**RUNNING HEAD: PSYCHOTIC DISORDERS**

# Psychotic Disorders

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## Introduction to Psychotic Disorders

Psychotic disorders represent a heterogenous group of syndromes with a long history in psychopathology research, treatment, and training. Typically, psychotic disorders refer to schizoaffective, brief psychotic, schizophreniform disorder, delusional and schizotypal personality disorder, and schizophrenia (American Psychiatric Association, 2013; World Health Organization, 2019). The term "psychosis" is often used interchangeably with "positive symptoms", which represent a behavioral excess (i.e., something that is "positive" in that it is present when it should not be present; Andreasen, 1985; Strauss, Carpenter, & Bartko, 1974). Within schizophrenia, this typically refers to delusions (i.e., fixed false beliefs that are not endorsed by an individual's culture or subculture; Connors & Halligan, 2020) and hallucinations (i.e., perceptual experiences in the absence of external stimuli; Asaad & Shapiro, 1986). In addition to positive symptoms, people with psychotic disorders also experience negative symptoms, which represent behavioral deficits such as anhedonia (lack of pleasure), alogia (lack of speech), avolition (lack of motivation), apathy (lack of interest), flat or blunted affect (lack of emotional experience or expression), and social withdrawal (Andreasen, 1984). A third group of symptoms are disorganized symptoms such as odd, unusual, or disorganized speech, thought, behavior, and appearance (Cuesta & Peralta, 1995). The term "psychotic disorders" refers broadly to people with these diagnoses and experience these three types of symptoms.

Psychosis is thought to exist on a continuum from subclinical personality traits, variously called schizotypy, psychoticism, unusual beliefs and experiences, eccentricity, and peculiarity, among other terms, to full-blown symptoms of psychotic disorders as described above (Van Os, Linscott, Myin-Germeys, Delespaul, & Krabbendam, 2009). Additionally, psychotic disorders are neurodevelopmental disorders with an onset in late adolescence through early adulthood.

Many programs, especially in the last 20-30 years, have attempted to identify people at imminent risk for developing psychosis and provide prophylactic treatment (Catalan et al., 2021). These individuals are referred to with a variety of terms including prodromal (Cannon et al., 2016), clinical-high risk (Addington et al., 2008), ultra-high risk (Nelson, Yuen, & Yung, 2011), and at-risk mental state (Howie, Potter, Shannon, Davidson, & Mulholland, 2020). Thus, treatment of psychotic disorders includes the treatment for different groups of individuals including people with serious mental illness (i.e., schizophrenia and schizoaffective disorder) and prodromal psychosis (i.e., clinical-high risk, ultra-high risk, and at-risk mental state). This chapter reviews the developmental history and modern approaches to treating all symptoms of psychotic-spectrum disorders.

## Development of Treatment for Psychotic Disorders

The modern history of the treatment of psychotic disorders dates back to early pioneers who defined the syndromes that we now know as schizophrenia in the late 19th and early 20th century (Tueth, 1995). However, psychotic disorders have likely existed throughout most of human history and there is evidence of treatment dating back into ancient societies (Kyziridis, 2005). Before modern psychiatry, people with psychosis were among the only people treated for any type of mental illness, likely along with severe depression (referred to as melancholia), mania, dementia, developmental disorders, and mental illness with organic causes (e.g., general paresis). The first sign of treatment for psychosis dates back to ancient societies, where there is evidence of psychosurgery in the form of trepanning in which holes are borne in people's skulls in an effort to change behavior, along with other ineffective techniques such as exorcisms and bloodletting (Jeste, del Carmen, Lohr, & Wyatt, 1985).

In post-medieval Europe, people with psychotic disorders were kept in asylums that provided very little in the way of treatment. Patients spent the majority of their lives in chains, and when treatment was provided it included techniques such as purging and fasting, which were clearly not effective in improving symptoms or quality of life (Shorter, 2008). Modern psychiatric treatment is often said to have begun with the French Physician Philippe Pinel, who was the chief physician of the Paris asylum in the late 18th century and advocated for the humane treatment of patients. Pinel treated mental illness as a branch of medicine, including dementia, idiocy, mania, and melancholia, with psychosis conceptualized as indistinguishable from mania. Under Pinel, asylums became more humane places of treatment in which individuals could rest before returning to society, rather than warehouses in which people with mental illnesses were kept in chains for decades. Most treatment was based in asylums as modern definitions of schizophrenia emerged in the early 20th century (Kales, Kales, & Vela-Bueno, 1990).

