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HYPNOTIC SUSCEPTIBILITY OF INPATIENT ADOLESCENTS

BY

MICHAEL B. QUANT

A Dissertation Submitted in
Partial Fulfillment of the
Requirements for the Degree of

Doctor of Philosophy
In Educational Psychology

at

The University of Wisconsin-Milwaukee

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ABSTRACT

HYPNOTIC SUSCEPTIBILITY OF INPATIENT ADOLESCENTS

by

Michael Quant

The University of Wisconsin-Milwaukee, 2015
Under the Supervision of Professor Dr. Marty Sapp

There is a substantial body of literature suggesting hypnosis is an effective therapeutic intervention for adolescents who suffer from a wide variety of psychological troubles (Rhue & Lynn, 1991; Schowalter, 1994; Wester & Sugarman, 2007). As compared to adults, adolescents' openness to experiences along with their imaginative capacity uniquely primes them to benefit from hypnotherapy (Bowers & LeBaron, 1986). Many studies have shown adolescents to have higher levels of responsiveness to hypnotic suggestions (Morgan & Hilgard, 1973); however, the vast majority of these studies have been conducted with adolescents from either the general population or outpatient settings. Very little research has been conducted to investigate adolescents' responsiveness to hypnotic interventions while in psychiatric settings, and virtually no studies have investigated hypnosis in inpatient settings. Thus, the central purpose of this dissertation study was to investigate how hypnotherapy could be utilized to improve treatment outcomes in psychiatric inpatient settings. In order to do so, the study investigated whether adolescents from inpatient settings were as responsive to suggestions as adolescents in the general population. Further, it investigated if hypnotic inductions are

necessary to generate responsiveness to suggestions. Lastly, it investigated the characteristics of adolescents who have high rates of responsiveness to hypnosis.

In order to test these hypotheses, 167 adolescents (ages 13-17) were recruited from a major inpatient behavioral health hospital in the Midwest. Subjects were randomly assigned to either one group session of hypnosis (n=84) with a full hypnotic induction from the Waterloo-Stanford Group Scale: Form C (WSGC) scale of hypnotic susceptibility (Bowers et al., 1982) or a comparison group (n=83) which did not receive the hypnotic induction, but consisted of eye closure, simple guided relaxation and suggestions. Furthermore, adolescents' level of absorption and dissociation were also investigated in order to examine their predictive influence on responsiveness to suggestions.

A between group comparison showed that the experimental condition had a higher score ($M = 6.55$, $SD = 2.93$) than the comparison group ($M = 5.19$, $SD = 2.52$) on behavioral measures, $t(165) = 3.23$, $p < .01$, $d = .50$. The participants who received the hypnotic induction also scored significantly higher ($M = 36.54$, $SD = 9.89$) than the comparison group ($M = 33.1$, $SD = 8.49$) on subjective measures of hypnotizability $t(165) = 2.43$, $p = .02$, $d = .38$. Further, absorption explained a significant proportion of the variance on behavioral hypnotizability scores, $R^2 = .21$, $F(1, 165) = 44.95$, $p < .001$. Absorption also explained a significant proportion of variance in subjective hypnotizability scores of hypnotizability, $R^2 = .14$, $F(1, 165) = 24.48$, $p < .001$. There were no statistically significant differences in hypnotizability based on comparisons of age, race, diagnosis, or gender.

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DEDICATION

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Hypnotic Susceptibility of Inpatient Adolescents

CHAPTER I

INTRODUCTION

Inpatient psychiatric hospitals are one of the more challenging settings to achieve therapeutic outcomes with emotionally troubled adolescents. Referrals to inpatient settings frequently come about due to recent exposure to trauma or severe psychiatric symptoms such as suicidal ideation and behaviors, homicidal ideation, self-harm, substance abuse, pathological anxiety and reality testing. Moreover, adolescents in such settings are often hospitalized involuntarily, such as through emergency detention. These adolescents are frequently resistant to therapy or in an acute state of emotional distress that prevents them from engaging in standard treatment. Yet these adolescents greatly need therapeutic services for their emotional stabilization in order to facilitate successful discharges to outpatient settings. Being that the objective of inpatient psychiatric hospitalization is to stabilize patients' moods and to help them develop coping skills to manage their emotional crises, it is imperative that such settings provide empirically-based treatments for reaching these objectives.

One form of therapy that has the potential for meeting these hospitals' treatment goals is clinical or therapeutic hypnosis. For a number of decades, clinical hypnosis has been supported as an efficacious therapeutic tool for treating adolescents with behavioral disorders, anxiety, eating disorders, and for pain management (James, Soler, & Weatherall, 2006; Goldbeck & Schmid, 2003). A key reason adolescents benefit from clinical hypnosis is they are both greatly imaginative and open to new experiences, which typically results in high responsiveness to hypnotic suggestions (Bowers & LeBaron,

1986; Plotnick et al., 1991). A number of studies that have used standardized scales to measure hypnotic responsiveness have indicated that children and adolescents from the general population are significantly more susceptible to hypnosis than adults (London & Cooper, 1969, Morgan & Hilgard, 1973). This is often attributed to their vivid imaginations and openness to new experiences.

This research on adolescents' hypnotic susceptibility is important to understanding hypnotherapy's potential in such settings due to the implications for clinical outcomes, as there is a significant relationship between hypnotizability and the outcomes of hypnotherapy (Lioffi, White, & Hatira, 2006; Flammer & Bongartz, 2002). In order to measure adolescents' responsiveness to hypnosis, numerous studies in the field of pediatric hypnotizability have utilized hypnotic susceptibility scales, such as modified versions of the Stanford Scale of Hypnotic Susceptibility (SSHS) (Weitzenhoffer & Hilgard, 1959, 1967). These measures have been widely studied with adolescents and have consistently shown adolescents to be more hypnotizable than adults and that subjects reach a peak in hypnotizability in early adolescence (London, 1963; Morgan & Hilgard, 1973).

Being that adolescents have repeatedly shown high levels of responsiveness to hypnotic suggestion, it is likely that clinical hypnosis could be a powerful therapeutic tool for clinicians working in inpatient psychiatric hospital settings. Through the use of hypnotic suggestion, therapists can foster treatment goals by helping adolescents to challenge their dysfunctional thoughts and teach them skills that can be applied to their everyday lives (Gold et al., 2007). Hypnosis has been shown to aid in emotional regulation and its strength-based model can easily be integrated with cognitive-behavioral

interventions (Kirsch, Montgomery & Sapirstein, 1995), which are typically provided in such inpatient settings. Hypnotic suggestions are likely to aid both in mood stabilization and in the development of coping skills, and emotional understanding.

Although there is a growing body of evidence supporting the therapeutic benefits of clinical hypnosis with adolescents, there is almost no research on the effectiveness of hypnosis with inpatient adolescents. Furthermore, much of the research on adolescents' hypnotic susceptibility is outdated and composed of samples that are greater than 90% Caucasian children who are from relatively affluent areas. There is no research on the hypnotizability of adolescents in inpatient settings, nor has there been any research that has investigated differences in adolescents' hypnotizability based upon demographic information. Although we are aware that adults in acute psychiatric settings benefit from hypnosis (Wheeler et al., 2007) and that the majority of adolescents tends to be more susceptible to hypnosis than adults (London, 1963), there is little know about how hypnosis can be utilized to improve therapy in inpatient settings.

Research Goals

This study aims to understand the potential for group-based hypnotic interventions as a possible treatment in psychiatric inpatient settings which serve a diverse group of adolescents in complex urban environments. Hypnotic interventions have been shown to be an effective treatment for adolescents with a variety of mental health issues, yet there is no information on how this can be utilized for inpatient psychiatric settings and this study aims to provide insight into hypnotic applications in these settings. In particular, this study aims to understand the potential for group-based hypnotic interventions, as inpatient settings are most commonly in group-format.

Further, through the use of a comparison group that received guided relaxation instead of a hypnotic induction, the study sought to provide insight into the importance of hypnotic inductions and their influence on adolescents' hypnotic suggestibility. This will be done to investigate whether hypnotic suggestibility is stronger than non-hypnotic responding, and partially investigate the role of response expectancies.

This study also strives to investigate the ways in which adolescents' imaginative involvement and openness to experiences can be used as a tool to improve their quality of care. Further, it will also investigate the influence of dissociation on explaining variations in hypnotic suggestibility. Lastly, the study hopes to investigate the relationships between hypnotizability and demographics, such as gender, age, race, and diagnosis.

Definition of Terms

For the purposes of this study, the following terms will be defined in order to clarify their conceptual meaning. It is important to note that there is some disagreement between authors on the definitions of several of the concepts discussed below. Therefore, for the purposes of the literature review, the terms used by the authors in their original papers will be utilized. In regards to the current study, the terms will be referred to by their definitions below.

Absorption has been described as “a characteristic that involves an openness to experience emotional and cognitive alterations across a variety of situations” (Roche & McConkey; 1990, p. 1). It is a trait of a subject which related to their readiness for deep mental and emotional involvement, and a process in which the client appears to be impervious to naturally distracting events (Roche & McConkey; 1990). Absorption lies on a continuum and is seen as a person's disposition for having experiences that envelop

their complete engagement of their perceptual, imaginative, and ideational resources (Tellegen & Atkinson, 1974).

In regards to the importance of absorption in the process of hypnosis, it has repeatedly been shown to have a strong positive correlation with hypnotic suggestibility and it has been measured as a predictor of hypnotic responsiveness. Kirsch (1990) described absorption as the subject's ability to become imaginatively involved in the process of hypnosis. Tellegen and Atkinson (1974) suggested that subjects who are highly hypnotizable have a disposition of absorption. Along these lines, it has been noted that the constructs of absorption have much overlap with the constructs of imaginative involvement and openness to experience (Roche & McConkey; 1990).

Imaginative involvement is a concept that is similar to absorption and has been defined by Hilgard (1979) as a person's receptiveness and openness to experience that involves a suspension of reality testing and a narrowing or expansion of consciousness. Similarly, McCrae and Costa (1983) described a similar concept of *openness to experience* as a core component to events such as daydreaming, willingness to try new activities, appreciation of emotional responses, and artistic sensitivity. The main difference between openness to experience, imaginative involvement, and absorption is that absorption is more specific of a construct is narrower.

