); school bullying (4%); chronic stress (4%); physical abuse (4%); or combined physical and sexual abuse (6%). Seven respondents did not identify clear traumatic events but were more inclined to privilege spiritual and/or religious frameworks than biomedical ones (Romme, Escher, Dillon, Corstens, & Morris, 2009). Interviews by Beavan (2007) with 50 voice hearers in New Zealand, 56% of whom were receiving psychiatric care, found that biological explanations (brain dysfunction or ingestion of substances) were endorsed by 38% of respondents, compared with 58% for psychological factors (interpersonal trauma, parts of the self, or cognitive processes) and 64% for spiritual factors. The high endorsement of the latter may be influenced by the number of participants with Māori heritage (12%), for whom VH is generally regarded as a common cultural phenomena. In contrast, questionnaire measures with 154 participants, 55% of whom were using mental health services, found that although 28% rejected the notion of a causal connection between adverse life experiences and VH, 23% endorsed a moderate connection, and 16% unequivocally believed VH was linked to life circumstances. Only 9% believed that their VH was caused by “brain disorder or brain disease” (Beavan, 2007, p. 115). In other research, factors such as cultural and spiritual events (Taitimu, 2005), fragmentation and invalidation (Anketell, Dorahy, & Curran, 2011; Geekie & Read, 2009), and interpersonal sensitivity (e.g., Fenekou & Georgaca, 2010) have also emerged as significant, subjective attributions for the cause of one’s voices. In this respect, research into the efficacy of antistigma campaigns has found that explanations for mental health problems that emphasize social factors (like trauma) are related to lower prejudice and greater empathy and tolerance within the general public (Read, Haslam, Sayce, & Davies, 2006). In contrast, biomedical explanations were found to positively relate to perceptions of instability and dangerousness and a consequent desire for social distance (Read, 2007; Read, Haslam, et al., 2006; Walker & Read, 2002).

Trauma and the development and/or maintenance of VH appear to be related in complex and reciprocal ways. However, given that a range of painful, damaging events may precipitate emotional breakdown, it is important to emphasize that definitions of trauma should not be limited to physical or sexual maltreatment. Not all adversity is traumatic in the restricted, life-threatening sense required for a diagnosis of PTSD. According to González de Chávez (2011), voices may confront issues “that are fundamental [to the voice hearer] and are a reaction, either to frustrated aspirations, to a serious trauma or to other situations that they have not been able to resolve and in whose presence they feel impotent” (p. xiv). For example, Romme and Escher (1989, 2000) examined a broad and subjective selection of circumstances, including abortion, bereavement, peer rejection, social isolation, psychological shame, and serious physical illness or injury, whose intense emotional impact may have precipitated initial occurrence of VH. Other experiences implicated in the onset and continuance of VH in the context of psychological breakdown include social marginalization on the basis of race (e.g., Sproston & Nazroo, 2002) or poverty (e.g., Harrison, Gunnell, Glazebrook, Page, & Kwiecinski, 2001), as well as “more mundane but also very damaging experience . . . such as serious communication problems and enmeshment in [dysfunctional] families” (Boyle, 2006).

Finally, although VH is not always a negative event (indeed, classifying voices as negative or positive is highly subjective; Pierre, 2008), there is some evidence to suggest that it may initially be experienced as so shocking and disturbing as to precipitate PTSD (Mueser, Lue, Rosenberg, & Wolfe, 2010), particularly in conjunction with forced hospitalization, seclusion, or sedation (Shaw, McFarlane, Bookless, & Air, 2002). For example, one study using conventional types of trauma exposure as exclusion criteria found that 60% of patients diagnosed with schizophrenia and 15% of those diagnosed with bipolar disorder identified VH and/or delusions as trauma inducing, with one third of the first group and half of the second meeting PTSD criteria on a clinical inventory (Kennedy et al., 2002). Such findings reinforce the need for sensitivity and open-mindedness on the part of clinicians when exploring the meaning and impact of a patient’s VH experiences.

**Associations between voice hearing and dissociation.** Although VH can manifest in a broad range of psychotic and non-psychotic conditions, it seems persuasive and plausible that dissociative mechanisms are an important underlying mediator for VH experiences per se. Although research has demonstrated associations between life adversity and VH, more precise evidence has also been established that links psychotic symptomatology generally, and VH specifically, to indices of dissociation (see Table 3). Despite the number of studies available, this emerging literature is currently limited to research using cross-sectional designs and relatively small sample sizes. Particularly lacking are longitudinal studies, multisite research, randomized designs, and the recruitment of ethnoracially diverse samples. Future investigations may hopefully confirm the initial clinical impressions using more large-scale, controlled methodologies.

**Clinical populations.** The putative relationship between VH and dissociation has now been examined within a broad range of psychiatric syndromes.

**Patients with psychotic disorders.** Numerous studies have investigated the links between VH, trauma, and dissociation among samples of psychotic patients. An early exploratory study by Spitzer, Haug, and Freyberger (1997) compared a convenience sample of 27 inpatients with stable, long-term (an average of 12 years) diagnoses of *International Classification of Diseases* (10th revision) schizophrenia with nonclinical controls matched for gender and age. Unsurprisingly, the patients exhibited significantly more dissociative symptoms. However, those patients demonstrating predominantly positive symptoms of schizophrenia (e.g., VH, delusions, grandiosity) showed significantly higher levels of dissociation than those with principally negative symptomatology (e.g., blunted affect, social and emotional withdrawal). Out of seven categories of positive symptoms, as measured by standardized clinical scales, VH showed the strongest and most significant association with scores on the Dissociative Experiences Scale (DES; E. M. Bernstein & Putnam, 1986). In addition, VH was the only positive symptom to significantly correlate with all three subscales of the DES: amnesia, depersonalization, and absorption (self-focused attention and loss of metacognitive perspective).

In one of the few studies using random sampling, Ross and Keyes (2004) assessed indices of dissociation in 60 patients with a stable, long-term diagnosis of *DSM-III* schizophrenia. Analysis showed that participants exhibiting the highest levels of clinician-rated dissociation ( $n = 36$ ) were significantly more likely (a) to have experienced sexual and/or physical abuse, (b) to have been

Table 3  
*Empirical Investigations of the Link Between Voice Hearing, Trauma, and Dissociation*

| Investigator                  | <i>n</i> | Sample  | Design                                  | Measures                     |  |              |  | Main findings   |
|-------------------------------|----------|---|---|------------------------------|--|--------------|--|---|
|                               |          |   |   | VH                           | Trauma                                       | Dissociation |  |   |
| Altman et al. (1997)          | 38       | Convenience sample of adolescents with VH and/or delusions but not meeting diagnostic criteria for psychosis; mean age = 15.9 years ( <i>SD</i> = 1.6); female-to-male ratio: 17:21   | Cross-sectional                         | Clinical populations<br>CIDI | —  | DES          |  | After controlling for schizotypal cognitions and affective disturbance, DES scores were a significant predictor of VH.  |
| Spitzer et al. (1997)         | 54       | Convenience sample of 27 patients diagnosed with schizophrenia; convenience sample of 27 nonclinical controls matched for gender and age; mean age = 40.9 years ( <i>SD</i> = 11.6); female-to-male ratio: 24:30  | Cross-sectional                         | PANSS                        | —  | DES          |  | Patients scored significantly higher on the DES than nonpatient controls. Higher DES scores in patients with positive, as opposed to negative, symptoms of schizophrenia. Out of seven categories of positive symptoms, VH showed the strongest associations with total DES scores and its three subscales. |
| Ross & Keyes (2004)           | 60       | Random sample of patients with schizophrenia; mean age = 40.1 years ( <i>SD</i> = 13.4); female-to-male ratio: 23:37  | Cross-sectional                         | SAPS                         | Medical record review and clinical interview | DES, DDIS    |  | High dissociators (i.e., DES scores > 10) reported elevated rates of childhood trauma and exhibited significantly more first-rank symptoms of schizophrenia, including Schneiderian-type VH, than low dissociators (i.e., DES scores < 10).   |
| Kilcommons & Morrison (2005)  | 32       | Convenience sample of patients with schizophrenia spectrum disorders; mean age = 34.5 years ( <i>SD</i> = 9.9); female-to-male ratio: 7:25  | Cross-sectional                         | PANSS                        | THQ, PTSDSS, PTCI                            | DES          |  | Sexual abuse significantly associated with VH. Dissociation and negative beliefs formed as a result of trauma associated with psychotic experiences generally and VH in particular.   |
| Perona-Garcelán et al. (2008) | 68       | Convenience sample of 17 patients with schizophrenia actively hearing voices; convenience sample of 16 patients with schizophrenia no longer hearing voices; convenience sample of 18 patients with schizophrenia who had never heard voices; random sample of 17 nonclinical controls; mean age = 38.7 years ( <i>SD</i> = 9.1); female-to-male ratio: 20:48 | Cross-sectional controlled cohort study | PANSS                        | —  | DES          |  | The group actively experiencing VH had significantly higher DES scores than the other three groups. The recovered VH patients scored significantly higher than the patients who had never heard voices.   |

Table 3 (continued)

| Investigator                   | <i>n</i> | Sample   | Design                                  | Measures                                    |           |              |  | Main findings   |
|--------------------------------|----------|--|---|---|-----------|--------------|--|---|
|                                |          |  |   | VH  | Trauma    | Dissociation |  |   |
| Schäfer et al. (2008)          | 103      | Convenience sample of patients with schizophrenia spectrum disorders; mean age = 33.5 years ( <i>SD</i> = 11.2); female-to-male ratio: 34:66   | Cross-sectional                         | PANNS, MI                                   | CTQ, PTCI | DES          |  | Significant correlations between trauma measures and DES scores, and between DES scores and VH.   |
| Dorahy, Shannon, et al. (2009) | 63       | Convenience sample of 16 patients with schizophrenia and a history of childhood abuse; convenience sample of 18 patients with schizophrenia and no abuse history; convenience sample of 29 patients with DID; mean age = 41.6 years ( <i>SD</i> = 11.1); female-to-male ratio: 36:27 | Cross-sectional                         | MUPS  | CTQ       | DES-T, DDIS  |  | Dissociation predicted the likelihood of having more than two voices, experiencing command hallucinations, and having voice content reflect previous experience. Childhood abuse, and the interaction between abuse and dissociation, significantly improved the prediction of VH beginning before age 18. Compared with those without voices, individuals reporting VH did not differ on PTSD symptom severity, but had higher general and pathological dissociation scores. |
| Anketell et al. (2010)         | 40       | Convenience sample of 20 patients with PTSD who heard voices; convenience sample of 20 patients with PTSD who had never heard voices; mean age = 45.2 years ( <i>SD</i> = 12.4); female-to-male ratio: 8:32  | Cross-sectional controlled cohort study | PANSS                                       | PTSDS     | DES          |  | Compared with those without voices, individuals reporting VH did not differ on PTSD symptom severity, but had higher general and pathological dissociation scores.  |
| Brewin & Patel (2010)          | 158      | Convenience sample of 93 military veterans with current PTSD; convenience sample of 21 military veterans recovered from PTSD; convenience sample of 44 military veterans with no PTSD; mean age = 36.3 years ( <i>SD</i> = 4.2); female-to-male ratio: 6:152                         | Cross-sectional controlled cohort study | DES   | SCID-IV   | DES-T, PTDEQ |  | Rates of VH were significantly correlated with DES-T and PTDEQ scores across all three samples.   |
|                                | 82       | Convenience sample of 30 patients with PTSD Convenience sample of 39 patients with depression; convenience sample of 13 adults exposed to trauma but without PTSD; mean age = 37.9 years ( <i>SD</i> = 10.8); female-to-male ratio: 45:37  | Cross-sectional controlled cohort study | DES, semistructured interview (the authors) | PTSDSS    | DES-T        |  | Compared with control groups, PTSD patients scored significantly higher on the DES-T and endorsed significantly higher rates of VH. VH was significantly associated with dissociation measures for the PTSD patients independently of comorbid depression or trauma exposure. (table continues)   |