## Modern Conceptualizations of Schizophrenia

Arguably, the modern conceptualization of psychotic disorders began with Emil Kraepelin who coined the term "dementia praecox," meaning early dementia, for what is now known as schizophrenia (Aderibigbe, Theodoridis, & Vieweg, 1999; Kraepelin & Barclay, 1919). Perhaps more important, Kraepelin was the first to make the distinction between dementia praecox and manic depression, which is now known as bipolar disorder (Kendler, 1986). Kraepelin's work had influence well beyond the fields of dementia praecox and manic depression, because his classification system formed the basis for modern nosologies including the Diagnostic and Statistical Manual of Mental Disorders, now in its 5th edition (DSM-5; (American Psychiatric Association, 2013) and International Classification of Diseases, now in its 11th edition (ICD-11; 2019). In addition to being the first to define a psychotic disorder,

Kraepelin also defined symptoms and subtypes of psychotic disorders. Kraepelin defined four types of dementia praecox including the (a) simple type, characterized by a slow social decline accompanied by apathy and social withdrawal, but lacking prominent positive symptoms, (b) paranoid type characterized by positive symptoms including hallucinations and delusions, with persecutory delusions being then and now recognized as the most common type of delusion (Freeman, 2007), (c) hebephrenic type characterized by odd and disorganized behavior, thought, speech, and appearance, and (4) catatonic type characterized by a lack of movement, speech, or involuntary, stereotyped, or repetitive movement and behaviors (Kraepelin & Barclay, 1919). These types of dementia praecox were influential well into the twenty-first century, as paranoid, hebephrenic, and catatonic subtypes were recognized by the DSM until the DSM-5 was released in 2012 (Tandon et al., 2013).

Bleuler coined the term schizophrenia in 1911 from the Greek "schizo" meaning split and "phrene" meaning mind (Bleuler, 1911). Bleuler's legacy includes the "Four As" including 1) blunted affect (i.e., the restricted experience and expression of emotion), 2) loosening of associations (i.e., disorganized thought and speech), ambivalence (i.e., the tendency to experience contradictory feelings simultaneously), and autism (i.e., social withdrawal). Bleuler was also the first to refer to delusion and hallucinations as positive symptoms, and blunted affect and apathy as negative symptoms (Fusar-Poli & Politi, 2008).

The next major step in understanding the symptomology of psychotic disorders came from Schneider, who defined first- and second-rank symptoms. First rank symptoms remain influential today and include hearing one's thoughts spoken aloud, auditory hallucinations commenting on one's behavior, thought withdrawal, insertion, or broadcasting, and somatic hallucinations (i.e., the experience of one's thoughts being controlled or influenced by outside

influences). Second rank symptoms included other hallucinations, depressive or euphoric mood changes, emotional blunting, perplexity, and sudden delusional ideas (Kendler & Mishara, 2019).

The first edition of the Diagnostic and Statistical Manual of mental disorders (DSM) was released in 1952 and included nine subtypes of "schizophrenia reactions" including simple, hebephrenic, catatonic, paranoid, acute undifferentiated, chronic undifferentiated, schizoaffective, childhood, and residual. The term was changed to schizophrenia for the DSM-II in 1968, and more efforts were made to differentiate schizophrenia from mood disorders with psychotic features. The third edition of the DSM saw major changes to the manual in an effort to increase reliability and validity of diagnoses, developing diagnostic criteria based on Feighner and Research Diagnostic Criteria. Schizophrenia was renamed once again to schizophrenic disorder and the hebephrenic subtype was changed to the disorganized subtype. Schizoaffective became a separate, distinct disorder characterized by psychosis and prominent mood symptoms (Bhati, 2013). Negative symptoms were added to the criteria in the DSM-IV (American Psychiatric Association, 2000). In the most recent edition (American Psychiatric Association, 2013), the section again renamed "schizophrenia spectrum and other psychotic disorders." Diagnoses now include a dimensional severity rating, subtypes of schizophrenia were removed, and schizotypal personality disorder was recognized as part of the spectrum.

## Development of Modern Treatments

As modern definitions of schizophrenia emerged in the last 19th and early 20th centuries, people with serious mental illness were primarily treated in asylums, where humane treatment was provided in settings in which patients were cared for in a healthy environment with the goal of reintegration into society (Sisti, Segal, & Emanuel, 2015). By the mid-20th century, the quality of care had deteriorated in most asylums, leading to a mostly custodial function in from which

reintegration into society was rare (Appleman, 2018). Asylums became the destination for people not just with serious mental illnesses such as schizophrenia, but also people experiencing other problems such as poverty and alcoholism (Shorter, 2008). This led to the community psychiatry movement of the 1950s and 1960s, in which patients live in the community (e.g., in group homes) rather than asylums. The community psychiatry movement had a positive impact on some patients, but continues to neglect a relatively small number of people who could benefit from long-term in-patient care (Morrissey & Goldman, 1986).