Dissociation is an occurrence of two or more mental processes not being integrated (Cardeña, 1994). Dissociation can be described as a person's ability to detach from their environment. During dissociation, a person's sensations, memories, and volitions may not be integrated (Sapp, 2000). Most clinicians believe dissociation is on a continuum and can be normal or pathological, such as in dissociative identity disorder.

Pathological dissociation, such as *dissociative fugue*, can cause severe impairment in a person's social or professional functioning. However, dissociation also occurs in people who are mentally healthy, such as when a person is daydreaming and loses focus on their immediate surroundings.

Hypnosis has been defined by the American Psychological Association's Society of Psychological Hypnosis-Division 30 defined hypnosis as "A state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion." APA Division 30 states that "Hypnosis typically involves an introduction to the procedure during which the subject is told that suggestions for imaginative experiences will be presented. The hypnotic induction is an extended initial suggestion for using one's imagination, and may contain further elaborations of the introduction. A hypnotic procedure is used to encourage and evaluate responses to suggestions. When using hypnosis, one person (the subject) is guided by another (the hypnotist) to respond to suggestions for changes in subjective experience, alterations in perception, sensation, emotion, thought or behavior." There are varying theories about hypnosis and people's responsiveness to hypnotic procedures. These theories include *state-theories* such as dissociative control theory (Bowers, 1992a, 1992b), and *non-state* theories such as cognitive-behavioral theories (Barber, 1969), and response expectancy theories (Kirsch, 1985, 1994).

Hypnotic induction has been defined by APA Division 30 as "A procedure designed to induce hypnosis." Following the hypnotic induction procedure, if the subject responds to hypnotic suggestions, it is concluded that hypnosis has been induced. Although there are varying theories about the role of hypnotic inductions, many

researchers believe responses to hypnotic suggestions and hypnotic experiences are characteristic of a hypnotic state. Although some think that it is not necessary to use the word “hypnosis” as part of the hypnotic induction, others view it as essential (Green et al., 2005). Hypnotic inductions may occur in many forms, such as a formal eye fixation procedure, but may also occur through other mediums, such as guided imagery.

Hypnotizability has been defined by the APA Division 30 officially defines as “An individual’s ability to experience suggested alterations in physiology, sensations, emotions, thoughts, or behavior during hypnosis.” Throughout this paper, the terms “hypnotizability”, “hypnotic suggestibility” and “hypnotic susceptibility” will be used interchangeably. Being that hypnotizability refers to individual differences in the effects of hypnosis, the definition of hypnotizability varies based upon the researcher’s definition of hypnosis. Historically, hypnosis research has operationally defined hypnosis through the administration of a hypnotic induction, thus hypnotizability is defined operationally as some change in suggestibility brought about by that induction (Kirsch, et al., 2011). The operational definition of hypnotizability has typically been measured through the use of standardized measures and hypnotizability scales (Spanos et al., 1981; Weitzenhoffer & Hilgard, 1962).

Demographics (age, race, gender, and diagnosis) are from subject’s self-report. These variables are mainly being reported for the purposes of describing the sample’s characteristics and are based upon the subject’s best knowledge or verbal reports from their primary physician. Diagnoses are based upon DSM-IV-TR (2000) criteria which is the criteria used at the time of this study in the psychiatric inpatient facility, and include

such diagnoses as attention deficit disorder, anxiety disorder, bipolar disorder, depressive disorder, mood disorder, and autism spectrum disorder.

Statement of the Problem

There is a strong body of research showing the therapeutic benefits of hypnosis for the treatment of adolescents with a variety of psychological symptoms and emotional distress. Hypnotic suggestibility has consistently been shown to be predictive of therapeutic outcomes of hypnosis. However, to the author's best knowledge, no research has been conducted on the hypnotic suggestibility of adolescents who are in acute care inpatient psychiatric hospital settings. Additionally, much of the research on hypnotizability of adolescents is outdated or largely conducted with non-clinical, homogenous samples. Given the literature on hypnotic interventions for adolescents, it is expected that adolescents in acute states of psychiatric distress are just as likely to benefit from the therapeutic value of clinical hypnosis.

Rationale

Inpatient psychiatric settings serve children with complicated mental health issues, who are in need of acute mental health care. These issues often include suicide attempts and self-harming behaviors. This is a serious problem as suicide is one of the leading causes of death for adolescents (Xu et al., 2010) and self-injury impacts 40-60% of adolescents in clinical settings (Jacobson & Gould, 2007). Moreover, if patients do not receive the emotional stabilization they need in order for a successful discharge, they are often re-admitted for continued suicidal or acute mental health problems. It has been shown that re-admission in similar psychiatric treatment settings is upwards of 50% (Lien, 2002).

The current study aims to develop an understanding of how hypnotherapy can be used in inpatient psychiatric hospital settings by collecting data on adolescents' hypnotic susceptibility in a group-based setting. In particular, this study aims to expand research to an inpatient psychiatric hospital setting that serves a diverse urban population. Through the collection of this data, adolescents' level of hypnotic susceptibility will be analyzed in order to provide insight as to whether therapeutic hypnosis is likely to be an appropriate intervention for adolescent patients who are in urgent states of emotional crisis.

In addition to investigating these adolescents' responsiveness to hypnotic suggestions, this study aims to investigate the importance of hypnotic inductions and their role in influencing responsiveness to suggestion. Due to current disagreement amongst researchers on the importance of a hypnotic induction for increasing suggestibility (Braffman & Kirsch, 1999), as well as disagreement about whether there is a 'hypnotic state', this study also investigated whether a hypnotic induction is necessary for increasing responsiveness to hypnotic suggestions. In order to do so, half of the participants were randomly assigned to a comparison group which received guided relaxation as opposed to a hypnotic induction. This was completed in order to help analyze the importance of inducing a "hypnotic state" in order to achieve increased suggestibility.

It is also important to investigate strength-based treatment models in these settings, and one potential strength that many adolescents have is their openness to experiences and their imagination. This study further investigated the independent variable of absorption and its relationship with hypnotic suggestibility. Absorption has been shown to be an important predictive variable of hypnotizability (Sapp, 2000).

Likewise, adolescents in inpatient settings frequently present with dissociative features, which are thought to be a defense mechanism in certain cases. Dissociation is likewise thought to be predictive of hypnotizability (Sapp, 2000). The investigation of these variables' influence on hypnotic suggestibility will provide rich information on the factors which influence hypnotic responsiveness. This information will aid in the understanding of ways in which therapists can capitalize on adolescents' imagination, creativity, and openness to new experiences.

Lastly, this study analyzed data on demographic and diagnostic information in order to determine if hypnosis is likely to benefit diverse urban populations that psychiatric hospitals often serve. This study aims to develop the field's knowledge of trends in adolescents' development of hypnotizability by comparing hypnotic suggestibility of children from age 13-17 years.

CHAPTER II

LITERATURE REVIEW

This literature review includes a broad overview of various theories of hypnosis, research on the hypnotic susceptibility, and a comprehensive review of research on the hypnotic susceptibility of adolescents. The review will further discuss the available literature related to hypnotic interventions for general adolescent populations as well as at-risk adolescents and clinical populations. This literature review will also discuss the various theoretical perspectives and research on dissociation and absorption. More specifically, this literature will review evidence for the influence of absorption and dissociation on hypnotizability.

Theories of Hypnosis

Throughout the history of hypnosis research, there have been a number of theories about the processes underlying hypnosis and why certain clients respond to hypnotic suggestions, while others do not. This review aims to describe modern theories of hypnosis. These main theories include *state theories*, which suggest hypnosis is a result of dissociation or an altered state of mental processes. There are also a number of *non-state theories* of hypnosis, which suggest that participants respond to hypnotic suggestions chiefly because of expectations. These theories posit that participants would respond to hypnosis just as strongly as if they did not receive a formal hypnotic induction.

Dissociation Theories of Hypnosis

Amongst *state theories* of hypnosis are theories of dissociation, neo-dissociation, integrated dissociative theory, and dissociated control theories. Of these dissociative

theories, the factor that draws them together is the idea that those who are hypnotizable will respond voluntarily but that these responses are not executed at a conscious level.

Dissociation Theory of Hypnosis. Charcot and Janet are credited as early pioneers of dissociative theories of hypnosis (Sapp, 2000). Charcot and Janet argued that during hypnosis, a client's cognitive processes can reach a state where they are no longer integrated, thus reaching the stage of dissociation. Therefore, those who are prone to dissociation, such as survivors of traumatic experiences, are capable of dissociating and are more likely to respond to the processes of hypnotic inductions (Sapp, 2000).

Further, Janet found patients who suffered from hysteria were highly hypnotizable. Janet explored this phenomenon and found hypnotic suggestion was a way to address the subconscious through suppressing conscious level processes. In doing so, Janet aimed to resolve subconscious conflict (Van Der Hart & Horst, 1989). Therefore, dissociative theorists viewed hypnosis as the medium through which clients could explore subconscious processes.

Neodissociation theory. Ernest Hilgard built from Janet's theory to create his *neodissociation theory* of hypnosis (Hilgard, 1991). Hilgard's neodissociation theory also posits that responses to hypnosis are produced through dissociation, but this occurs at higher levels of executive functioning systems. Hilgard's theory was that suggestions take much control away from the subject and the hypnotist influences the subject's higher level executive functioning therefore altering the subject's perceptions, memory, and external reality (Hilgard, 1991). *Neodissociation theory* suggests cognitive subsystems rearranged from their typical hierarchical order. This is followed by a change in the subject's processing which occurs outside of one's normal state of conscious awareness.

However, this information may be available at another level of processing (Sapp, 2000). This theory thus suggests that hypnosis is an altered state of consciousness that occurs both automatically and that this process is out of the subject's control (Sapp, 2000; Kirsch 1990).

Dissociated experience theory. This theory points to conflicts within neodissociation therapy and suggests hypnotic suggestions are voluntary and are similar to nonhypnotic behavior. Dissociated experiences refer to the idea that suggestions are enacted voluntarily, but "volition is not monitored correctly and hence the subject has the illusion of involuntariness" (Woody & Sadler, 2008, p. 94). This process is likened to classic suggestion (Woody & Sadler, 2008).

