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Exploring the scientist-practitioner model in clinical psychology

Jami Halpern
University of Rhode Island, jlhalp@aol.com

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EXPLORING THE SCIENTIST-PRACTITIONER MODEL IN CLINICAL PSYCHOLOGY

BY

JAMI HALPERN

(W. GRANT WILLIS, FACULTY SPONSOR)

PAPER SUBMITTED IN PARTIAL FULFILLMENT OF

SENIOR HONORS PROJECT

UNIVERSITY OF RHODE ISLAND

2009

Abstract

The Scientist-Practitioner Model is a system of education used by many graduate programs in applied fields of psychology. The goal of this educational model is to help clinicians and other practitioners to learn to use empirical research as a basis for the applied work that they do and also for them to learn to use the experience of applied clinical practice to guide research questions and to advance scientific thinking in the discipline of Psychology. As a student who plans to pursue a Ph.D. in Clinical Psychology, I felt that it would be beneficial for me to experience the Scientist-Practitioner Model to gain a better understand of what it entails.

In order to accomplish this goal, I have been participating in an internship as a mental-health assistant in a group home for adult males. All of the residents in this facility are afflicted with various psychiatric disorders; some experience concomitant mild intellectual deficiencies and substance-abuse problems as well.

Outside of my internship, I have been investigating the topic of Schizophrenia, a diagnosis that is common among many of the residents with whom I am working. I am studying the epidemiological features of this disorder and its etiology, course, treatment and management, and prognosis. By synthesizing this information with my direct experiences in working in the group home, I am developing researchable hypotheses about this disorder that ultimately can be empirically tested. Thus, I am able to directly experience the Scientist-

Practitioner Model, an exercise that I hope will help to better prepare me for my future graduate school experiences.

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Exploring the Scientist-Practitioner Model in Clinical Psychology

The scientist-practitioner model of education is a major program philosophy that forms the basis of many graduate programs in Clinical Psychology. This model is used to help graduate students to learn how to integrate science with applied practice, that is, to participate in the process whereby science informs clinical practice and how clinical practice generates empirical research. In the following literature review, the topic of Schizophrenia is discussed. An historical background of the disorder is given and the origins of its name are described. The DSM-IV-TR system of diagnosis is explained, a description of the subtypes of Schizophrenia is provided, and their classifications are explained. The course and prognosis of the disorder are then explained. Next, the literature review identifies different theories of the etiology of the disorder, including genetic and environmental explanations. Neurological theories are also explained, including the dopamine theory, serotonin theory, glutamate theory, cavum septum pellucidi theory, and ventricle theory. The literature review concludes with information about how Schizophrenia is managed with antipsychotic drugs and the possible side affects of those medications.

Next, a description of clinical experiences from an internship as a mental-health assistant is provided. It explains different symptoms experienced by clients at a group home in Rhode Island. None of the information included in this section

contains any identifying information; residents' ages have been generalized to a range and no names have been included.

The final section includes different types of researchable hypotheses. These questions were developed using the scientist-practitioner model. Here, experiences gained through my clinical work led to particular questions about Schizophrenia. The questions that were developed could possibly be used in conducting a research study in the future.

Review of Literature

Schizophrenia is a psychotic disorder that, when diagnosed, comes with a stigma attached to it. Many practitioners are reluctant to diagnose this disorder because of this and the fact that it is a difficult diagnosis to make due to the broad array of symptoms. Symptoms of the illness can be both positive and negative. Positive symptoms include those that can be treated with medications, such as hallucinations and delusions. Negative symptoms are those that are extremely hard to treat such as flat or blunted affect.

Historical Issues

Emil Kraeplin was the first person to devise a way to classify psychosis (Taylor, 2006). The first group of psychoses was dementia praecox, which means "senility of the young." This included "hebephrenia (a kind of childish insanity), catatonia, and dementia paranoids (paranoia), and was said to follow a chronic course" (Taylor, 2006, p. 3). The other classification was manic-depressive

insanity (Taylor, 2006). Dementia praecox eventually became named "Schizophrenia" in 1911 by Eugen Bleuler because the meaning of dementia praecox was inaccurate. Regardless of the name used to label this psychiatric disorder, it has been agreed upon that there is a biological aspect to it. Today, the most common term for this disorder is Schizophrenia, but people must keep in mind that a psychiatric disorder does not define the individual who has it. The individual is a person first, and afflicted with Schizophrenia second. Thinking of the disorder this way can help to reduce the stigma associated with it.