Table 3 (continued)

| Investigator                     | <i>n</i> | Sample  | Design                                  | Measures                        |   |              |  | Main findings  |
|----------------------------------|----------|---|---|---------------------------------|---|--------------|--|--|
|                                  |          |   |   | VH                              | Trauma                                  | Dissociation |  |  |
| Perona-Garcelán et al. (2010)    | 39       | Convenience sample of 37 patients with schizophrenia and 3 with schizoaffective disorder; mean age = 36.5 years ( <i>SD</i> = 8.1); female-to-male ratio: 6:31  | Cross-sectional                         | PANSS                           | DTS                                     | DES-II       |  | Patients with VH had experienced a higher number of traumatic childhood events than patients without VH. Patients with childhood traumas had higher DES-II scores than those without, and patients with VH and delusions scored higher on the DES-II than patients without these experiences. Patients experiencing VH had significantly higher depersonalization scores than the other groups, and significantly higher absorption scores than any group except the nonpsychotic clinical controls. |
| Perona-Garcelán et al. (2011)    | 124      | Convenience sample of 27 patients with schizophrenia actively hearing voices; convenience sample of 20 patients with schizophrenia who experienced delusions but no longer heard voices, or had never heard them; convenience sample of 28 patients who had recovered from all positive symptoms of schizophrenia; convenience sample of 22 patients with nonpsychotic psychiatric diagnoses; random sample of 27 nonclinical controls; mean age = 37.9 years ( <i>SD</i> = 9.8); female-to-male ratio: 46:78 | Cross-sectional controlled cohort study | PANSS                           | —                                       | CDS, TAS     |  | Patients experiencing VH had significantly higher depersonalization scores than the other groups, and significantly higher absorption scores than any group except the nonpsychotic clinical controls.   |
| Startup (1999)                   | 224      | Epidemiological; random nonclinical adult sample; mean age = 39.1 years ( <i>SD</i> = 18.5); female-to-male ratio: 144:80   | Cross-sectional                         | Nonclinical populations<br>UNEX | Self-report measures of childhood abuse | DES          |  | High positive correlations between DES scores and VH; Rates of childhood abuse accounted for small but significant amounts of variance in both DES and UNEX scores.  |
| Glicksohn & Barrett (2003)       | 656      | Convenience sample of university students; mean age = 23 years ( <i>SD</i> not stated); female-to-male ratio: approximately 420:195   | Cross-sectional                         | LSHS, BHQ                       | —                                       | DES          |  | Twenty-five percent shared variance between DES scores, actual VH, and predisposition toward VH.   |
| A. P. Morrison & Petersen (2003) | 64       | Epidemiological; random nonclinical adult sample; mean age = 21 years ( <i>SD</i> = 6.9); female-to-male ratio: 56:8  | Cross-sectional                         | RHS, IVI                        | PTCI, PTSDS                             | DES          |  | Significant associations between predisposition for VH and trauma-related variables, specifically dissociative processes and negative metacognitive beliefs about the world.   |

Table 3 (continued)

| Investigator             | n  | Sample  | Design                                  | Measures         |                |              |  | Main findings  |
|--------------------------|----|---|---|------------------|----------------|--------------|--|--|
|                          |    |   |   | VH               | Trauma         | Dissociation |  |  |
| Kilcommons et al. (2008) | 80 | Convenience sample of 40 nonclinical survivors of child- or adulthood sexual assault; random sample of 40 nonclinical, nonassaulted controls; mean age = 25.4 years ( <i>SD</i> = 9.2); female-to-male ratio: 70:10 | Cross-sectional controlled cohort study | RHS, PSYRATS, MI | DTS, PTCI, SEQ | DES          |  | Significantly higher rates of VH, visual hallucinations, and delusional ideation within the traumatized group. Severity of assault trauma significantly associated with the severity of delusions and hallucinations. DES scores positively associated with all measures of "psychotic" phenomena, including VH. |

*Note.* Dash indicates information not assessed. VH = voice hearing; CID-I = Composite International Diagnostic Interview (Robins et al., 1982); DES = Dissociative Experiences Scale (Carlson & Putnam, 1993); PANNS = Positive and Negative Syndrome Scale for Schizophrenia (Kay et al., 1988); SAPS = Scale for Assessment of Positive Symptoms (Andreasen, 1984); DDIS = Dissociative Disorders Interview Schedule (Ross, 1997); THQ = Trauma History Questionnaire (Green, 1996); PTSDDS = Posttraumatic Stress Disorder Symptom Scale (Foa et al., 1993); MI = Maastricht Interview for People Who Hear Voices (Rommé & Escher, 2000); CTQ = Childhood Trauma Questionnaire (Bernstein & Fink, 1998); PTCTI = Posttraumatic Cognitions Inventory (Foa et al., 1999); MUPJS = Mental Health Research Institute Unusual Perceptions Schedule (Carter et al., 1995); DES-T = Dissociative Experiences Scale-Taxom (Waller et al., 1996); PTSDDS = Posttraumatic Stress Diagnostic Scale (Foa, 1995); SCID-IV = Structured Clinical Interview for DSM-IV (First et al., 1997); PTDEQ = Peritraumatic Dissociative Experiences Questionnaire-Rater Version (Marmar et al., 1997); DTS = Davidson Trauma Scale (Davidson, 1996); CDS = Cambridge Depersonalization Scale (Sierra & Berrios, 2000); TAS = Tellegen Absorption Scale (Tellegen & Atkinson, 1974); UNEX = Oxford-Liverpool Inventory of Feelings and Experiences: Unusual Experiences subscale (Mason et al., 1995); LSHS = Launay-Slade Hallucination Scale (Launay & Slade, 1981); BHQ = Barrett Hallucination Questionnaire (Barrett & Eatheridge, 1992); RHS = Revised Hallucinations Scale (Launay & Slade, 1981); IVI = Interpretation of Voices Inventory (A. P. Morrison et al., 2000); PSYRATS = Psychotic Symptom Rating Scale (Haddock et al., 1999); SEQ = Sexual Events Questionnaire (Calam & Slade, 1989).

sexually abused by multiple perpetrators, (c) to have been exposed to multiple forms of sexual abuse, and (d) to report significantly more first-rank symptoms of schizophrenia, including Schneiderian-type VH, than the "low dissociators." Similar results are reported by Schäfer et al. (2008) in a sample of 103 partly remitted patients with schizophrenia-spectrum diagnoses and a history of childhood trauma, in which dissociation, particularly depersonalization and derealization, was significantly associated with VH.

In contrast, an elegant study by Perona-Garcelán et al. (2008) examined the VH experiences of patients with *DSM-IV* criteria schizophrenia ( $n = 17$ ) in comparison to three control groups: a nonclinical population ( $n = 17$ ) and patients with *DSM-IV* schizophrenia who had either ceased to hear voices ( $n = 16$ ) or never heard voices ( $n = 18$ ). The population actively experiencing VH had a significantly higher percentage of dissociative experiences than the other three groups. In turn, the patients who had recovered from their VH experiences had significantly lower scores than those who had never heard voices. The authors concluded that dissociation is a "relevant factor in understanding hallucinatory phenomenon" (p. 195). Unfortunately, however, the possible trauma history of the sample was not assessed. Later research using a similar design (Perona-Garcelán et al., 2011) reached comparable conclusions. In this instance, individuals diagnosed with *DSM-IV* schizophrenia and experiencing VH were compared with four control groups: patients diagnosed with schizophrenia experiencing delusions but not VH ( $n = 20$ ), patients who had recovered from all positive symptoms of schizophrenia ( $n = 28$ ), patients with nonpsychotic psychiatric diagnoses ( $n = 22$ ), and a nonclinical group ( $n = 22$ ). The VH population scored significantly higher than all the other groups on measures of depersonalization and higher than all but the nonpsychotic clinical controls on measures of absorption. Correlations between depersonalization and absorption were also stronger in the VH population than in any other group. Again, however, possible trauma histories were not assessed.

Further evidence for the putative links between trauma, dissociation, and VH is provided by Kilcommons and Morrison (2005), who explored the prevalence of life adversity in a convenience sample of 32 patients meeting *DSM-IV* criteria for schizophrenia spectrum disorders. Clinical assessment established that 94% had been exposed to at least one traumatic event that met the stressor criterion for *DSM-IV* PTSD. After controlling for the extent of the trauma, dissociative variables (particularly depersonalization) were a significant predictor of VH. Furthermore, VH had stronger statistical associations with PTSD variables, posttrauma cognitions, and dissociation than any other psychotic symptom. Likewise, Perona-Garcelán et al. (2010) investigated indices of VH, trauma, and dissociation among a cross-sectional sample of 37 patients with *DSM-IV* schizophrenia and schizoaffective disorder. Individuals with VH reported significantly more dissociative experiences and traumatic childhood events than those without, although there was no difference between the two groups in terms of adulthood trauma exposure.

*Patients with nonpsychotic conditions.* Other authors have recruited participants with nonpsychotic diagnoses. One of the earliest investigations was with a convenience sample of 38 adolescents with a history of childhood abuse exhibiting VH, affective dysfunction, and schizotypy (a dimensional construct describing a

continuum ranging from dissociative, imaginative states to more extreme states related to psychosis) but deemed subclinical in that they did not meet criteria for a psychotic disorder (Altman, Collins, & Mundy, 1997). After controlling for affective disturbance and schizotypal cognitions, dissociation was found to be a significant predictor of VH. In contrast, Anketell et al. (2010) examined the VH experiences of 40 patients diagnosed with chronic PTSD. Compared with a control group (PTSD without VH), the VH group exhibited significantly higher levels of dissociation, although there were no differences in measures of PTSD symptom severity or thought suppression. Earlier research with the same VH sample (Dorahy, Corry, et al., 2009) found that they had also experienced extensive childhood maltreatment (particularly sexual abuse and emotional neglect) in addition to adulthood trauma, although no formal comparison with the non-VH group was conducted. Similar results have been reported by Brewin and Patel (2010), who assessed VH experiences in civilian PTSD patients ( $n = 30$ ) and military populations with current PTSD ( $n = 93$ ), past PTSD ( $n = 21$ ), or no PTSD ( $n = 44$ ). Rates of VH were highest in the veterans with current or past PTSD and were significantly associated with measures of dissociation across all three groups. The civilians with PTSD also had significantly higher rates of VH and dissociation than control groups of depressed patients ( $n = 39$ ) and adults exposed to trauma but without PTSD ( $n = 30$ ). Furthermore, measures of dissociation were significantly associated with levels of VH, an effect that was independent of trauma exposure or comorbid depression. Unfortunately, low statistical power precluded an exploration of hypothetical pathways between VH and child versus adulthood trauma exposure, or single incident versus multiple traumas.

**Nonclinical samples.** In addition to psychiatric patients, evidence for links between VH, trauma, and dissociation have been found in nonclinical groups. In one of the few population-based surveys, Startup (1999) conducted a cross-sectional analysis of self-report measures of dissociation, childhood abuse, and schizotypy within 224 members of the U.K. general public. High positive correlations were found between measures of dissociation, VH, and other “perceptual aberrations” that remained significant when items with overlapping content were excluded. Measures of abuse, specifically sexual and physical maltreatment, also accounted for small but significant amounts of variance in the DES scores and rates of unusual perceptual experiences. T. Morrison and Petersen (2003) also examined the effects of trauma and dissociation on “hallucinatory predisposition” among 64 nonclinical participants. Significant associations were found between VH and trauma-related variables, specifically dissociation and negative metacognitive beliefs about the world. VH predisposition was higher in individuals reporting multiple- as opposed to single-incident trauma, with the most significant associations found between VH and childhood emotional abuse. Contrary to the authors’ expectations, dissociation variables were a better predictor of VH predisposition than positive appraisals of hallucinations.

In contrast, Glicksohn and Barrett (2003) reported 25% shared variance between DES scores, measures of actual VH, and predisposition to VH among 252 undergraduate college students. Within this sample, 53 individuals (21%) were classified as exhibiting *pathological dissociation* (i.e., extreme dissociative divisions in the personality). Compared with the low dissociators, this group scored higher on questionnaires assessing both actual VH experi-

ences and predisposition to VH. More recently, Kilcommons et al. (2008) compared a randomly sampled group of sexually traumatized individuals ( $n = 40$ ) with a control group with no history of reported sexual assault ( $n = 40$ ) and found a significantly higher rate of VH, visual hallucinations, and delusional ideation within the traumatized group. The severity of assault trauma was significantly associated with the severity of symptomatology, and DES scores were positively associated with all measures of psychotic phenomena, including VH.