Dissociated control theory of hypnosis. Similar to Hilgard, Bowers (1992a) built upon dissociative theory to develop the *Dissociated control theory of hypnosis*. Like neodissociation theory, Bowers views hypnosis as an involuntary process which includes an altered state of consciousness. The basis of their theory is that hypnosis acts to weaken the executive ego's control over subsystems. This includes a weakening of frontal control of behavioral schemas, therefore permitting the hypnotist's suggestions to activate the subject's behavior (Kirsch & Lynn, 1998). According to their theory, hypnosis does not create a separation of consciousness. Instead, the theory posits hypnosis creates a dissociation of cognitive and behavioral subsystems from the ego's executive control (Sapp, 2000). Therefore, the subject's behaviors are primarily governed by lower-level systems of control.

The *dissociated control theory* differs from Hilgard in that they posit a division of executive ego into conscious and unconscious parts, which are separated by an amnesic

barrier (Sapp, 2000). Bowers (1990, 1992b) further described the amnesic barrier and Hilgard's hierarchical-control model pose inconsistent descriptions of the involuntariness associated with hypnosis (Sadler and Woody, 2010). Hilgard's neodissociation theory proposed that if hypnosis alters hierarchical control and influence executive functioning control of behaviors (Sapp, 2000). Therefore, a person's experiences of the response would not simply be an illusory effect of reduced awareness and consciousness (Hilgard, 1977). Yet Bowers (1990, 1992b) explained spontaneous amnesia is far less common than hypnotic behaviors. Bowers stated that "the pain and cognitive effort to reduce it is hidden behind an amnesic barrier," (Bowers, 1992b, pp.261-262).

In this way, *dissociated control theorists* argue that dissociation is similar to frontal lobe disorder. Therefore, this dysfunction can be brought about through hypnosis. At the time, neuroimaging had not located the physiological response in the frontal lobe, yet recent research by Raz, Fan, and Posner (2005, 2006) suggest a reduction of conflict in the frontal lobe following hypnotic inductions. Corresponding structures related to hypnotic trance have not yet been located by neurophysiological research.

Cognitive-Behavioral Theories of Hypnosis

Cognitive-Behavioral Theory of Hypnosis. Cognitive-behavioral theories of hypnosis are non-state theories of hypnosis and include socio-cognitive theory and social psychological theory. It is important to note that cognitive theorists do not deny the reality or significance of hypnotic phenomena, nor do they question clients' abilities to alter their subjective experiences. However, they do question the importance of the concept of hypnotic trance in regards to explaining a client's experience (Kirsch, 1993, as cited in Sapp, 2000).

Amongst cognitive-behavioral theorists, Barber theorized that hypnosis is a goal-directed behavior (1969). Likewise, Spanos (1986) viewed hypnosis as a client's ability to use cognitive-behavioral strategies. Spanos' socio-cognitive theory suggested that a client's attitudes, beliefs, and attributes all worked to shape hypnotic phenomena. He stated posited that a key determinant of subjects' responsiveness to hypnosis is their view of the hypnotic role. Therefore, Spanos believed that hypnotic responsiveness could be largely explained by similar processes and nonhypnotic behaviors (Spanos, 1986). Therefore, subject's responsiveness was hypothesized to be largely controlled by social processes, such as compliance, reporting bias, and misattribution of experience.

Social Cognitive Theories of Hypnosis

Response Expectancy Theory. Similar to Spanos, Kirsch (1985, 1994) developed *Response Expectancy Theory*, which is an extension of social learning theory (Rotter, 1954) which suggests that participants expect suggestions to change their experience, thus generating involuntary responses. Therefore, Kirsch theorizes that environmental cues will cause subjects to respond out of their expectations of hypnosis and may lead to involuntary behaviors. These expectancies act to alter subjective experiences and internal states (Kirsch, 1985). This theory posits "Response expectancies are anticipations of automatic subjective and behavioral responses to particular situational cues, and they elicit automatic responses in the form of self-fulfilling prophecies" (Lynn, Kirsch, & Hallquist, 2008, p.121-122).

Kirsch and Lynn (1997) suggest that hypnosis situations will cause subjects to attribute responses to the hypnotist and experience them as involuntary. However, the mechanisms which cause these responses are the same functions which produce

voluntary responses. Therefore, Kirsch has hypothesized that the process of hypnosis and hypnotic inductions are much like placebo effects. Since placebos cause subjects to have responses which are based on their expectancies, Kirsch suggests that hypnosis may refer to a variety of procedures where people's responses primarily depend on their expectancies and beliefs about hypnosis (Kirsch, 1985). Kirsch argues that all subjects would show high levels of hypnotic responsiveness if they had strong enough response expectancies. For instance, Braffman and Kirsch (1999) showed expectancy was a significant predictor of hypnotizability.

Attentional Theory

Amir Raz (2005) focused his theory of hypnosis on the role of attention systems of the brain. Raz has built from the research of Posner and Petersen (1990) on attention systems which investigated the mechanisms which work in unison to create a person's attention. From this theory, he has investigated the importance this complex system of neural networks which work to produce our perceptions of the world around us (Raz, 2005). Raz has studied the Stroop test with participants who scored both high on measures of hypnotizability and low on measures of hypnotizability. The Stroop test has historically been used in tests of attention and contains the names of colors in a colored ink which does not match the actual word. This test works to assess if the participant can attend only to the ink color and avoid processing the words meaning. This test creates conflict in the anterior cingulate cortex. Raz (2005) utilized the Stroop test with participants who had been determined to be highly hypnotizability and with subjects who had been determined to be have a low level of hypnotizability. Following suggestions that word and color associations would become nonsense symbols, highly hypnotizable

participants actually did report seeing nonsense symbols. Additionally, during this time the portion of the brain which is associated with focused attention (anterior cingulate cortex) was activated. Raz (2005) also pointed to evidence that medications which alter this system have been known to produce experiences similar to hypnosis.

Likewise, earlier electroencephalographic (EEG) studies have also pointed to the importance of attention levels in their relation to hypnotic depth and differences in subjects' level of hypnotizability. For instance, London (1976) studied 35 children ages 7 to 16 years of age. London found a significant correlation between hypnotizability and alpha ($r = .29$) when the children's eyes were open, but the relationship disappeared when the children were asked to close their eyes. Further, de Pascalis (1999) pointed to differences in EEG activity of "low hypnotizables" as compared to "high hypnotizables." Although the findings were not definitive, de Pascalis points to evidence that "high hypnotizables" had higher levels of fast beta activity (20-36 Hz) and were better able to focus their attention on task-specific activities. Later, Fingelkurts et al. (2007) tested whether EEG would differ during hypnosis with a full hypnotic induction as compared to non-hypnotic EEG. Similar to Raz (2005), Fingelkurts et al. found that hypnosis induced a reorganization of brain oscillations in the prefrontal EEG channels. Additionally, Fingelkurts et al. (2007) demonstrated that EEG patterns do not immediately return to normal following the termination of hypnosis. Their research supports Raz (2005) in that hypnosis was characterized by a heightened state of attention.

Hypnotic Susceptibility Scales

Hypnotizability scales are standardized measures used both to determine if a person is hypnotized and if they are capable of experiencing hypnosis (Hammond, 1992).

Early studies of hypnosis can be traced back to Liébault, who studied over 1,000 subjects from a wide range of ages (Bernheim, 1887). However, the first empirical study of the phenomenon of hypnosis was conducted by Hull (1933). With his classic study, *Hypnosis and Suggestibility*, Hull showed that hypnosis could lead to changes in subjects' threshold of sensory stimulation, increase their physical capacity, produce anesthesia, and posthypnotic amnesia. According to Hull, "the essence of hypnosis lies in the fact of change in suggestibility." (Hull, 1933, pp.391). In order to operationalize these changes in suggestibility, researchers have developed numerous types of hypnotic susceptibility scales.

In early development of hypnotic susceptibility measure, Friedlander and Sarbin (1938) developed the Friedlander-Sarbin Scale. This scale became a precursor to many modern scales of hypnotizability and consisted of similar items to Stanford Hypnotic Susceptibility Scales (Weitzenhoffer & Hilgard, 1959, 1967). The Friedlander-Sarbin Scale has seen continual development in order to advance research on hypnotic susceptibility, yet the basic structure of hypnotic susceptibility scales remain quite similar. For instance, hypnotic susceptibility scales typically involve standardized hypnotic inductions followed by suggestions related to ideomotor responding; sensory negation; perceptual distortion of reality; and posthypnotic amnesia. It has been shown that responsiveness to these suggestions lie on a continuum, and hypnotizability scales are particularly useful for determining the types of suggestions that clients respond to. Additionally, hypnotic susceptibility scales are useful for distinguishing between subjects who have low, medium, or high levels of hypnotic suggestibility (Sapp, 1997a, 1997b).

There are several hypnotic susceptibility scales which are commonly used for research purposes. These scales include both measures of behavioral responses to hypnotic suggestions, as well as measures of subjects' subjective experience of hypnotic suggestions. Typically, these measures of hypnotizability are developed for use at the individual level. However, there have been multiple versions of scales which have been developed specifically for children (CHSS; London, 1965; SHCS-C, Morgan & Hilgard, 1979) and for group administration (HGSHS:A; Shor & Orne in 1962; WSGC Bowers et al., 1982).

As a whole, there is strong research evidence for the psychometric properties of hypnotic susceptibility scales. For instance, it has been demonstrated hypnotic susceptibility is a rather stable trait and has been demonstrated to show a test-retest correlation of $r=0.71$ over a 25 year interval (Piccione, Hilgard & Zimbardo, 1989). Additionally, scales have displayed high alternate-forms reliability, which inter-correlated which are typically above $r = 0.60$ (Bowers, 1993). For the purposes of clinical practice, it has been repeatedly demonstrated that there is a strong relationship between scores on hypnotizability scales and clinical outcomes of hypnotherapy. In their meta-analysis of over 200 studies of hypnotizability and clinical outcomes, Flammer & Bongartz (2002) found a correlation of 0.44 ($<.00$) between suggestibility and clinical outcomes. That is, it has repeatedly been shown those who are highly hypnotizable tend to benefit far more from hypnotic interventions than those who score lower on measures of hypnotizability (Hilgard & Hilgard, 1975; Hilgard, 1980; Flammer & Bongartz, 2002). Each of the major hypnotic susceptibility scales and their psychometric properties are described below.