Throughout history, different individuals have classified Schizophrenia with similar symptoms. Freud explained the main symptoms of Schizophrenia as "thought disorder, blunting of affect (i.e. near-absent expressions of glee or sadness) and autism (essentially social withdrawal). Hallucinations and delusions were considered not as core symptoms but as reactions to the disease itself" (Taylor, 2006, p. 3). Schneider's first rank criteria were used by most psychiatrists in Europe, and consisted of auditory hallucinations, thought insertion or withdrawal, thought broadcasting, passivity feelings, and primary delusions (Taylor, 2006). Other psychiatrists all over the world had different definitions of what Schizophrenia was. This showed that there was a need for a classification system.

Classification and Subtypes

There are multiple classification systems for Schizophrenia, but all use similar descriptions. The Diagnostic and Statistical Manual-IV-TR (APA, 2000), which is the most common classification system used, uses the following criteria:

> A disorder that lasts for at least 6 months and includes at least 1 month of active-phase symptoms (i.e., two or more of the following to be present for a significant portion of a one month period: delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, negative symptoms (p. 298). There must be Social/Occupational dysfunction, disturbance must persist for at least six months, Schizoaffective and mood disorder exclusion, substance/general medical condition exclusion, and relationship to a pervasive developmental disorder. If delusions are considered bizarre, then a diagnosis of Schizophrenia is appropriate without any other symptoms. The prevalence of Schizophrenia ranges from .05% to 1.5% among adults and the "annual incidences are most often in the range of 0.5 to 5.0 per 10,000" (p. 308). "Median age of onset for the first psychotic episode of Schizophrenia is

> in the early to mid-20s for men and in the late 20s for women" (p. 308). "Rates of comorbidity with Substance-Related Disorders are high. Nicotine Dependence is especially high, with estimates ranging from 80% to 90% of individuals with Schizophrenia being regular cigarette smokers" (p. 304).

Schizophrenia is divided into different subtypes including paranoid type, disorganized type, catatonic type, undifferentiated type, and residual type. Paranoid type is "the presence of prominent delusions or auditory hallucinations in the context of a relative preservation of cognitive functioning and affect" (APA, 2000, p. 313). Disorganized type is defined as "prominent disorganized speech, disorganized behavior, and flat or inappropriate behavior" (APA, 2000, p. 314). Catatonic type is "marked psychomotor disturbance that may involve motoric immobility, excessive motor activity, extreme negativism, mutism, peculiarities of voluntary movement, echolalia, or echopraxis" (APA, 2000, p. 315. Undifferentiated type is "the presence of symptoms that meet Criterion A of Schizophrenia but that do not meet criteria for the Paranoid, Disorganized or Catatonic type" (APA, 2000, p. 317). Residual type is used "when there has been at least one episode of Schizophrenia, but the current clinical picture is without prominent positive psychotic symptoms" (APA, 2000, p. 317). Schizophrenia is

not a homogeneous psychiatric disorder. There are no two cases that are exactly alike. The classification systems are extremely broad and two individuals with completely different symptoms may end up with the exact same diagnosis.

Course and Prognosis

Schizophrenia is generally diagnosed during early adulthood and tends to affect an individual for the rest of his or her life. It is rare to see only one psychotic episode and then no symptoms following that episode. According to Taylor (2006), "most cases of Schizophrenia are said to follow one of seven patterns, which can be condensed into three broad outcomes: (1) continuous course (no relapses or remissions); (2) undulating course (relapses with or without residual symptoms in remissions); and (3) atypical course (various types but including long-term improvement after continuous course)" (p. 8).

This disorder, however, can be managed with different types of treatments. These treatments include the use of antipsychotic drugs. In the past, antipsychotic drugs had many side affects similar to those of sedatives. Today, pharmacology has come a long way to produce drugs that allow people to lead as normal lives as possible. This is a huge step for individuals with Schizophrenia because this gives them the opportunity to make a life for themselves if possible. Today there are many different types of antipsychotic drugs, and the combinations of drugs used differ on a case to case basis.

Etiology

It is not completely clear as to what actually causes Schizophrenia. Some researchers suggest that complications during pregnancy or birth can affect the probability of becoming diagnosed with Schizophrenia in the future. There has been a higher correlation between people being born in winter months and becoming diagnosed with Schizophrenia as opposed to those who are born in the summer months. This is thought to be a result of illness of the mother during pregnancy (Taylor, 2006). Genetics are said to be a major reason for the development of Schizophrenia. "The lifetime risk of Schizophrenia is around 1%; in people born to parents who both have a diagnosis of Schizophrenia the lifetime risk approaches 50%" (p. 14), and it is more common to see both identical twins with Schizophrenia than to see both fraternal twins with Schizophrenia (Taylor, 2006). These differences are extreme, giving researchers evidence to support a genetic theory.