**Depersonalization and absorption.** Further research may help identify the aspects of dissociation most closely allied with VH. According to Kilcommons and Morrison (2005) and Perona-Garcelán et al. (2008, 2011), depersonalization is the only factor on the DES that specifically predicts VH. In turn, Watson (2001) has suggested that depersonalization is not clearly distinguishable from schizotypy. In this respect, Barkus et al. (2011) found that high levels of schizotypy predicted proneness toward VH among 76 healthy college students, whereas Merckelbach, Rassin, and Muris (2000) reported significant associations between schizotypy and dissociation in both nonclinical and clinical populations, a relationship that could not be accounted for by fantasy proneness. The fact that depersonalization is a common psychiatric complaint suggests that, in psychological terms, it may be a continuous variable that perhaps manifests at its most severe form in DID and VH (Dell, 2002). Perona-Garcelán et al. (2008, 2011) proposed that in addition to its continuous nature, depersonalization can almost certainly be understood in terms of its level of specificity: global in DID but relatively localized in VH. This relationship is worthy of further investigation, particularly in terms of whether VH forms part of a depersonalization disorder or whether, as speculated by Perona-Garcelán et al. (2008), they are discrete experiences with a shared cause.

Absorption has also been nominated as a potential dissociative mechanism in VH (Perona-Garcelán et al., 2008, 2010, 2011; Spitzer et al., 1997; Startup, Startup, & Sedgman, 2008), as well as a predictor of VH in nonclinical controls (Glicksohn & Barrett, 2003; T. Morrison & Petersen, 2003; Parra, 2007). Although healthy individuals can exhibit elevated levels of absorption, populations with dissociative disorders generally have especially high scores on absorption measures, although the clinical significance of such scores may not always be immediately apparent (Bremner, 2010; Levin, Sirof, Simeon, & Guralnick, 2004). Further research may clarify whether the nature and severity of absorption experiences can advance understandings of depersonalization and VH. For example, the finding that measures of depersonalization and absorption are strongly correlated in some voice hearers implies that intense preoccupation with negative mental events may promote and/or intensify depersonalization experiences (Perona-Garcelán et al., 2011). This is consistent with the perspective of Castillo (2003), who characterized VH as spontaneous, episodic trance states (i.e., extreme states of absorption) in which individuals dissociate from objective reality and, by focusing attention on imaginary structures or traumatic memories, enter fully a subjective fantasy. In contrast, Perona-Garcelán et al. (2011) proffered the intriguing suggestion that absorption could be more characteristic of subclinical VH, whereas depersonalization (and its attendant sense of alarm and unease) is the dissociative variable that particularly distinguishes clinical VH experiences.

**Determining psychosis.** If VH is more appropriately understood as dissociative, what variables may predict why some voice hearers become psychotic and others do not? The first study to systematically explore differential VH outcomes was conducted by Escher, Romme, Buiks, Delespaul, and van Os (2002b) in a 3-year project with 80 children (mean age 12.9 years). Although all participants reported VH at baseline, only half ultimately required psychiatric assistance, and by the end of the study 60% had stopped hearing voices. However, neither the development of psychosis nor the receipt of psychiatric care influenced VH persistence. Instead, variables apparently determining voice continuation included dissociation (voices were more likely to cease in children who exhibited fewer dissociative tendencies), a lack of obvious spatial and temporal prompts (i.e., voices were perceived as omnipresent), and clinician-rated seriousness of VH at baseline (defined as the frequency of VH and its negative influence on emotions and behavior). In turn, depression and anxiety were the greatest determinants of VH persistence and the most significant indicator of developing subsequent psychosis (Escher et al., 2004; Escher, Romme, Buiks, Delespaul, & van Os, 2002a; Escher et al., 2002b). Yoshizumi, Murase, Honjo, Kanedo, and Murakami (2004) have similarly suggested that children experiencing hallucinations (in all modalities) in association with depression, anxiety, or dissociation are at greater risk of developing psychosis. This premise is consistent with A. P. Morrison's (1998) classic theory of voice continuance, whereby depression and anxiety (though not dissociation) are considered significant determinants of VH persistence and subsequent clinical need.

In adults, a prospective cohort study by Krabbendam et al. (2004) reached some comparable conclusions. A random sample of 4,670 individuals with no lifetime evidence of any psychotic disorder was assessed with the CIDI at baseline and at 1 and 3 years later. Demographic variables, lifetime presence of depression, and the presence of delusional ideation at Time 2 were all controlled for. After adjusting for potential confounding variables, individuals reporting VH at baseline and depression at Year 1 had a significantly higher risk of developing psychosis at Year 3 compared with nondepressed voice hearers (see also De Loore et al., 2011). This is consistent with the frequently reported finding that affective dysregulation is a prominent factor in the formation of functional psychotic syndromes (e.g., Bentall et al., 2009; Birchwood & Chadwick, 1997; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001; Myin-Germeys & van Os, 2007; B. Smith et al., 2006).

In terms of nonclinical populations, an analysis of 327 university students revealed that higher levels of anxiety, along with self-focused attention and extreme responding (i.e., a fatalistic, dichotomous cognitive style), were the most significant predictors of hallucinatory predisposition in terms of Launay-Slade Hallucination Scale scores (P. Allen et al., 2005). Similar results have been reported by Varese, Barkus, and Bentall (2011) among 67 healthy college students, whereby VH proneness was strongly associated with negative intrusive thoughts, self-focused attention, and dissociation.

In view of the evidence, a further consideration is that trauma exposure may be an important variable for differentiating distressed from nondistressed voice hearers. A substantial body of data now exists to suggest that traumatic events and/or PTSD-type trauma symptoms augment the severity of psychotic symptomatol-

ogy (e.g., Duke, Allen, Ross, Strauss, & Schwartz, 2010; Hainsworth, Starling, Brand, Groen, & Munro, 2011; Kilcommons & Morrison, 2005; Lysaker & LaRocco, 2008; Newman, Turnbull, Berman, Rodrigues, & Serper, 2010; Read et al., 2003; Schenkel, Spaulding, DiLillo, & Silverstein, 2005). Correspondingly, research suggests that although initial appraisals of VH as negative and threatening are a significant predictor of subsequent incapacity (Chadwick & Birchwood, 1994; A. P. Morrison, 1998, 2001; A. P. Morrison, Nothard, Bowe, & Wells, 2004; A. P. Morrison, Renton, Dunn, Williams, & Bentall, 2004), such judgments appear more likely to be made by traumatized than nontraumatized individuals (Andrew et al., 2008; Bak, Krabbendam, et al., 2005; Chisholm, Freeman, & Cooke, 2006; Read et al., 2003). This is consistent with the established finding that trauma exposure in childhood results in heightened sensitivity to stress and perceived threat (e.g., Bremner, 2002; Nemeroff, 2004; Read et al., 2001). For example, Offen, Waller, and Thomas (2003) interviewed a group of VH patients with psychotic disorders and found that CSA was associated with higher levels of depression, dissociation, and tendencies to regard voices as more hostile, an effect that was greatest when abuse occurred at a young age. In this respect, A. P. Morrison, Frame, and Larkin (2003) have emphasized the continuity between PTSD and cognitive models of psychosis, arguing that negative or threatening interpretations of posttraumatic intrusions (and subsequent cognitive and behavioral responses to them) may be implicated in the development of psychotic experience. Likewise, A. P. Morrison's (1998) seminal theory of voice continuance describes how initially nonpathological VH can ultimately provoke psychosis through the perception of voices as "threatening . . . [the voice hearer's] physical or psychological integrity" (p. 296), subsequently inducing avoidance, depression, hyperarousal, and hypervigilance. Similar results have also been reported in traumatized nonclinical groups, wherein PTSD-type "reexperiencing" symptoms were a significant predictor of VH experiences among 228 university students with self-reported exposure to traumatic life stressors (Gracie et al., 2007).

This kind of ego-dystonic, posttraumatic intrusion is consistent with the notion of VH reflecting dissociated traumatic content (e.g., the persecutory voice of a past abuser) intruding into conscious awareness (Moskowitz, Read, Farrelly, Rudegear, & Williams, 2009) and/or survivors internalizing responsibility for their abuse or misattributing the malice expressed by the perpetrator when maltreatment occurred (Herman, 1992). In terms of CSA, a further relevance is the well-documented phenomenon of abuse survivors identifying with the perpetrator (whereby individuals make themselves and/or their body a locus for blame, guilt, and shame, often driving self-injurious and suicidal behaviors; Herman, 1997). Not only do these imperatives impede effective therapy, they can effectively perpetuate the abuse, and in terms of VH it is apparent how they might become dissociated, disowned, and embodied as derogatory and punitive voices. Indeed, according to van der Hart et al. (2006), exposure to trauma (particularly early, relational trauma) may splinter the personality into systems that are preoccupied by adverse events, counterbalanced by systems focused on daily functioning. This can be seen as one of the core dynamics of dissociation: a structural partition of the psychobiological action systems constituting personality, wherein sensory and psychological representations of overwhelming events fail to be integrated (Dorahy & van der Hart, 2007). In this respect, VH



could be characterized as disaggregated representations of past events (i.e., trauma fixated) that aurally encroach on functioning-focused parts of the personality and are perceived as perceptually and cognitively decontextualized (i.e., experienced as current rather than understood in the context of past events; Moskowitz et al., 2009). This view is consistent with Bromberg's (1995) suggestion that dissociated traumatic content may not be characterized as self-referential, instead manifesting as an ego-dystonic, "alien" self that appears disengaged from autobiographical experience.

Such theorizing may also provide partial explanation of the paranoid delusions that, in the context of psychosis, often accompany VH. Significantly, insight is not strictly an experienced part of VH in that it does not appear to derive from any specific characteristics, such as location, volume, or frequency (Moskowitz & Corstens, 2007). Rather, evidence suggests that beliefs about voice origin are a function of subsequent appraisals by the voice hearer, a so-called secondary delusion (Brett et al., 2007; de Koning et al., 2009; Escher et al., 2002a; Freeman, Pugh, Vorontsova, Antley, & Slater, 2010; Maher, 2006; Moskowitz et al., 2009). Delusions could therefore be partly understood as confused efforts to explain anomalous events (i.e., a menacing, punitive, and disembodied voice), particularly among those who readily attribute affective, atypical, and negative occurrences to suspected external dangers (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Dodgson & Gordon, 2009; Henquet, Krabbendam, Dautzenberg, Jolles, & Merckelbach, 2005; A. P. Morrison, 2001, 2004; A. P. Morrison, Renton, et al., 2004). For example, a cross-sectional study in the United Kingdom with 200 members of the general public found that trauma exposure, particularly CSA, was significantly associated with persecutory ideation and VH (Freeman & Fowler, 2009). Anxiety was a significant mediator of the association between trauma and paranoia, but not trauma and VH. In contrast, a prospective, 10-year study of 2,524 German adolescents reported that although delusion content appears contingent on the presence of hallucinations, VH is not contingent on the presence of delusions (Smeets et al., 2010). Compared with those experiencing VH or delusions in isolation, individuals with co-occurring symptoms exhibited the greatest clinical need, higher comorbidity for negative symptoms, and higher rates of mood disorders, anxiety, suicidal ideation, and nongenetic risk factors (e.g., childhood abuse, urbanicity). The authors stated that, at least in the early stages of psychosis, VH experiences that become "complicated by delusional ideation under the influence of environmental risk . . . give rise to a poor prognosis" (p. 1). Delusions can, of course, manifest without voices. Although this issue is beyond the scope of this review, it is notable that some theorists have suggested that just as VH in the context of psychosis can be seen as analogous to dissociated trauma flashbacks, the delusions of some traumatized psychotic individuals may be analogous to hypervigilance considered indicative of PTSD (Muenzenmaier, Castille, & Shelley, 2005; Read et al., 2005).

**The relevance of attachment theory.** A final consideration as to how adversity, VH, and dissociation are linked may be partially answered by literature from the attachment field. The fact that nontraumatized persons can exhibit dissociative tendencies (including VH) and some trauma survivors do not implies that other variables may moderate the etiology and development of

dissociation (Korol, 2008). One candidate variable is early attachment and its subsequent impact on interpersonal experience.

According to Bowlby's (1969) internal working model of attachment, formative experiences with a caregiver shape and maintain mental representations of the self in relation to others. Within this formulation, attachment can be seen as a stable progression of cognitive, affective, and behavioral styles that persist into adulthood (Collins & Read, 1990). Although insecure attachment is believed to increase vulnerability for psychopathology per se, there is also evidence to support the putative role of attachment styles for mediating between early adversity and subsequent psychological functioning. For example, Rosenstein and Horowitz (1996) suggested that attachment quality shapes the extent to which individuals can adapt to developmental deviations while remaining psychologically healthy. Thus, although secure attachment to a nonabusive caregiver may buffer stress responses (Alexander, 1992) and enhance adaptive coping potentials (Shapiro & Levensky, 1999), avoidant, anxious, or disorganized attachment may increase vulnerability to pathological levels of emotional distress and/or cognitive disturbance (Liotti, 2004).

