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## Differential diagnosis of emerging and young adult disorders : a case vignette study of PTSD and psychotic disorders

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Elizabeth Louise Liepold  
Differential diagnosis of emerging  
and young adult disorders: A case  
vignette study of PTSD and  
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## ABSTRACT

The present study investigated the diagnostic decision-making process of clinical social workers. The study sought to explore how they distinguish between psychotic symptoms, such as hallucinations, and post-traumatic stress symptoms, such as flashbacks, in emerging and young adults. One objective of this study was to understand clinician diagnostic choices in order to increase diagnostic accuracy with young adults who may be particularly vulnerable to first episode psychosis. *Sample.* The study's sample included 105 licensed clinical social workers, who actively practiced in the United States. *Methods.* The study used an exploratory - descriptive design implemented through an online survey. The research instrument was administered via the Internet using a questionnaire following one of four case-vignettes designed specifically for this study. Chi-square analysis was used to compare findings across variables using .05 probability criterion level to evaluate significance of data. *Findings.* This investigation found that PTSD was significantly easier to diagnose than schizophrenia. The study also found that when a case-vignette presented both trauma and psychotic symptoms or frank PTSD and schizophrenia diagnoses, the co-occurring disorders were significantly more difficult to diagnose than a PTSD and psychotic disorder alone. Clinicians working in inpatient settings were found to demonstrate more diagnostic accuracy when compared to those in outpatient settings. The implications of these findings for clinical social work practice, education, and future research is explored.

**DIFFERENTIAL DIAGNOSES OF EMERGING AND YOUNG ADULT DISORDERS: A  
CASE VIGNETTE STUDY OF PTSD AND PSYCHOTIC DISORDERS**

A project based upon an independent investigation,  
submitted in partial fulfilment of the requirements  
for the degree of Master of Social Work.

Elizabeth Louise Liepold

2016

Smith College School for Social Work  
Northampton, Massachusetts 01063

## **ACKNOWLEDGEMENTS**

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## **CHAPTER I**

### **Introduction**

The present study investigated the diagnostic decision-making process of clinical social workers. The study sought to explore how they distinguish between psychotic symptoms, such as hallucinations, and post-traumatic stress symptoms, such as flashbacks, in emerging and young adults. Hallucinations are commonly seen in schizophrenia, which is estimated to impact three million people in the United States (McGrath, Saha, Chant, & Welham, 2008). Flashbacks are a hallmark symptom of posttraumatic stress disorder (PTSD), which is estimated to impact nearly eight million adults in the United States in any given year (Kessler et al., 2005b). Because of the high prevalence rates of these two disorders, it is essential for clinical social workers to be able to differentiate them. However, it is not only unclear how social workers currently do so, but the symptoms themselves appear to be similar across patients with and without trauma histories or psychotic illnesses (Hamner et al., 2000).

One objective of this study was to understand clinicians attend to the similarities and differences between these two symptoms in their everyday clinical practice. A second objective was to look specifically at the sample's diagnostic choices of emerging and young adults who may be particularly vulnerable to first episode psychosis. Without an accurate diagnosis, a young person may experience longer periods of untreated psychosis which has been found to negatively impact total symptoms, overall functioning, positive symptoms, and quality of life in adults with psychosis (Marshall et al., 2005; Perkins et al., 2005).

It is also important for mental health professionals to accurately delineate between PTSD symptoms and psychotic disorders because the two are often under diagnosed when they are co-occurring (Alvarez et al., 2012). An early diagnosis and intervention for psychosis and assessment for trauma can also lead to better prognosis (Bendall et al., 2013).

As a profession that provides mental health treatment to more patients than any other profession combined (NASW, 2015) and is often the first provider to diagnose patients in the United States (NASW, 2005a), social workers may have the greatest impact in determining the course of treatment for this population based on their diagnostic choices. The following chapters describe the current literature on diagnosis, methodology of this investigation, findings of the study, and how they pertain to clinical social work practice, education, and research.

Chapter II provides a summary of current literature on differentiation between hallucinations and flashbacks across the lifespan along with the impact such a distinction may have on a young person's treatment and prognosis. Existing literature on the current protocol to make a differential diagnosis between psychotic disorders, such as schizophrenia and PTSD, is also reviewed as well as clinical perspectives of doing so. Chapter III discusses the exploratory – descriptive design used for this research. It reviews the procedure and rationale for an observational case study design. The ethical safeguards, data collection, and data analysis used in this study are also reviewed in Chapter III. Chapter IV delineates the primary findings of this study as well as unexpected findings from each vignette. Chapter V discusses those findings as they relate to differential diagnosis between PTSD and psychotic disorders by practicing clinical social workers. The limitations of this investigation is offered, and the chapter concludes with the implications of these findings for clinical social work practice, education, and recommendations for future research.



## **CHAPTER II**

### **Literature Review**

This purpose of this study was to explore the diagnostic decision making process of clinical social workers. It is important for the mental health professionals to accurately delineate between PTSD symptoms and psychotic disorders because the two are often under diagnosed when they are co-occurring (Alvarez et al., 2012). An early diagnosis and intervention for psychosis and assessment for trauma can also lead to better prognosis (Bendall et al., 2013). In a 2006 national survey of clinical social workers, 42% reported that “many” of their clients have co-occurring conditions, followed by 39%, who reported many clients struggle with mental health issues (Whitaker, Weismiller, & Clark, 2006). As a profession that provides mental health treatment to more patients than any other profession combined (NASW, 2015), clinical social workers may have the greatest impact in determining the best course of treatment for this population. However, it is unclear how social workers delineate between hallucinations and flashbacks, which may appear similar across patients with and without trauma histories or a psychotic illness (Hamner et al., 2000).

The aim of this review is to examine the diagnostic features clinical social workers should consider when making a differential diagnosis between Post Traumatic Stress Disorder (PTSD) flashbacks and hallucinations in psychotic disorders among young people. The literature was initially obtained through a search of publications identified by Google Scholar and PsychInfo using search terms such as "differential diagnosis," "co-occurring," "schizophrenia,"

"young adult," "adolescent," "PTSD," "psychosis," and "trauma." Additional publications were identified from citations from within these articles.

The following literature review describes the DSM 5 criteria for schizophrenia spectrum disorder and PTSD to highlight crossover between the two illnesses. In an effort to explore some of the intersecting etiologies of psychotic experiences, the review provides a brief overview of the prevalence of these co-occurring illnesses and explores the relationship between childhood abuse and psychotic symptoms (Read et al., 2005; Varese et al., 2012). Existing literature on the current protocol to make a differential diagnosis between psychotic disorders, such as schizophrenia and PTSD is reviewed and followed by a brief synopsis about the impact an incomplete diagnosis can have on a young person's prognosis. Clinical perspectives on choosing a diagnosis is explored to highlight the ways in which the proposed study will fill a gap in the literature regarding differentiation between psychosis and flashbacks in young people and how doing so enriches and strengthens the social work profession's direct practice.

### **Schizophrenia Spectrum Disorder**

Understanding schizophrenia as an illness is important as it is estimated to impact 3 million people in the United States, who have a two to three-fold chance of dying compared to the general population (McGrath, Saha, Chant, & Welham, 2008). A notable change from the DSM IV-TR to the DSM-5 was the use of term "spectrum disorder" to describe a continuum of illnesses such as Autism and psychotic illnesses. The shift was in an effort reduce "not otherwise specified" (NOS) diagnoses and to develop a dimensional approach for assessing mental illnesses (Bhati, 2013). As such, schizophrenia spectrum and other psychotic disorders now occur along a continuum of severity from less severe (e.g., delusional disorder and brief psychotic disorder) to more severe (e.g., schizophrenia and schizoaffective disorder). For the

purposes of this review, schizophrenia is briefly defined to highlight the similarities of its symptom profile compared to PTSD.

To receive a diagnosis of schizophrenia, one must endorse two or more psychotic symptoms for more than 6 months that cause significant impairment with no other identifiable cause (American Psychiatric Association, 2013). Psychosis is the presence of psychotic symptoms, which are often understood to involve auditory or visual hallucinations. However, a person experiencing psychosis may also experience one or more of the following: delusions (e.g., fixed false beliefs), disorganized thinking (e.g., loose associations, frequent derailment, etc), grossly disorganized or abnormal motor behavior (e.g., catatonia, pacing), and negative symptoms (e.g., anhedonia, avolition, asociality). To receive a diagnosis of schizophrenia, at least one of the following psychotic symptoms must be present: hallucinations, delusions, or disorganized speech.

### **Posttraumatic Stress Disorder (PTSD)**

Understanding PTSD as a diagnosis is similarly important. In the United States the illness has an estimated yearly prevalence rate of 3.5% (Kessler et al., 2005a), with a lifetime prevalence rate of about 8 percent (Kessler et al., 2005b). This indicates that about 8 million people in a given year will be impacted by the disorder. These estimates are based on the DSM IV criteria for PTSD, as there have not yet been national population based studies of prevalence rates with the new criteria defined in the DSM 5.

The DSM 5 requires the presence of symptoms from each of the following categories: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal or reactivity following exposure to “actual or threatened death, serious injury, or sexual violence” (APA, 2013). The term “flashback” is one type of intrusion that occurs during a dissociative state

lasting from a few seconds to several days. Events mirroring the traumatic event(s) are experienced during a flashback as visual and sensory perceptions that the individual reacts to in the present moment, sometimes with a complete loss of awareness of present surroundings (APA, 2013). Avoidance is described as efforts made by the individual to avoid external stimuli associated with the traumatic event(s). Negative alterations in cognitions and mood can include persistent negative perceptions of self and other or persistent negative emotional states. Negative alterations in mood can also appear as markedly diminished interest or participation in previously enjoyed activities. Finally, alterations in one's arousal to external stimuli can appear as hypervigilance, exaggerated startle responses, difficulty sleeping, and problems in concentration (APA, 2013).

### **The Uncanny Crossover between PTSD and Schizophrenia**

Despite semantic differences describing PTSD and schizophrenia, the two illnesses appear to have uncanny crossover between symptoms. Take for example, the terms “avolition and asociality” which describe two hallmark negative symptoms of schizophrenia. Defined in the DSM-5 as a “decrease in motivated self-initiated purposeful activities” and “markedly diminished interest or participation in previously enjoyed activities” (APA, 2013). In PTSD such symptoms could ostensibly be coded as “negative alterations in cognition and mood” and “avoidant behaviors”, in which an individual experiences a “persistent inability to experience positive emotions” (avolition) and “markedly diminished interest or participation in significant activities” (asociality) (APA, 2013).

The list of symptom crossover goes on. Alterations in cognition for people with PTSD can have a delusional quality, such as the firm belief that “I am bad” and “no one can be trusted” despite contrary evidence. A recent systematic review of 66 articles found robust empirical

evidence that people with schizophrenia suffer from chronic sleep disturbance (Reeve, Sheaves, & Freeman, 2015). The authors suggest that sleep disturbances for people with schizophrenia are related to paranoia and hallucinations. However, it is tempting to wonder to what extent that distinction is not relevant for people with PTSD, experiencing “flashbacks” and “negative alterations in cognition” (e.g., paranoia, suspiciousness, possible delusions). Finally, the term flashback, described as above, is also surprisingly similar to the term hallucination, which is defined by the DSM 5 as “perception-like experiences that occur without an external stimulus” (APA, 2013). Hallucinations, like flashbacks, can be auditory, visual, or sensory and are experienced with the same impact of normal perceptions. These later symptoms are at the center of this study and review due to their role in distinguishing PTSD from schizophrenia.

### **Prevalence of Co-occurring PTSD and Schizophrenia**

Despite the apparent crossover between symptoms of schizophrenia and PTSD, it is equally possible that the two illnesses are often co-occurring, which can make differential diagnosis unclear. A meta-analysis drawn from up-to-date evidence of 52 studies including a total of 4,032 subjects reported prevalence of trauma exposure and PTSD to be high for patients diagnosed with psychotic disorders, such as schizophrenia, (12.4%, 95% CI 4.0–20.8%) and even higher than those reported for the general population (Achim et al., 2011). Moreover, prevalence rates of PTSD for people living with severe mental illnesses reportedly ranges from 19-30% (Cusack et al., 2006). This finding indicates that of the estimated 3 million people in the United States with schizophrenia (McGrath et al., 2008) between 570,00 - 900,000 individuals may also struggle with co-occurring PTSD. Living with these co-occurring illnesses, has been associated with worse prognosis and greater symptom severity than solely a PTSD diagnosis (Alvarez et al., 2012; Sareen, Cox, Goodwin, & Asmundson, 2005).

Because rates for co-occurring PTSD and psychosis is substantial and the population is found to under-report histories of trauma (Lommen & Restifo, 2009), it has been argued that trauma assessment is essential for effective treatment of PTSD among patients with psychosis (Bendall, Alvarez-Jimenez, Hulbert, McGorry, & Jackson, 2012; Bendall, Alvarez-Jimenez, Nelson, & McGorry, 2013; Cusack et al., 2006; Read, van Os, Morrison, & Ross, 2005; Shevlin, Dorahy, & Adamson, 2007; Varese et al., 2012; Whitfield, Dube, Felitti, & Anda, 2005).