Environment may also play a role in the development of Schizophrenia. According to Taylor (2006), environmental factors are likely to play a role in the development and progression of this illness and it has been determined that "60% of all those diagnosed with Schizophrenia have no first or second-degree relatives with the condition" (p. 14).

There are many different theories behind schizophrenia and the brains involvement with the illness. One theory is the dopamine theory, which "suggests that the positive symptoms of schizophrenia are caused by overactivity of synapses between dopaminergic neurons of the ventral tegmental area and neurons in the nucleus accumbens and amygdala" (Carlson, 2007, p. 554). One of the first drugs discovered that helps dramatically in the treatment of Schizophrenia is chlorpromazine. It significantly decreased positive symptoms in patients with Schizophrenia and it decreased the amount of time spent in hospitals for patients with this illness (Carlson, 2007). Many drugs have since been developed, all of which block dopamine receptors also known as dopamine antagonists. Drugs that are dopamine agonists support this dopamine theory of Schizophrenia as well. When individuals participate in the use of drugs such as amphetamines, cocaine, methylphenidate (all block dopamine reuptake), and L-DOPA (produces more dopamine), symptoms can occur which mimic those psychotic symptoms of Schizophrenia and these symptoms produced by these drugs can be relieved with antipsychotic drugs (Carlson, 2007). While the dopamine theory does explain the positive symptoms of Schizophrenia, it does not explain the negative symptoms which present similar to those of brain damage (Carlson, 2007).

Some evidence against the dopamine theory is the failure of antipsychotics that are dopamine antagonists (Taylor, 2006). The success of clozapine works

against the dopamine theory because it has low dopamine receptor occupancy and this suggests that there might be other transmitters in the brain involved in schizophrenia (Williamson, 2006). Even though clozapine does work against the dopamine theory because it is a low dopamine receptor, it does not work completely against it because it is still somewhat of a dopamine antagonist. All anti-psychotics that are currently prescribed are some sort of a dopamine antagonist (Taylor, 2006). However, anti-psychotics that are D_2 receptor antagonists show the most support for the dopamine theory (Taylor, 2006).

It is thought that the serotonergic system might also be involved in schizophrenia, specifically the $5HT_{2A}$ receptor and most of the newer anti-psychotics have $5HT_{2A}$ antagonist activity (Taylor, 2006). This theory might explain why clozapine, ziprasidone, risperidone, quetiapine, and olanzapine are successful in the treatment of schizophrenia (Meltzer, et al., 2003), however serotonin is closely related to dopamine which could also support the reasons for clozapine's success (Taylor, 2006). Serotonin agonists, along with dopamine agonists, can cause psychotic symptoms and this supports both the serotonin and dopamine theories of schizophrenia.

Glutamate, an amino acid, may also play a role in schizophrenia. Glutamate "appears both to stimulate and inhibit dopamine release, depending on the conditions and location. Cerebrospinal fluid glutamate levels may be altered in people with schizophrenia (Taylor, 2006 p. 25)." The glutamate theory was

based off a clinical observation of chronic abusers of NMDA receptor antagonist phencyclidine (PCP) (Paz, et al., 2008). Dopamine, serotonin, and glutamate are included in the major theories behind schizophrenia and the role that the brain plays in the illness.

"An increased incidence of large cavum septum pellucidi has been demonstrated in individuals with Schizophrenia. This may have important pathophysiological implication, because it is suggestive of an early (i.e. prenatal) midline developmental brain abnormality , at least in a subgroup of individuals with schizophrenia" (APA, 2000, p. 305). Septum pellucidi is located underneath the corpus callosum and "It is believed to be a relay station in the limbic system connecting the hypothalamic autonomic system to hippocampus, amygdala, habenula and brain-stem reticular formation" (Rajarethinam, et al., 2008, p. 22). There is sometimes a cavity between the septum pellucidi and this is called the cavum septum pellucidi, which is filled with cerebrospinal fluid and is sometimes referred to as the 5th ventricle. This is present at birth in all humans; however it does close up by the age of 3 in most people. It has been observed that this is present in individuals with schizophrenia, supporting a biological reason for causes of Schizophrenia.