More specifically, attachment quality may also provide a diathesis for dissociation. When confronted with a confusing or alarming attachment figure, infants are faced with the unsolvable dilemma of seeking comfort from the very cause of their fear: the caregiver. According to Sroufe (2005), "collapse of strategies, rapid state changes, and other proto-dissociative mechanisms [are all that are] available. . . . Thus, a prototype of psychic collapse or segregating experience [is] established" (p. 361). Lyons-Ruth (2003) similarly suggested that emotionally unavailable caregivers who do not engage in integrated dialog with a child (in terms of affective, symbolic, and interactive components) prime the infant for developing dissociated mental representations. In turn, impaired mental integration can be further compromised by stress or trauma exposure in later life and act as positive feedback to augment symptom severity (Lyons-Ruth, 2003). Furthermore, using dissociation as a habitual way to cope with anxiety may hinder the development of a coherent, integrated sense of self, as well as compound disaggregations in memory continuity and personality formation (Putnam, 1989, 1997). For example, in a sample of 199 college women with or without a history of childhood maltreatment, dismissing attachment styles (i.e., the propensity to minimize or repress one's attachment needs) moderated the association between victimization experiences and PTSD, presumably through difficulties in accessing social support and the desire to avoid and repress painful emotions (Sandberg, 2010). In turn, fearful attachment (i.e., a fear of intimacy and negative views of self and others) uniquely predicted dissociation, a finding consistent with Liotti's (1992) contention that dissociation is a manifestation of fear-based, disorganized attachment.

In terms of VH itself, Offen, Thomas, and Waller (2003) reported that malevolent voices were associated with low levels of parental care and high levels of overprotection (i.e., invasive control) among 36 patients with *DSM-IV* diagnoses of schizophrenia, psychosis, manic-depressive psychosis, and psychotic depression. Prospective, longitudinal studies have also suggested that disorganized attachment patterns in infancy can act as a developmental precursor for dissociative symptoms. For example, Ogawa, Sroufe, Weinfield, Carlson, and Egeland (1997) examined dissociative behaviors and their relation to self-organization in 168



young adults considered from birth to be at high risk of poor developmental outcomes due to poverty. Traumatic life events, attachment quality, adaptational functioning, and dissociative symptomatology were measured at five time points across 19 years (birth, toddler to preschool, kindergarten to sixth grade, between 16 and 17.5 years, and at 19 years). Measures of VH were observer reported and derived from the Child Dissociative Checklist (Putnam, Helmers, & Trickett, 1993) and the Child Behavior Checklist (Achenbach, 1991), whereas older children completed self-report interviews and symptom inventories. Signs of dissociation and depersonalization were also assessed with the child schedule of the Affective Disorders and Schizophrenia Diagnostic Interview (Endicott & Spitzer, 1978). In addition to age of onset, severity, and chronicity of trauma (including neglect, physical and/or sexual abuse, and witnessing domestic violence), disorganized and avoidant parental attachment was a significant predictor for scores on all the measures of dissociative phenomena. Other prospective, longitudinal studies have found similar results in terms of developmental pathways to dissociation, although they did not report specific measures for VH (e.g., Dutra, Bureau, Holmes, Lyubchik, & Lyons-Ruth, 2009; Lyons-Ruth, Dutra, Schuder, & Bianchi, 2006; Sroufe, 2005). Attachment styles, particularly disorganized attachment, have even been nominated as a risk factor for psychosis (e.g., Berry, Barrowclough, & Wearden, 2008; Liotti & Gumley, 2008; MacBeth, Schwannauer, & Gumley, 2008; Read, Bentall, & Fosse, 2009; Read & Gumley, 2010).

It is still unclear how family relational processes can interact with epigenetic, biological, psychosocial, and trauma-related factors to influence dissociation. Future empirical research into attachment quality may potentially help elucidate the variability of VH characteristics (plus other indices of dissociation) in response to trauma and stress, as well as its presence in those seemingly without such experiences (see Figure 1). Crucially, such investi-

gations might also inform primary prevention programs. For example, a study assessing the impact of a psychological, educational, and physical exercise enrichment intervention on 83 children (aged 3–5 years) found that at age 17 and 23 they exhibited significantly lower objective and self-report measures of conduct disorders and schizotypy (e.g., interpersonal difficulties, cognitive disorganization, unusual perceptual experiences) than a matched control group (Raine, Mellinger, Liu, Venables, & Mednick, 2003). Refining understandings of the putative role of attachment experiences and/or early trauma as a diathesis for adulthood psychopathology is likely to be a valuable enterprise (e.g., Bremner, 2002; Kapur, 2003; Nemeroff, 2004; Read et al., 2001; Yehuda, 1998).

### Therapeutic Implications

The fact that voices in persons designated psychotic do not appear to be reliably distinct from voices in other clinical populations invites a new conjecture: Can VH experiences within these groups be treated in comparable ways? Despite large conceptual and clinical overlaps between psychosis, dissociation, and PTSD (e.g., Coentre & Power, 2011; Giesbrecht & Merckelbach, 2008; Muenzenmaier et al., 2005; Ross, 2006; Seedat et al., 2003), patients with trauma-spectrum diagnoses are more likely to be offered psychotherapy than individuals designated psychotic for whom it is less likely to be considered as treatment of choice, or even withheld entirely (Ross & Keyes, 2004). Indeed, viewing VH as a manifestation of disease may prevent professionals and patients from working collaboratively to discover the possible life events and/or psychological mechanisms behind the emergence of voices. Those diagnosed with schizophrenia, for example, are particularly unlikely to be asked about VH history, content, and characteristics, even though these features are generally of central

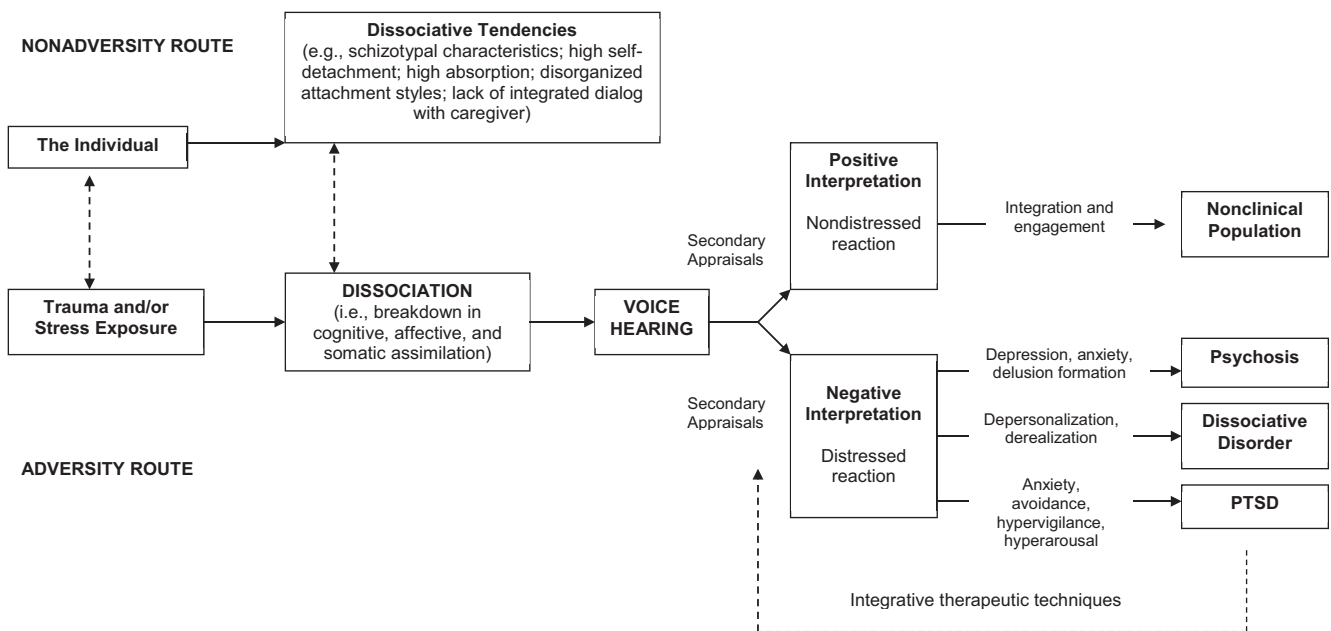


Figure 1. Schematic representation of the proposed relationship between trauma, dissociation, voice hearing, and clinical diagnosis.

concern to the voice hearer (Beavan, 2011; Cockshutt, 2004; Romme et al., 2009; Taitimu, 2005), and may generate a more precise appreciation of VH influence over distress, functioning, and risk of harm to self or others (Beavan & Read, 2010; Ritsher et al., 2004).

Similarly, although patients with psychotic diagnoses are often advised to ignore their voices (Coffey & Hewitt, 2008; Haddock & Slade, 1996; Ritsher et al., 2004), available evidence suggests that this strategy, at least in some cases, could actually perpetuate voice activity (Mawson, Cohen, & Berry, 2010; A. P. Morrison & Baker, 2000; Romme et al., 2009, 1992; Shawyer et al., 2007; Veiga-Martínez, Pérez-Álvarez, & García-Montes, 2008). The finding that resistance toward voices is significantly associated with anxious and depressive symptomatology (Chadwick, Lees, & Birchwood, 2000) is consistent with the argument that VH lies on a continuum with intrusive cognitions whereby the act of suppressing and distancing against unacceptable thoughts may paradoxically heighten the likelihood of occurrence (Badcock, Waters, & Maybery, 2007; Clark, 2005; García-Montes, Pérez-Álvarez, & Fidalgo, 2004; A. P. Morrison & Baker, 2000; Steil & Ehlers, 2000; Varese et al., 2011).

Alternatively, accepting and acknowledging the presence of even menacing and punitive voices may assist individuals to deflect attention and behavioral resources from avoiding and containing VH toward the more important goal of living a fulfilling life (Shawyer et al., 2007; Valmaggia & Morris, 2010). As coping in VH is often guided (and constrained) by attitudes toward the voices, constant avoidance could also deny individuals the opportunity to disconfirm a voice's perceived power and influence (Birchwood & Chadwick, 1997). Despite advances in the use of neuroleptics, this issue is particularly relevant given that some VH (including the most stressful, high-risk varieties, like command hallucinations) may prove nonresponsive to pharmacological treatments (Bentall, Jackson, & Pilgrim, 1988; Kasper & Müller-Spahn, 2000; Mueser & Butler, 1987; Tarrier et al., 1993; Tyrer & Kendall, 2009; Waldfogel & Mueser, 1988; Watkins, 2006). This problem is further compounded by variable adherence to drug regimes (Voruganti, Baker, & Awad, 2008), the risk of debilitating side effects in their long-term use (Breggin, 1994; Ross & Read, 2004), and the high risk of suicide among patients experiencing distressing, treatment-refractory VH (Penagaluri, Walker, & El-Mallakh, 2010).

### Trauma Spectrum Conditions and VH

In contrast, the dissociative literature frequently approaches VH with the rationale that establishing contact with split-off, disparate emotions contributes to therapeutic change and integration (see Table 4). For example, Ellason and Ross (1997) prospectively assessed treatment outcomes of 54 patients diagnosed with DID 2 years after psychotherapy completion. A strength of this investigation was its diverse and representative sample in terms of demographic and clinical data, although the findings are somewhat limited due to the nonrandomized design and lack of a control group. Patients received a combination of cognitive behavioral therapy (CBT) and experiential therapies designed to combat maladaptive beliefs and core cognitive errors, desensitize unresolved anger and grief, enhance affect regulation, and develop general coping skills. A significant reduction in Schneiderian symptoms

(an average of 2.6) was found, including Schneiderian-type VH. Similar findings, with comparable methodology, are reported from an open trial run by Kluft (1984). In this study, voices in DID patients became consistently absent after therapeutic integration involving hypnotherapy, age regression, psychoanalytic psychotherapy for working through traumata, and relapse planning and prevention.