Individually Administered Hypnotic Susceptibility Scales

Stanford Hypnotic Susceptibility Scales. Of the main scales used to research hypnotizability, the standards are thought to be the Stanford Scale of Hypnotic Susceptibility (SHSS) Forms A, B, and C (Weitzenhoffer & Hilgard, 1959, 1967). Each of these scales take approximately fifty minutes to complete and consist of 12 items of progressive difficulty. The SHSS: Form A is primarily based upon the FSS (Friedlander & Sarbin, 1938). Each of the SHSS scales contains a hypnotic induction by eye closure followed by hypnotic suggestions. Subjects are given suggestions including; postural say, eye closure, hand lowering (left), immobilization (right arm), finger lock, arm rigidity (left), hands moving together, verbal inhibition (name), hallucination (fly), eye catalepsy, post-hypnotic (changes chairs), and amnesia (Weitzenhoffer & Hilgard, 1959).

SHSS: Form B was designed to follow administrations of SHSS: Form A. SHSS: Form B contains items which have been slightly modified as a means to prevent testing effects when conducting experiments which involve a second hypnosis session. These modifications include altered suggestions, such as using the opposite hand during suggestions (Weitzenhoffer & Hilgard, 1959).

The SHSS: Form C was designed to be more difficult than Form A and Form B and is meant to assess subjects who have already been tested. Form C is unique in that it was developed to assess participants' capacity for more varied and difficult items (Weitzenhoffer & Hilgard, 1962). Form C encompasses items which sample fantasy and cognitive distortion. This scale includes suggestions for eye closure (not scored), hand lowering (right), moving hands apart, mosquito hallucination, taste hallucination, arm rigidity (right), dream, age regression, arm immobilization, anosmia to ammonia,

hallucinated voice, negative visual hallucination, and post-hypnotic amnesia. It also provides an indication of hypnotic depth and the client's responds to suggestions. Form C is the benchmark for individual hypnotizability assessment. Form C has a reliability index of .85 (Weitzenhoffer & Hilgard, 1962). The SHSS:C "is generally regarded as the best available criterion of hypnotizability" (Register & Kihlstrom, 1986, p.95).

Children's Hypnotic Susceptibility Scales

The previously mentioned scales (SHSS Forms A, B, and C) have been developed for the purposes of measuring adults' hypnotizability. In order to conduct research and screen for hypnotizability of children, these measures have been modified to adjust to children's level of language and development.

Children's Hypnotic Susceptibility Scale (CHSS). London (1963) developed the CHSS which builds from the SHSS but is meant for use with children. This CHSS was created specifically for use with children between the ages of 5 and 16. As with the SHSS, this scale includes a standardized induction and measures children's responsiveness to hypnotic suggestion. The CHSS includes modified versions based upon the subject's age, such as providing simpler language to younger children (4-8 years old) and more advanced language for older children (6-16 years old). Each of these versions contains the same set of suggestions.

The CHSS includes 22 items and is divided into two parts. The first part of consists of 12 items from the Stanford Hypnotic Susceptibility Scales, Forms A and B (Weitzenhoffer & Hilgard, 1959). The additional 10 items are from the SHSS: Form C (Weitzenhoffer & Hilgard, 1962), the Stanford Profile Scales of Hypnotic Susceptibility, Forms I and II (Weitzenhoffer & Hilgard, 1963) and the unpublished Stanford Depth

Scale (Hilgard, 1965, Ch. 12). The second part of the CHSS contains 10 Depth Scales items such as age regression, visual, and auditory hallucinations (Hilgard, 1965, Ch. 12).

In assessing the psychometric properties of the CHSS, London (1965) conducted a study utilizing the CHSS with 240 children, ages 5 to 16 years. Their standardization sample included 10 boys and 10 girls at each age level (the importance of the developmental findings and age trends of this study are discussed in the 'Adolescent Hypnotizability' section of this literature review). In addition to a stratification of the norming sample by age, London (1965) strengthened the study by utilizing three different methods of scoring the CHSS, which included both overt behavior scores and subjective involvement scores, as well as a total score.

London and Cooper (1969) investigated the norms of the CHSS scoring methods and found the distributions of susceptibility scores by each scoring method were almost identical for all children in the norming study (London, 1965). The scale was also found to have very strong inter-rater reliability amongst independent judges. These reliabilities from .88 on subjective involvement scores, .94 on full scale scores, and .97 for overt behaviors (London, 1965). The CHSS was also shown to have test-retest reliability as indicated by strong reliability coefficients when retesting 201 of the children after one week by a new examiner (Cooper & London, 1971). During this one week follow-up assessment, the authors found the percentages of children in each score range of "low", "medium", and "high" hypnotizability was highly similar to their first assessment. These included .79 correlations for OB scores, .75 correlations for SI, and .78 correlations for total scores. These reliabilities coefficients are similar to those found from repeated testings of adult subjects' hypnotizability (Hilgard et. al., 1961).

A significant limitation of the CHSS's norming data is the lack of diversity amongst the sample. For instance, London (1965) utilized a sample which was entirely Caucasian children who were selected from public schools in Urbana, IL. Moreover, the families involved in the study were all homeowners from relatively high socioeconomic status. To this author's knowledge, there is no norming data on the CHSS which includes children from diverse racial, cultural, or socioeconomic backgrounds.

Stanford Hypnotic Clinical Scale for Children (SHCS:C). Morgan and Hilgard (1979) developed a shorter version of the Stanford Scale which is known as the SHCS:C. As compared to 50 minutes the standard SHSS:A or SHSS:B take to administer, the SHCS:C is a shortened scale which only requires approximately 20-25 minutes to administer. This scale includes a modified form for younger children (ages 4-8 years), which includes minor adjustments for children who are extremely anxious and do not like to close their eyes. There is also a version for older children (ages 6-16). Although this measure is brief and has utility for fast assessments, the SHCS:C is limited in its ability to distinguish between children's level of hypnotizability. Moreover, it does not assess for children's subjective experiences.

Group Scales of Hypnotic Susceptibility

The previously mentioned measures are meant to be administered individually with a hypnotherapist, yet there are also measures which have been developed to be administered in a group format. This has been beneficial to the field of hypnosis research, because they can assess a greater amount of individuals with far fewer resources.

Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A). The HGSHS:A is a commonly used group-format measure of hypnotic susceptibility. It was

developed by Shor and Orne in 1962. The HGSHS:A is an adaptation of the SHSS:A and was the first scale that was developed to be administered in a group setting. Similar to the Stanford Hypnotic Susceptibility Scale, the HGSHS:A consists of 12 items of progressive difficulty. The measure includes a standardized hypnotic induction and usually takes approximately forty five minutes to administer regardless of group size. The HGSHS:A contains self-report scoring from the original objectively-scored SHSS:A. However, the group administration of the HGSHS:A takes considerably less time than administering the SHSS:A on an individual basis. Being that the HGSHS:A is only meant to be administered to an individual one time, there is also a Harvard Group Scale of Hypnotic Susceptibility: Form B (HGSHS:B) which is meant to be administered as an alternate to Form A.

Critique of HGSHS:A

According to Bowers (1993), one of the confounding problems of the HGSHS is that it is not often followed up by the SHSS:C, which has been largely regarded as the best available criterion of hypnotizability (Register & Kihlstrom, 1986). The HGSHS:A and SHSS:C have been shown to have a moderate correlation of .60 with each other (Bentler & Robers, 1963; Coe, 1964; Evans & Schmiedler, 1966; Kihlstrom & Evans, 1979; Register & Kihlstrom, 1986). Therefore, Bowers (1993) suggests that the HGSHS:A is valuable as a screening measure, but is not a substitute for the SHSS:C. Moreover, Bowers (1993) points to Register & Kihlstrom (1986) who suggest that the HGSHS:A is a “relatively poor predictor of performance on the SHSS:C” (p.93).

In order to investigate how often clinicians were following administrations of the HGSHS:A with the SHSS:C, Bowers (1993) conducted a meta-analysis of publications

from *The International Journal of Clinical and Experimental Hypnosis*, *The Journal of Abnormal Psychology*, and *The Journal of Personality and Social Psychology* from 1876 through 1986. It was determined that researchers only followed the HGSHS:A with the SHSS:C in fewer than 25% of studies. Bowers (1998) concluded this was due to the fact that the SHSS:C takes one hour to administer per individual and most researchers do not have the time or resources to conduct the follow-up assessment. Being that the HGSHS:A was developed to reduce time of administration, this is a significant limitation of the measure. In order to partially resolve the inherent issue of administration time and resources, Sanders and Schubot (1969) developed a group-administered version of the SHSS:C. Unfortunately, the scale was never published.

Waterloo-Stanford Group Scale: Form C (WSGC). Bowers et al. (1982) developed the WSGC, which is an adaptation of the SHSS:C (Weitzenhoffer & Hilgard, 1962), but was created for the purposes of group administration. The WSGC a hypnotic induction by eye fixation, which is followed by 12 suggestions in the following order: hand lowering, moving hands apart, mosquito hallucination, taste hallucination, arm rigidity, dream, age regression, arm immobilization, music hallucination, negative visual hallucination, and posthypnotic amnesia. The subject's then receive a behaviorally-based score on each of the items, which results in a score from 0 to 12 based upon whether an outside observer would have seen an overt behavioral response to the hypnotic suggestions. Each of the items is scored as pass or fail, so there is a range of possible scores from 0 to 12.

This scale is similar to the SHSS:C, but due to the group administration of the measure, it was modified in the removal of the interactive auditory hallucinations.

Likewise, the SHSS:C suggestion for anosmia was substituted for posthypnotic suggestion, as the anosmia with ammonia was considered “too awkward to administer on a group basis” (Bowers, 1993, p. 37). Moreover the negative visual hallucination and hands-coming together were also slightly modified.