More neurological evidence for the causes of Schizophrenia is loss of brain tissue and enlarged ventricles in the brain. "In the Structural neuroimaging literature, the most widely studied and most consistently replicated finding

continues to be enlargement of the lateral ventricles" (APA, 2000, p. 305). "Many studies have also demonstrated decreased brain tissue as evidence by widened cortical sulci and decreased volumes of gay and white matter" (APA, 2000, p. 305). Ventricles are spaces deep within the brain and if the spaces are larger than in a normal brain, then the mass of the actual tissue in the brain has to be less in patients with Schizophrenia. "In fact, Hulshoff-Pol et al. (2002), foud that although every one loses some cerebral gray matter as they age, the rate of tissue loss is greater in schizophrenic patients" (Carlson, 2007).

Pharmacological Management

Antipsychotics are defined as "drugs used in the treatment of psychotic disorders that help alleviate hallucinations and delusional thinking" (Nevid, 2009, p. 582). There are many different types of antipsychotic drugs which fall into the two categories of typical antipsychotic drugs and atypical antipsychotic drugs. Typical antipsychotic drugs are older medications that tend to have more side effects than atypical antipsychotic drugs. "The first class of antipsychotic drugs were phenothiazines, which included the drugs Thorazine (chlorpromazine) and Mellaril (thioridazine)" (Nevid, 2009, p. 582). These typical antipsychotics also include Trifluoperazine (stelazine), Fluphenazine (Prolisin) and others, whose side effects include "movement disorders, drowsiness, restlessness, dry mouth, blurred vision, and muscle rigidity" (Nevid, 2009, p. 585). These drugs surfaced in the 1950's and were the first step in controlling hallucinations and delusions.

Today, however, Mellaril (thioridazine) is "indicated for the management of schizophrenic patients who fail to respond adequately to treatment with other antipsychotic drugs. Due to the risk of significant, potentially life threatening, proarrhythmic effects with thioridazine treatment, thioridazine should be used only in patients who have failed to respond adequately to treatment with appropriate courses of other antipsychotic drugs, either because of insufficient effectiveness or the inability to achieve an effective dose use to intolerable adverse effects form those drugs" (Physicians desk reference, 2009, p. 2195-6). This is common to see with older medications. The newer atypical antipsychotic drugs include clozapine, risperidone, olanzapine and others. These newer drugs are just as effective as the previous typical antipsychotic drugs but tend to have fewer side effects. However, there are still concerns for side effects with the newer antipsychotic drugs. For example, the side effects of clozapine (clozaril) can include "potentially lethal blood disorder, seizures, fast heart rate, drowsiness, dizziness, nausea" (Nevid, 2009, p. 585). These side effects should be monitored closely.

A major possible side effect of older typical antipsychotic drugs is tardive dyskinesia. "Tardive dyskinesia (TD) is a painful and disfiguring motor side effect of long-term anti-psychotic use. TD presents months or years after initiation of anti-psychotic treatment, persists after drug withdrawal and may be irreversible (Bishnoi, et al., 2008)." Symptoms of tardive dyskinesia present themselves very

similarly to Parkinson's disease, leading researchers to suspect that Schizophrenia is the opposite of Parkinson's disease. Antipsychotic drugs taken for the treatment of Schizophrenia cause symptoms of Parkinson's disease, and L-DOPA taken in the treatment of Parkinson's disease causes psychotic symptoms present in Schizophrenia (Carlson, 2007). Atypical anti-psychotic drugs have less of a chance of causing tardive dyskinesia than do the older typical anti-psychotic drugs.

Applied Clinical Experience

For the past semester, I have been serving an internship as a Mental-Health Assistant at a group home in Rhode Island. All of the clients who live in the home are men over the age of 18 and have been diagnosed with severe psychiatric disorders; many also have substance-abuse problems and intellectual disabilities. Through my clinical experience, I have had the opportunity to observe the effects of mental disorders, the courses of those disorders, and how they affect the individuals afflicted with them.

There have been many hospitalizations of the clients during my time at the group home. Sometimes the hospitalizations are a result of medication refusals. Most of the clients are overweight and some have diabetes. Many of the weight-gain issues for the clients are a result of the medications that they are taking. For example, Clozaril (a drug used in the management of Schizophrenia) often leads to extreme weight gain. If insulin is not taken within a 24 hour time period, then

hospitalization may be required. Hospitalization also is required if staff members feel threatened by a client or if a client discloses that he is afraid of hurting himself or someone else.

I have seen that it is hard to motivate the clients to exercise and to eat healthy diets. Although the meals that are cooked for them are part of a balanced diet, clients are free to spend their money on what they choose, and much of their money is spent on junk food. The clients also have trouble with completing oral- and physical-hygiene tasks. Many of them do not shower on a regular basis.