Several psychotherapeutic strategies have been applied to patients experiencing PTSD with VH (see Table 4). The existing literature suggests that these may be both feasible and clinically promising, although the fact that comorbid psychotic symptoms are frequent exclusion criteria for clinical PTSD trials limits the amount of systematic research currently available (Frueh et al., 2009). An early study with 115 combat veterans (D. S. Holmes & Tinnin, 1995) found that 55% heard voices that talked to them and to whom they felt "an automatic obedience" (p. 1). Many of the veterans who had attempted suicide reported that the voices had commanded or compelled them to do so. The authors described a process of (a) voice exploration and normalization (a therapist inquires about and interacts with the voice using dialoging approaches), (b) trauma resolution (time-limited trauma therapy using video-assisted exposure, nonabreactive memory processing, and recursive videotape reviews), and (c) fostering psychological unity (a voice externalization procedure whereby patients practice negotiating and dialoging with their voices in front of a video camera, with footage reviewed and replayed during homework assignments and subsequent sessions). D. S. Holmes and Tinnin (1995) claimed that these processes diminished VH frequency and potency, although they did not provide formal outcome data in their article. However, the same principles were later used for a more comprehensive outcome study by Gantt and Tinnin (2007) among patients with a diagnosis of DDNOS ( $n = 37$ ), PTSD ( $n = 22$ ), or DID ( $n = 13$ ). Of the entire sample, 54% endorsed VH experiences. The therapeutic content of the intervention was carefully designed and administered, although assignment to treatment protocols was nonrandom and the design did not incorporate a control group. Treatment was intensive and brief (an outpatient program of ten 7-hr sessions over 2 weeks) and included art therapy, hypnosis, trauma therapy, and the voice externalization procedure described above. Posttreatment measures revealed that 45% of participants met criteria for recovery (a DES score of less than 20, a Toronto Alexithymia Scale score of less than 74, and an Impact of Events Scale score of less than 25), 44% were significantly improved, 8% were unchanged, and 3% had deteriorated. Unfortunately, VH was not measured as a separate outcome variable, although the report's conclusion observed that "those who have severe symptoms such as auditory hallucinations or command hallucinations can gain control over them [in the context of intensive trauma therapy]" (p. 80).

Similarly, Mueser, Rosenberg, Jankowski, Hamblen, and Descamps (2004) have published a CBT treatment program for adults with PTSD and comorbid psychosis that comprises cognitive restructuring, psychoeducation, and anxiety management. VH (in addition to experiences like depression, delusions, substance use, and self-injurious behavior) are assessed and monitored, with strategies for responding to them incorporated within a treatment plan. In the case of VH, clients are encouraged to use the principles of cognitive restructuring to acknowledge negative affect associated with voices, the consequences of VH-related distress; express

Table 4  
*Treatment Studies Using Psychotherapy for Trauma-Spectrum Conditions, With Voice Hearing as an Outcome*

| Investigator          | <i>n</i> | Sample  | Design           | Intervention   | Follow-up duration                    | Outcomes   |
|-----------------------|----------|---|------------------|--|---------------------------------------|--|
| Kluft (1984)          | 33       | Patients with DID   | OT               | Twice weekly sessions of hypnotherapy and psychoanalytic psychotherapy for an average of 21.6 months   | 27 months                             | After therapeutic integration and fusion of dissociated self-states, patients exhibited stable remission of symptoms, including VH.  |
| Ellason & Ross (1997) | 54       | Patients with DID   | QE               | Combination of CBT and experiential therapies<br>35 hr a week of group therapy and 3 hr a week of individual therapy while hospitalized; 30 hr a week of group therapy and 2 hr of individual therapy while partially hospitalized; duration of treatment not stated | 2 years                               | A significant reduction ( $M = 2.6$ ) in Schneiderian symptoms, including VH. Greatest reductions were among patients reaching stable integration (i.e., 3 months of enduring memory continuity and absence of behaviorally evident alter identities).   |
| Gantt & Timmin (2007) | 78       | 37 DDNOS patients; 22 PTSD patients; 13 DID patients  | QE               | 2-week outpatient program consisting of ten 7-hr sessions; treatment included nonabreactive memory processing, hypnosis, art therapy, video-assisted exposure, and recursive videotape reviews   | 1 week, 3 months, and 6 months        | Clinical outcomes were comparable across the three diagnostic groups. Forty-five percent of participants met criteria for recovery (a DES score of <20, a TAS score of <74, and an IES score of <25), 44% were significantly improved, 8% were unchanged, 3% deteriorated.   |
| Mueser et al. (2008)  | 108      | 66 PTSD patients with comorbid major depression; 25 PTSD patients with comorbid affective psychosis; 17 PTSD patients with comorbid schizophrenia or schizoaffective disorder | Single-blind RCT | 12–16 sessions of cognitive restructuring, psychoeducation, and anxiety management over a 4- to 6-month treatment period; control group received treatment as usual, plus supportive counseling  | Posttreatment, 3 months, and 6 months | Treatment group significantly improved on measures of trauma-related beliefs, PTSD symptoms, mental health service engagement, and BPRS scores. VH not assessed separately from other BPRS variables. Intervention impact was greatest on those clients with the highest clinician-rated measures of PTSD at baseline, an effect that was mediated by the effect of CBT on trauma-related beliefs. |

*Note.* DID = dissociative identity disorder; OT = open trial; VH = voice hearing; QE = quasi-experimental; CBT = cognitive behavioral therapy; DDNOS = dissociative disorder not otherwise specified; PTSD = posttraumatic stress disorder; DES = Dissociative Experiences Scale (Carlson & Putnam, 1993); TAS = Toronto Alexithymia Scale (Bagby et al., 1994); IES = Impact of Events Scale (Horowitz et al., 1979); RCT = randomized control trial; BPRS = expanded version of Brief Psychiatric Rating Scale (Lukoff et al., 1986).

the beliefs and appraisals underlying them in the context of negative life events (e.g., CSA); then evaluate evidence for the authenticity of their beliefs “in the same manner as with any other trauma-related thoughts” (Mueser et al., 2004, p. 136). The efficacy of the program was later examined by randomly allocating 108 adults to either a treatment as usual (TAU) condition or the CBT intervention. In addition to PTSD, participants had a primary diagnosis of major depression (61%), affective psychosis (23%), or schizophrenia or schizoaffective disorder (15%), and 25% had a secondary diagnosis of BPD. At blinded posttreatment and 3- and 6-month follow-up, the treatment group showed significantly greater improvement on measures of negative trauma-related beliefs, PTSD symptomatology, mental health service engagement, and psychiatric symptoms as assessed by self-report measures and an expanded version of the Brief Psychiatric Rating Scale (Lukoff, Nuechterlein, & Ventura, 1986). Intervention impact was greatest on those clients with the highest clinician-rated measures of PTSD at baseline, an effect that was mediated by the effect of CBT on trauma-related beliefs. Unfortunately, however, the conclusions that can be drawn from this study about VH are somewhat limited in that although the Brief Psychiatric Rating Scale does assess VH, it was not analyzed separately from other symptoms.

A number of case reports and small-scale studies for VH in PTSD also exist. For example, Brewin (2003) advocated directly engaging and mediating with patients’ voices during therapy under the rationale that “people seem to feel much more in control and less likely to be intimidated by their voices in the future” (p. 204). Successful outcomes for supportive, integrative psychotherapy (mainly CBT) in patients experiencing distressing, ego-dystonic VH have also been reported by Coentre and Power (2011); Floros, Charatsidou, and Lavrentiadis (2008); and Waldfoegel and Mueser (1988). Similarly, Nurcombe, Scott, and Jessop’s (2008, 2009) work with dissociative hallucinosis (i.e., posttraumatic hallucinations; Nurcombe et al., 1996) advocated exploratory psychotherapy and trauma-focused CBT. Such approaches are partly guided by the rationale that exploring the biographical context for VH may provide new avenues to work therapeutically with both psychosocial dilemmas and the psychological impact of trauma, as well as altering maladaptive interpersonal representations. Furthermore, supporting clients to reconstruct posttraumatic memories, and in doing so adopt more objective, conversant stances toward their voices, may contribute to the process of breaking down dissociative barriers and amnesias (Mollon, 2001; Sinason & Silver, 2008).

## Psychosis and VH

At present, the majority of psychosis treatment studies tend to focus on drug therapies (Watkins, 2010). This is partly due to evidence-based appraisals (i.e., randomized control trials) being easier to apply to external agents like medications than psychotherapeutic procedures (Alanen, González de Chávez, Silver, & Martindale, 2009). Furthermore, a degree of skepticism and pessimism toward psychological treatments for psychosis is likely to be attributable, at least in part, to the reasons outlined above regarding the perceived dominance of biological factors in psychotic etiology (Angell, 2008; Kelly et al., 2006; Mosher, Gosden, & Beder, 2004). Nevertheless, an increasing body of research has begun to examine the long-term impact of psychological therapies

among patients diagnosed with psychosis. Due to the size of this literature, we have focused on those studies using VH as a specific outcome variable that is analyzed separately from other symptoms (see Table 5).

**Acceptance and commitment therapy (ACT).** The aim of ACT is to promote active tolerance of distressing mental events while orientating patients toward achieving personally defined goals and values despite their presence (Hayes, Strosahl, & Wilson, 1999). In terms of VH, ACT is a process-orientated strategy that targets the personal relationship between hearer and voice by using components such as mindfulness training, cognitive defusion, promoting acceptance of VH, clarifying life goals, and examining the role of avoidance behavior in maintaining voice-related distress and disability (Valmaggia & Morris, 2010). Several clinical case studies (e.g., García-Montes & Pérez-Álvarez, 2001; Valmaggia & Morris, 2010; Veiga-Martínez et al., 2008) have described its successful application to treating VH, and it has also received support from two randomized control trials. The first (Bach & Hayes, 2002) randomly assigned 80 psychotic patients to either TAU or TAU plus four ACT sessions. Compared with the control group, patients receiving ACT reported reduced “believability” of voices, lessened VH-related distress, 50% less rehospitalization, and increased VH frequency. The authors explained the seeming paradox of the latter finding (increased frequency in association with reduced distress, believability, and relapse) as indication that patients had accepted their voices. Gaudio and Herbert (2006) later replicated the study with 40 patients with psychosis. Compared with the control condition, the treatment group reported diminished VH-related distress and believability, improved social functioning, and clinically significant symptom change in overall psychopathology and clinician-rated mood symptoms. Rehospitalization in the ACT condition was also reduced by 38%. In contrast to the findings of Bach and Hayes (2002), VH frequency reduced pre- to posttreatment in both conditions.

**Hallucinations-focused integrative therapy (HIT).** A novel intervention for treating VH, HIT is a multicomponent approach structured around a combination of CBT, psychoeducation, family therapy, motivational interviewing, coping training, and rehabilitation (Jenner, 2010). To assess effectiveness, Jenner, Fokko, Nienhuis, Wiersma, and van de Willige (2004) randomly assigned 76 patients diagnosed with chronic *DSM-IV* schizophrenia and persistent (>10 years), drug-refractory VH to either TAU or 9 months of HIT followed by TAU. Both groups continued taking psychiatric medication throughout the study. At follow-up, reduced frequency or duration and enhanced control over voices were apparent in both groups, although mean scores for distress and interference with daily functioning were significantly lower in the experimental condition. Compared with controls, patients receiving HIT also exhibited significantly greater improvement on measures of disorganization, general psychopathology, and global levels of positive symptoms. Patients in both groups continued using irregular and maladaptive coping behaviors posttreatment, although a significantly larger percentage in the HIT condition began using the strategies of *empowerment* (emphasizing personal autonomy and responsibility for one’s life and one’s voices: 70%) and *normalization* (positive interpretation and labeling of VH experiences: 57%) to deal with voice intrusions. A later study assessed the durability of these outcomes at 18-month follow-up