Bowers suggests one limitation of this scale is similar to the limitation of the HGSHS:A in that the WSGC is meant to be accompanied with an individual scale in order to ensure that responsiveness is to the hypnosis and not group compliance (Register & Kihlstrom, 1986). Further, the WSGS is intended to be administered after subjects have been screened with the HGSHS:A. Additionally, Bowers (1998) mentions that group administration will inevitably suffer by comparison to individual administration of the SHSS:C. This is partially due to the fact that rapport is easier to build during individual administrations, which Bowers (1998) suggests is important for achieving optimal involvement from subjects in order to accurately evaluate their performance.

Bowers (1993) development norming data for the WSGS through research with 299 participants who were recruited from several introductory psychology courses. Participants were first administered the HGSHS:A in a large group format. Of the original 299 subjects, 256 subjects completed a follow-up measure which included small group administration (3-12 subjects) of the WSGC. The results suggest that the WSGC has strong internal consistency of .80, but slightly less than the SHSS:C (Hilgard, 1965). Moreover, Bowers (1993) reported a correlation of .70 between the WSGC and the HGSHS:A for the 256 subjects who completed both measures. More relevant to the purposes of WSGC’s development, it was found that the WSGC correlates .85 with the SHSS:C.

The mean score for all subjects was 6.69, which was slightly higher than 5.71 from the original normative sample (Bowers, 1993). Although Bowers (1993) suggests the SHSS:C has a psychometric advantage in assessing for hypnotic abilities, the WSGS is a valid and reliable measure of hypnotizability and has advantages in its ability to decrease administration time by assess groups as opposed to individuals.

Subjective Scoring of WSGC

Following the creating of the WSGC, Kirsch, Milling and Burgess (1998) investigated the usefulness of experiential scoring of the WSGC. Although the WSGC was originally developed to be scored behaviorally, Kirsch, Milling and Burgess (1998) suggest “The essence of response to hypnotic suggestions lies in the person’s subjective experience.” (p. 269). The authors point to the inherent flaws of measuring hypnotizability through overt behaviors and suggest that researchers are less interested in subjects’ physical responses than in whether behaviors occurred automatically or if responses were non-volitional. Therefore, the authors created a subjective measure for responses to the WSGC.

To create a subjective score for the WSGC, Kirsch et al. (1998) created response options for each of the 12 items on the WSGC which asked participants to rate their experiences of the suggestions on a 5-point likert scale. These scores are simply summed and create a range of potential scores from 12-60. Kirsch et al. (1998) developed norming data for the subjective scoring of the WSGC through a sample of 926 undergraduate students (558 female and 368 male). The results of the norming data suggest female participants obtained significantly higher scores on both behavioral ($\bar{X} = 5.97$) and subjective scales ($\bar{X} = 32.45$), as opposed to male students who had mean behavioral

scores of 5.42 and mean subjective scores of 30.45. As a whole, the correlation between the behavioral and experiential score was shown to be .86. Moreover, the Cronbach's alpha was .89 for the experiential scoring of the WSGC, displaying a high level of internal consistency. Likewise, the experiential scoring displayed a strong ability to distinguish between participants' level of hypnotizability, with 77% of participants achieving the same cut score on both behavioral and experiential measures (Kirsch et al., 1998).

Hypnotic Suggestibility

There has been some debate as to whether hypnotizability scales are valid for measuring hypnotic suggestion. Although there is a general consensus that the previously mentioned measures are valid and reliable measures of responsiveness to suggestion, several researchers have argued that hypnotic suggestibility scales do not measure responsiveness to hypnotic suggestions due to a hypnotic state. Rather, several authors have posited that they measure classic suggestion effect (Weitzenhoffer & Hilgard, 1959, 1967). Weitzenhoffer (1980) suggested that hypnotizability scales may lack validity in that they are more likely measuring "imaginative suggestibility" rather than hypnotic suggestibility. Likewise, it has been argued that hypnotizability is not linked to hypnotic outcomes. For instance, Wadden and Anderton (1982) found no significant relationship between hypnotizability and participants' ability to stop smoking following hypnotic suggestions.

Kirsch (1997) pointed out the incongruence between the conceptual definition of hypnotizability and the operational definition of hypnotizability. That is, hypnotizability is conceptually defined as an increase in suggestibility produced by hypnosis. However,

the operational definition of hypnotizability is a person's score on a standardized hypnosis scale following a hypnotic induction. Being that standardized hypnotizability scales are developed to measure suggestibility after a hypnotic induction, Kirsch (1996) suggests these scales do not measure increases in suggestibility that are meaningfully different non-hypnotic suggestibility in response to the imaginative suggestions. Kirsch has suggested hypnotic inductions are simply "expectancy modification procedures that produce placebo effects without the use of placebos" (as referenced in Lynn, Kirsch, & Hallquist, 2008, p.122).

Kirsch argues that it may be more accurate to say hypnotizability scales measure imaginative suggestibility. This is in contrast to hypnosis, which is conceptually defined as an increase in suggestibility following a hypnotic induction, relative to baseline suggestibility in response to non-hypnotic suggestions. Kirsch's response expectancy theory posits that placebo effects and hypnosis share the mechanism of response expectancy. That is, the effects of placebos and hypnosis are both moderated by the subject's expectations; therefore, he has characterized clinical hypnosis as a "nondeceptive placebo" (Kirsch, 1994). Braffman and Kirsch (1999) investigated the influence of response expectancies on hypnotic responding and found subjects' expectation to be a stronger predictor of hypnotizability than either adsorption or dissociation, and that inductions only created a modest increase in responsiveness.

Although Kirsch makes a strong case that hypnotizability may be a reaction to response expectancies, others have suggested that there are measureable changes which are a direct result of the hypnotic induction. For instance, neuroimaging of the anterior cingulate cortex (ACC) has provided support that persons who are susceptible to

hypnosis as measured by the SHSS have improved functioning of attention mechanisms after hypnotic inductions (Raz, Fan, & Posner, 2006). This neuroimaging has suggested a lowering of conflict amongst systems in the frontal lobe and has also been shown to improve participants' ability to solve the Stroop Test. Similarly, other researchers have shown psychological changes associated with hypnosis such as with biofeedback (Andreychuck & Skriver, 1975) and EEG (de Pascalis, 1999; Fingelkurts et al., 2007)

Adolescent Hypnotic Suggestibility

It has been demonstrated that a subject's level of hypnotizability is a significant predictor of clinical outcomes (Lioffi & Hatira, 1999; Lioffi, White, & Hatira, 2006), therefore in order to determine which adolescents are likely to benefit from hypnosis, it is crucial to understand their level of hypnotic responsiveness and the moderators which lead to individual differences in their hypnotizability. Likewise, an important question numerous researchers have set to understand is the age at which hypnotizability develops and when it reaches its peak. In order to better understand the developmental components of hypnotic susceptibility and its relationship to other variables, researchers have set to understand both the age at which children develop hypnotizability and how they reach the capacity to benefit from hypnotic suggestion. London (1963) concluded that children and adolescents from the general population have been shown to be significantly more susceptible to hypnosis than adults when measured by modified versions of the Stanford Scale of Hypnotic Susceptibility. However, there has been limited empirical research which has been conducted since the early 1900's, such as Messerschmidt (1933) and Hull (1933).

In regards to the stability of a person's hypnotic susceptibility, it has been shown that hypnotizability is generally stable across a person's lifespan (Hilgard, 1965; Piccione, Hilgard, & Zimbardo, 1989), yet there is far less knowledge about the onset of hypnotic susceptibility. Additionally, the nature of children's development of hypnotizability remains largely unknown. There is even less known about its relation to personality development and childhood pathology.

Developmental Components of Hypnotizability

Capacity for Imaginative Involvement. It is widely accepted that children's capacity for imaginative involvement is a precursor to hypnotic susceptibility, and there is more known about the onset of imaginative play. For instance, Singer (1973) suggested that children develop the capacity for fantasy and imaginative play as early as 2 years of age. This capacity for imaginative play allows for daydreaming in early childhood and can be seen as a precursor to the characteristics of imaginative involvement. Moreover, this capacity for imagination continues to advance throughout childhood and is meaningfully linked to hypnotic susceptibility. For instance; as with the development of fantasy proneness and imaginative involvement, hypnotizability is shown to occur in early childhood and peaks in early adolescence (London & Cooper, 1969). Yet, as with fantasy proneness, it has also been shown that hypnotic susceptibility does not suddenly appear in adolescence.

Onset of Hypnotizability. In a first step to understand the development of hypnotizability, London (1962) studied the ability of the CHSS to measure children's responsiveness to hypnotic induction. In order to determine the CHSS's ability to distinguish between children who had truly were responding to hypnosis as opposed to

those who were role playing, London (1962) used role-playing and hypnosis simulation prompts with children ages 5 through 11 years. Of the 40 children in the study, London gave the children instructions to simulate being hypnotized by performing six “playlets” which were based upon motivational instructions developed by Orne (1959), whom developed these hypnotic simulations to compare non-hypnotizable adult subjects who were asked to simulate being hypnotized with highly hypnotizable subjects. Following instructions from the “playlets”, London (1962) gave subjects two scores on each item in the CHSS. One was based upon the subjects’ overt behavioral response and the other was the examiner’s impression of their subjective involvement and whether they appeared to be faking or role playing, partially involved, or deeply involved in the item. Although Orne (1959) found that even trained clinicians could not detect the difference between the two groups during when investigating adults, London (1962) found that simulation scores for the CHSS were lower for children below the age of 8 years. Scores were indistinguishable for older children, yet simulation was obvious for children below the age of 8.

London (1963) continued to develop the Children's Hypnotic Susceptibility Scale (CHSS) to assist in strengthening the understanding of norms of childhood hypnotic susceptibility. London constructed the CHSS’s 22 items from a combination of the Stanford Hypnotic Susceptibility Scales for adults (Weitzenhoffer & Hilgard, 1959, 1962, 1963). London (1965) standardized the CHSS with a sample of 240 children out of 303 children who were randomly selected from a pool of participants whose parents responded to a form letter. These children entirely Caucasian and were selected from an upper-middle-class public school in Urbana, IL.