During the asylum era, many early treatments for psychotic disorders were discovered due to serendipitous observations of psychotic symptoms improving under various circumstances. Most of these treatments clearly lack efficacy and, in some cases, almost certainly made the disorders they were meant to treat worse (Lehmann & Ban, 1997). The early 20th century saw an increase in the interest of psychotropic medication for the treatment of mental illness. The first major breakthrough in psychiatry was Wagner-Jauregg, who discovered that a hyperpyrexic treatment for malaria had a positive effect on people with general paresis due to a syphilitic infection (Tsay, 2013). Other medications that were used in the early 20th century include cocaine, manganese, castor oil, injections of animal blood, and oil of turpentine. Oil of Turpentine, which produces abscesses, was used due to the observation that patients were often more lucid when they had a high fever or otherwise were critically ill (Lehmann & Ban, 1997).

The next major breakthrough pre-antipsychotic treatment for psychotic disorders was hypoglycemic treatments, in which comas were induced by insulin injections (Sakel, 1937). Developed by Sakel in Berlin, the idea for insulin comas came from treating heroin addicts with a small dose of insulin for withdrawal symptoms. Clinicians noted that when a patient with psychosis fell into a hypoglycemic coma, he experienced a reduction in psychotic symptoms

after the coma. Thus, treatment included purposeful induction of hypoglycemic comas, which appeared to temporarily help psychotic symptoms. This treatment was never carefully evaluated and carried serious risks for heart attacks and/or strokes (Lehmann & Ban, 1997).

Electroconvulsive therapy (ECT) grew out of the incorrect belief that there was a biological antagonism between epilepsy and schizophrenia, such that the seizures that are characteristic of epilepsy were thought to protect against psychosis. Convulsions were first elicited with intramuscular injections of camphor and intravenous injections of Metrazol, before electric current was applied directly. ECT has been shown to temporarily relieve psychotic symptoms, and is still in use today in people for whom pharmacological and psychosocial treatment have failed (Ali, Mathur , Malhotra, & Braga, 2019).

In contemporary treatment, most people with psychotic disorders are prescribed psychotropic medications, typically antipsychotics (Glick et al., 2020). The first antipsychotic, Chlorpromazine, was originally developed in 1950 to be used in anesthesia as an antihistamine with increased sedative effects. A French surgeon, Heri Laborit (1952), noted it's calming effects and likened it to a chemical lobotomy. By the end of the 1960s, there was clear evidence that Chlorpromazine was effective in reducing psychotic symptoms if given at a high enough dose (Ban, 2007). In the next several decades, more antipsychotic medications were developed, which represented the first actually effective treatments for schizophrenia.

Because treatment for schizophrenia was often developed from unanticipated observations rather than carefully explicated theories, explanations for the etiology of schizophrenia has often come via attempts to explain the mechanism of the treatment. For example, the finding that hypoglycemic treatments seemed to improve schizophrenia led to the hypothesis that the cause of schizophrenia was related to insulin. Since chlorpromazine's effect

on the brain appears to be as a Dopamine $D_2$ receptor antagonist, theorists suggested that schizophrenia is caused by excessive dopamine or its dysregulation. Other medications were shown to be effective antipsychotics that also blocked $D_2$ receptors, and the clinical dose is correlated with its efficacy in binding to and blocking $D_2$ receptors (Kapur, 2004). Both findings point to excessive dopamine as a potential causal factor for psychosis, a finding that is well-supported and converges with other lines of research as well. Dopamine agonists, such as methamphetamine, can cause psychotic episodes or exacerbate symptoms in individuals already experiencing psychosis (Angrist & Gershon, 1970). Moreover, PET studies have found increases in Dopamine in subcortical brain regions both in people at risk for developing psychosis and while people are actively psychotic (Howes & Kapur, 2009; Howes et al., 2009; McGowan, Lawrence, Sales, Quested, & Grasby, 2004). Taken together, these findings provide strong support for the dopamine dysregulation theory of schizophrenia.

## Psychosocial Treatment for Psychotic Disorders

Throughout most of the history of treatment history for psychotic disorders reviewed above, clinicians held pessimistic views of the prognosis of people with psychosis. Thus, psychotherapy for psychotic disorders began later than in did with other disorders and mostly was not available or researched in the first half of the 20th century (Lysaker, Glynn, Wilkniss, & Silverstein, 2010). Freud originally claimed that psychoanalysis was not effective in people with psychotic disorders because they were unable to form meaningful attachments with other people, which he believed was a necessary condition for psychoanalysis (Freud, 1957). Carl Jung disagreed, but warned that psychoanalysis may make symptoms worse (Jung, 2015). In the mid-20th century, several psychoanalysts theorized that treatment could in fact be effective (Sullivan, 1962), but early results were not promising (Drake & Sederer, 1986). Thus, psychotherapy for

psychotic disorders did not begin in earnest until behavior therapy and cognitive behavioral therapy began to become common (Rector & Beck, 2002).