Table 5  
Treatment Studies Using Psychotherapy in Psychotic Populations, With Voice Hearing as an Outcome

| Investigator          | <i>n</i> | Sample  | Design           | Control   | Intervention   | Follow-up duration                        | Outcomes  |
|-----------------------|----------|---|------------------|---|--|---|---|
| Bach & Hayes (2002)   | 80       | Patients hospitalized with a psychotic illness  | Single-blind RCT | TAU (medication, weekly psychoeducation groups, weekly individual psychotherapy sessions) | TAU plus four 50-min ACT sessions over 1 month             | 4 months                                  | ACT associated with reduced believability of voices, lessened VH-related distress, 50% less rehospitalization, and increased VH frequency. Treatment group showed faster improvement on all primary outcome variables (total PANNS score, PANNS delusion subscale score, and PANNS auditory hallucination subscale score). This effect was strongest for VH. Treatment group significantly improved on measures of disorganization, general psychopathology, the PANNS positive symptom subscale, distress, and interference with daily functioning. No group differences in frequency, duration, or control over voices. |
| Lewis et al. (2002)   | 309      | Early psychosis (83% first episode)   | Prospective RCT  | TAU alone or TAU plus supportive counseling   | 5 weeks of individual CBT                                  | 3 months                                  | Treatment group showed faster improvement on all primary outcome variables (total PANNS score, PANNS delusion subscale score, and PANNS auditory hallucination subscale score). This effect was strongest for VH. Treatment group significantly improved on measures of disorganization, general psychopathology, the PANNS positive symptom subscale, distress, and interference with daily functioning. No group differences in frequency, duration, or control over voices.  |
| Jenner et al. (2004)  | 76       | Patients with chronic psychosis and persistent (>10 years) drug-refractory VH                   | RCT              | TAU (medication, case management, psychoeducation, crisis intervention)                   | Twenty 1-hr sessions of HIT over 9 months, followed by TAU | 9 months                                  | Treatment group significantly improved on measures of disorganization, general psychopathology, the PANNS positive symptom subscale, distress, and interference with daily functioning. No group differences in frequency, duration, or control over voices.  |
| Tarrier et al. (2004) | 225      | Early psychosis (83% first episode)   | Prospective RCT  | TAU alone or TAU plus supportive counseling   | —  | 18-month follow-up of Lewis et al. (2002) | No significant group differences in terms of relapse or rehospitalization. Both CBT and supportive counseling retained an advantage over TAU alone on all symptom measures (total PANNS score, and PANNS delusion and auditory hallucination subscales).  |
| Trower et al. (2004)  | 38       | Patients with psychotic illness considered at high risk of compliance to command hallucinations | Single-blind RCT | TAU   | 16 sessions of CHCT over 12 months                         | 12 months                                 | Observance to voice commands dropped from 100% to 14% in the treatment group compared with 53% in the control group. Voice-related power schemas, depression, and VH-related distress also significantly lower in the treatment group, and perceived control over voices significantly higher. ( <i>table continues</i> )   |



Table 5 (continued)

| Investigator            | <i>n</i> | Sample  | Design           | Control   | Intervention                                     | Follow-up duration                         | Outcomes   |
|-------------------------|----------|---|------------------|---|--|--|--|
| Cather et al. (2005)    | 30       | Patients with schizophrenia or schizoaffective disorder (depressed type with residual psychotic symptoms) | Single-blind RCT | Psychoeducation   | 16 weekly sessions of fCBT                       | 16 weeks                                   | No significant between-group differences. Within-group effect sizes suggested greater treatment gains for fCBT on the PSYRATS auditory hallucination subscale.   |
| Gaudio & Herbert (2006) | 40       | Patients hospitalized with a psychotic illness, considered high risk due to severity and comorbidity      | Prospective RCT  | TAU (medication, case management sessions, daily OT, weekly psychoeducation groups) | TAU plus three 1-hr sessions of ACT over 1 month | 4 months                                   | Relative to control group, ACT associated with diminished VH-related distress and believability, improved social functioning, lower rehospitalization rates, and clinically significant symptom change in overall psychopathology and clinician-rated mood symptoms. |
| Jenner et al. (2006)    | 63       | Patients with chronic psychosis and persistent (>10 years) drug-refractory VH                             | RCT              | TAU (medication, case management, psychoeducation, crisis intervention)             | —  | 18-month follow-up of Jenner et al. (2004) | Treatment group retained significant improvements in PANNS scores, daily functioning, VH-related distress, and negative voice content. Medication reliance was not significantly different between treatment and control conditions.                                 |

*Note.* Dash indicates information not assessed. RCT = randomized control trial; TAU = treatment as usual; ACT = acceptance and commitment therapy; VH = voice hearing; CBT = cognitive behavioral therapy; PANNS = Positive and Negative Syndrome Scale for Schizophrenia (Kay et al., 1988); HIT = hallucinations-focused integrative therapy; CHCT = command hallucination cognitive therapy; fCBT = functional cognitive behavioral therapy; PSYRATS = Psychotic Symptom Rating Scale (Haddock et al., 1999); OT = occupational therapy.

(Jenner, Nienhuis, van de Willige, & Wiersma, 2006). Intention-to-treat analysis was conducted on 63 participants that controlled for sex, age, education level, and VH duration. Medication reliance was not significantly different between the treatment and control conditions, although individuals in the HIT group retained significant improvements in daily functioning, voice-related distress, and negative VH content.

**Cognitive behavioral therapy (CBT).** By far the most substantial literature in psychological treatment studies for VH is the use of CBT. Indeed, a recent meta-analysis of patients with first-episode psychosis found that although most CBT trials had only very modest impact in general terms, there was particularly strong evidence for its advantages in improving measures of VH (A. P. Morrison, 2009). For example, Lewis et al. (2002) randomized 309 participants diagnosed with early schizophrenia to either 5 weeks of CBT as an adjunct to TAU or one of two control conditions (TAU alone or TAU with supportive counseling). Seventy days posttreatment the CBT group showed faster improvement than the control group on all three primary outcome variables (total score, delusion subscale score, and auditory hallucination subscale score of the Positive and Negative Syndrome Scale (Kay, Opler, & Lindenmayer, 1988). This effect was strongest for VH. The sample was reassessed by Tarrier et al. (2004) 18 months later. With the addition of relapse rates, primary outcomes were the same as those for the previous study. There were no significant group differences in terms of relapse or rehospitalization, although both CBT and supportive counseling retained an advantage over TAU alone on all three symptom measures.

The efficacy of CBT has also been examined in populations with more chronic VH. For example, Trower et al. (2004) conducted a single-blind randomized control trial with 38 individuals considered at high risk of compliance to severe command hallucinations (i.e., major social transgressions or harm to self or others). Participants were assigned to either TAU or 16 sessions of cognitive therapy for command hallucinations, a specialized therapy that incorporates (a) disputing and reframing power beliefs about voices; (b) creating psychological formulations for voice presence, including the possible role of traumatic experiences; and (c) promoting control and coping strategies. Over 12 months, observance to voice commands dropped from 100% (the study selection criteria) to 14% in the treatment group and 53% in the control group. Depression, voice-related distress, and power schemas (i.e., beliefs about voice influence and omnipotence) were also significantly lower in the group receiving cognitive therapy for command hallucinations, and perceived control over voices was significantly higher. A later study by Cather et al. (2005) randomly allocated 30 patients with psychotic disorders to 16 weekly sessions of either psychoeducation or functional CBT, a therapy that incorporates accomplishments in social, personal care, or occupational realms in addition to clinical outcomes. Pre- and posttreatment assessment showed a clinically significant reduction in positive symptoms in 60% of the treatment group compared with 31% of the control group, although this difference was not significant. However, within-group effect sizes suggested greater treatment gains for functional CBT on both the Psychotic Symptom Rating Scale (Haddock, McCarron, Tarrier, & Faragher, 1999) total score and its auditory hallucination subscale. No significant pre- and postdifferences were apparent in the psychoeducation condition for any of the symptom measures.

Despite such promising findings, the precise efficacy of CBT for VH has been questioned (e.g., Chadwick, Sambrooke, Rasch, & Davies, 2000; Gaudiano, 2006; Haddock et al., 1998; Penn et al., 2009; Temple, 2004; Valmaggia, van der Gaag, Tarrier, Pijnenborg, & Slooff, 2005; Wiersma, Jenner, van de Willige, Spakman, & Nienhuis, 2001). One concern is that the administration of CBT may be guided by conventional medical principles, resulting in psychological practice targeting “voices as symptoms, an approach modelled on the traditional prescribing of neuroleptics” (Trower et al., 2010, p. 81; see also Birchwood & Trower, 2006; Lynch, Laws, & McKenna, 2010; Wykes, Steel, Everitt, & Tarrier, 2008). According to A. P. Morrison (2009), this may lead CBT practitioners “to aim to . . . eliminate symptoms of an illness, rather than normalizing psychotic experiences and promoting a change in the appraisal of and response to such experiences” (p. 107). Accordingly, newer generation therapies (so-called third-wave CBT; see Öst, 2008) are becoming more oriented toward exploration, tolerance, and acceptance of experiences like VH. For example, person-based cognitive therapy aims to address the meaning a client gives to his or her experiences, as well as the distress associated with self-perceptions, self-schemata, and the ways in which one relates to one’s voices (Chadwick, 2006). Nevertheless, a recent meta-analysis of 26 studies using CBT to treat VH observed that contrary to the predictions of the cognitive model, “modifying cognitions of malevolence and supremacy [does not] consistently reduce voice-related distress” (Mawson et al., 2010, p. 256). The authors subsequently suggested that other, unspecified “underlying mechanisms” (p. 248) are likely to mediate the appraisal–distress relationship in addition to the perceived malignancy and power of voices. In this respect, dissociative symptomatology and/or trauma-related intrusions may be possible candidate variables and a future target for intervention.

**Alternative approaches to therapy.** Although therapy for trauma-based and/or dissociative conditions increasingly rejects the notion of VH as a solitary (atomistic) phenomenon, psychological interventions for psychotic patients are less likely to incorporate the voice hearer’s contextual and intersubjective circumstances into treatment plans (Larøi, de Haan, Jones, & Raballo, 2010). To our knowledge, no systematic clinical approach for addressing associations between trauma and voice content and/or characteristics is currently practiced in the field of psychotic disorders, although several authors have documented cases of successful therapy with VH in psychotic patients utilizing techniques customarily used for patients with trauma-spectrum conditions, such as dialoging with voices and eye movement desensitization and reprocessing (e.g., Coleman, 2011; Corstens, Longden, & May, 2011; Helen, 2011; Moskowitz & Corstens, 2007; Moskowitz, Corstens, & Kent, in press; Ross, 2004; Sinason & Silver, 2008; Suri, 2010; van den Berg & van der Gaag, 2011). However, although these results have been encouraging on a small scale, the current literature does not permit any firm conclusions about their utility to be drawn. Controlled, large-scale, multifaceted interventions incorporating standardized measures of VH outcome would be welcomed.

**Formulating voices.** Case formulations are a hypothetical synthesis of the content, causes, and maintaining influences of psychological distress (Sturme, 2009). In addition to framing appropriate interventions and enhancing the therapeutic alliance, formulation may be of particular benefit in helping individuals

(including those with a diagnosis of psychosis; Brabban & Turkington, 2006; Chadwick, 2006; Jackson et al., 2009; Morrison, 2001) generate a more coherent understanding of their difficulties (Johnstone & Dallos, 2006). In this regard, value of integrative, explanatory frameworks has been acknowledged within the broader concept of “recovery style” following psychotic breakdown. Specifically, there is some evidence to suggest that individuals who conceptualize psychosis as internally generated, amenable to change, and a source of potential information about psychosocial conflicts may have better long-term outcomes than those with more avoidant appraisals who perceive their experiences as globally destructive and causally independent from life context (Geekie & Read, 2009; McGlashan, 1987; Startup, Wilding, & Startup, 2006; Tait, Birchwood, & Trower, 2003, 2004). For example, a recent study assessing illness perceptions, symptom severity, service engagement, and social impairment among 50 adults diagnosed with schizophrenia found that a lower capacity to “make sense” of symptoms was associated with poorer quality of life 2 years from baseline (Stainsby, Sapochnik, Bledin, & Mason, 2010). Participants endorsed VH among other experiences, although outcomes were not reported separately for different symptoms. Among other conclusions, the authors suggested that interventions that promote recovery by “helping clients to build a more coherent sense of their difficulties, via exploration of the personal life meanings of . . . psychotic experience, may be at least as important as interventions that aim to reduce symptom levels” (Stainsby et al., 2010, p. 41). Brett et al. (2007) have also reported that although clinical populations appeared significantly more likely to make externalizing causal attributions for their experiences (in this case, “biology”), matched nonpatient groups were more likely to use psychological frameworks to appraise their experiences that were subjectively “coherent and adaptive” (p. 29). Similar findings have been reported by Heriot-Maitland, Knight, and Peters (2011) in a qualitative study comparing the subjective experience of VH (and other psychotic-like phenomena) between patient ( $n = 6$ ) and nonclinical ( $n = 6$ ) samples. Whereas the former appeared less able to acknowledge or integrate VH as part of their personal and interpersonal context, the nonpatients were more likely to employ conceptual meaning-making strategies in order to incorporate VH experiences into their lives in a helpful and validating way (see also Andrew et al., 2008; Cottam et al., 2007; Jackson & Fulford, 1997).