Despite the prevailing evidence to do so, two studies found in this review have shown that clinical documentation of PTSD and psychosis is under-reported and undocumented (de Bont et al., 2015; Lommen & Restifo, 2009). Additional literature indicates that a substantial portion of people with psychotic disorders do not receive PTSD treatment (Alvarez et al., 2012). This occurrence is so even though early assessment and treatment of the illness has been found to redress poorer outcomes associated with comorbidity (Bendall et al., 2013). Conversely, trauma-spectrum disorders are disproportionately offered psychotherapy as compared to people with psychotic disorders (Ross & Keyes, 2004) who are more often provided anti-psychotic medications (Read, van Os, Morrison, & Ross, 2005).

The epidemiological picture is worse when the onset of psychosis, particularly schizophrenia, is before the age of 18 (Thomsen, 1996). This data is concerning because a substantial proportion of those with schizophrenia experience an early onset (Hafner & Nowotny, 1995; Thomsen, 1996), with the most common period occurring in late adolescence and early adulthood (Lieberman, et al., 2001). Given the prevalence of early onset schizophrenia an accurate diagnosis and appropriate assessment during this time may reduce and / or prevent future hospitalizations, biological changes, and the social impacts of psychosis (McGorry, Killackey, & Yung, 2008).

However, discerning between an emerging psychotic disorder and psychotic symptoms associated with trauma (e.g., flashbacks) is difficult when a client meets both a psychotic disorder and PTSD diagnosis. Because trauma screenings with psychotic patients occur infrequently and a severe mental illness (SMI) diagnosis often “trumps” additional ones (Cusack, Wells, Grubaugh, Hiers, & Frueh, 2007), the potential for inaccurate diagnosis or incomplete treatment for a vulnerable population is both probable and concerning for treatment and the efficacy of clinical social work practice.

### **The Relationship between Childhood Trauma and Psychosis**

A recent meta-analysis of 41 articles including prospective cohort studies, large population-based cross-sectional studies, and case control studies found significant associations between childhood adversity and psychosis, demonstrating that adverse experiences substantially increase one’s risk of psychosis with an OR of 2.8 (95% CI 2.34–3.31%) (Varese et al., 2012). Further the evidence suggests that if child abuse were entirely removed from the population, then the number of people with psychosis would be reduced by 33%. The findings of that review are limited by the substantial methodological and statistical heterogeneity in the data, which could be the result of differences in the methodological quality of studies. That being said, the quality of all included studies and the sensitivity analysis was found to support their conclusions and is corroborated by one of the first epidemiological literature reviews of childhood trauma and psychosis (Read et al., 2005)

Read et al.’s (2005) critical review found statistically significant associations between child abuse, psychosis, and schizophrenia, particularly for voices commenting and command hallucinations. Read et al. also highlighted contrasting literature in which studies claimed findings that suggest childhood abuse and psychosis are no more related than in other diagnoses.

One particular critique within those studies pertained to the reliability of self-reported abuse due to potential over reporting. However, the opposite was found to be true: people with psychotic disorders typically under report rather than over report traumatic experiences (Lommen & Restifo, 2009), and the reports are often found to be reliable (Hardt & Rutter, 2004). Additionally, to control for this variable, Varese et al. (2012) looked at studies that employed methods other than retrospective adult reporting to assess trauma exposure. The authors continued to find associations between childhood trauma and psychosis when controlling for this variable, which indicates that PTSD among persons with psychotic disorders seems to be both underreported and under examined.

### **Differential Diagnosis in Young People with PTSD and Psychosis**

There is limited evidence available regarding how clinicians make a differential diagnosis for adolescents between flashbacks in PTSD versus similar but distinct symptoms in psychotic disorders (e.g., hallucinations). The DSM 5 states that flashbacks are distinguished from hallucinations by the requirement of exposure to a traumatic event and other PTSD symptoms (APA, 2013). Unfortunately, this differentiation would not be applicable for individuals who exhibit both PTSD and psychotic symptoms. Beyond this statement in the DSM 5, only one study found in this review identified specific guidelines for differential characteristics for adults through a randomized clinical trial with male veterans (n=115). The study found that psychotic symptoms for adults with combat related PTSD were strongly related to themes of traumatic experiences and thereby distinguished as a flashback rather than indication of a separate psychotic disorder (Schillaci et al., 2009).

In contrast to that finding, a quantitative exploratory study of combat veterans with a diagnosis of PTSD with psychotic features and civilians with schizophrenia found that while



subjects with PTSD had hallucinations related to an experience of trauma, many others experienced hallucinations in which the content did not align with the traumatic experiences (Hamner et al., 2000). The study found that despite some difference between the groups with regards to severity of delusions, the severity of hallucinations between the two groups was virtually identical as was levels of suspiciousness and delusions of persecution. This evidence was also found in two cross-sectional studies comparing adolescents in inpatient psychiatric units, ranging from age 13 to 18 with PTSD and psychotic disorders (Scott, Nurcombe, Sheridan, & McFarland, 2007; Jessop, Scott, & Nurcombe, 2008), which reported no discernable differences between the content and form of hallucinations between the two groups. From these studies, it appears evident that parsing out psychotic symptoms from PTSD can be extremely difficult and complicated.

Collectively these studies highlight that experiencing trauma as a young person does not necessarily determine the content or form of one's hallucinations and is not sufficient for a differential diagnosis between PTSD and an emerging psychotic disorder in young people or adults. While each of these studies acknowledged the limitations of the cross-sectional study design and relatively small sample sizes, only one study found in this review was longitudinal. Hlastala and McClellan (2005) conducted a 2-year longitudinal study of 69 young people aged 7-18 and found higher rates of abuse were associated with atypical psychosis as compared to subjects diagnosed with bipolar disorder or schizophrenia at 2-year follow-up. The study also found that participants diagnosed with atypical psychosis reported the absence of other symptoms found in "true" psychotic disorders (e.g., disorganized speech, bizarre behavior) and that none of this group went on to develop a psychotic illness by follow up. The authors argue that these findings suggest atypical psychotic symptoms are related to dissociative and/or

posttraumatic phenomena, rather than a current or developing psychotic illness. This study points to the possibility that not only symptoms associated with hallucinations, but also symptoms associated with confusion of thought and distorted thinking may further complicate differential diagnosis between PTSD and psychotic disorders.

It is of note, that the statistical power of these findings is limited based on the small sample size at follow-up (obtained on 56% of the sample). However, the study highlights an area missing in the previous literature with regards to the impact that symptoms such as disorganized speech and bizarre behavior can have on the differential diagnosis between PTSD and psychotic disorders. This aspect of diagnostic uncertainty is also important as these symptoms are often viewed as the hallmarks of prodromal symptoms of psychosis, which have been argued to merit early intervention practices to prevent the development of psychotic disorders (McGorry, Killackey, & Yung, 2008).

Importantly, this study's sample includes children, whose young age may have influenced some behavior and thereby was understood as age appropriate. Whereas, for adolescents the expectations for organized thinking and coherent thought processes is greater due to the developmental expectations of the age group. Additional studies of atypical psychosis versus "true" psychotic disorders may benefit from looking at a narrower sample size in order to better understand the function of disorganized thinking and posttraumatic phenomena.

Interestingly, Hlastala and McClellan (2005) were the only study found in this review that explored hallucinations for people younger than 13 years of age. In a meta-analysis of 19 identified population based studies, Kelleher et al. (2012) compared children (9-12) and adolescents (13-18) for psychotic symptom prevalence and found that psychotic symptoms were more common among children (median prevalence of 17%) than adolescents (median prevalence

of 7.5%). This finding indicates that despite high prevalence rates, there are limited empirically validated guidelines to which clinicians can refer when making a differential diagnosis of PTSD or psychosis in either children or adolescents.

### **Diagnostic Accuracy and Treatment Setting**

While there is evidence that child abuse is a significant risk factor in developing psychosis (Varese et al., 2012), that trauma and PTSD are significant factors impacting people with severe mental illnesses (Achim et al., 2011) and that the two illnesses are often co-occurring disorders (Cusack et al., 2006), there appears to be minimal literature regarding the accuracy of choosing such diagnoses in practice. Throughout this review of the literature, there appeared to be a great deal of literature testing the validity of screening tools such as the PTSD checklist or neuroimaging tests to diagnose severe mental illnesses, but only two studies found that discussed the accuracy of diagnosis for schizophrenia and PTSD based on clinician choice.

One study comparing the variability of schizophrenia and major depression diagnoses from the administrative data set of a large public mental health system found that schizophrenia had greater diagnostic variability than major depression (Folsom et al., 2006). The study also found that variability was significantly higher in jail and emergency psychiatric units than in inpatient or outpatient settings. This finding suggests that schizophrenia when compared to major depression is a less consistent diagnosis and that treatment setting may influence the accuracy of a clinician's diagnostic choice.

Another study compared frequency of PTSD diagnoses in outpatient and residential settings treating at-risk youth in 1999 and 2009 (Miele & O'Brian, 2010). This study found that a baseline PTSD diagnosis in both settings was rare for the population in 1999. However, after the residential setting introduced trauma informed trainings at the agency, diagnostic rates of PTSD

increased by 10.8%. An increase in diagnostic accuracy was not seen for the outpatient setting in 2009, which did not introduce such training efforts.

These findings appear to underscore both the fine-grain nature of diagnosis and the potential for effectively influencing diagnostic accuracy by introducing training programs at the agency level. Each of these factors have implications for clinical social workers as they are often the first to diagnose patients in the United States (NASW, 2005a) and a diagnosis can have a great deal of impact on one's subsequent treatment.

### **An Erroneous Diagnosis Can Lead to Inappropriate Treatment**

Without empirically validated guidelines, an erroneous or incomplete diagnosis clinicians may overlook first episode psychosis in young people which can greatly impact the prognosis of one's illness, subsequent recovery and lead to partial or inappropriate treatment (Bendall et al., 2013). A meta-analysis of 43 publications (Perkins, Gu, Boteva, & Lieberman, 2005) and systematic review of 26 studies (Marshall et al., 2005), regarding the duration of untreated psychosis (DUP) found associations between longer DUP and worse outcome in terms of total symptoms, overall functioning, positive symptoms, and quality of life in adults. Both reviews defined delayed treatment as the initiation of adequate antipsychotic drug treatment. From this perspective, an inaccurate diagnosis that treats PTSD versus an emerging psychotic disorder may in fact prolong or exacerbate one's illness, if the diagnosis does not merit antipsychotic medications.

### **The Impact of Antipsychotic Use on Young People**

By the same token, a recent meta-analysis and systematic review of 19 clinical trials, with a total of 2338 patients found that antipsychotic medication use with young people have been associated with higher rates of weight gain and discontinuation than in adult populations

(Stafford et al., 2015). This side effect profile is often justified under the argument that low-doses of antipsychotic medications address acute psychotic symptoms, which subsequently reduce suicide risk and neurocognitive changes as a result of long duration of untreated psychosis (Freudenreich et al., 2007). While this argument has been substantiated in adult samples, contrary evidence was found in a four-site, randomized, double-blind clinical trial comparing the efficacy of three antipsychotic medications on neurocognitive outcomes of youth age 8-19 after 2 months and continued through 1-year (Frazier et al., 2012). The study found that atypical antipsychotic medications lead to only modest improvement of neurocognitive functioning in young people. As such, while there may be neurocognitive changes as a result of long durations of untreated psychosis, it is not clear whether or not antipsychotic medications effectively address this issue for adolescents.

In fact, the International Clinical Practice Guidelines on Early Psychosis (2005) does not recommend the use of antipsychotic medication unless a client meets the diagnosis for a psychotic disorder, in part due to the impact that antipsychotic medications can have on developing neurobiology of young people. However, as the majority of this review suggests, if differentiating between a PTSD diagnosis and psychotic disorder is not clear, then determining the utility of antipsychotic medications may be similarly ambiguous.

Accurate diagnosis in this context is especially critical, because not all first-episode psychosis (FEP) is enduring. de Haan et al. (2003) retrospectively explored the use of antipsychotic medications versus intensive psychosocial treatment after six years and found that untreated psychosis in those who received intensive psychosocial treatment was not negatively impacted by delayed use of antipsychotic medications alone. In contrast, the delayed use of psychosocial interventions was a larger negative predictor of negative symptoms at treatment

outcome. The authors acknowledge the limitations inherent in the retrospective methodology, and further longitudinal studies are needed before verifying the longevity of such findings (McGorry, et al., 2008). Nevertheless, de Hann et al.'s findings do highlight the potential benefit of psychosocial interventions when working with a client who has psychosis, which may be particularly important for adolescents with trauma histories experiencing a first episode of psychosis, as the psychotic experiences may be indicative of an emerging psychotic disorder and/or PTSD.