Almost all of the clients at the group home smoke cigarettes and have a history of some sort of substance abuse. I have found that substance-abuse problems are common among individuals with Schizophrenia; however, research has not determined if the substance use is a result of the symptoms or if the illness can be caused from substance use possibly as a part of a diathesis-stress model.

Client Examples

When I first started my internship, I had the opportunity to see how the group home receives new clients. A new client in his early 20s was coming to live at the home during the first month that I was there. When he arrived, I went with him and his counselor to an intake meeting with the social worker. She asked him about his background, but this client had difficulty reporting accurately on his history. I was able to see that getting information from clients can be difficult at times. The social worker asked him to describe his symptoms. This

particular client is diagnosed with both Schizophrenia and an intellectual disability. He reports that he hears multiple voices that argue with each other and himself. He tries to negotiate with the voices in order to calm them down, but that has not been effective. One of the voices dominates the others and commands him to engage in activities in order to avoid harm or death. Recently, he has had a medication change for psychoses. This same medication has helped other clients in the group home as well, and it has helped to calm the voices that this client reports hearing. In the past, no medications had worked to calm the voices so this has been a marked improvement for this client. Already, I have noticed that it is much easier to have a conversation with him and that he is able to better follow the conversation and not go off on tangents.

Another client has given me the opportunity to see how the illness spirals up and down. This client is an older male in his late 60s. When I first came to the home, he was quiet and didn't speak much. During the past three months, however, he has been on a spiral downward into another cycle of Schizophrenia. His voice has become high pitched and giddy; he tends to giggle a lot. He is hypersexual and can often be found talking to an imaginary person. This appears to be a hallucination. He also has grandiose delusions and paranoia.

Common Symptoms

Paranoia tends to be a common symptom among the clients who live in the house. Some of the clients believe that people or the members of the Central

Intelligence Agency (CIA) are pursuing them or that the people in the cars driving by are inserting their thoughts into the client's heads. Many of the clients also tend to fixate on objects or possessions, for example, their money and their money ledgers. Clients often ask their counselors to review their ledgers and budgets with them. One day, I observed a client ask the counselor about his ledger over five times.

Flat affect is a negative symptom of Schizophrenia that is hard to understand until one has a chance to observe it. Some of the clients have this negative symptom and show barely any emotion. It is rare to see these individuals laugh or even smile, and they react to everything in the same manner.

Another client, in his 40s, appears to be depressed and bored with his life. I think this is common among many of the clients because living in the group home there is not too much excitement. Every day seems to be almost identically scheduled, unless there is a doctor's appointment or a different type of appointment. This client tries to capture the attention of the counselors in the house for his own entertainment. For example, he might refuse medication, start arguments, and refuse to go to activities or day programs. I think that this is because there is no change in his day to day life and he is bored and depressed with his living situation. He frequently threatens to move out to see how the counselors will react to his threats. If his threats are ignored by the counselors, however, he tends to let them go.

Researchable Hypotheses

After my experience at the group home and researching Schizophrenia I have come up with some researchable hypotheses. I am curious as to why so many people with Schizophrenia smoke cigarettes. Almost all of the clients at the group home smoke at least a pack of cigarettes a day; according to the literature on Schizophrenia my observation has been supported by the DSM-IV-TR (APA, 2000) that concludes that 80-90% of individuals with Schizophrenia smoke cigarettes. I would like to look at whether these individuals with the disorder smoke because of a reaction with their symptoms and, specifically, whether smoking calms the symptoms (e.g., auditory hallucinations) of the disorder.

I have also noticed through my internship that individuals with Schizophrenia tend to have a history of substance abuse. I would like to look at whether people with the disorder use drugs because of their symptoms or if drug use is part of a diathesis-stress model responsible for causing Schizophrenia. Last, but not least, I would like to look at why so many individuals with Schizophrenia have multiple diagnoses, for example Substance Abuse Disorder, Intellectual Disability, and Depression.

Conclusion

This project has been an amazing experience. It has given me the opportunity to experience the scientist-practitioner model and to realize that I have chosen the right education path, being that I want to pursue a Ph.D. in

Clinical Psychology. Interning at the group home has given me a chance to see which mental disorders spark my interest. I have learned that Schizophrenia and Substance Abuse are two areas that are of high interest to me.

Some limitations of the project include the short period of time that it had to be completed in (one semester) and the amount of time spent at the group home. If someone were to repeat this project, I would recommend that it should be done over a full year period and that they should spend more than eight hours a week at the facility. Over all, I am extremely thankful for having the opportunity to complete a project of this type. Without this project I would have no clinical experience that let me know that I have chosen the correct career path for me.

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