Taken together, the available evidence suggests that, at least for some individuals, formulating and clarifying associations between life events and previously incomprehensible voices can provide a framework for integrating unassimilated experiences into existing representational structures (Cockshutt, 2004; Corstens, Escher, & Romme, 2008; Fowler, 2000; Johnstone, 2011; Longden, Corstens, Escher, & Romme, 2011; Romme & Escher, 2010). Correspondingly, the “Maastricht Approach” of Romme and Escher (1993, 2000) advocates psychotherapeutic and self-help approaches in order to identify and explore the psychosocial problems that voices may represent. Among other strategies, Romme and Escher (2000) endorsed formulating the interpersonal context of VH onset, a process they termed “the construct.” At present, the efficacy of the method has never been empirically assessed, although it has received conceptual support from various authors (e.g., Beavan & Read, 2010; Bentall, 2004b; Bracken & Thomas, 2005; Hornstein, 2009; James, 2001; Johnstone, 2011; Leudar &

Thomas, 2000; Matheus, 2010; Moskowitz & Corstens, 2007; Suri, 2010). Specifically, the construct aims to examine putative associations between life history and VH through a systematic exploration of voice characteristics, content, and triggers; the history of VH; and significant events in the life of the voice hearer (Corstens et al., 2008; Longden et al., 2011; Romme & Escher, 2000). The resulting information provides the basis for a psychotherapeutic treatment plan that considers (a) the potential role of adverse life events in priming for mental health problems (i.e., psychological vulnerability) and (b) the acute interpersonal stressors that exacerbate VH and/or provoke its onset. This hypothetical search for meaning corresponds with Garfield (1995), who similarly advocated exploring the psychosocial conditions in which psychotic-like symptoms first emerged: “Unbearable affect reaches its peak in the precipitating event . . . a situation that carries a burden to the patient that cannot be coped with by the patient’s usual methods. . . . Like the news reporter, the clinician is interested in who, what, why, where, when, and how” (pp. 31–33).

In line with customary guidelines to clinical formulation, the creation of a construct should be “tentative, collaborative, and amenable to constant reformulation; incorporate systemic, social, and/or political factors; and respect and defer to client views on its truthfulness and expediency” (Longden et al., 2011, p. 4). Given the ease with which this intervention could be administered as part of routine clinical practice (Corstens et al., 2008), it is hoped that controlled, large-scale investigations can be used in the future to test the benefit of conceptualizing VH in this manner.

## Trauma and Abuse

A final consideration, given that many instances of trauma remain undetected by psychiatric staff (e.g., Chandra, Deepthi-varma, Carey, Carey, & Shalinianant, 2003; Lanktree, Briere, & Zaidi, 1991; Lothian & Read, 2002; Read, 2006; M. Young et al., 2001; Wurr & Partridge, 1996), is the importance of routine enquiry about the possibility of adverse experience. Indeed, guidelines published in the United Kingdom by the National Health Service (NHS) propose that all psychiatric service users should be asked about possible abuse experiences, regardless of diagnosis or clinical presentation (NHS Confederation, 2008). This is consistent with the finding that patients are unlikely to spontaneously disclose trauma exposure. One study, for example, suggests that the average time for female psychiatric patients to divulge CSA is 16 years (Read, McGregor, Coggan, & Thomas, 2006).

Persons diagnosed with schizophrenia are especially unlikely to be asked about possible trauma exposure, particularly by clinicians with strong biogenetic beliefs about etiology (Read et al., 2005). Furthermore, even when abuse is disclosed, these patients are less likely to be referred for specialized counseling or receive recourse to legal agencies (Agar & Read, 2002; Read et al., 2005). It is of equal importance that clinicians do not assume a history of maltreatment. As stated previously, VH may be allied with a range of overwhelming experiences that do not include sexual or physical assault. Furthermore it is not inevitable that all accounts of abuse, or the details within them, will be consistently valid or accurate. Yet without the provision of established policy and appropriate training, it is unlikely that staff will acquire the necessary competencies either to identify possible trauma-related syndromes or to offer a suitable therapeutic response (Cavanagh, Read, & New,

2004; Courtois & Gold, 2009; Read, Hammersley, & Rudegeair, 2007; Read & Fraser, 1998).

### Discussion

Under the influence of Kraepelin, diagnostic nosologies have parsed the psychological sequelae of trauma into distinct disorders, and similar attempts have been made to classify and separate VH (e.g., as psychotic, trauma-based, or nonclinical). The common assumption that trauma can induce PTSD or dissociative disorders, but cannot cause psychosis, means that VH may be recategorized after identification of a patient's trauma history in terms of "non-psychotic" or "pseudo" (Chu & Dill, 1990; Moskowitz & Corstens, 2007; Read et al., 2005). Yet the apparent ubiquity of VH experiences within different clinical and nonclinical populations suggests that VH offers little diagnostic specificity in itself, with voices in the context of psychosis not reliably differentiable from voices experienced by persons with dissociative and/or trauma-spectrum conditions, or even by those never designated mentally ill. This is an important consideration given current preparation for a new edition of the *DSM*. Furthermore, the burgeoning interest in early psychosis means a potential increase in responding to young adults experiencing VH with a combination of pharmaceuticals and psychosocial management, under the impression that it is *prima facie* evidence of emerging psychotic disorder (Birchwood & Spencer, 2001; Larsen et al., 2001; Nurcombe et al., 2009; Pearson et al., 2008).

On the basis of the evidence reviewed here, we suggest that VH can be appropriately understood as a widespread human experience, frequently precipitated by stress or trauma, that is best conceptualized as dissociative rather than psychotic in character (though acknowledging that VH as one of a set of symptoms within a diagnosis of psychosis remains viable; see Figure 1). A benefit of this position is that it renders the similarity between clinically distinct VH experiences less problematical and helps focus attention on a more relevant concern: namely, which variables govern individual distress and impairment (e.g., voice intrusiveness, their reiteration of traumatic material, and/or their perceived power and influence). This is consistent with a growing body of research suggesting that links between VH and psychopathology are primarily determined by an individual's interpretation of and/or emotional response to his or her voices (e.g., Bak, Myin-Germeys et al., 2005; De Loore et al., 2011; Krabbendam, Myin-Germeys, Hanssen, et al., 2005; Krabbendam et al., 2004; A. P. Morrison, 1998; Romme & Escher, 2000; Romme et al., 2009; Trower et al., 2010). That is, the problem may not be the presence of voices *per se*, but rather the person's capacity to integrate and make sense of both VH itself and the life events that may have evoked its presence. This could be the case for those with dissociative disorders, as well as those with psychotic diagnoses, and forms the basis of the international hearing voices movement, a user-led initiative concerned with developing self-help and coping strategies, reducing the stigma associated with VH, and emphasizing the role of life events in its origin and maintenance (Hornstein, 2009; James, 2001; Johnstone, 2011).

If distress can be defined in terms of reactions and responses to VH rather than by any of its inherent qualities, then auditory hallucinations may not really be a symptom in the conventional sense (Beavan & Read, 2010; Lawrence et al., 2010; Leudar &

Thomas, 2000). The variegated nature of the schizophrenia diagnosis (e.g., Bentall, 2004b; Bracken & Thomas, 2005; Read, 2004) has led several researchers to advocate minimizing the relevance of putative syndromes in favor of focusing on experiences like VH as specific "complaints" (a term coined by Bentall, 2006, in order to preclude language that minimizes the role of psychosocial factors in psychosis). This complaint-oriented paradigm is consistent with the well-researched position that extreme mental states lie on a continuum and, hence, that "normal" psychological processes can assist in understanding their origins and maintenance (van Os et al., 2000). And certainly the prevalence of VH in the general population implies that it is a common and continuous phenomenon (Krabbendam, Myin-Germeys, Bak, & van Os, 2005; van Os et al., 2000).

The stance that VH is better characterized as dissociative, rather than psychotic, exceeds traditional views of dissociation as a predisposing factor for VH (see also Moskowitz & Corstens, 2007). Rather, it is more aligned to authors like Rudegeair and Farrelly (2008), who argued that psychosis and dissociation are in fact interchangeable in that both may act as "psychological defense mechanisms for when experience is overwhelming and 'escape' is the most protective thing" (p. 309). Likewise, J. G. Allen, Coyne, and Console (1997) have attempted to explain links between trauma and psychosis by arguing that trauma-induced dissociative detachment undermines grounding in the external world, thwarts reality testing, and ultimately forces attention toward "a nightmarish inner world" (p. 332). It is notable that numerous authors have also queried the nonspecificity and validity of all the pathognomic symptoms of schizophrenia (e.g., Fink & Golinkoff, 1990; Foote & Park, 2008; Kluff, 1987; Ross et al., 1990; Şar & Öztürk, 2008; Schäfer et al., 2006), including whether experiences like delusions, catatonia, and thought disorder can be better explained as a structural dissociation between different psychological faculties intruding into the executive self (e.g., Moskowitz, 2005; Moskowitz et al., 2009; Rudegeair & Farrelly, 2003).

At present the most dominant psychological model of VH is derived from the cognitive tradition, which argues that it is a psychopathology of perception resulting from distorted information processing (e.g., Bentall, 1990; A. P. Morrison, 1998; A. P. Morrison & Haddock, 1997). It is important to emphasize the contribution these ideas have made. Cognitive psychology provided the first contemporary, mainstream alternative to biological accounts of psychosis and endorsed the development of psychological therapies previously denied to psychotic patients (British Psychological Society, 2000). Nonetheless, cognitive understandings of VH seem inadequate when considering how voice hearers themselves portray their experiences. As noted by Moskowitz and Corstens (2007), cognitive models are persuasive at explaining how thoughts are experienced as projected or intrusive, yet provide a less compelling account of how extruded thoughts become audible. This is particularly relevant given that most voice hearers make clear distinctions between their voices and their thoughts (Hoffman, Varanko, Gilmore, & Mishara, 2008) and no significant differences between the inner speech of patients with VH and healthy controls have been found (Langdon, Jones, Connaughton, & Fernyhough, 2009). Indeed, many voice hearers respond to voices with their thoughts (S. R. Jones, 2010; Langdon et al., 2009), and brain imaging research implies that voices are "heard" in the regions responsible for elaborating sounds and emotions



rather than locales where “thinking” takes place (Aleman & Larøi, 2008). In contrast, dissociative processes appear central for explaining one of the most vital aspects of VH: that of “other” dynamically engaging with “self” (Corstens et al., 2011; Moskowitz & Corstens, 2007; Moskowitz et al., in press). In this respect, the observation of Ross (1997) seems applicable, in that “dissociation must occur in some form for a mind to hear part of itself talking and to experience that as non-self talking” (p. 199). It is not immediately apparent how individuals cultivate, negotiate, and modify relationships with externalized thoughts, yet a process of communication and interaction is how voices are frequently described by those who hear them (Beavan, 2011; Chin, Hayward, & Drinnan, 2009; Dillon, 2010b; Romme et al., 2009). Therapeutic approaches that recognize this not only resituate VH in the context of the person and their social relations, they emphasize the importance of integrating the experience within the person’s own internal dialog (e.g., Corstens et al., 2011; Hayward et al., 2009; Longden et al., 2011; May & Longden, 2010; Romme et al., 2009; Suri, 2010).

### Future Research

We have argued that there is strong evidence for conceptualizing VH, including that experienced in the context of psychosis, as dissociation based. Nevertheless, this stance does not entirely solve the mysteries of this fascinating and complex experience, and several areas of inquiry remain.

**Nonclinical voice hearers.** The notion that human personality is not monolithic is well theorized by psychology (e.g., Berne, 2009; Jung, 1912/2003; Kihlstrom & Cantor, 1984; J. E. Young, 1999; J. E. Young, Klosko, & Weishaar, 2003). Correspondingly, some theorists contend that VH reflects the essentially dissociative nature of “normal” personality. That is, the major dissociation underlying VH and DID may not be the exclusive consequence of trauma exposure (although trauma could bring it to the fore) but an exaggeration of the schisms and/or iatrogenic voices (i.e., the universal experience of negative self-talk, presumed to arise from introjected criticism) potentially present in us all (Corstens et al., 2011; Moskowitz & Corstens, 2007; Moskowitz et al., in press). Given that VH in psychiatric patients is generally punitive and menacing, it is plausible that such destructive, ego-dystonic discourse is the kind of internal dialog that becomes disowned and perceived as unrelated and external to the self. The stance has some parity with the concept of cognitive dissonance (Festinger, 1957), whereby voices may serve to externalize threatening psychological events, such as rage, guilt, or shame, in order to diminish personal accountability and minimize dissension, self-blame, and reproach (see Bentall, Haddock, & Slade, 1994; Chadwick, Birchwood, & Trower, 1996). In this respect, the finding that higher levels of dissociation appear to be associated with hearing a greater number of voices (Dorahy, Shannon, et al., 2009) is congruent with the concept of voices representing dissociated, disowned aspects of self (i.e., as dissociation increases, the number of voices amplifies; see also Moskowitz et al., 2009; Nurcombe et al., 2008). Likewise, levels of dissociation have been shown to predict the likelihood of experiencing voices as ego-dystonic, independent, and uncontrollable relative to the self (Anketell et al., 2010; Dorahy, Shannon, et al., 2009).