### **Antipsychotic Medication Use for PTSD**

It should also be noted that PTSD is sometimes treated with antipsychotic medications off-label, when a person has a co-occurring illness such as schizophrenia. However, there is limited empirical evidence to support its use for solely PTSD in adults (Jeffreys, 2015). Further in young people, atypical antipsychotic medications have been used to treat PTSD, but only a small body of literature supports its use (Keeshin & Strawn, 2014).

Collectively these findings suggest that antipsychotic medication use may at times be the best option available to providers when their patients are in an acute psychotic episode, but that use of these medications have side effects that may expose young people to unnecessary and potentially harmful treatments in the long term. An accurate diagnosis may lead to appropriate treatment, but in some settings a hierarchy of psychiatric diagnosis can lead to an oversight in identifying PTSD among patients with severe mental illnesses (Cusack et al., 2007), indicating that people who have psychosis may be less likely to receive an accurate diagnosis. Further, this system of hierarchy may also overlook a client's trauma history under the erroneous but commonplace assumption that psychotic symptoms are purely a biologically determined phenomenon, despite evidence to the contrary (Varese et al., 2012).

As previously stated, this assumption can result in solely prescribing psychopharmacological treatment for psychosis without necessary behavioral diagnosis or treatment for trauma that may contribute to one's illness (Read et al., 2005), even though a combination of behavioral treatment and anti-psychotic medications has been found to be more effective in preventing relapse (de Haan et al., 2003). What this can mean for young people with early onset psychosis and co-occurring trauma related disorders is clear: if there is a hierarchy of diagnoses leading to under diagnosis of trauma related disorders for people with psychosis, then they may be prescribed treatments that do not attend to the underlying issue contributing to their symptom presentation. The result of which can be the use of medications that can have significant side effects (Stafford et al., 2015) and not attend to the neurocognitive changes they purport to mitigate in young people (Frazier et al., 2012).

### **Clinician Perspectives on Diagnosis**

Clinician experience and training has been found to impact their treatment and diagnostic choices. In a statewide-survey of 251 clinicians of mixed disciplines serving clients with severe mental illnesses, Salyers et al. (2004) found that clinician lack of knowledge and experience predicted whether or not they addressed trauma with this population. The study found that clinicians with graduate degrees felt more competent and reported discussing, documenting, and working on PTSD and other trauma-related problems with this population. In a review of the literature on reliability of psychiatric diagnosis from the turn of the 20th century to present, authors found that clinicians tended to chose the same diagnosis when trained in similar institutions or with clinical experience among the same client population (Aboraya et al., 2006).

Beyond the clinician's diagnostic choice, a clinician's perceptions about the impact of the diagnosis itself may be another factor to consider. For example, a recent qualitative study found

that most mental health clinicians in their sample listed multiple reasons not to disclose a schizophrenia diagnosis to a patient, including concerns of diagnostic certainty, uncertainty about family reactions to the diagnosis, risk for suicidality, and concern about the stigma of the diagnosis itself (Outram et al., 2014).

When considering the impact of clinician knowledge base, training institution, years experience with specific population, and concerns about disclosing a severe mental illness diagnosis to a patient, it becomes clear that choosing one diagnosis over another is not only influenced by a multitude of factors, but is conceivably a collection of factors which compound each other. Moreover, the combination of these elements may ultimately impact treatment outcomes or the perception of efficacy of one's treatment choices. This possibility is of particular interest to this study, which seeks to understand how diagnostic choices are made consistently for co-occurring PTSD and psychosis, the symptoms of which can appear similar and the disorders frequently co-occur.

### **Perception of Efficacy of Treatment for Co-occurring PTSD and Psychosis**

The perceived efficacy of PTSD interventions for young people with psychotic disorders may impact their treatment of choice. In a mixed-methods study, Gairns et al. (2015) interviewed 20 caseworkers using a questionnaire and found that time constraints, competing treatment priorities, poor client engagement were common factors that inhibited implementing PTSD interventions with first-episode psychosis. They were also concerned that inquiry about trauma would distress clients and that delivering trauma-focused intervention would increase mental health risks for them. Fear of exacerbating psychotic symptoms by treating or broaching one's trauma was consistently reported in two additional cross-sectional surveys (Young, Read, Barker-Collo, & Harrison, 2001; Frueh et al., 2006).



Another study investigated whether an endorsement of trauma led clinicians to label a symptom as a hallucination, flashback, or “re-experiencing” through the use of a case vignette, and found that without an assessment of trauma, clinicians were more likely to give a diagnosis of psychosis instead of PTSD (Baker-Goodwin, 1995). These findings are corroborated by many other recent studies arguing for the assessment of trauma in patients with psychosis as best practice (Bendall, Alvarez-Jimenez, Nelson, & McGorry, 2013; Cusack et al., 2006; Read, van Os, Morrison, & Ross, 2005; Shevlin, Dorahy, & Adamson, 2007; Varese et al., 2012; Whitfield, Dube, Felitti, & Anda, 2005). Baker-Goodwin’s study was an important step in exploring the diagnostic decision making process of clinicians. This study will build on it’s use of the case-vignette to investigate how trauma assessment for patients who appear psychotic have or have not changed in the past 20 years.

### **Implications for Social Work Practice**

In all of the aforementioned studies, only one study included the perspectives of clinical social workers (Frueh et al., 2006), rather than psychiatrists, psychologists, or caseworkers. In this study the sample size was small (33) and a percentage of clinical social workers was not provided. It is evident that research about clinical social work practice on this topic is under investigated, which is concerning not only as a profession that provides the largest amount of mental health service compared to other professions (NASW, 2015), but also because social workers make up 60% of the mental health workforce in the nation (NASW, 2015). Moreover, social workers are often the first to diagnose mental health patients in the United States (NASW, 2005a), indicating that their diagnostic choice may be the first to convey information among providers and treatment settings. As the primary provider of mental health services within in the

United States, clinical social workers have a unique opportunity to determine appropriate treatment for an under-diagnosed and subsequently neglected client population.

The present study was designed to examine how clinical social workers currently address this issue and to explore the following questions: 1) how do clinical social workers decide whether a hallucination is due to psychosis or trauma-related flashbacks and 2) how does treatment setting and clinician demographic information influence their diagnostic choices? These questions were informed by the current review, which indicates that there are no comprehensive, empirically validated guidelines to which clinical social workers can refer when making a differential diagnosis between PTSD flashbacks and psychotic disorders in young people. The gap in the literature is concerning both because the two illnesses are often under diagnosed when they are co-occurring (Alvarez et al., 2012) and an early diagnosis and intervention for psychosis can lead to better prognosis (Bendall et al., 2013). Further, it is possible that an erroneous diagnosis of a psychotic disorder can lead to unnecessary antipsychotic medication use during a developmental period when these medications may not address the neurocognitive changes it purports to resolve (Frazier et al., 2012).

## **CHAPTER III**

### **Methodology**

This purpose of this study was to explore the diagnostic decision making process of clinical social workers. It is important for the mental health professionals to accurately delineate between PTSD symptoms and psychotic disorders because the two are often under diagnosed when they are co-occurring (Alvarez et al., 2012). An early diagnosis and intervention for psychosis and assessment for trauma can also lead to better prognosis (Bendall et al., 2013). In a 2006 national survey of clinical social workers, 42% reported that “many” of their clients have co-occurring conditions, followed by 39%, who reported many clients struggle with mental health issues (Whitaker, Weismiller, & Clark, 2006). As a profession that provides mental health treatment to more patients than any other profession combined (NASW, 2015), clinical social workers may have the greatest impact in determining the best course of treatment for this population. However, it is unclear how social workers delineate between hallucinations and flashbacks, which may appear similar across patients with and without trauma histories or a psychotic illness (Hamner et al., 2000).

The following methodology chapter discusses the exploratory –descriptive design used for this research. It also reviews the procedure and rationale for an observation case study design. The ethical safeguards, data collection, and data analysis used in this study are also delineated.

## **Design**

This study used an exploratory-descriptive design implemented through an online survey. Formally, it was an observational case study design. The research instrument was administered via the Internet using a mixed-method questionnaire following one of four case-vignettes designed specifically for this study.

The case-vignette method was chosen for this study to explore everyday social work practice decision-making about differential diagnosis. The method has been found to effectively assess quality of health care in outpatient settings among physicians (Peabody et al., 2000) and also validated to be used among diverse clinical settings and physician types (Peabody et al., 2004). While clinical social workers are not physicians, both professions make their diagnostic decisions according to the DSM 5 and ICD-10 description of mental illnesses. As such, utilizing a case-vignette method is justified under the pretense that the process of diagnosing for mental health workers and physicians (such as psychiatrists) is synonymous.

## **Procedure**

Prior to beginning this research, the Smith College School for Social Work Human Subjects Review Committee (HSRC) reviewed and approved the methodology of this study (Appendix A). Following approval in early January 2016, recruitment and data collection were completed through February 28<sup>th</sup>, 2016. Participants were selected through nonprobability, purposive cluster sampling and recruited through snowball sampling by using a recruitment email inviting social workers to participate or forward the study link to eligible colleagues (Appendix B). In order to increase the sample, a protocol change request form was submitted to and approved by the HSRC to recruit by emailing the Smith College School for Social Work Alumni email list (Appendix C).

## Sample

### Inclusion and Exclusion Criteria

Individuals eligible to participate in the study were licensed clinical social workers and actively practicing in the United States. Each participant was also required to work in one of the following treatment settings: 1) outpatient, 2) inpatient, 3) community based, 4) school based or 5) private practice.

In order to determine eligibility, all participants were asked to confirm that they met the inclusion criteria before being introduced to the online survey instrument. Participants who met the inclusion criteria were then directed to another online page with the informed consent form (Appendix D). Participants who did not meet the inclusion criteria were directed to a page informing them that they are not eligible to participate and thanking them for their time.

The study intentionally included clinicians who work in a wide range of treatment settings. The study did not include settings that serve exclusively trauma-related populations, such as Veteran's Administration and trauma clinics, because the treatment focuses in these settings may biased the data due to specialization. According to Engel and Schutt (2013, p. 331) cluster sampling can become problematic when the sampling frame is large and the cases are heterogeneous. In an effort to address this limitation of cluster sampling, the study chose a limited number of clusters (i.e., outpatient, inpatient, etc.) in which clinician training may be more reflective of the target population and therefore more homogenous than treatment settings that employ specialists.

A wide range of treatment settings was also chosen to identify themes among diagnostic choices across clinical settings. The desired sample size was at least 20 participants for each vignette, totaling a minimum sample of 80 participants. After allowing two months for

recruitment, the study obtained a total of 105 respondents evenly distributed across all four vignettes.

### **Ethics and Safeguards**

Due to the use of an online questionnaire, participants in this study were entirely anonymous. Participants were asked to provide electronic informed consent prior to being introduced to the study instrument (Appendix E). The informed consent form explained possible risks of participation and procedures taken to protect respondent confidentiality in accordance with HIPAA regulations. Participants were informed that the study is entirely anonymous and participation is voluntary. The consent form outlined the purpose and expectations of the study, but did not disclose the exact research questions being investigated. Doing so may have biased respondent answers to the questionnaire in an effort to “answer correctly.” Responses such as those would not have reflected the decision making process of social workers in everyday practice thereby obscuring a primary purpose of this study.

The potential benefits to develop clinical social work practice and improve client care were also emphasized in the recruitment email and informed consent form. Further, each participant was given a webpage link (<http://diagnosisstudy.moonfruit.com/>) to see the outcome of their efforts. Respondents were invited to review the results of the study following its submission in June, 2016. They were also given the opportunity to email this writer in order to receive the finalized thesis in its entirety. These efforts were taken both to increase participation buy-in as well as to include respondents in the benefits of their participation.

### **Data Collection**

#### **Instrument Design**

This study used four case vignettes distributed to research participants. Each vignette

strictly follows the DSM5 / ICD 10 criteria for each disorder. After consenting to participate in the study, respondents are randomly introduced to one of the four vignettes described below. The complete vignettes are found in Appendix E.

### **Vignette #1: Schizophrenia Spectrum Disorder**

Vignette #1 is based on the DSM 5 / ICD-10 diagnosis of schizophrenia Spectrum Disorder with no endorsement of trauma. It was chosen to compare the accuracy of diagnosis of schizophrenia when the person does or does not endorse trauma.

### **Vignette #2: Posttraumatic Stress Disorder**

Vignette #3 is based on the DSM 5 / ICD-10 diagnosis of PTSD without psychotic experiences. This vignette included flashbacks that directly reflects memory of a traumatic experience and therefore is indicative of a PTSD flashback as opposed to an emerging psychotic disorder, according to prior research (Schillaci et al., 2009).

### **Vignette #3: Schizophrenia Spectrum Disorder with Trauma History**

Vignette #2 is identical to vignette #1, but with the addition of an endorsement of sexual abuse during childhood. The decision to use sexual abuse was based on current literature's indication that sexual abuse is highly associated with the development of psychosis (Varese et al., 2012). The type of sexual abuse is not personally experienced, but rather witnessed. The DSM 5 newly introduced witnessing a traumatic event as it occurred to others as a qualifying criterion for a PTSD diagnosis. This type of sexual abuse was chosen to explore what percentage of clinical social workers considered this type of abuse as a qualifying criterion for a PTSD diagnosis.