In the late 1900s (i.e., the 1980s and 1990s) the recovery movement challenged the pessimistic and stigmatizing views of psychotic disorders that are shared by laymen and clinicians alike. This movement emphasizes quality of life more than symptom reduction, focusing on the deeply personal nature of what comprises a satisfying and fulfilling life (Warner, 2009). Borrowing language from substance abuse treatment, the focus is not on recovery from schizophrenia, but finding recovery in schizophrenia, with the acknowledgement that it may be a lifelong condition (Ellison, Belanger, Niles, Evans, & Bauer, 2018). SAMHSA has defined 10 guiding principles including that recovery: 1) emerges from hope, 2) is person-driven, 3) Occurs via many pathways, 4) is holistic, 5) is supported by peers and allies, 6) is supported through relationships and social networks, 7) is culturally-based and influenced, 8) is supported by addressing trauma, 9) involves individual, family, and community strengths and responsibility, and 10) is based on respect. In addition to changing treatment, the focus of the recovery model on quality of life rather than exclusively on symptom reduction changed the way in which psychotherapy outcomes were measured.

## Psychotherapy for Psychotic Disorders

Along with increasing emphasis on recovery, came an increasing emphasis on the effectiveness of psychotherapy for people with psychotic disorders. In 1998, the Schizophrenia Patient Outcomes Research Team (PORT) released treatment recommendation based on the available empirical data. The Schizophrenia PORT was part of a larger group of 14 Patient Outcome Research Teams funded by the Agency for Health Care Policy and Research and focused on medical conditions such as back pain, diabetes, stroke, and prostate disease, among

others (Freund et al., 1999). The original Schizophrenia PORT Evidence Review Groups reviewed over 600 studies and an expert panel of 39 schizophrenia clinicians, researchers, and consumers recommended 8 psychosocial treatment (along with 16 psychopharmacological treatments) including (1) Assertive Community Treatment, (2) Supported Employment, (3) Skills Training, (4) Cognitive-Behavioral Therapy, (5) Token economy interventions, (6) Family-Based Services, (7) Dual-Diagnoses programs, and (8) Psychosocial Interventions for Weight Management. These eight treatments, with some adjustments, form the basis for best practices in the treatment of people with psychotic disorders in the 21st century. Since the original PORT recommendations, extensive evidence has accumulated showing that these treatments are effective in improving the lives of people with psychotic disorders. For example, the American Psychiatric Association's Practice Guideline for the Treatment of Patients with Schizophrenia recommends all of these interventions (and cognitive remediation) after a comprehensive review of the literature (American Psychiatric Association, 2021). This is most evident in the push for early intervention for psychosis that is currently front and center in the psychotic-disorders treatment literature.

## Early Intervention for Psychotic Disorders

The most consequential development in the treatment of schizophrenia in the last several decades is the emphasis on early intervention (Yung & McGorry, 1996). Psychotic disorders, of which schizophrenia and schizoaffective disorder are the most severe, have an onset in late adolescence or early adulthood. Research has established that longer time periods between onset of psychosis and first treatment (i.e., duration of untreated psychosis) is associated with poorer prognosis, including clinical, social, and functional outcomes (e.g., Perkins, Gu, Boteva, & Lieberman, 2005). Thus, identifying people at need of treatment either (a) before developing

psychosis, or (b) as soon as possible after its development has the potential to improve outcomes and potentially reduce the need for long-term intensive care for people with psychosis.

Many people have a prodromal period that lasts for days, weeks, or months before a full-blown psychotic episode (Moller & Husby, 2000). The prodromal period is characterized by attenuated symptoms that are similar to symptoms of schizophrenia, but in a diminished form (Miller et al., 1999). When an individual's symptoms reach a certain level of severity, the individual is said to "convert" to psychosis and to enter their first episode of psychosis (Tarbox et al., 2013). Driven by the findings theory that early intervention may delay the onset of psychosis, alter its course, and potentially prevent the onset of psychosis altogether, the last 20-30 years has seen a growth in research aiming to identify and treat individuals at risk for developing psychosis (Catalan et al., 2021).

The current emphasis on early intervention began near the end of the 20th century, with the Early Psychosis Prevention and Intervention (EPPIC) study in Australia (McGorry, Edwards, Mihalopoulos, Harrigan, & Jackson, 1996), and soon spread to Western Europe (Schultze-Lutter, Ruhrmann, & Klosterkötter, 2008). Establishing early intervention clinics in the United States was more challenging due to the U.S.'s unique barriers in access to health care. The first programs in the United States were established in Oregon and Maine in 2000-2001 (Lynch et al., 2016; Melton, Dixon, & Watkins, 2014). The Consolidated Appropriations Act of 2014 allocated additional funds to the Substance Abuse and Mental Health Services Administration (SAMSHA) for early intervention for psychosis (Goldstein & Azrin, 2014). These funds were used by each state's department of health through a mental health block grant to establish clinics to treat people in the first episode of psychosis (Gonzalez, Goplerud, & Shern, 2016). Currently, there are first episode psychosis specialty clinics in 51 US states and territories.