London (1965) aimed to test the hypotheses provided in Hull's (1933) study that there is a curvilinear relationship between age and hypnotizability. This trend had been shown to increase from approximately 5 years of age until 8 years, then peak in early adolescence at approximately 12-14 years, followed by a slow decline later in adolescence. London (1965) investigated these trends with the CHSS in his study through utilized a stratified sampling procedure which included 10 boys and 10 girls at each age from ages 5-years through 16-years of age.

The CHSS produced three scores for each of the children, including overt behavior, subjective involvement and a total score. Each of the scores was found to have high inter-rater reliability, as assessed by simultaneous independent judging. The correlation between the independent scores was .97 for the OB, .88 for the SI, and .94 for the total score. In assessing for trends in hypnotizability by sex, there was not a significant difference between the total susceptibility scores of males compared to females. London (1965) also tested a subsample of 42 children with the *Wechsler Intelligence Scale for Children -WISC* (Wechsler, 1949) to investigate the influence of IQ scores on hypnotizability, but only found a modest positive correlation. This relationship was later tested by Poulson and Matthews (2003) who also found a non-significant relationship between their sample of children's WISC-III (Wechsler, 1991) vocabulary subtest scores (.07 and -.08) scores and hypnotizability.

In addition to providing norming data on the CHSS provided by London (1965), London and Cooper (1969) investigated trends in hypnotizability by age. Comparisons of children in each of the 9 ages and found that on overt behavioral scores, children ages 7 to 14 years scored significantly higher than children either younger or older (London,

1965; London and Cooper, 1969). Children who were 5 years of age scored particularly low on all measures. In regards to subjective experiences, subjects over 9 years were significantly higher than younger children. The results of the study suggest that suggestibility tends to peak in early adolescence at approximately 9 to 12 years of age with a general decline up to 16 years of age (London & Cooper, 1969). Following this general decline, longitudinal studies suggest that hypnotizability remains fairly consistent thereafter (London, 1965; Morgan & Hilgard, 1978, 1979).

London and Cooper (1969) further compared child hypnotizability with adult hypnotizability and found that children in their study scored significantly higher than adults. In regard to the 12 measures of overt behavior which are assessed by both the CHSS and the SHSS, children from the norming population had a mean score of 8.16, whereas the mean score of the adult population was 5.25 (Weitzenhoffer & Hilgard, 1959). Moreover, the largest percentage of children in the norming population fell into the category of highly susceptible, whereas the highest percentage of the adult population fell into the low hypnotizability range.

Later, Cooper and London (1971) published longitudinal information for a subsample of 201 children the CHSS standardization group. The correlations were significantly positive between baseline scores and 1 week to 2 year follow up assessments. Further, it was shown that this stability was stronger for older children, but the results generally mirrored London (1965) in that hypnotizability scores can be predicted with age and are generally stable.

In a cross-sectional study of age differences in hypnotizability, Morgan and Hilgard (1973) utilized the SHSS:A with very large sample of 1232 subjects. Roughly

half of this sizable sample was obtained through family sampling methods in San Francisco and Los Angeles by recruiting participants who were previously enrolled in ongoing twin and sibling studies. Therefore, many of the adult participants were the parents of children in the study. In total, the subjects ranged widely in age from 5 to 78 years. However, Morgan and Hilgard (1973) noted the sample was fairly homogenous in that they were middle-class socioeconomic status. Moreover, the sample was mostly composed of high school students, college students, and families, with fewer participants in the low and high age ranges.

The authors obtained their data through individual administration of the SHSS:A. However, for children who were younger than 10 years of age, a slightly modified version of the SHSS:A with simplified language was utilized. These modifications included changing “relax” to “feeling quiet” (Morgan & Hilgard, 1973, p.80).

In reporting the trends in mean hypnotic susceptibility scores by age, their findings confirmed previous studies’ reports of a peak in hypnotizability in early adolescence. Morgan and Hilgard (1973) found subjects in the age category of 9 to 12 years to have obtained the highest average score of 7.6 items passed. This peak in suggestibility at approximately 9 to 12 years of age is highly similar to earlier finding on children’s hypnotic susceptibility (Barber & Calverley, 1963; London, 1962; Stukát, 1958). For adolescents and young adults who were in both the age range of 13 to 16 and ages 17 to 20, the mean scores were both 7.1 items passed. Throughout early adulthood there was shown to be a mild decline in hypnotizability, but scores remained generally stable past adolescence. As with previous studies of gender differences in hypnotizability (Weitzenhoffer & Weitzenhoffer, 1958), Morgan and Hilgard (1973) did not find

significant differences in hypnotizability between male and female participants.

Interestingly, the authors reported one significant exception to this, which was female participants (particularly young mothers) scoring markedly higher ($\bar{x} = 8.0$) than male participants ($\bar{x} = 5.5$) during the age period of 21-32.

Across these studies, there is a consensus that adolescents tend to be more hypnotizable than younger children or adult samples. Yet Gardner and Olness (1981) have pointed to the limitations of hypnotic susceptibility scales' ability to assess for younger children. For instance, Hilgard and Morgan (1978) have suggested that children under the age of four are in a phase of "protohypnosis" and are not yet capable of responding to suggestions in the way that more developed children are. In contrast, Olness and Gardner (1988) have pointed to research showing the effectiveness of hypnosis for treating preschool children with both medical disorders (Olness, 1975, 1976; Antitch, 1967) and behavioral disorders (Williams & Singh, 1976). Likewise, Bower and LeBaron (1986) suggest that younger children (below the age of eight years) respond to hypnosis, but in a way that makes their responses difficult to distinguish from play. For instance, they may keep their eyes open or act out suggestions in a physical way, yet they report having subjective experiences of hypnosis which are quite similar to older children's reports.

Although there is limited research on the onset of hypnotizability, longitudinal research has demonstrated hypnotizability is fairly stable across an individual's lifespan. Piccione, Hilgard, and Zimbardo (1989) conducted measures of hypnotizability across 50 participants' lifespans through the utilization of the Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A). In order to obtain longitudinal data on hypnotizability, the

authors utilized data from a sample who participated in earlier studies of the stability of hypnotic susceptibility at Stanford University (Morgan, Johnson, & Hilgard, 1974). The data collection for the baseline measures began in 1957 (Hilgard, 1965). Being that this was a university sample, the mean age at baseline was 19.5, and the authors followed up with these participants at 10, 15, and 25 years post-baseline. In their assessment of the stability of hypnotic susceptibility, Piccione, Hilgard, and Zimbardo (1989) found coefficients of .64 at 10-year retest, .82 at 15-year retest, and .71 at 25-year retest. Moreover, they found strong evidence for consistency of specific SHSS:A items passed at each of the three retests. This suggests that hypnotizability remains relatively consistent during the transition from early adulthood throughout later adulthood, despite major life changes and development. Although this study was not conducted with adolescents, it does suggest childhood hypnotic susceptibility may hold stable throughout adulthood.

Hypnotic Suggestibility Compared to Waking Suggestibility

There is a substantial amount of debate amongst the literature on the nature of hypnotic responding, as well as the importance of an explicit hypnotic induction. There is also considerable debate about the operational definition of hypnotic suggestibility, particularly in its comparison to non-hypnotic or “waking” suggestibility. In early studies of non-hypnotic responsiveness to suggestion, Weitzenhoffer and Sjoberg (1961) conducted a study of two groups of 30 Stanford students “waking-hypnosis” suggestion compared to “waking-waking” suggestion. The “waking-hypnosis” group was administered a standard suggestibility test in their normal waking state, which was

followed by a second test which included a hypnotic induction. The “waking-waking” group was tested for suggestibility twice, neither time with a hypnotic induction.

Weitzenhoffer and Sjoberg (1961) assessed for the impact of the hypnotic induction and found that the waking-hypnosis group performed significantly higher on the suggestibility scale than the waking-waking group. However, they found waking performance and susceptibility for both groups to have a correlation of .54 and hypnotic performance to correlate with waking performance at .63. The authors found a small change in responsiveness to suggestions following a hypnotic induction. Their findings suggested an average increase in responsiveness of 2.25 out of their 17-item scale, with only 36% of participants increasing by more than two responses. Likewise, the authors found a correlation between hypnotic suggestibility and hypnotizability of .66. Although the authors suggest this as an argument against the importance of hypnotic inductions for increasing hypnotic responsiveness, there is a question as to whether practice effects of repeated testing may have influenced these results. This is a threat to the internal validity of the study, as the authors investigated change scores to determine the impact of hypnotic inductions.

Barber (1965) further investigated the importance of hypnotic inductions for increasing suggestibility through a study with three experimental conditions. These conditions included one group who received a full hypnotic induction (eye fixation procedure), a group who received task motivational instructions, and a group who received direct suggestions. Each group contained 62 participants who were either freshmen or sophomores in college and were provided with suggestions from the Barber Suggestibility Scale (BSS). As opposed to a hypnotic induction, the task motivational

group was simply provided with instructions that they would be given instructions which would help to improve their performance on a test of imagination. In the third experimental condition, participants received direct instructions that they were going to receive a test of imagination which was to be followed by an assessment of their responses to the BSS.

The results suggest that there was not a significant difference between the subjects' scores on objective measures between the hypnotic induction group and the task motivational instruction group. However, both the induction group and the task motivational instructions group both obtained scores which were significantly higher than the direct suggestions group. This study ultimately raised the question of the importance of the hypnotic induction for the purposes of increasing suggestibility. A key limitation of this study is that the task motivational group was directly told that they would be tested for the ability to imagine the suggested experiences. Therefore, those participants were primed with response expectancies. In addition, they were told "If you don't try to the best of your ability, this experiment will be worthless and I'll tend to feel silly." (Barber, 1965 p.820). This instruction leads to a question of whether the participant was responding out of a feeling of obligation to please the researcher.