#### **Vignette #4: Co-occurring Schizophrenia and PTSD**

Vignette #4 is identical to the third, with the addition of an endorsement of paranoid delusions and auditory hallucinations that do not align with a specific trauma sequelae. The decision to manipulate this variable is to determine how the endorsement of trauma influences a clinician's choice to diagnose one with psychosis versus PTSD and whether their rationalization led to an accurate diagnosis of both disorders.

#### **Instrument Validity**

Each vignette with an endorsement of trauma (#2, 3, and 4) is also based upon the Trauma Screening Questionnaire (TSQ), which has been found to be a valid screening tool for patients with psychotic disorders and a wide variety of trauma types and frequencies (de Bont et al., 2015). Vignettes with psychotic experiences (#1, 2, and 4) will also be screened with the First Rank Symptom (FRS) screening tool, which a recent Cochrane review concluded correctly identifies people with schizophrenia 75%–95% of the time and accurately differentiates schizophrenia from other psychotic disorders (Soares-Weiser et al., 2015). By screening with these validated tools and following the guidelines outlined in the DSM 5, the instrument used in this study will approximate the tools available to clinicians in the field when they are making diagnostic and treatment decisions.

#### **Demographic Questionnaire**

After reading one of four randomly selected vignettes, respondents were asked to diagnose the case-vignette. Respondents were given an open-ended question when diagnosing the vignette in order to prevent context effects from multiple choice options and to approximate diagnostic decision making process in the field (Palinkas et al., 2011). Once participants



diagnosed the case-vignette, they were then asked to complete a brief questionnaire, comprised of Likert-scaled questions, dichotomous yes/no questions, and open-ended questions.

Dichotomous yes/no and Likert scaled questions were used to structure responses regarding the identification of specific symptoms qualifying the case vignette for the chosen diagnosis, clinical confidence, and the impact of age on chosen diagnosis. Additional open-ended questions were used to see whether identified symptoms are similar across treatment settings. The following demographic information was also collected to explore the impact of the following areas on diagnostic choice: 1) years of clinical practice; 2) major therapeutic approach; 3) primary theoretical orientation; 4) current treatment setting; 5) age group of current caseload; 6) primary population with which they work; and 7) population most confident to treat.

Respondents were also asked 3 Likert scaled questions regarding their confidence in treating young people age 16-25 with PTSD, Personality Disorders, or Psychotic Disorders (questions #10-12). The questions regarding personality disorders was included to avoid a context effect (Engel & Schutt, 2013), from which participants may respond based on the influence of questions #10 or #12, which may suggest that the diagnosis they chose should reflect either PTSD or psychotic disorder diagnosis. This effect could subsequently bias the data, as it would not be reflective of everyday social work practice.

### **Data Analysis**

This study used content analysis for the questionnaire, which was designed with fixed-choice responses and produced quantitative data that was analyzed through descriptive statistics. I tested differences between diagnosis of vignette and looked for correlations between clinician characteristics and diagnosis using inferential statistical analysis of data. Demographic information was used for descriptive data measured at nominal and ordinal levels of measure to

describe the distribution of and relationship among variables, such as clinician treatment setting and years of clinical practice. Open-ended questions were analyzed through thematic analysis.

Observations looked for measures of central tendency across variables and described associations related to existence of additional variables, direction of dependent variables, and patterns across distribution. Chi-square analysis was used to compare findings across variables using .05 probability criterion level to evaluate significance of data.

## **CHAPTER IV**

### **Findings**

This study investigated the diagnostic decision-making process of clinical social workers by using an exploratory-descriptive design implemented through an online survey (Appendix F). The survey used four case vignettes designed specifically for this study to explore how clinical social workers distinguish between psychotic symptoms, such as hallucinations, and post-traumatic stress symptoms, such as flashbacks in emerging and young adults. The objective was to understand clinician diagnostic choices in order to increase diagnostic accuracy with young adults as they are vulnerable to first episode psychosis. Without an accurate diagnosis, a young person may experience longer periods of untreated psychosis which has been found to negatively impact total symptoms, overall functioning, positive symptoms, and quality of life in adults with psychosis (Marshall et al., 2005; Perkins et al., 2005). The study found that post-traumatic stress disorder (PTSD) appeared to be significantly easier to diagnose than schizophrenia spectrum disorder and that delineating between psychotic symptoms and flashbacks when endorsed by clients with trauma is significantly more difficult.

The findings that follow list the demographics of study participants, including years of clinical practice, primary treatment setting, age range of clients, and dominant presenting issue of client base. Then, results from each vignette are presented individually by its diagnosis: schizophrenia spectrum disorder, PTSD, schizophrenia with trauma history, and co-occurring schizophrenia and PTSD. The next section describes findings when comparing accuracy of diagnosis to treatment setting. Finally, the chapter concludes with a summary of findings

obtained through open ended questions regarding symptoms participants recognized in the vignette and additional information they identified as necessary to make an accurate diagnosis.

### **Participant Demographics**

The data from 105 participants were used for this study. Demographic information, such as years of clinical practice, primary treatment setting, age range of clients, and dominant presenting issue of client base, were elicited to understand how those factors may influence clinician diagnostic choice. Respondents indicated widespread years of clinical practice ranging between 0 to over 40 years. Nearly a quarter (24%) had practiced between 0-5 years, with the next largest portions ranging between 6-10 (15.2%) and 11- 15 (14.3%) years. While the majority of participants had practiced for less than 15 years, 10.5% had practiced between 31-35 years and 9.5% between 21-25 and 26 to 30 years respectively. Eight participants (7.6%) had practiced between 16-20 years. The remainder of the sample worked between 36-40 years (4.7%) and over 41 years (2.8%).

While there was a somewhat diverse range of treatment settings, the largest portions of participants worked in either outpatient (32.4%) or private practice (34.3%) treatment settings. The remaining 44% of the sample was nearly equally distributed across inpatient (11.4%), school-based (10.5%), and community based settings (9.5%). It was anticipated that clinicians with inpatient experience were likely to have more exposure to the diagnostic differentiation between psychosis and trauma due to the high volume of exposure to psychosis in this setting. The findings when comparing treatment setting to accurate diagnosis is described in detail later in this chapter in the section entitled *Treatment setting and diagnosis*.

Participants were given five options to indicate the age group comprising at least 50% of their client base. Those five groups were: children (0-11), adolescents (12-18), young adults (19-

25), adults (26- 64), and older adults (65+). The majority of the sample reported working with adults (52.3%). The second largest portion of the sample indicated that they worked with adolescents (18.1%) or young adults (18.1%). Nine participants reported working primarily with children (8.6%), and only one participant stated that they worked with older adults (1%).

To understand whether familiarity with a particular presenting issue or diagnosis influence one's diagnostic choice, participants were asked to identify the dominant presenting issues facing their client base. Diagnostic options were based on illnesses outlined in the DSM-5 such as neurodevelopmental, schizophrenia/psychotic spectrum, bipolar, depressive, anxiety, obsessive compulsive, trauma-related, and personality disorders. By far the prevailing presenting issue selected was trauma-related and stressor-related disorders at 42 % of the sample. Anxiety (20%) and depressive (21.9%) disorders were the second and third most common presenting issues. Few respondents reported working with personality disorders (2.8%) and neurodevelopmental disorders (1.9%), with only slightly more working with bipolar illnesses (5.7%). Importantly, for the purposes of this study, only 4 participants (3.8%) out of 105 reported working with schizophrenia spectrum and other psychotic disorders. Demographic statistics are demonstrated below in Table 1.

Table 1

*Demographic Information about Social Worker's Clinical Practice.*


---

<u>Years Experience</u>	0-5	24 (25)
	6-10	15.2 (16)
	11-15	14.3 (15)
	16-20	7.6 (8)
	21-25	9.5 (10)
	26-30	9.5 (10)
	31-35	10.5 (11)
	36-40	4.7 (5)
	41+	2.8 (3)
	No response	1.9 (2)
<u>Primary Treatment Setting</u>	Outpatient	32.4 (34)
	Private Practice	34.3 (36)
	Inpatient	11.4 (12)
	Community Based	9.5 (10)
	School Based	10.5 (11)
	No response	1.9 (2)
<u>Age of at least 50% of clients</u>	Children (0-11)	8.6 (9)
	Adolescents (12-18)	18.1 (19)
	Young Adults (19-25)	18.1 (19)
	Adults (26- 64)	52.3 (55)
	Elderly (65+)	1 (1)
	No response	1.9 (2)
<u>Dominant Presenting Issue of Clients</u>	Neurodevelopmental Disorders	1.9 (2)
	Schizophrenia Spectrum and other Psychotic Disorders	3.8 (4)
	Bipolar and related Disorders	5.7 (6)
	Depressive Disorders	21.9 (23)
	Anxiety Disorders	20 (21)
	Trauma-related and Stressor-related disorders	42 (44)
	Personality Disorders	2.8 (3)
	No response	1.9 (2)
<u>Total Respondents</u>		n=105

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## **Quantitative Results from Vignettes**

In addition to collecting demographic information from participants, respondents were asked to diagnose one of four vignettes that were based on the DSM 5 criteria for schizophrenia, PTSD, schizophrenia with a trauma endorsement, or co-occurring schizophrenia and PTSD. The following sections describe the findings based on each vignette. For each vignette response, many subjects listed a diagnosis along with a possible “rule-out” diagnosis, presumably to attend to the possibility that other illnesses may emerge as they get to know a patient over time. This approach is frequently used to communicate diagnostic information and adequately describe presenting symptoms to other providers within clinical practice (First, 2014). As such this study included rule-outs as a “correct” response to the diagnosis. This choice was made to acknowledge 1) the clinical reality of uncertainty in one’s diagnosis in a single meeting and 2) the clinician’s ability to recognize the symptoms evident in the vignette without necessarily giving a formal diagnosis.

### **Vignette #1: Schizophrenia Spectrum Disorder**

The DSM 5 uses the term “spectrum disorder” in an effort to develop a dimensional approach for diagnosing mental illnesses (Bhati, 2013). As such, diagnoses for this vignette included the “spectrum” of schizophrenia, such as unspecified psychotic disorder, brief psychotic disorders, schizophreniform disorder, schizoaffective disorder, and schizophrenia. While the case vignette included sufficient information to warrant a DSM 5 diagnosis of schizophrenia, only 5 out of 26 respondents gave the diagnosis. When including rule-outs and the spectrum of schizophrenia, the amount of correct diagnoses was 17 out of 26 responses (65%), with the remaining 9 responses being undecided or not diagnosing a psychotic illness, such as depressive and adjustment disorders.

Vignette #1 was the only vignette used in this study that did not note a trauma history or specific trauma diagnostic criteria. Interestingly, nearly half of the 26 respondents (46%) nonetheless stated that the client had a trauma history. This was an unintended finding of the study. Additionally, more than half of the respondents (69%) considered symptoms in the vignette as possible PTSD symptoms, even though a significant portion of those respondents acknowledged that the vignette did not have a trauma history (54%). The details of both diagnostic choice and trauma history are demonstrated below in Table 2 and 3.

Table 2

*Diagnosis of Vignette #1: Schizophrenia*

<u>Diagnosis</u>	<u>Vignette 1</u>	<u>%</u>
Correct	16	62
Incorrect	10	38
Total n=	26	100

Table 3

*Trauma Endorsement in Vignette #1*

<u>Trauma History</u>	<u>with PTSD symptoms</u>	<u>without PTSD symptoms</u>	<u>Total</u>	<u>%</u>
Yes	10	2	12	46
No	8	6	14	54
Total n=	18	8	26	100

**Vignette #2: Posttraumatic Stress Disorder**

Vignette # 2 included DSM 5 criteria for PTSD rather than schizophrenia spectrum disorder. It was presented to participants to understand which disorder was more easily diagnosed. Unlike vignette # 1, nearly all 25 participants (96%) gave the correct diagnosis. The remaining one participant listed an unspecified diagnosis for the disorder.



Table 4

*Diagnosis of Vignette #2: PTSD*

<u>Diagnosis</u>	<u>Vignette 2</u>	<u>%</u>
Correct	24	96
Incorrect	1	4
Total n=	25	100

**Understanding Vignettes # 1 and #2**

Chi-square analysis was used to compare the findings between Vignette #1 and Vignette #2 as it compared to chance and found statistically significant results at  $p < .05$  criterion level used for this study  $\chi^2(2, 51 = 8.9475, p = .002)$ . This finding indicates that it was significantly more difficult for clinicians to accurately diagnose schizophrenia versus PTSD based on criteria outlined in the DSM 5 and reflected in the vignette.