What disposes certain individuals toward such fragmentation is less clear, although findings from clinical (e.g., Lyons-Ruth, 2003) and nonclinical (e.g., Ogawa et al., 1997) populations suggest that the quality of parent–child interactions has important implications for the development of dissociative tendencies and the impairment of a stable, integrated sense of self. Nonclinical voice hearers are a neglected population in research terms, and examining the comparative attachment experiences and trauma exposure between these individuals and matched psychiatric voice hearers may be informative. Similarly, the finding that significant numbers of nonclinical voice hearers report experiences of childhood adversity (e.g., Andrew et al., 2008; Honig et al., 1998; Lataster et al., 2006; Shevlin et al., 2007; Sommer et al., 2010) suggests that different variables may mediate outcomes between trauma, VH, and other dissociative symptoms. Candidate mechanisms are manifest and could include chronic emotional or psychological harm; self-attributions of shame, guilt, or culpability; an absence of restorative social relationships; abuse enacted under threats of violence; or experiences of entrapment and helplessness (Bulik, Prescott, & Kendler, 2001; Courtois & Ford, 2009; Feiring & Taska, 2005; Feiring, Taska, & Chen, 2002; Herman, 1997; Valle & Silovsky, 2002). Specifically, there is a pressing need for well-designed research to enable the mechanisms whereby VH remains a controllable experience for some, yet an unbearable, pathological feature for others, to be more fully understood.

**Resistance and avoidance.** Because acknowledging and accepting voice presence has been implicated as a feature of enhanced coping (L. J. Jackson, Hayward, & Cook, 2010; Moskowitz & Corstens, 2007; Romme et al., 2009), and is consistently cited as a key discriminatory factor between clinical and nonclinical voice hearers (e.g., Andrew et al., 2008; Cottam et al., 2011; Heriot-Maitland et al., 2011; Honig et al., 1998; Lawrence et al., 2010; Leudar et al., 1997; Romme et al., 1992), it may be beneficial to understand why some voice hearers accomplish this with relative ease and others do not. Generally, it is suggested that malevolent voices are resisted and benevolent ones courted (Chadwick & Birchwood, 1994). However, this formulation may be overly simplistic given that initially benevolent voices may become threatening and punitive when the voice hearer resists them (Moskowitz & Corstens, 2007; Romme et al., 2009), whereas some voice hearers attribute benign and malicious properties to their voices simultaneously (Sayer, Ritter, & Gournay, 2000). Furthermore, beliefs about voices are not necessarily content driven, with appraisals about their intent frequently constructed by the voice hearer independently of how the voices actually manifest (Benjamin, 1989; Chadwick & Birchwood, 1994; Cottam et al., 2011; Romme & Escher, 1989; Trower et al., 2010).

An important distinction may therefore be between those who are unable to engage and those who are simply unwilling. Perhaps, for some, it may be necessary to “cultivate the voice” in order to relate to it effectively (Moskowitz & Corstens, 2007, p. 57). Alternatively, it may be that relating with voices is a proficiency associated with more general interpersonal competency. For example, social schemata appear to influence how individuals respond to their voices, particularly in terms of submissiveness, dependence, and desire for distance (Paulik, 2011). Attempts to “improve individual social status or position, perhaps through group identification, assertiveness training and problem solving therapy” (Birchnell, 2002, p. 342), may be a means to improve

voice acceptance as a function of enhancing self-esteem, social relating abilities, and interpersonal schema (Hayward, 2003).

In contrast, Trower et al. (2010) suggested that avoidance behaviors are functionally linked with VH-related anxiety in that both are induced and maintained by threat appraisals. This process may be similar to the avoidance and emotional detachment that often characterize intrusions in PTSD, and that in turn can induce information processing biases, impair reality testing, and hinder social interaction (Seedat et al., 2003). Thus, although coping approaches based on active problem solving (e.g., selectively listening and negotiating with voices) can mitigate distress and improve the voice hearers' sense of control, strategies derived from passive problem avoidance (e.g., distraction techniques) may sustain and intensify voice activity (Hacker, Birchwood, Tudway, Meaden, & Amphlett, 2008). Techniques based on acceptance of voice presence may therefore be beneficial in that they are not inevitably concerned with inhibiting VH but in finding ways to tolerate and manage a potentially stressful encounter. For example, techniques like exposure paradigms (Herrmann-Doig, Maude, & Edwards, 2003), mindfulness (Abba, Chadwick, & Stevenson, 2008), and attention training (Valmaggia & Morris, 2010) might be usefully employed to supplement short-term safety behaviors directed at voice cessation with coping methods that encompass longer term objectives (e.g., enhancing control, improving acceptance, and mitigating emotional distress). Such strategies also offer additional benefits through allaying absorption and depersonalization, variables that appear relevant to VH (Kilcommons & Morrison, 2005; Perona-Garcelán et al., 2008, 2011; Spitzer et al., 1997).

Finally, Romme and Escher (1989, p. 213) offer an analogy with the integrative dilemmas of DID when they stated that recovery from distressing VH involves reaching "some sort of peaceful accommodation and acceptance of the voice as 'part of me'" (see also Escher et al., 2004; Hulme, 1996). A similar perspective is provided by Romme et al. (2009) through conducting semistructured interviews with 50 recovered voice hearers, most of whom had received a diagnosis of schizophrenia. In this instance, recovery was not formally assessed in terms of voice cessation or other clinical measures, but operationalized as reduced distress; a return to occupational, social, and interpersonal functioning; and independence from statutory mental health services. Within this analysis, integrative functions such as recognizing voices as personal, taking ownership of the VH experience, modifying relationships with voices, and accepting oneself by recognizing and accepting one's emotions were identified as instructive and restorative for overcoming VH-related distress and disability.

**Voice location.** Further inquiry may also be needed before speculation about the relevance of VH location can be abandoned. For example, although it seems feasible that specific psychological variables influence perceived voice locus, these remain unidentified (Moskowitz & Corstens, 2007). Nayani and David (1996) and Romme et al. (1992) both reported that VH can shift from external to internal as coping capacity and the acceptance of voice presence improve, and from a dissociative perspective this might suggest that internal voices are less ego-dystonic than those heard through the ears, or that external voices represent more disowned aspects of the self and/or more difficult-to-assimilate experiences. In this respect, an interesting finding is that internal voices may manifest as more linguistically complex than external voices (Stephane,

Thuras, Nasrallah, & Georgopoulos, 2003). Inner-outer space location is deemed one of three independent dimensions of VH (the other two being linguistic complexity and self-other attribution; Stephane et al., 2003). According to Larøi et al. (2010), a combination of location and attribution provides three varieties of mental event (i.e., three relatively exclusive types of hallucination): (a) outer, self-generated; (b) outer, non-self-generated; and (c) inner, non-self-generated. In this respect, seeking possible associations between voice location and the attribution of voices to sources that are internal (e.g., the self) or external (e.g., "God") could be instructive.

**Traumatic memory.** Examining the fragmented nature of traumatic memory may help specify the cognitive, neurobiological, and social mechanisms of VH more precisely. We suggest that VH can be understood as decontextualized intrusions of previous experience that are dissociated from conscious awareness, which (in contrast to flashbacks) are often experienced without awareness that what is occurring is an internal (memory-based) event, instead being interpreted as external and current (Dell, 2002). Different authors have conceptualized these linkages in different ways. For example, in line with Jung's (1914/1972) exposition on the "psychotic solution,"<sup>4</sup> Romme and Escher (2000) suggested that transforming unresolved emotional conflict into VH is psychologically advantageous. According to this position, VH represents "both an attack on personal identity and an attempt to keep it intact" (Romme & Escher, 2000, p. 64), with voices acting as a defense against painful memories and emotions while simultaneously drawing attention to the need to resolve them. Read et al. (2005) also suggested that dispersion between inner and outer events may be a defensive maneuver in that although "the misattribution may lead to considerable distress and to delusional explanations of the experience . . . at least one does not remember or relive the actual trauma" (p. 341).

In more cognitive terms, these failures in "source monitoring" can be seen as a response to trauma-related intrusions: "A person with poor source-monitoring skills will be most vulnerable to hallucinations when experiencing a flood of intrusive thoughts and images. Trauma . . . often has exactly this effect" (Bentall, 2004b, p. 483). In a study by Waters, Badcock, Michie, and Maybery (2006), 90% of the VH group ( $n = 19$ ) exhibited combined deficits in intentional inhibition and contextual memory, compared with 30% of matched controls not experiencing VH ( $n = 28$ ). Similar results have been reported by Badcock, Waters, Maybery, and Michie (2005) with 23 psychosis patients experiencing VH, 20 psychosis patients without VH, and 24 healthy controls (see also Brébion, David, Jones, Ohlsen, & Pilowsky, 2007; Waters, Badcock, Maybery, & Michie, 2003; Waters, Maybery, Badcock, & Michie, 2004). A recent meta-analysis of nine studies comparing patients with and without VH ( $n = 315$ ) has also proposed that "self-recognition deficits" (e.g., the incapacity to recognize mental events as self-generated) are more pronounced in psychotic pa-

<sup>4</sup> During his long, distinguished career Jung experienced numerous instances of VH that he famously and successfully integrated with the use of writing and guided fantasy (see McLynn, 1997). As an early prototype of this kind of work, Jung established a pioneering and influential tradition for exploring the symbolic and personal meaning of VH and other psychotic symptoms.

tients with VH than those who do not hear voices (Waters, Woodward, Allen, Aleman, & Sommer, 2010). However, these conclusions are not widely representative, given that virtually all the participants had a diagnosis of schizophrenia. Exploring the experiences of those with other psychiatric conditions, including dissociative disorders, may prove informative.

Taken together, the findings in this review correspond to what is known about the role of the hippocampus in traumatic memory. Specifically, preferential processing by the amygdala during adverse events impairs the integrity of memory integration and contextualization, mostly as a function of information bypassing the hippocampus (Nadel & Jacobs, 1996; Steel, Fowler, & Holmes, 2005). The decontextualized intrusions characteristic of VH may in part be associated with trauma-induced hippocampal inactivation. Indeed, recent work has found that the parahippocampal gyrus is deactivated prior to VH (Diederer et al., 2010), whereas Arntz, de Groot, and Kindt (2005) suggested that emotion promotes perceptual memory, possibly by better encoding of the perceptual features of affecting experiences. Furthermore, levels of contextual integration, which occur during encoding and partly determine the regularity and character of intrusions, are known to be associated with schizotypal personality traits, which in turn may influence vulnerability to trauma-related intrusions (E. A. Holmes & Steel, 2004; Steel et al., 2005).

Much work remains to be done before more definitive conclusions can be drawn about the neurobiological origins and evolution of VH. Given the putative role of early adversity in priming for VH, the relatively new specialism of developmental traumatology (the assessment of neurobiological development in maltreated children; see De Bellis, 2001) may also be a promising avenue for exploring how (at least for some individuals) trauma-induced brain changes and/or cognitive abnormalities might predispose for VH.

## Conclusions

According to Escher (2006), therapeutic resources can be usefully directed at refining understandings of VH as metaphors that “take the place of difficult, overwhelming emotions and give words to them” (p. 9). The evidence that VH is related to adversity and is essentially dissociative in nature is strong. In this article we have proposed that VH, including that in the context of psychotic disorders, may develop as a response to stress exposure whereby individuals dissociate emotional and experiential content. We have therefore argued for clinical approaches that emphasize making sense of VH and consider painful, unresolved life events as precipitating and/or maintaining factors in distress. By incorporating cooperative, humanistic, and existential (i.e., meaning-making) elements into therapeutic protocols, it is hoped that the personal significance of VH experiences can be explored more fully and (re)integrated into a previously fractured sense of self (Dillon, 2010a, 2010b; Lysaker, Buck, & Roe, 2007; Moskowitz & Corstens, 2007; Ritsher et al., 2004; Romme et al., 2009).

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