Weitzenhoffer (1980) continued to point to the limitations of Stanford Scales' ability to measure hypnotic suggestibility; in particular, he suggests they may be limited in their ability to distinguish between hypnotic suggestibility versus nonhypnotic suggestibility. That is, some individuals may respond to suggestions regardless of hypnotic inductions, thus creating a major threat to the validity of hypnotic susceptibility scales' ability to measure the influence of hypnosis on subjects' suggestibility. Hilgard

(1981) later responded to the criticisms of Weitzenhoffer (1980), with a direct response to Weitzenhoffer's four main arguments on the limitations of hypnotic susceptibility scales. The first question Hilgard responds to is whether hypnotizability scales actually measure hypnotic depth. Hilgard agrees the Stanford Scales are developed to measure hypnotic potential or hypnotic talent and are not adequately developed to measure hypnotic depth. Secondly, Hilgard responded to Weitzenhoffer (1980) about his criticisms over the inclusion of easier items on the scales. Hilgard (1980) agrees that the Stanford scales include easier items which are meant to be passed by a large number of participants, yet none which are easy enough to be passed by everyone. Thirdly, Hilgard (1980) responds to the criticism of the Stanford Scales underplaying non-voluntariness by confusing instructions with suggestions. Hilgard addresses the semantics of the instructions and points to studies which have empirically reflected this involuntariness through use of the Stanford Scales, such as through the Stanford Hypnotic Arm Levitation Induction and Test (SHALIT) (Hilgard, Crawford, & Wert, 1979).

Lastly, and perhaps most important to the criticisms of the scales' validity, was Hilgard's response to the necessity of calculating gain scores. For instance, it had been argued that the difference between a subject's hypnotic responsiveness should be subtracted from their waking score in order to determine the amount of change the induction caused. Hilgard first responds to this claim by making the distinction between being hypnotized and becoming hypnotized. For instance, Hilgard suggests Weitzenhoffer's (1980) argument implies it is more important to know about becoming hypnotized than it is to learn about being hypnotized. Hilgard clarifies this distinction, and describes the greater importance in understanding hypnotizability as a level of

suggestibility that a person could reach, as opposed to a change from their waking state. This is a critical distinction, as Weitzenhoffer and Sjoberg (1961) have pointed out that certain individuals can exhibit behaviors that are similar to hypnosis, but without a formal induction. Yet, others are only capable of achieving these behaviors while in a hypnotic state. Hilgard (1981) points to the difficulties of defining when someone has entered a state of classical hypnosis, and has pointed to research conducted with physiological responses as well as change scores (i.e. Hammer, Evans, and Bartlett, 1963). However, Hilgard has suggested that change scores can be misleading for a number of reasons.

Hilgard argued that change scores are problematic as the correlations between change scores and waking suggestibility are likely to be very small and those between change scores and hypnotic suggestions are likely to be inflated (Hilgard, 1981 as referenced in Kirsch, 1997). In order to illustrate this point, Hilgard (1981) demonstrated an artificial scenario in which correlations of pretest and posttest scores was $r=.00$, where the change score and posttest was $r=.71$. Hilgard (1981) used this as a demonstration of how artificial inflation of posttest scores with change scores can be a significant statistical problem. Hilgard concludes that a scale based upon gain-scores would have questionable validity and create a number of psychometric problems.

In order to further investigate the importance of hypnotic inductions for increasing hypnotic suggestibility, Kirsch et al. (1995) conducted research on moderators of hypnotizability. As the authors had hypothesized, it was found that response expectancy were more strongly associated with hypnotizability than absorption, fantasy proneness, or motivation. Braffman and Kirsch (1999) continued their investigations of response expectancies and described two studies which were conducted in order to

investigate response expectancies' role in hypnotizability. In their first study, they investigated 92 undergraduate students at the University of Connecticut. There were 29 male and 63 female subjects who ranged in age from 17 to 21 ($M = 18.35$). Each participant received two administrations of the Carleton University Responsiveness to Suggestion Scale (CURSS; Spanos, Radtke, Hodgins, Bertrand, & Stam, 1981). Both of the administrations were conducted by audiotape, once without a hypnotic induction and once with a hypnotic induction (Kirsch, Lynn, & Rhue, 1993). In order to prevent influence on subjects' responsiveness, subjects were not informed of the second assessment condition until after the first was complete. Response expectancy was also assessed by asking participants to rate on a Likert scale how much they expected to respond behaviorally and experientially to each item.

Braffman and Kirsch (1999) found that response expectancies were significantly associated with CURRS behavioral scores and experiential scores with response expectancies. Further, they reported that hypnotic inductions produced only modest enhancements in suggestibility. One potential limitation of this study was that subjects who were exposed to the hypnotic condition first may have had carryover effects. Additionally, given that subjects completed a response expectancy questionnaire and knew what suggestions to expect, they may have been primed to the suggestions.

In their second experiment, Braffman and Kirsch (1999) examined absorption, fantasy proneness, response motivation, and response expectancies as predictors of nonhypnotic suggestibility, hypnotic suggestibility, and hypnotizability. As with the first experiment, the authors again used a sample of undergraduate students from the

University of Connecticut (n = 170, 66 male and 104 female) who ranged in age from 17 to 29 (M = 18.7).

An important difference in methodology of the second study was that all subjects received the non-hypnotic condition first. After reviewing changes in suggestibility in each condition of their first study, the authors concluded that the presentation of hypnotic condition prior to the nonhypnotic condition inhibited nonhypnotic responding. However, when the presentation of non-hypnotic condition was given prior to the hypnotic condition, it did not significantly affect hypnotic responding. Therefore, in their second experiment, all participants were given nonhypnotic suggestions first, which was followed by a second administration which included a hypnotic induction. Participants were blind to these conditions until after the nonhypnotic suggestions were complete.

The authors used the same measures as in the first experiment in order to measure suggestibility, motivation, and expectancy. Additionally, in order to assess for absorption, they used the Absorption subscale of the Differential Personality Questionnaire (Tellegen, 1982). The Inventory of Childhood Memories and Imaginings (ICMI, Wilson & Barber, 1983) was used in order to assess for fantasy proneness. Additionally, the authors assessed for Need for Cognition (Epstein et al., 1996) and Faith in Intuition (Epstein et al., 1996).

Braffman and Kirsch (1999) reported a nonhypnotic suggestibility average behavioral score of 1.99 (SD = 1.56) and suggestibility with hypnotic induction of 2.52 (SD = 1.56), resulting in a statistically significant increase in average scores of .53. The average nonhypnotic subjective score of 5.96 (SD = 4.12) and a mean subjective score of 6.85 (SD = 5.10) with a hypnotic induction, which was also a statistically significant

increase. As with the first study, expectancy was significantly correlated with both nonhypnotic and hypnotic suggestibility. Absorption, fantasy proneness, and motivation, were also significantly correlated with both nonhypnotic and hypnotic suggestibility. Yet only motivation and expectancy had a significant correlation with hypnotizability. *Neither need for cognition nor faith in intuition* were significantly associated with suggestibility or hypnotizability.

Braffman and Kirsch's (1999) second experiment showed a statistically significant effect with their hypnotic induction, yet the effect was relatively small. The authors partly credited this to a larger sample size. Further, they suggest that the effect of absorption and fantasy proneness on response to suggestion may be mediated by expectancy. They concluded by stressing the importance of nonhypnotic imaginative suggestibility as a strong predictor of suggestibility which is a widely neglected in research of suggestion.

Adolescents' Non-hypnotic Suggestibility

In a later study; which was perhaps the only study to conduct a between-group comparison of adolescents in a hypnosis condition versus a non-hypnotic condition, Ruch, Morgan and Hilgard (1973) study 80 high school students' responsiveness to the Stanford Hypnotic Susceptibility Scale (SHSS). Similar to Barber (1965), half of the participants were randomly assigned to a hypnotic induction group and the other half were assigned to an imagination instructions group. However, in Ruch, Morgan and Hilgard's study, their imagination condition was told "You will not be hypnotized. The better you can imagine and the harder you try, the more you'll respond." (p.544). Similar

to Barber (1965), this raises the question of whether participants felt an obligation to respond to hypnotic suggestions.

Ruch, Morgan and Hilgard (1973) found subjects in the hypnotic induction condition scored significantly higher than did subjects in the imagination condition on both objective mean scores ($p < .005$) and subjective mean scores ($p < .005$) from the Barber Suggestibility Scale. Likewise, subject in the hypnotic induction condition scored significantly higher on both objective mean scores ($p < .001$) and subjective mean scores ($p < .005$) the SHSS. This study strongly suggests that hypnotic inductions do moderate suggestibility for adolescents.

Poulsen and Matthews (2003) continued the investigation of children's responsiveness in hypnotic conditions compared to nonhypnotic conditions. However, their study was conducted with child psychiatric patients, which included a sample of 44 children from an outpatient psychiatric setting in Utah. Of these psychiatric patients (16 female and 28 male) were between the ages of 8 and 15 years ($\bar{x} = 11.23$; $SD = 2.70$). This sample consisted of 93% Caucasian children, with 2 Hispanic children, and 1 African American child. These researchers utilized the Stanford Hypnotic Clinical Scale for Children (SHCS-C; Morgan & Hilgard, 1979) as a means for measuring hypnotizability.

In order to investigate absorption, the researchers utilized the Children's Fantasy Inventory (CFI): Absorption and Vividness Scales which is a 45-item questionnaire that was developed to measure children's imaginative processes (Rosenfeld, Huesmann, Eron, & Torney-Purta; 1982). They further assessed children for fantasy involvement with the Fantasy Questionnaire (LeBaron et al., 1988), which is a 7-item dichotomous measure that is administered in group format. Additionally, participants were assessed with the

Child Dissociative Checklist (CDC) (Putnam, Helmers, & Trickett, 1993) which is a 20-item parent report inventory which assesses for dissociative behavior and is the most widely used research measure of children's dissociative processes (Hornstein & Putnam, 1992; Putnam et al., 1993). Lastly, children's intelligence was assessed with the Wechsler Intelligence Scale for Children – 3rd Edition: Vocabulary Subset (Wechsler, 1991).

The authors administered the SHCS-C twice. The first administration was without the hypnotic induction and second administration was done with a hypnotic induction. The authors found a correlation of $r=0.83$ between non-hypnotic and hypnotic suggestibility, which was similar to the correlation of $r=0.8$ reported by Kirsch (1997). Based upon their regression analysis, the authors contended that instead of measuring hypnotizability, it may be more accurate to say the SHCS-C is a valid measure of imaginative suggestibility. The authors reported that only a few respondents increased suggestibility following a hypnotic induction and concluded hypnosis did not produce a distinct state of consciousness in their sample. Poulson and Matthews (2003) found that the variability in responses to suggestions in the hypnotic induction condition could be accounted for in terms of the subjects' responses to the same suggestions administered in a non-hypnotic condition.