Table 5

*Chi-Square Analysis for Vignettes #1 and #2*

<u>Diagnosis</u>	<u>Psychosis</u>	<u>PTSD</u>	<u>Row Totals</u>
Correct	16 (20.39) [0.95]	24 (19.61) [0.98]	40
Incorrect	10 (5.61) [3.44]	1 (5.39) [3.58]	11
<b>Column Totals</b>	26	25	51 (Grand Total)

**Vignette #3: Schizophrenia with an Endorsement of Trauma**

Vignette # 3 was identical to vignette # 1 except for the inclusion of a trauma endorsement. The traumatic event used for this vignette described a client who shared a room with her youngest sibling who was sexually abused by their father for four years. The vignette was presented to explore how a trauma endorsement in addition to criterion for schizophrenia might influence diagnostic decision making. It was also used to explore whether a trauma

endorsement shifts one’s perspectives of positive psychotic symptoms to a PTSD flashback. To do this, the vignette included nightmares and psychotic symptoms (auditory hallucinations) not related to the trauma history to avoid hallmark symptoms of PTSD, such as nightmares related to a traumatic event, distracting from the endorsement of psychotic symptoms (negative symptoms, possible delusions, and auditory hallucinations). In other words, the goal of this vignette was to determine whether or not psychotic symptoms would be seen as indicative of PTSD symptoms when someone with psychotic symptoms also has a trauma history.

For this vignette, anyone who gave a diagnosis on the spectrum of schizophrenia *or* PTSD in addition to a rule-out of either PTSD or schizophrenia was considered to be correct. Anyone who listed solely a PTSD diagnosis was not considered correct as it did not account for the evidence of behaviors and symptoms indicating psychosis. In other words, the clinicians who were considered correct in this instance accounted for both psychotic symptoms indicative of schizophrenia and PTSD symptoms reflective of trauma. Less than half of respondents (42%) accounted for both schizophrenia or PTSD symptoms in a rule-out or dual-diagnosis. The remaining 58% of participants either listed solely a PTSD diagnosis (n=10) or PTSD plus a rule-out of with major depression, anxiety, or bipolar disorders (n=5).

Table 6

*Diagnosis of Vignette #3: Schizophrenia with an Endorsement of Trauma*

---

<u>Diagnosis</u>	<u>Vignette 3</u>	<u>%</u>
Correct	11	42
Incorrect	15	58
Total n=	26	100

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#### **Vignette #4: Co-occurring PTSD and Schizophrenia**

Vignette # 4 combined vignettes #1 and #2 to explore whether or not a clinician would identify both disorders in the same individual. Answers considered correct for this vignette declared a diagnosis of schizophrenia and rule-outs for PTSD or vice-versa. In other words, responses that solely listed PTSD *or* schizophrenia without a rule-out were considered incorrect. Similar to vignette's # 1 and #3, rule-outs were included to consider that clinicians often need more time and varied exposure with patients before determining diagnosis. The presenting symptoms for this vignette were slightly different than # 3. Further, the vignette was designed to explore frequency of diagnosing both PTSD and schizophrenia, because recent literature indicates the two illness are underdiagnosed when co-occurring (Alvarez et al., 2012). In effect, the vignette functioned similarly to # 3, in which less than half of respondents (46%) noticed co-occurring illness. The remaining 56% of the sample listed solely schizophrenia (n= 4), PTSD (n= 10), or major depression (n=1).

Table 7

#### *Diagnosis of Vignette #4: Co-occurring Schizophrenia and PTSD*

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<u>Diagnosis</u>	<u>Vignette 4</u>	<u>%</u>
Correct	13	46
Incorrect	15	54
Total n=	28	100

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#### **Understanding Vignettes #3 and #4**

The chi-square statistics was used in order to compare the findings between vignette #3 and #4 as it compared to chance and found that differences between the two were not significant at  $p < .05$  criterion level used for this study  $\chi^2(2, 54 = .760748, p = .009)$ . This finding suggests

that individuals presenting with schizophrenia and PTSD versus those with schizophrenia and a trauma endorsement are similarly difficult to diagnose.

Table 8

*Chi-Square Analysis for Vignettes #3 and #4*

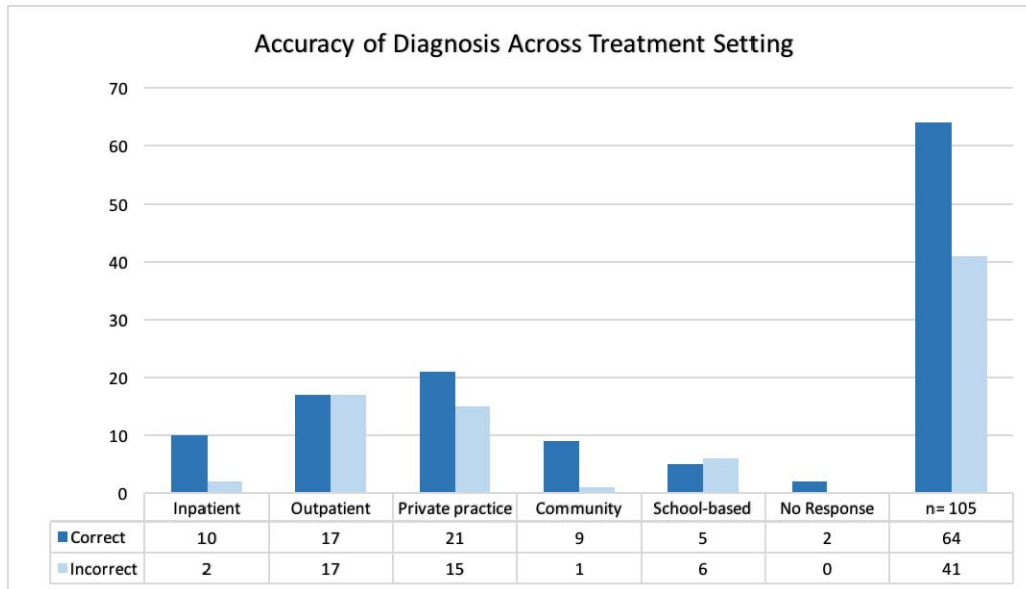
<u>Diagnosis</u>	<u>Psychosis + Trauma</u>	<u>Schizophrenia + PTSD</u>	<u>Row Totals</u>
Correct	11 (11.56) [0.03]	13 (12.44) [0.02]	24
Incorrect	15 (14.44) [0.02]	15 (15.56) [0.02]	30
<b>Column Totals</b>	26	28	54 (Grand Total)

**Treatment Setting and Diagnosis**

Participants were asked to note their current treatment setting so that accuracy of one’s diagnostic choice could be compared across different treatment settings. It was anticipated that clinicians working in inpatient settings would have a higher accuracy in differential diagnosis due to the high volume of exposure to psychotic disorders and expectation to make quick and accurate diagnoses in these settings. Out of a total of 12 responses from inpatient settings, 10 (83.3%) provided a correct diagnosis. Out of 34 responses in outpatient settings, only 17 (50%) provided a correct diagnosis. The differences across additional settings are demonstrated below in Table 9.

Table 9

*Accuracy of Diagnosis across Treatment Setting*



In order to compare inpatient and outpatient findings, a chi-square analysis was used and found a chi-square statistic of 4.065. The p-value was .044. The result is statistically significant at  $p < .05$  criterion level used for this study. Even though the inpatient sample size was smaller than the outpatient sample size, the statistic met the minimum expected cell frequency of 5 required for correct use of the chi-square test. This finding indicates that there was a significant difference between respondents from inpatient and outpatient settings with regards accuracy of differential diagnosis of this population.

Table 10

*Chi-Square Analysis between Inpatient and Outpatient Settings*

<u>Treatment Setting</u>	<u>Correct Diagnosis</u>	<u>Incorrect Diagnosis</u>	<u>Row Totals</u>
Inpatient	10 (7.04) [1.24]	2 (4.96) [1.76]	12
Outpatient	17 (19.96) [0.44]	17 (14.04) [0.62]	34
<b>Column Totals</b>	27	19	46 (Grand Total)

## Open-Ended Questions Identifying Symptoms across Vignettes

After choosing a diagnosis for the vignette, participants were asked to identify which positive, negative, and PTSD symptoms they recognized. These questions were asked to see if certain symptoms were flagged more often than others for a particular diagnosis. It was also asked to explore if identification of specific symptoms (e.g.: flashbacks versus hallucinations) determined a particular diagnostic choice.

**Identified Symptoms.** With the exception of vignette # 2, a substantial portion of respondents for vignettes #1, 3, and 4 recognized positive symptoms such as *auditory hallucinations* (81%). Slightly less than half of respondents listed *delusions* (48%) as positive symptoms. No respondents for vignette #2, which included only criterion for a PTSD diagnosis, listed auditory or visual hallucinations as symptoms and only one respondent questioned whether the case-vignette showed psychotic processes related to delusions.

By far the most common negative symptoms listed across all four vignettes was *withdrawal* (79%) followed by *anhedonia* (30%). It was found that both positive and negative symptoms were identified regardless of which diagnosis was chosen. For example, *auditory hallucination* was listed even when PTSD was the chosen diagnosis in vignettes #1, 3, and 4. It would be expected that either auditory or visual hallucinations would be listed for a schizophrenia or psychotic disorders as they are hallmark symptoms of the disorders. However, it is not required for a diagnosis of PTSD and yet even when auditory hallucinations were noted a PTSD diagnosis was given.

The most common symptoms listed as indicative of PTSD were the three criterion for the diagnosis as it is outlined in the DSM 5: 1) *avoidance* (46%), 2) *intrusive thoughts or memories* (47%), 3) *hypervigilance* (42%) and withdrawal symptoms. Flashbacks were listed by only 12%

of the sample, which was an unanticipated finding of this study. It was expected that flashbacks would be listed as opposed to auditory hallucinations when a participant chose PTSD as a diagnosis. However, this was not found to be the case. In fact, a small portion of the sample listed flashbacks for individuals diagnosed with schizophrenia, without a co-occurring diagnosis of PTSD. The details of these findings are demonstrated below in Table 11 and 12.

Table 11

*Positive Symptoms Identified across Vignettes #1, 3, and 4*

<u>Positive Symptoms</u>	<u>Amount endorsed</u>	<u>%</u>
Auditory Hallucinations	65	81%
Delusions	38	48%

n= 80

Table 12

*Open-Ended Symptoms Identified across all Four Vignettes*

<u>Negative Symptoms</u>	<u>Amount endorsed</u>	<u>%</u>
Withdrawal	79	75%
Anhedonia	30	29%

n= 105

<u>PTSD Symptoms</u>	<u>Amount endorsed</u>	<u>%</u>
Avoidance	48	46%
Intrusions	47	45%
Hypervigilance	44	42%
Nightmares	21	20%
Flashbacks	13	12%

n= 105

**Open-Ended Findings Regarding Assessment**

The following section details responses to an open-ended question in which participants were asked to identify additional information they would need to make an accurate diagnosis.

Out of 105 respondents, 92 (87.6%) stated they would need more information to make a

diagnosis. Nearly one third (32.4%) of respondents stated they would need a family history to make an accurate diagnosis. Another significant portion of respondents (20%) stated they would want a trauma history or would more information about one's trauma in the case of vignettes with a trauma endorsement.

Importantly, some of the necessary information requested highlighted the limitations of a vignette to make a diagnosis. For example, the quality and content of one's hallucinations was noted by 14% of the sample as necessary to make a differential diagnosis. Similarly, more time with the patient to rule-out psychotic symptoms (13%) and a complete mental status exam (6.6%) were listed as necessary aspects of diagnosing a patient. Each of these aspects may be critical in clinical practice, but not easily conveyed in writing and with brevity necessary in a short-survey. Additional qualitative information is illustrated below in Table 13.



Table 13

*Additional Information Necessary to Make Accurate Diagnosis*

n=105

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Family History	32.4	(34)
Trauma History	20	(21)
Substance Use history	15.2	(16)
Quality of hallucinations	14.28	(15)
More Time with patient	13.3	(14)
No additional information needed	12.3	(13)
Early childhood development	11.42	(12)
Social Life	11.42	(12)
Prior functioning	10.47	(11)
Speed on onset	9.5	(10)
Mental Status Exam	6.6	(7)
History of Self harm, Suicidal and homicidal ideation	4.7	(5)
Collateral contacts (PCP, School, other family)	3.8	(4)
Strengths and coping skills	3.8	(4)
Medical testing	2.8	(3)
Safety at home and in school	2.8	(3)
Experience in prior treatment	1.9	(2)
Sexual history	1.9	(2)
Sleep hygiene and content of nightmares	1.9	(2)
History of mania	1.9	(2)
Screening tool: CATS, BDI, PTSD checklist	1.9	(2)
Client perception of issue	.95	(1)
Non-verbal expression through sand and art	.95	(1)

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**Summary**

The contents of this chapter highlight the primary findings of this study, which indicate that a schizophrenia diagnosis with or without trauma is significantly more difficult to make than solely PTSD. The study also found that for vignette # 1, which did not include an endorsement of trauma, a significant portion of clinicians were considering trauma without a patient endorsing it. Next a brief comparison of differences between diagnostic accuracy across treatment settings was offered. The study found that clinicians working in inpatient settings were statistically more accurate in their diagnosis than clinicians in outpatient settings. The chapter concluded with a

summary of qualitative findings from clinicians identifying specific symptoms influencing their diagnostic choice and their reports on additional information necessary to make an accurate diagnosis. The following chapter discusses how these findings have implications for clinical social work practice, education, and future research.