This is referred to as the First Episode Psychosis (FEP) approach, and aims to identify individuals who have already "converted" to psychosis (Yung & McGorry, 1996). This may be a more targeted use of resources because instead of predicting who will need specialty care in the future (i.e., who will develop psychosis) that invariably leads to false positives, the FEP approach identifies people who have already developed psychosis (Powell, Hinger, Marshall-Lee, Miller-Roberts, & Phillips, 2021). An emerging line of research, led by the Recovery After the Initial Schizophrenia Episode study (RAISE; Azrin, Goldstein, & Heinssen, 2015) shows that specialty intervention for this group can improve the course of the illness, reduce symptoms, improve quality of life, and improve social and occupational outcomes (Dixon, Goldman, Srihari, & Kane, 2018).

The most common format for first episode psychosis intervention in the United States is with Coordinated Specialty Care (CSC) Clinics. CSC clients have five components, all of which were part of the original PORT recommendations, including 1) Psychopharmacology, 2) Individualized Resiliency Training, 3) Supported-Education and Employment, 4) Psychoeducation, 5) and Case-management services (Gonzalez et al., 2016). These services are provided by an interdisciplinary team including psychiatrists, psychologists, social workers, and often other health care professionals such as nurses. The goal of CSC clinics is to provide coordinated treatment that cares for all aspects of an individual needing treatment for psychosis. Programs have a recovery focus and use a shared decision-making model that includes the individual with psychosis, the health care providers, and other important people such as parents, siblings, and partners (Dixon, Adams, & Lucksted, 2000).

Antipsychotic medication is still often a frontline treatment for psychotic symptoms. In many programs, however, not every participant is prescribed psychotropic medications (Powell

et al., 2021). Individualized resiliency training (IRT) is typically provided by a psychologist or social worker and is based heavily on cognitive-behavioral therapy techniques (Wykes, Steel, Everitt, & Tarrier, 2007). IRT also draws from other sources, such as the recovery model, by including relapse prevention plans (Meyer, Gottlieb, Penn, Mueser, & Gingerich, 2015). Consistent with the recovery model, it focuses more on increasing quality of life than simply on decreasing symptoms. IRT is a modularized treatment that can be specifically tailored to the individual in need of treatment. For example, many young people with psychosis also have comorbid substance use, and there is a dual-diagnosis manual based on empirically supported treatments for substance use disorders that are comorbid with psychosis (Mueser et al., 2015). Similarly, people with psychosis are more likely than the general population to have experienced trauma and an optional module focuses on treatment dealing with trauma (Folk et al., 2019).

The techniques used in IRT are similar to Cognitive Behavioral Therapy for Psychosis, which is in turn adapted from CBT for more common mental disorders such as anxiety and depression (Wykes et al., 2007). The format for CBT-p is similar to more general CBT in that it begins of an emphasis on engagement and development of a therapeutic relationship, which may be especially challenging in working with young people with schizophrenia (Lal & Malla, 2015). Research has shown that early engagement in treatment is associated with better prognosis and even lower rates of mortality (Morgan et al., 2003). CBT-p begins with assessment of psychotic symptoms including and understanding of what factors exacerbate and maintain symptoms. This assessment of maintenance factors is based on decades of research on cognitive and social-cognitive models of psychosis (Freeman, 2016; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001; Hagen & Turkington, 2013).

Interventions within CBTp include enhancements of coping strategies with structured interventions and behavioral experiments to test the effects of these strategies (Tarrier, Harwood, Yusopoff, Beckett, & Baker, 1990). One area in which CBTp differs from more traditional CBT is related to delusions and hallucinations. Delusions are by definition resistant to change, and standard CBT techniques such as challenging maladaptive beliefs may not be effective in individuals with psychotic disorders, and may lead to a disintegration of the therapeutic alliance (Hoaas, Lindholm, Berge, & Hagen, 2013). Theorists have suggested four goals for dealing with delusions. First, a goal may be to not change the delusional belief at all, but rather to focus on mood, coping, and different ways of reacting to the belief. Second, the goal may be to change the implications of the belief in an effort to change the impact of the belief on functioning. Third, one or more aspect of the delusional belief may be changed. Finally, the belief may be changed with full conviction such that the individual no longer holds the delusional belief (Johns, Jolley, Keen, & Peters, 2014). However, quality of life may improve if distress decreases, even if the delusional belief remains firmly held.

Family psychoeducation typically includes the individual experiencing psychosis and close family members (Goldstein & Azrin, 2014). For many young people, this includes parents and often siblings, but it can also include romantic partners or other close friends. The purpose of family psychoeducation is to facilitate communication among the family and to help all relevant parties understand psychosis and its treatment. Family psychoeducation can be 10-12 sessions and administered in either individual or group formats. Modules include information about psychosis, psychotherapeutic treatments, medication managements (including side effects), suicide prevention, developing relapse prevention plans, and illness- and self-management techniques (Bäuml, Froböse, Kraemer, Rentrop, & Pitschel-Walz, 2006).