## **CHAPTER V**

### **Discussion**

The present study investigated the diagnostic decision-making process of clinical social workers. The study sought to explore how they distinguish between psychotic symptoms, such as hallucinations, and post-traumatic stress symptoms, such as flashbacks, in emerging and young adults. One objective of this study was to understand clinician diagnostic choices in order to increase diagnostic accuracy with young adults who may be particularly vulnerable to first episode psychosis. Without an accurate diagnosis, a young person may experience longer periods of untreated psychosis which has been found to negatively impact total symptoms, overall functioning, positive symptoms, and quality of life in adults with psychosis (Marshall et al., 2005; Perkins et al., 2005). It is also important for mental health professionals to accurately delineate between post-traumatic stress disorder (PTSD) symptoms and psychotic disorders because the two are often under diagnosed when they are co-occurring (Alvarez et al., 2012). An early diagnosis and intervention for psychosis and assessment for trauma can also lead to better prognosis (Bendall et al., 2013).

This chapter discusses the findings detailed in the previous chapter as they relate to differential diagnosis between PTSD and psychotic disorders by practicing clinical social workers. A discussion on how these findings might impact clinical social work practice is also offered. Next, comparisons between diagnostic accuracy between clinician demographic information is discussed along a description of this study's limitations. The chapter concludes

with the implications of these findings for clinical social work, education and recommendations for future research.

### **Accuracy of Diagnosis in Vignette's 1 and 2**

The study found that PTSD appeared to be significantly easier to diagnose than schizophrenia spectrum disorder. When presented with a case-vignette reflecting solely criterion for a PTSD diagnosis nearly all of these respondents (96%) accurately diagnosed the case-vignette. Further, they did not find evidence for psychosis. This finding is in contrast to the case vignette reflecting solely DSM 5 criterion for diagnosis of schizophrenia, in which only 5 out of 26 (19%) respondents chose such a diagnosis. When including rule-outs and symptoms of the full spectrum of schizophrenia, the amount of correct diagnoses increased to 17 out of 26 responses (65%). However when accounting for differences attributable to chance through chi-square analysis, the difference was still found to be statistically significant ( $\chi^2=1, 51 = 8.9475, p = .002$ ).

While these findings do not indicate the reasons clinicians chose an incorrect diagnosis, they do denote a level of error not seen in the PTSD case-vignette. It is tempting to wonder whether or not clinicians were reluctant to diagnose schizophrenia for an older adolescent due to concerns the diagnosis itself would be stigmatizing (Outram et al., 2014).

While it is not known from this study how a clinician's diagnostic choice would dictate their treatment of choice, future studies may benefit from examining how structural factors in treatment settings may impact diagnostic choice and treatment outcomes. Such research is important as factors such as time constraints, competing treatment priorities, poor client engagement have been found to inhibit implementation of PTSD interventions with first-episode psychosis (Gairns et al., 2015) and such interventions are necessary to reduce and/or prevent

future hospitalizations, biological changes, and the social impacts of early onset psychosis (McGorry, Killackey, & Yung, 2008). By the same token, perhaps the high use of rule-out diagnoses for this vignette suggests that respondents may choose not to give someone a formal diagnosis, but would still follow up on treatment that attends to psychotic symptoms. This possibility points to the necessity of more specific research investigating how a psychotic disorder diagnosis or lack thereof determines course of treatment.

Another important factor contributing to these findings is the small percentage of the sample who work with schizophrenia and other psychotic disorders, which consisted of only 3.8% of the sample. The literature indicates that less experience with specific populations can lead to inconsistent and unreliable diagnosis among clinicians (Aboraya et al., 2006). Thus it is conceivable that social workers in this sample were less familiar diagnosing psychotic disorders and diagnosed based on an area with which they were familiar –in this case trauma and stressor related disorders, which consisted of 42% of the sample.

This finding indicates a potential need for continuing education opportunities among practicing clinicians, specifically in areas with which they do not specialize or among populations they do not commonly treat in their respective work setting. Educational institutions may also benefit from attending to this finding by encouraging its students to seek out diverse and varied continuing education in areas of co-occurring issues such as PTSD and psychosis. Doing so, may not only enrich clinical practice of seasoned and new clinicians but may address to the issue of under recognition and under examination of co-occurring PTSD and psychotic disorders (Alvarez et al., 2012).

## **Limitations of Vignette #1**

Compared to the other three vignettes, vignette #1 was the shortest. It was designed to be succinct and specific in order to directly represent the positive and negative symptoms that would lead to a diagnosis of schizophrenia. Due to the limited information about family and substance use history it may have been difficult for clinicians to diagnose without the ability to obtain additional assessment information or monitor the patient over a period of time. These limitations of the case vignette were reflected in the open-ended answers from participants, stating that many would need a family (32.4%) and substance use (15.2%) history to make an accurate diagnosis. Assessment of substance use in those presenting with psychotic symptoms is noted in the DSM 5 as it can increase risk for suicidality in psychotic patients and certain medications or substances can induce psychotic symptoms in individuals and may not merit a psychotic disorder diagnosis (APA, 2013). The DSM 5 also advises considering family history when making a diagnosis of psychotic disorders. However, it also advises caution against determining a diagnosis solely on this information as most individuals with schizophrenia do not have a family history of psychosis (APA, 2013; Mortensen, Pedersen, & Pedersen, 2010).

Finally, while not a substantial portion of the sample, at least 6.6% stated that they would need a full mental status exam to diagnosis the patient, which is listed in the literature as a necessary factor to make an accurate diagnosis (Aboraya et al., 2006). This finding suggests another limitation to using a case-vignette to diagnose psychotic symptoms, as it may not reflect being with a patient and assessing his or her mental status in real-time.

## **Assessing for Trauma in Patients with Psychosis**

An unintended finding of this study emerged from vignette #1, in which there was no endorsement of trauma symptomology, but 46% of the sample stated that the patient appeared to

have a trauma history. More than half of the respondents (69%) considered symptoms in the vignette as possible PTSD symptoms. One explanation of this finding is that clinical social workers may be attending to the large body of literature arguing that trauma assessments are essential for effective treatment of PTSD among patients with psychosis (Bendall, Alvarez-Jimenez, Nelson, & McGorry, 2013; Cusack et al., 2006; Read, van Os, Morrison, & Ross, 2005; Shevlin, Dorahy, & Adamson, 2007; Varese et al., 2012; Whitfield, Dube, Felitti, & Anda, 2005). Early assessment and treatment of the trauma for early-onset psychosis has been found to redress poorer outcomes associated with co-occurring PTSD and psychotic disorders (Bendall et al., 2013). This possibility is critical because people with both PTSD and psychosis have been found to under-report histories of trauma (Lommen & Restifo, 2009).

The high proportion of PTSD symptoms identified in vignette #1 is inconsistent with prior literature indicating that clinicians are reluctant to ask about trauma for fear it would distress patients with psychosis or exacerbate psychotic symptoms (Frueh et al., 2006; Young, Read, Barker-Collo, & Harrison, 2001). While thinking about trauma in relation to a fictional case-vignette does not accompany the same perceived risks described in the literature, it is possible that clinical social workers in this sample were not ascribing to the beliefs reflected in those studies. Importantly, across the entire study regardless of which of either vignette they saw, 20% of the sample stated that they would like more information about the patient's trauma history to make an accurate diagnosis.

Another way to understand this finding could be that a large percentage of the sample (42%) stated they work predominately with trauma-stressor related disorders. Thus they are possibly familiar with studies indicating that adverse childhood experiences, particularly sexual

and physical abuse, may be associated with psychotic symptoms in late adolescence and early adulthood (Read et al., 2005; Varese et al., 2012).

Alternatively, it is possible that the clinician's familiarity with trauma led to an under diagnosis of apparent psychotic symptoms for the case-vignette. This finding highlights the need for more research pertaining to how treatment focus may unintentionally bias diagnostic choice. Bias towards one diagnosis over another has implications for clinical practice because it may lead to oversight of co-occurring disorders. It may also narrow a clinician's focus towards an incomplete treatment plan. For example, trauma-spectrum disorders have been found to be disproportionately offered psychotherapy as compared to people with psychotic disorders (Ross & Keyes, 2004) who are more often provided anti-psychotic medications (Read, van Os, Morrison, & Ross, 2005).

If an individual is in fact experiencing psychotic processes unrelated to trauma sequela, then delayed treatment, such as antipsychotic medications, may in fact prolong or exacerbate one's illness (Marshall et al., 2005; Perkins, Gu, Boteva, & Lieberman, 2005). In the case of individuals experiencing both PTSD and psychotic symptoms it may not be sufficient to solely offer one treatment over the other. In fact, the literature indicates that a combination of behavioral and anti-psychotic treatments is most effective in preventing relapse when compared to using anti-psychotic medications or behavioral interventions alone (de Haan et al., 2003).

### **Making the Choice to Diagnose**

Despite the apparent attention to assessing for trauma or suspecting trauma when there was no clear evidence, no respondent gave a PTSD diagnosis or co-occurring PTSD diagnosis for vignette #1. It is possible that this finding reflects what prior literature has described as a phenomenon in which patients with a severe mental illness diagnosis often "trumps" additional



ones (Cusack, Wells, Grubaugh, Hiers, & Frueh, 2007). It is also equally possible that despite viewing some symptoms as related to PTSD, clinicians may have viewed the patient as not meeting full criteria for a PTSD diagnosis. However, even patients exhibiting criteria for both PTSD and schizophrenia, co-occurring diagnoses were seldom given. This finding that is described in detail in the forthcoming section.

### **Accuracy of Diagnosis for Vignettes 3 & 4**

When presented with vignettes in which a client exhibited both PTSD and psychotic symptoms, this study found that delineating between hallucinations and flashbacks was significantly more difficult than diagnosing when only one disorder was present. For example, vignette #3 was identical to vignette #1 except for the inclusion of a trauma endorsement. Simply by including a trauma history, accuracy of diagnosis dropped from 65% in vignette #1 to 42% in vignette #3. In other words, less than half of respondents identified both schizophrenia or PTSD symptoms. The remaining 58% of participants either listed solely a PTSD diagnosis (n=10) or PTSD plus a rule-out of with major depression, anxiety, or bipolar disorders (n=5).

The difference found in this set of vignettes could be reflective of bias related to the treatment settings of the sample. However, it could also be that differentiating between these two diagnoses is quite difficult. There is minimal data describing clear empirically validated guidelines to make a differential diagnosis between the two illnesses (APA, 2013). The DSM 5 states that flashbacks are distinguished from hallucinations by the requirement of exposure to a traumatic event and other PTSD symptoms (APA, 2013). Unfortunately, this explanation is not applicable for the substantial portions of people with psychotic symptoms and a trauma history (Achim et al., 2011), a population that was reflected in vignette #3. It also would not be

applicable differential factor for the significant portion of people with psychotic disorders and co-occurring PTSD (Varese et al., 2012), a population that was reflected in vignette #4.

Beyond the DSM 5 only one study found reported guidelines for a differential diagnosis between the two illnesses. The study concluded that combat related PTSD included psychotic symptoms strongly related to themes of traumatic experiences and thereby were distinguished as a flashback rather than indication of a separate psychotic disorder (Schillaci et al., 2009). However, this finding was contrasted by another study that showed content of hallucinations in adults with PTSD did not always align with traumatic experiences (Hamner et al., 2000), which was also found to be the case among adolescents (Scott, Nurcombe, Sheridan, & McFarland, 2007; Jessop, Scott, & Nurcombe, 2008).

The findings from these vignettes is also contradictory to existing literature that indicates that for patients with psychosis, PTSD is often under-recognized and undocumented (de Bont et al., 2015; Lommen & Restifo, 2009). The finding suggests that PTSD for patients with psychosis was recognized in the sample, but perhaps came at the cost of also identifying apparent psychotic processes. Future research may benefit from examining longitudinally how diagnosis determines both treatment choices and outcomes.

In other words, not only is there insufficient literature differentiating the psychotic disorders and PTSD, but the contradictory information across the limited literature appears to mirror the incredibly fine grain diagnostic decisions clinicians are faced with when introduced to clients with complicated symptom presentations. This study's findings reflect these conflicting perspectives indicating that diagnosis for co-occurring disorders or trauma symptoms for individuals with psychosis is a very nuanced and at times inconsistent process.