Supported employment and education take several different forms in psychosis treatment. Traditionally, vocational programs have aimed to place people with psychotic disorders into sheltered and transitional employment and worked to train people prior to job placement (Marino & Dixon, 2014). The newer wave of supported employment aims to place people into competitive employment settings while providing concurrent job training and support (Frederick & VanderWeele, 2019). In Individual Placement and Support (IPS), a variety of tactics are employed to help people successfully maintain employment including the employment specialist building relationships with community employers, skills training, and cognitive training (Killackey, Jackson, & McGorry, 2008). Many young people in early intervention programs have educational goals (e.g., secondary or post-secondary education), and similar strategies have been shown to be effective in increase educational performance among people with serious mental illness (Rosenheck et al., 2017).

## Other Approaches to Psychosocial Treatment

A major challenge in the treatment of people with psychotic disorders is a failure of clinicians to engage people with psychotic disorders in long-term treatment. Assertive Community Treatment (ACT) aims to increase treatment engagement by inviting clients to engage with services outside of traditional clinical settings such as their homes or other places in the community. Treatment is provided by a multidisciplinary team including a mix of psychiatrists, psychologists, social workers, nurses, peer specialists, employment and education specialists, substance use counselors, and case managers (Phillips et al., 2001). ACT treatment teams typically serve fewer clients than clinic-based teams are usually reserved for clients with high rates of relapse or other problems such as homelessness or legal difficulties. ACT has been

shown to be associated with decreased symptoms and hospitalizations but increased independent living, domiciled rates, and competitive employment (Dixon, 2000).

Some of the "third wave" CBT interventions have also been shown to be effective in treating psychotic disorders. For example, metacognitive therapy focuses on understanding and modifying cognitive biases associated with psychosis. Manualized treatments can be done in either group or individual settings and focus on attribution bias, jumping to conclusions, belief inflexibility, theory of mind, overconfidence in errors, and mood and self-esteem (Moritz, Klein, Lysaker, & Mehl, 2019). Specific techniques include a range of experiential exercises that introduce clients to the cognitive biases. The therapist focuses on the link between biases and psychotic symptoms as well as the impact and generalization of these experiences to daily life (Thomas, Morris, Shawyer, & Farhall, 2013). Acceptance and commitment therapy uses acceptance and mindfulness techniques that aim to reduce the effects of psychotic experience on experiences and behavior, while increasing the effects of personal values on behavior. Core processes include acceptance, cognitive diffusion, mindfulness, self-as-context, values, and committed action (Hayes, Strosahl, & Wilson, 2009).

The cognitive deficits that are common in people with psychotic disorders are largely unresponsive to antipsychotic medications (Kurtz, 2005). Thus, as individuals' positive symptoms improve, these symptoms remain and continue to cause distress and impairment. Cognitive remediation was developed as a nonpharmacological treatment to improve cognitive-functioning, focusing on speed of processing, memory, attention, reasoning, and tact/social cognition (Vinogradov, Fisher, & de Villers-Sidani, 2012). Exercises in cognitive remediation are either restorative or compensatory and involve repetitive computer exercises, therapist guided instruction, or a combination of both. These treatments also include techniques to increase

engagement such as strategy coaching, which involves the incorporation of metacognitive exercises into treatment including providing customized instructions to help with completion and understanding of the cognitive tasks (Reeder et al., 2016). Clients are encouraged to continuously self-assess their progress and reflect on what can help them to improve in the future. Bridging exercises link these cognitive skills and strategies to the individual's larger recovery goals, which typically have a focus on real world functioning (Bowie & Medalia, 2016). Research has shown that cognitive remediation is effective in producing meaningful improvement in cognitive functioning both as measured in therapy and real-world social- and role-functioning outcomes (Wykes, Huddy, Cellard, McGurk, & Czobor, 2011).

In addition to symptoms and cognitive deficits, people with psychotic disorders also have difficulties in social functioning that contribute to functional outcomes in social and occupational situations (Mueser, Bellack, Douglas, & Morrison, 1991). The reasons for the deficits are likely multifactorial including social anxiety, social anhedonia, cognitive deficits, flat affect, and alogia, among others. Beginning with social skills training, a variety of treatment techniques have been developed with fall under the umbrella term of social recovery interventions. The original Social Skills Training (SST) is administered in a group setting and includes experiential and didactic components (Bellack, Turner, Hersen, & Luber, 1984). The group engages in a variety of increasingly complex social activities including role plays, modeling, and interpersonal feedback. Modules include basic social skills, conversation, assertiveness, conflict management, communal living, friendship and dating, health maintenance, and vocational/work skills. Cognitive Behavioral Social Skills Training (CB-SST) is another group therapy that aims to increase social functioning. In addition to the social skills in traditional programs, CB-SST incorporates SMART goal setting, problem solving, and CBT foundations (Granholm et al.,

2005). Other social recovery interventions focus on social-cognitive processes through behavioral or reflective interventions (Social-Cognitive Social Skills Training; SCSST; Horan et al., 2009) or incorporate relapse prevention, psychoeducation, and daily self-management activities (Functional Adaptive Skills Training; Patterson et al., 2006).