## Treatment Setting

A third finding of this study was that diagnostic accuracy was significantly different across treatment settings. Out of a total of 12 responses from persons who worked in inpatient settings, 10 (83.3%) provided a correct diagnosis. Whereas out of 34 responses from persons who worked in outpatient settings, only 17 (50%) provided a correct diagnosis. In order to compare inpatient and outpatient clinician findings, a chi-square analysis was completed ( $\chi^2(1, 46 = 4.065, p = .0438)$ ), indicating that the differences between the two settings was statistically significant. This finding is inconsistent to prior literature indicating that variability of schizophrenia diagnoses was significantly higher in jail and emergency psychiatric units when compared to inpatient and outpatient settings (Folsom et al., 2006). However, the finding is consistent with a study that compared outpatient and residential settings accuracy of diagnosis of PTSD for at-risk youth in which the outpatient sample did not show an increase in diagnostic accuracy over a ten-year period when compared to residential settings (Miele & O'Brian, 2010).

It was anticipated that social workers with inpatient experience were likely to have more exposure to the diagnostic differentiation between psychosis and trauma due to the high volume of exposure to psychosis in this setting. Unfortunately, no literature was found that compared accuracy of diagnosis for individuals with psychotic disorders and PTSD across treatment settings to compare this finding. More research in this area will be important as a means to evaluate accuracy of diagnostic decision making across settings, because these choices can have an enormous impact on the efficacy of clinical social work practice and overall prognosis of patients with psychotic disorders.

## Study Limitations

There were five important limitations to this study. First, the sample size (n=105) was small and should not be generalized to reflect social work practice as a whole. Second, clinician characteristics within the sample were skewed towards those working with trauma and stressor-related disorders (42%) and practicing for less than 15 years (55%). While literature suggests that years of clinical experience does not influence diagnostic accuracy (Spengler et al., 2009; Witteman & Tollenaar, 2012) additional research including a larger sample, wider range of clinical practice, and years experience may yield different results regarding diagnoses chosen by clinical social workers.

A third limitation was the use of a quantitative study design. While it rightfully allows for between group comparisons, this design does not allow for clinicians to elaborate on their diagnostic rationales, which limits conclusions drawn from these findings. Clinicians were also unable to explain how their diagnosis might determine treatment or to ask follow up questions necessary to make an accurate diagnosis, such as family history or mental status. These limitations could be addressed in future research using qualitative or mixed method study designs.

The reliability of the study instrument is a fourth limitation to this investigation. Each vignette was designed based on the DSM 5 criteria for the diagnoses and screened with tools validated to assess for trauma in patients with psychotic disorders (de Bont et al., 2015) and correctly identify people with schizophrenia (Soares-Weiser et al., 2015). Assuming the DSM 5 provides valid criteria in order to make an accurate diagnosis of the disorders, then the vignettes were assumed to be reliable on the basis of their content. The validity of the vignettes is also based on content as there is not enough literature available to determine construct validity for the

vignettes. Future iterations of this study may benefit from having the instrument reviewed first by expert diagnosticians in order to verify the consistency of diagnosis and thereby confirm the validity of the instrument.

A fifth limitation of this study was the omission of demographic information related to the race and ethnicity of participants. Due to diagnostic bias in the psychiatric assessment and evaluation of African Americans since 1970 with regards to over diagnosis of African American men and women with schizophrenia (Baker & Bell, 1999), it will be important for future studies to examine whether this issue endures today. Further, cultural bound trauma responses, such as ataques de nervios, dhat, shin-byung, susto, and zar (Briere, 2004) are other important variables that might contribute to one's diagnosis of trauma or a psychotic disorder and a differential diagnosis. Future iterations of this study should assess how race and ethnicity of clinician or the patient might contribute to a different understanding of symptoms appearing to be related to trauma or psychosis.

### **Recommendations for Social Work Practice and Education**

The findings of this investigation have clear implications for social work practice and education. Because clinical social workers are often the first to diagnose a patient (NASW, 2005a), the finding that participants in this study had a difficult time diagnosing psychosis when there was trauma highlights a potential for under diagnosis of psychotic symptoms. While these findings are not widely generalizable, it is important to consider the implications of potential misdiagnosis within clinical practice, because an oversight of psychotic symptoms may lead to longer durations of untreated psychosis which the literature indicates can lead to worse outcome in terms of total symptoms, overall functioning, positive symptoms, and quality of life in adults

(Marshall et al., 2005; Perkins, Gu, Boteva, & Lieberman, 2005). Much additional conceptual development and research is needed in this area.

Unfortunately, there appears to be few empirically validated guidelines to which clinicians can refer when faced with differential diagnostic decisions of PTSD and psychotic disorders. Agencies may benefit from encouraging and providing supervision for clinicians to attend to complicated symptom pictures, as was demonstrated in vignettes with criterion for both PTSD and psychosis. When unavailable in the workplace, clinicians should seek out supervision independently to obtain information to ensure that potential co-occurring illnesses are being adequately addressed in treatment.

Continuing education and encouragement from educational institutions to pursue continuing education after graduation may also help mitigate the potential impact of this investigations finding that trauma symptoms were attended to regardless of the presence of trauma. As mentioned, this finding could indicate an oversight of psychotic processes in the case vignette, which has clear implications for clinical practice. For example, trauma-spectrum disorders have been found to disproportionately be offered psychotherapy as compared to people with psychotic disorders (Ross & Keyes, 2004) who are more often provided anti-psychotic medications (Read, van Os, Morrison, & Ross, 2005). Social work education could attend to this potential oversight by encouraging academic discourse and didactic training that examines the impact of potential diagnostic bias' and differential diagnosis in practice. In so doing, social work curriculums could also enhance diagnostic accuracy of new clinicians.

### **Implications for Future Research**

The findings of this study highlight two important areas of consideration for future research. First, additional research should more clearly identify specific traits and characteristics

that distinguish PTSD from psychotic disorders. Such findings could improve the ability for clinicians to differentiate PTSD and psychosis. Moreover, identifying clear criterion between the two disorders may highlight crossover between symptoms that appear in populations who have both disorders, such as hallucinations and flashbacks. Research that highlights these traits may help address the apparent issue that PTSD and psychotic disorders are under diagnosed when they are co-occurring (Alvarez et al., 2012). Without preliminary studies investigating the epidemiology of the two illnesses and identifying traits that distinguish them, the issue of under diagnosis or potential for misdiagnosis may endure.

The second area for additional research would attend to evaluating literature and developing guidelines to which clinicians may refer when facing these difficult differential diagnostic decisions in practice. Doing so may be critical not only in increasing the efficacy of clinical practice with in and beyond social work but also in augmenting that capacity for social work curriculums to provide didactic training in differential diagnosis.

In order implement such changes to occur in agencies serving patient with PTSD and severe mental illness or educational institutions to offer training in attending to both disorders, first specific research must be undertaken that identifies differential diagnostic traits between PTSD and psychotic disorders. Specific studies investigating how one's diagnostic choice determines course of treatment will be an important step for future research and ensuring the competent care of this vulnerable population that is facing illness related to not one, but potentially two psychiatric disorders.

A final recommendation for additional research is to elaborate on the finding from this study that clinicians working in inpatient settings showed more diagnostic accuracy when compared to those in outpatient settings. Due to the minimal literature available on differences in

diagnosis across treatment settings for these disorders, it will be important to expand on this finding by looking at variables specific to treatment settings such as training opportunities and emphasis on diagnosis. Because inpatient treatment settings showed a significant difference in accurately diagnosing psychotic disorders, better and more extensive education and later trainings in diagnosis may be warranted in other treatment settings. Doing so may then lead to research that has a larger sample and is thereby generalizable.

### **Summary**

This research explored the diagnostic decision-making process of clinical social workers to explore how they distinguish between psychotic symptoms, such as hallucinations, and post-traumatic stress symptoms, such as flashbacks, in emerging and young adults. The findings demonstrated that PTSD was significantly easier to diagnose than schizophrenia. It also found that the sample was alert to trauma in a vignette in which no trauma was endorsed, indicating a need for further exploration on the attention to trauma for individuals with psychosis as both a potential bias to attend to trauma over psychotic processes and a strength to more comprehensive treatment of often co-occurring disorders.

Importantly, the study also found that when a case-vignette presented both trauma and psychotic symptoms or frank PTSD and schizophrenia diagnoses, the co-occurring disorders were significantly more difficult to diagnose than solely a PTSD and schizophrenia diagnosis alone. This finding has implications for future research attending to the development of guidelines for clinical social workers to make differential diagnosis between the disorders or to identify both. The study's finding that clinicians working in inpatient showed more diagnostic accuracy when compared to those in outpatient settings also has implications for clinical social work practice, education, and future research.



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Appendix A:  
Human Subjects Review Committee Approval Letter



**School for Social Work**  
Smith College  
Northampton, Massachusetts 01063  
T (413) 585-7950 F (413) 585-  
7994

December 21, 2015  
Elizabeth Liepold

Dear Liz,

You did a very nice job on your revisions. Your project is now approved by the Human Subjects Review Committee.

*Please note the following requirements:*

**Consent Forms:** All subjects should be given a copy of the consent form.

**Maintaining Data:** You must retain all data and other documents for at least three (3) years past completion of the research activity.

*In addition, these requirements may also be applicable:*

**Amendments:** If you wish to change any aspect of the study (such as design, procedures, consent forms or subject population), please submit these changes to the Committee.

**Renewal:** You are required to apply for renewal of approval every year for as long as the study is active.

**Completion:** You are required to notify the Chair of the Human Subjects Review Committee when your study is completed (data collection finished). This requirement is met by completion of the thesis project during the Third Summer.

Congratulations and our best wishes on your interesting study.

Sincerely,

A handwritten signature in black ink, appearing to read 'Elaine Kersten'.

Elaine Kersten, Ed.D.  
Co-Chair, Human Subjects Review Committee

CC: James Drisko, Research Advisor

Appendix B:  
Recruitment Email

Dear colleague,

I am conducting a survey of Clinical Social Workers for my Masters thesis. The purpose of this research study is to investigate how clinical social workers make diagnostic choices for emerging and young adults aged 16-25, who may be impacted by psychotic disorders and mood disorders. As you know, this age group can be difficult to diagnose due to biological and life changes during a critical developmental period. Unfortunately, the topic has been largely under examined in the social work literature.

By participating in this study you are assisting the social work profession to understand clinical decisions that guide practice and education, which can have an enormous impact on client care. Further, you will be advancing literature and social work research that allows for continuity of care across treatment settings and enables delivery of informed and competent care to people with living with mental illness at a young age. Your contribution to this study cannot be underestimated! The benefit of doing so is one that positively impacts both you as a member of the social work profession as well as the profession as a whole.

If you have 20-30 minutes, please follow this link and complete an electronic survey on Qualtrics after reading a selected case-vignette. If you work in an outpatient, school based, community, or private practice setting, and are a licensed clinical social worker, actively practicing in the United States ***you can participate!*** If you yourself cannot complete the survey, do pass it along to colleagues!

If you have any questions about this survey, I will be happy to answer them via email. I may be contacted at [ebarnett@smith.edu](mailto:ebarnett@smith.edu).

Please take a minute to follow this link to participate in the study \_\_\_\_\_.

Sincerely,  
Liz Louise Liepold  
MSW student  
Smith College School for Social Work

This study protocol has been reviewed and approved by the Smith College School for Social Work Human Subjects Review Committee (HSRC).

Appendix C:  
Protocol Change Approval



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**School for Social Work**  
Smith College  
Northampton, Massachusetts 01063  
T (413) 585-7950 F (413) 585-7994

January 13, 2016

Elizabeth Liepold

Dear Liz,

I have reviewed your amendments and they look fine. The amendments to your study are therefore approved. Thank you and best of luck with your project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Elaine Kersten'.

Elaine Kersten, Ed.D.  
Co-Chair, Human Subjects Review Committee

CC: James Drisko, Research Advisor

Appendix D:  
Informed Consent



**Consent to Participate in a Research Study**

**Smith College School for Social Work • Northampton, MA**

**Title of Study:** How clinical social workers make differential diagnosis of adolescent and young adult disorders. A case-vignette study.

**Investigator(s):** Elizabeth Liepold, Smith College School for Social Work. xxx.xxx.xxxx

.....  
**Introduction**

- You are being asked to be in a research study of to investigate how clinical social workers make diagnostic choices for emerging and young adults aged 16-25, who may be impacted by psychotic disorders, mood disorders, or PTSD.
- You were selected as a possible participant because you are a licensed clinical social worker, actively practicing in the United States.
- We ask that you read this form and ask any questions that you may have before agreeing to be in the study.

**Purpose of Study**

- The purpose of the study is to look at the diagnostic decisions of clinical social workers. As you know, young adults and older adolescents as an age group can be difficult to diagnose due to biological and life changes during a critical developmental period.
- This study is being conducted as a research requirement for my master’s in social work degree.
- Ultimately, this research will be disseminated as a presentation and potentially published in academic journals. Participation in this survey is entirely voluntary. I appreciate your involvement and encourage you to refer this survey to other licensed clinical social workers throughout the United States.

**Description of the Study Procedures**

- If you agree to be in this study, you will be asked to do the following things: You are being asked to complete an online electronic survey on Qualtrics after reading a selected case-vignette. The survey asks for demographic information such as your treatment setting, year in clinical practice, and theoretical orientation(s). The survey is completely anonymous and voluntary, and it takes approximately 20 – 30 minutes to complete. Once you have completed the survey you will be provided with a website address that will make the results of the study public, so you can view the outcome of your contribution.