## Training in treatment for psychotic disorders

Prior to more modern treatments for psychotic disorders such as antipsychotic medications, people with psychotic disorders received treatment primarily in asylums (Shorter, 2008). These services were provided primarily by psychiatrists and psychiatric nurses who were trained in medical schools and state hospitals (Jacobs & Steiner, 2016). However, these services deteriorated in the first half of the 20th century to the point where public opinion shifted and asylums were no longer seen as a humane or frontline treatment for psychotic disorders (Appleman, 2018). John F. Kennedy's Community Mental Health Act of 1963 had a major impact on the treatment of people with psychotic disorders as well as the training of health care professionals providing the treatment (Pollack & Feldman, 2003). The Community Mental Health Act lead to decades of deinstitutionalization in which hospitals were closed in favor of care to be provided in the "community." However, this care has also often been disorganized and substandard (Hogan, 2003). Along with the transition in the primary setting of care for psychotic disorders moving from institutions to community mental health centers came challenges in disseminating treatment strategies. Although the majority of challenges in dissemination are not unique to the treatment of psychotic disorders, several unique challenges are associated with providing mental health care to people with psychotic disorders in the community.

One major challenge in training a workforce for treatment of psychotic disorders is that treatment is best provided with a multidisciplinary team including not just psychologists, but also

psychiatrists, social workers, primary care physicians, nurses, and peer and other specialists (Jones, 2006). This is especially important for treatment of people with psychotic disorders because they tend to have other challenges such as lack of adequate housing and comorbid substance use disorders along with increased rates of overall mortality and physical health programs such as higher rates of cancer, diabetes mellitus, obesity, metabolic syndrome, and cardiovascular disease, among others (Ward et al., 2017).

A landmark study in 2010 found that approximately 100 new psychologists trained in the treatment of serious mental illness graduate from U.S. PhD programs each year. This is woefully inadequate to treat the more than three million people with psychotic disorders in the U.S (Reddy, Spaulding, Jansen, Menditto, & Pickett, 2010). Moreover, many of these 100 psychologists have careers in academia, teaching, or other settings where they are not providing direct patient care to people with psychotic disorders. Direct opportunities for training in treatment of psychotic disorders is also lacking, with less than ten percent of PhD programs offering coursework specifically for psychotic disorders (Reddy et al., 2010). Psychologists are often called upon for leadership positions in community mental health centers, but psychologists typically learn these roles post-employment without formal training (Perlman & Hartman, 1987). Despite this lack of formal training, most clinical psychologist PhD programs offer exposure to treatment of people with serious mental illness through external practicum placements, and more than a third of internships in the APPIC match are located in CMHCs or public hospitals (Reddy et al., 2010).

In 2012, Chu et al. proposed the Public Psychology Doctoral Training Model that includes key components of public health competencies, academic, community, and county/state/federal partnerships, and group-case method learning beyond the classroom (Chu et

al., 2012). Many of the public health competencies relate directly to the treatment of psychotic disorders, including competency in the assessment and treatment of serious mental illness and substance use disorders. Chu et al. suggest that training should help future professionals develop foundational competencies in administration, direct service, consultation/training other health care professionals, political advocacy, research, and supervision (Chu et al., 2012). They recommend programs develop specific courses in community mental health, which have an emphasis on psychotic disorders, identifying external practicum sites in the community, incorporating community mental health constituents into existing courses, and partnering with public organizations to facilitate the transition from training programs to public health careers.

Training and education in treating psychotic disorders is similar to other training in clinical psychology in some respects, but also has idiosyncrasies that are not shared with, for example, training for clinicians who work primarily in private practices. Currently, the majority of mental health services in the United States are publicly funded (Mark et al., 2007), and the majority of people with psychotic disorders obtain care from community mental health centers (Pollack & Feldman, 2003). Like other areas of clinical psychology, training begins in doctoral programs, which culminate in a year-long predoctoral internship. Postgraduate training may include residencies and fellowships in which a psychologist's skills and interests are refined.

In addition to psychology, the nursing profession has had a major impact on both the treatment of psychotic disorders and how professionals are trained to treat psychotic disorders. The first psychiatric nursing program began at Johns Hopkins University in 1913, and nurses were critical in the development of graduate education related to treatment of serious mental illness after the National Mental Health Care Act passed in the 1940s. This training typically took place in hospital settings and included apprenticeships with both hands-on training and

didactic courses. Current nursing training includes several different stages beginning with a Registered Nurse (RN) credential, an entry level nursing position. RNs who work in psychiatry are responsible for assessment and planning care, medication administration, patient and family education, and individual or group counseling (Jacobs & Steiner, 2016). Psychiatric nurses also often receive advanced training to become credentialled as Psychiatric Mental Health Nurse Practitioners (PMH-NP), which was originally a sub-specialty for Advanced Practice Nurses (APRN).