**Risks/Discomforts of Being in this Study**

- There are minimal risks attached to this survey. All survey responses are given anonymously. No names, addresses, emails, identifying work information or other identifiers are solicited nor will they be publicly reported. The Qualtrics website does not

collect or provide me with any of your identifying information and the study designed has been designed in accordance with HIPAA regulations.

### **Benefits of Being in the Study**

- Participation in this study may increase one's own awareness of the diagnostic decision making process, which potentially enhances clinician efficacy in direct practice. Further, participating in a study that seeks to increase the efficacy of social work practice has a reverberating effect into the education and advancement of the field of practice that inevitably ripples down to benefit the individual. This shift can occur through policy changes that are influenced by studies such as this one. Such policy changes can increase funding for training in diagnosis decision making for clinicians. It may also lead to additional studies that find new treatments for complex mental illnesses such as PTSD or mood disorders. These advancements, again, ripple out to the individual's efficacy and ability to treat these populations ethically and effectively.
- Also, once you have complete the survey you will be provided with a website address that will make the combined results (never the individual ones) of the study public, so you can view the outcome of your contribution.

### **Confidentiality:**

- Your participation will be kept anonymous. No names, addresses, emails, identifying work information or other identifiers are solicited nor will they be collected or provided to me by Qualtrics. Once the survey response time of 60 days has passed, the survey will be removed from the internet and all responses will be printed, analyzed and kept under lock and key for minimally three years until destroyed. Please note, that once you submit your survey, I have no way of knowing who submitted it and will be unable to remove it.
- All research materials including recordings, transcriptions, analyses and consent/assent documents will be stored in a secure location for three years according to federal regulations. In the event that materials are needed beyond this period, they will be kept secured until no longer needed, and then destroyed. All electronically stored data will be password protected during the storage period. We will not include any information in any report we may publish that would make it possible to identify you.

### **Payments/gift**

- You will not receive any financial payment for your participation.

### **Right to Refuse or Withdraw**

- The decision to participate in this study is entirely up to you. You may refuse to take part in the study *at any time* without affecting your relationship with the researchers of this study or Smith College. Your decision to refuse will not result in any loss of benefits (including access to services) to which you are otherwise entitled. You have the right not to answer any single question, as well as to withdraw completely up to the point noted below. If you choose to withdraw, I will not use any of your information collected for this study. Please note, that once a survey is submitted, I have no way of knowing who submitted it and will be unable to remove it. However, you will be given the option to withdraw from the study immediately

after completing it, if you so choose. After that point, your information will be part of the thesis and final report.

### **Right to Ask Questions and Report Concerns**

- You have the right to ask questions about this research study and to have those questions answered by me before, during or after the research. If you have any further questions about the study, at any time feel free to contact me, Elizabeth Liepold at [ebarnett@smith.edu](mailto:ebarnett@smith.edu) or by telephone at xxx-xxx-xxxx. If you would like a summary of the study results, one will be sent to you once the study is completed. If you have any other concerns about your rights as a research participant, or if you have any problems as a result of your participation, you may contact the Chair of the Smith College School for Social Work Human Subjects Committee at (413) 585-7974.

### **Consent:**

**By clicking “I agree” below, you are providing an electronic signature that indicates you have decided to volunteer as a participant in this study, and that you have read and understood the information provided above. *Please print a copy of this consent form for your records.***

**\*1. Do you agree to the above terms?**

- I agree.
- I do not agree.



Appendix E:  
Study Instrument: Case-Vignettes

Vignette # 1: Schizophrenia

Jennifer is a 17-year-old white female and was referred by her primary care physician (PCP) following an appointment after missing two weeks of school because she felt “sick” and would not leave her room, shower, or eat. The PCP could not identify a medical condition contributing to any illness and noted that Jennifer appeared withdrawn and easily startled during the appointment. He also stated that Jennifer expressed the belief that he could read her mind, so she would not lie to him about the “voices.” When asked further about the voices, she responded, “It’s a secret, I can’t tell you.”

Over the past year Jennifer’s academic performance has declined and she has stopped socializing with others. She endorsed a difficulty concentrating, inability to sleep due to insomnia, and recurring nightmares of being chased by a man with a knife. At night her mother can hear her walking about in her room and yelling profanities such as, “I’ll kill you!” when she is alone. She states that Jennifer plays a lot of online video games late at night because she has difficulty staying asleep.

Vignette # 2: Schizophrenia + Trauma

Jennifer is a 17-year-old white female and was referred by her primary care physician (PCP) following an appointment after missing two weeks of school because she felt “sick” and would not leave her room, shower, or eat. The PCP could not identify a medical condition contributing to any illness and noted that Jennifer appeared withdrawn and easily startled during the appointment. He also stated that Jennifer expressed the belief that he could read her mind, so she would not lie to him about the “voices.” When asked further about the voices, she responded, “It’s a secret, I can’t tell you.”

Over the past year Jennifer’s academic performance has declined. She is considered to be a “loner” by her peers. When her mother asked why she does not seek out friendships, she stated, “There’s just no point. No one is safe, anyway.” Jennifer also endorsed a difficulty concentrating, inability to sleep due to insomnia, and recurring nightmares of being chased by a man with a knife. At night her mother can hear her walking about in her room and yelling profanities such as, “I’ll kill you!” when she is alone. She states that Jennifer plays a lot of online video games late at night because she has difficulty staying asleep. Mom also reports that while Jennifer denies a sexual abuse history, she shared a room with her youngest sibling who was sexually abused by their father for four years. Father is presently incarcerated for the abuse, and Jennifer becomes observably quiet when his name is mentioned. She can be observed perspiring heavily and rocking back and forth when asked directly about period during which she shared a room with her sister.

Vignette # 3: PTSD

Jennifer is a 17-year-old white female and was referred by her primary care physician (PCP) following an appointment after missing two weeks of school because she felt “sick” and would not leave her room, shower, or eat. The PCP could not identify a medical condition contributing

to any illness and noted that Jennifer appeared withdrawn and easily startled during the appointment.

Over the past year Jennifer's academic performance has declined. She is considered to be a "loner" by her peers. When her mother asked why she does not seek out friendships, she stated, "There's just no point. No one is safe, anyway." She endorsed a difficulty concentrating, inability to sleep due to insomnia, and recurring nightmares of being trapped in a darkroom where she can hear her sister crying.

Mom also reports that while Jennifer denies a sexual abuse history, she shared a room with her youngest sibling who was sexually abused by their father for four years. Father is presently incarcerated for this abuse, and Jennifer becomes observably quiet when his name is mentioned. She can be observed perspiring heavily and rocking back and forth when asked directly about period during which she shared a room with her sister. Further, Jennifer began having nightmares of being trapped in a room with no doors or windows 8 months after her father left the household. She states that she sometimes sees shadows of her father and worries that he is returning to "get her". She becomes easily upset and "flies off the handle" when her sisters try to share food her. She states that when she shares food with others she experiences sudden, intrusive thoughts that she is "greedy" and "bad". She recalls being offered food in exchange for not telling her mom about her father's abuse.

#### Vignette # 4: PTSD + Psychosis

Jennifer is a 17-year-old white female and was referred by her primary care physician (PCP) following an appointment after missing two weeks of school because she felt "sick" and would not leave her room, shower, or eat. The PCP could not identify a medical condition contributing to any illness and noted that Jennifer appeared withdrawn and easily startled during the appointment. He also stated that Jennifer expressed the belief that he could read her mind, so she would not lie to him about the "voices." When asked further about the voices, she responded, "It's a secret, I can't tell you."

Over the past year Jennifer's academic performance has declined. She is considered to be a "loner" by her peers. When her mother asked why she does not seek out friendships, she stated, "There's just no point. No one is safe, anyway." Jennifer endorsed a difficulty concentrating, inability to sleep due to insomnia, and recurring nightmares of being trapped in a darkroom where she can hear her sister crying. At night her mother can hear her walking about in her room and yelling profanities such as, "I'll kill you!" when she is alone. She states that Jennifer plays a lot of online video games late at night because she has difficulty staying asleep.

Mom also reports that while Jennifer denies a sexual abuse history, she shared a room with her youngest sibling who was sexually abused by their father for four years. Father is presently incarcerated for this abuse, and Jennifer becomes observably quiet when his name is mentioned. She can be observed perspiring heavily and rocking back and forth when asked directly about period during which she shared a room with her sister. Further, Jennifer began having nightmares of being trapped in a room with no doors or windows 8 months after her father left the household. She states that she sometimes sees shadows of her father and worries that he is

returning to “get her”. She becomes easily upset and “flies off the handle” when her sisters try to share food with her. She states that when she shares food with others she experiences sudden, intrusive thoughts that she is “greedy” and “bad”. She recalls being offered food in exchange for not telling her mom about her father’s abuse.

Appendix F:  
Survey Questionnaire

To determine if training and experience impact diagnosis, please tell me a bit about yourself.

Demographics:

1. I hold a Masters in Social Work (MSW).  
Yes/No
2. I have a license to practice in my state.  
Yes/No
3. I have \_\_\_\_ many years of clinical practice as a licensed social worker.  
Select one: *0-5 years, 6-10 years, 11-15 years, 16-20 years, 21-25 years, 26-30 years, 31-35 years, 36-40 years, 41+years.*
4. The therapeutic approach I use with more than 50% of my clients is...  
Select all that apply: *1) Cognitive Behavioral Therapy, Motivational Interviewing, Psychodynamic Psychotherapy, Psychoanalysis, Trauma-Focused Cognitive Behavioral Therapy, Solution Focused Therapy, Prolonged Exposure, Creative Arts Therapy (e.g., Art, Music, Dance, and/or Drama), Mentalization Based Therapy, eclectic, other (open ended).*
5. What is your primary theoretical orientation?  
Select all that apply: *1) Cognitive behavioral theory, 2) drive theory, 3) ego psychology, 4) life cycle theory, 5) trauma theory, 6) object relations, 7) self psychology, 8) attachment theory, 9) relational theory, and 10) intersubjective theory, other (open ended).*
6. What is your current treatment setting?  
Select one: *1) outpatient, 2) private practice, 3) inpatient, 4) community setting, and 5) school based settings*
7. What age group makes up at least 50% of your caseload / client base?  
  
Select one: *Children (0-11), Adolescents (12-18), Young Adults (19-25), Adults (26- 64), Elderly (65+)*
8. What is the population you work with most often?  
Select all that apply: *Neurodevelopmental Disorders, Schizophrenia Spectrum Disorders and other Psychotic Disorders, Bipolar and Related Disorders, Depressive Disorders, Anxiety Disorders, Obsessive-Compulsive and Related Disorders, Trauma-Related and Stressor-related Disorders, and personality disorders.*
9. What is the population you feel most confident in treating?  
Select all that apply: *Neurodevelopmental Disorders, Schizophrenia Spectrum Disorders and other Psychotic Disorders, Bipolar and Related Disorders, Depressive Disorders, Anxiety Disorders, Obsessive-Compulsive and Related Disorders, Trauma-Related and Stressor-related Disorders, and personality disorders.*
10. I feel confident in my ability to treat PTSD in people age 16 - 25?  
1= Strongly disagree ----- 5= Strongly Agree
11. I feel confident in my ability to treat Personality Disorders in people age 16 - 25?  
1= Strongly disagree ----- 5= Strongly Agree

12. I feel confident in my ability to treat Schizophrenia Spectrum and other Psychotic Disorders in people age 16 - 25?  
1= Strongly disagree ----- 5= Strongly Agree

**To explore how clinicians make diagnostic choices, please tell me how you diagnosed the case-vignette.**

1. What diagnosis would you give the client in the case-vignette? (open-ended)
2. Did this client endorse positive symptoms of schizophrenia (e.g., delusions, auditory hallucinations, visual hallucinations, perceptual disturbances)? (yes/no)
  - 2a. Which key positive symptoms were endorsed (2 or 3 max)? (open ended question)
3. Did this client endorse negative symptoms of schizophrenia (e.g., apathy, social withdrawal, avolition, anhedonia)? (yes/no)
  - 3a. Which key negative symptoms were endorsed (2 or 3 max)? (open ended question)
4. Did this client appear to have a trauma history? (yes/no)
5. Did this client appear to have an affective disorder? (yes/no)
6. Did this client appear to have flashbacks related to a traumatic event? (yes/no)
7. Does this client exhibit symptoms associated with a diagnosis of PTSD (e.g., hypervigilance, avoidance behaviors, intrusive memories or thoughts about the traumatic event? (yes/no)
  - 7a. Which key PTSD symptoms were endorsed (2 or 3 max)? (open-ended question)
8. I am confident with my diagnostic choice? (likert scale)  
1= Strongly disagree ----- 5= Strongly Agree
9. The age of this client influenced my diagnostic choice (likert scale)  
1= Strongly disagree ----- 5= Strongly Agree
10. Is there any additional information you would want from this client to make an accurate diagnosis? (open-ended question).