Social work was developed as a profession in the early 1900s to help people with mental illness by serving as a liaison between psychiatrists, patients, and patients' families. They quickly became integral parts of treatment teams, with some estimates as high as 60% of current mental health care professionals being trained in social work, compared to 23% in psychology, 10% in psychiatry, and 5% in nursing. Social workers have a long history of working in treatment teams and often work with systems that involve many missing pieces. In treatment teams for psychotic disorders, social workers, nurses, psychologists, and psychiatrists' duties often overlap, despite unique training and expertise of each profession (Chu et al., 2012).

The other major type of mental health care professionals involved in treatment for psychotic disorders are psychiatrists, who prescribe medications which are often the frontline treatment. Psychiatrists are medical doctors, who completed medical school followed by a four-year residency. The first year of residency is general training, while the second through fourth years are specialty training in psychiatry in which residents learn about the treatment and diagnosis of mental illness. Many psychiatrists are then board certified by the American Board of Psychiatry. Some continue specialty training and can get board certified in other areas such as child and adolescent, geriatric, or forensic psychiatry, among others (Liberman & Glick, 2004).

## Future Directions

There are several areas of growth for the future of treatment, research, and training in psychotic disorders. First, funding for early intervention programs has increased exponentially in recent years. Along with this increase comes the promise of reduced burden of mental illness in the future. As long-term data accumulates, researchers will be tasked with evaluating whether the more intensive coordinated specialty care clinics fulfill the promise of better prognosis, and whether these solutions are cost effective as predicted by decreasing the need for long-term services and increasing quality of life including employment for people with psychotic disorders (Aceituno, Vera, Prina, & McCrone, 2019). As this model of treatment continues to be disseminated throughout the United States and the rest of the world, more psychologists will need to be trained in clinical psychology programs for leadership roles in these clinics. Psychology training programs are already lagging behind state-of-the-art treatment for psychotic disorders, and too few clinical psychology programs offer specialties and serious mental illness (Reddy et al., 2010). Early intervention clinics are more often based in medical schools than psychology department and the techniques are coordinated specialty care is rarely taught in psychology training clinics. Future training will need to prepare psychologists for leadership roles in these interdisciplinary treatment teams.

Another area for future research and training is in insuring that new and existing clinics maintain treatment fidelity to coordinated specialty care models such as OnTrack NY or Navigate (Essock & Addington, 2018). Many of these clinics have relatively low age cutoffs (e.g., 25-30), only treat patients with a recent first episode (e.g., onset within the last two years), and are time-limited (e.g., two years). Many graduates of CSC clinics will still need ongoing care including medication, case management, and individual psychotherapy. Future research will

need to examine the best way to transition patients into other service and establish best practices for long-term care. Community mental health clinics have much room for improvement. CSC models may be most effective when introduced early in the illness, but people in the chronic or recovery stage of psychotic disorders are also likely to benefit from these services as well.

Future treatments are also likely to involve psychopharmacology. However, antipsychotic treatments have not improved in terms of symptoms or outcomes in decades, with progress being limited mostly to medications having fewer side effects. Treatments for cognitive difficulties and negative symptoms will need to be refined and developed in the future. The recent pushes for early intervention, coupled with the changing landscape of access to health care, have decreased the amount of people with psychotic disorders without access to health care. However, this will need to be extended in the future until everyone has access to care.

Finally, the Specialty Council for Serious Mental Illness Psychology is in the process of gaining approval for Serious Mental Illness to be added as a certification from the American Board of Professional Psychology (ABPP). The ABPP recognizes 15 specialty boards including clinical, forensic, and clinical neuropsychology among others. The specialty council includes the APA Task Force on Serious Mental Illness/Severe Emotional Disturbance (SMI/SED), APA's Division of Psychologists in Public Service (Division 18), Division 18's section on SMI/SED, and the Psychosis and Schizophrenia Spectrum Special Interest Group (PASS-SIG) of the Association for Behavioral and Cognitive Therapies (ABCT). The council has worked to have a postdoctoral specialty approved by APA, joined the Council of Specialties in Professional Psychology (CoSPP), and has earned approval to proceed to the final stages of the formal process for ABPP approval. The council has begun the final step in this process, which is to gain approval from the APA Commission on the Accreditation, so that psychology training programs

can become accredited in serious mental illness (Specialty Council for Serious Mental Illness Training, 2020). These efforts represent major steps forward in the training of future health professionals in the treatment of psychotic disorders.

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