Poulson and Matthews' investigation was intended to be an extension of Kirsch's (1996) and Braffman and Kirsch's (1999) research with undergraduate participants, in which the studies investigated whether a hypnotic induction moderated hypnotic responding. This is similar to Kirsch (1997) who found a correlation of $r=0.80$ between hypnotic and non-hypnotic suggestibility.

Poulson and Matthews (2003) found the predictor variables of vividness (0.38) and fantasy (0.51) were significantly associated with non-hypnotic suggestibility, yet absorption was found to have a non-significant correlation (.29). Hypnotic suggestibility was found to have significant positive correlation with absorption (0.50) vividness (.50), and fantasy (.52). Interestingly, neither condition had a significant relationship with either dissociation (.20 and .28) or vocabulary (.07 and -.08). This is in contrast to London (1965) who found a correlation of .43 between intelligence and suggestibility.

Critique

Poulsen and Matthews (2003) were able to show a strong correlation ($r=0.83$) between non-hypnotic and hypnotic suggestibility, which was similar to Kirsch (1997) who reported $r=0.8$. One threat to the internal validity of this method of comparing change scores from participants' waking suggestibility to their hypnotic suggestibility is the inherent testing effects. Although Braffman and Kirsch (1999) reported that presenting non-hypnotic suggestions prior to hypnotic suggestions did not affect subjects' responsiveness, it is still likely that repeated testing influenced participants' scores. That is, by repeatedly measuring the same participants under the different conditions, it is likely the participants will remember certain suggestions and how they had previously responded. For instance, following debriefing, if a participant is made aware that a certain suggestion was meant to be a hallucination, it is less likely they would endorse responding to the suggestion in the hypnotic condition. Therefore, a between-group study of non-hypnotic suggestibility compared to hypnotic suggestibility is more likely to detect differences in responding caused by hypnosis.

There were also a number of threats to the external validity of Poulsen and Matthews (2003), including the relatively small sample size of $n=44$. The participants were also rather homogenous with 93% of the participants identifying as Caucasian. This has limitations for the application with diverse groups of children.

Physiological Responses

Andreychuck and Skriver (1975) investigated the relationship between hypnosis and biofeedback in the treatment of migraine headaches and found hypnotizability amplified treatment effects. Likewise, Rothmar and Bowers (1982; Rothmar, 1985) investigated the interaction between hypnotic ability and imagery. The authors suggested that hypnotizability potentiated the impact of neutral imagery on heart rate. That is, subjects who were measured as highly hypnotizable had significantly strong responses in heart rate than those who displayed low levels of hypnotizability. In contrast, the authors found hypnotic-like instructions for imagery did not increase heart rate in proportion to hypnotizability. The authors concluded that hypnotic induction procedures are sufficient, but not entirely necessary to activate hypnosis (Rothmar & Bowers, 1982).

Summary

In summary, there are still unresolved debates over the validity of hypnotic susceptibility scales for measuring hypnotic suggestibility over waking suggestibility. Moreover, researchers have disagreed on the importance of hypnotic inductions for evoking a hypnotic state or hypnotic trance. Another important issue in measures of hypnotic susceptibility is how to isolate the influence of hypnotic inductions. For instance, it should be noted that a number of authors have discussed similarities between relaxation and hypnosis (Bowers & LeBaron, 1986). Although some researchers believe

that a hypnotic induction is necessary to induce a hypnotic state. Others have shown hypnotic responses may occur through less formal inductions, such as through counting techniques or exercise bikes (Kelly & Kelly, 2000). Therefore, highly hypnotizable subjects may enter into a hypnotic state even in *non-hypnotic* conditions.

Hypnosis as an Intervention for Adolescents

A substantial body of research and clinical practice has suggested hypnosis has innumerable applications for clinical patients suffering from a wide variety of psychiatric and medical complications. In a meta-analysis of the efficacy of hypnosis, Flammer and Bongartz (2003) reviewed 444 studies with 57 randomized clinical studies comparing patients who had been treated exclusively with hypnosis to patients which had been randomly assigned to a control group (which included non-hypnotic treatments or conventional treatments). The authors found a medium efficacy of hypnosis treatment ($d = 0.63$) and low efficacy for use of hypnosis with medical treatments ($d = 0.44$). These benefits have also been shown for children and adolescents in medical, clinical, and educational settings. Hypnotic suggestions have often been used as a means to help adolescents challenge their dysfunctional thoughts and develop coping skills (Gold et al., 2007). Therefore, hypnosis has been integrated with other forms of therapy including psychoanalysis and cognitive behavioral treatment. As previously mentioned, adolescents have repeatedly been shown to have strong responses to hypnotic interventions.

Medical Applications of Hypnosis

Wester and Sugarman (2007) demonstrated how hypnosis can be utilized with children and adolescents in medical and psychosocial treatments. For instance, children that learn self-regulation skills through hypnosis suffer from fewer infectious diseases,

experience less headaches, use less medications, and have shorter hospital stays. There are also social applications such as a negative hallucination of a bothersome sibling or mentally withdrawing from an uncomfortable situation. The authors suggest that children who are able to generalize their hypnotic learning are able to show increased self-efficacy and display ego strengthening.

Hypnosis has also been shown to be effective for medical treatments with adolescents. Some empirically supported uses of hypnosis for medical treatment of children include youth irritable bowel syndrome (Gonsalkorale, Miller, Afazl, & Whorwell, 2003) and for the treatment of children with severe and chronic pain (Hilgard, 1973; Zeltzer, et al., 2002). Further, hypnosis has been shown to be an effective treatment for pain relief for children suffering from burns (Wakeman & Kaplan, 1979), sickle cell disease (Zeltzer, Dash, & Holland, 1979), and hemophilia (Varni et al., 1980, Varni 1981).

Amongst juvenile patients in both medical and psychiatric settings, insomnia is consistently detrimental to children's health. Anbar and Slothower (2006) examined the use of hypnosis for the treatment of children and adolescents who suffer from insomnia. In their study, the authors utilized chart reviews to identify a sample of 75 juvenile patients who struggled from insomnia. Their symptoms included both nighttime awakenings and symptoms of sleep-onset delay in excess of 30 minutes. Subjects completed instruction in self-hypnosis. Following self-hypnosis procedures, the vast majority (90%) of the participants reported a reduction in their sleep onset time. Additionally, of the patients who suffered from nighttime awakenings, 38% of children

benefited from reductions in their awakenings and 52% of children completely resolved their symptoms.

Kohen and Olness (2011) further describe a number of case illustrations of children benefiting from therapeutic hypnosis in the treatment of such medical conditions of allergies, asthma, chronic pain, cystic fibrosis, hyperhidrosis, diabetes, dysphagia, erythromelalgia, epistaxis, gastrointestinal disorders, hemophilia, somatic complaints, juvenile rheumatoid arthritis, seizures, and vomiting (LeBaron, Zelzer, & Fanurick, 1984).

Psychiatric Applications of Hypnosis

Wester (2007) suggests that hypnosis has particularly useful applications for the treatment of childhood anxiety. These treatments have been dated back to Mason's 1897 study of hypnosis for children who are too frightened to cooperate with medical treatment. Wester has studied hypnosis for the treatment of pediatric anxiety for over 20 years and has found it effective for Obsessive-Compulsive Disorder, social phobias, medical anxiety, General Anxiety Disorder, and PTSD.

Wester and Sugarman (2007) discuss how hypnosis can assist children in reframing their anxiety provoking cognitions. More specifically, the authors describe how hypnosis can be successfully integrated into acute care setting by assisting in ego-strengthening, joining the patient's trance, and generalizing the child's hypnotic skills to multiple areas of their life. Fromm and Gardner (1979) Suggest that the emphasis of on mastery and ego strength underlies hypnotherapy for enhancing children's motivation to solve their problems. These tools can be used to enhance their self-efficacy and ability to take control of their own problems as opposed to externalizing blame.

Schowalter (1994) conducted hypnotherapeutic treatment of phobias, which was based upon desensitization methods similar to behavioral medication. Schowalter used hypnotic relaxation techniques and imagery to help children experience safety and mastery. This imagery included viewing the stimulus of their fear, but maintaining mastery over their anxiety. Similarly, Ambrose (1968) utilized a technique of imagery in which children were asked to make a fist and imagine they are holding all of their fears. They are then to release their fears and anxiety, resulting in mastery and confidence.

Rhue and Lynn (1991) have described uses of hypnosis for treating survivors of childhood sexual abuse, such that emphasize imagery of a mental safe place and personal power. Williams and Valasquez (1996) made the case for utilizing hypnotic intervention for children with dissociative disorder. For instance, the authors describe hypnosis as a “structured dissociative experience (Williams & Valasquez, 1996, p. 497). Being that children tend to have higher dissociative capacity than adults, this capacity could be utilized with patients who suffer from dissociative disorders to help in identifying their vulnerabilities and restructure them during safe and supportive psychotherapy processes. Although the Williams and Valasquez (1996) warn against improper use of hypnosis with children who suffer from dissociative disorders, they also make a case for the relaxation and cognitive benefits of hypnotic therapy with children. In particular, they support hypnotic interventions’ ability to help children acquire skills for ego-strengthening and mastery of psychiatric symptoms.

Crasilneck and Hall (1985) have reported treatment of anorexia nervosa with hypnosis through suggestions for increased food intake. Likewise, Gross (1984) reported

successful use of hypnosis for treating patients with anorexia nervosa. The treatment effect of hypnosis for anorexia nervosa was further reported by Torem (1987).

Sapp (2000) suggests that trained therapists can utilize hypnosis as a therapeutic intervention for patients suffering from borderline personality disorder. According to the DSM-IV-TR (2000), Borderline Personality Disorder (BPD) is marked by a pervasive pattern of intense and unstable interpersonal relationships, self-image, affect, and impulsivity. These include frantic attempts to avoid feelings of abandonment, recurring suicidal behavior, self-mutilation, mood swings, and intense anger. BPD commonly results in frequent psychiatric hospitalizations. Sapp (2004) describes how hypnosis can be used to assist patients through ego-strengthening as well as anxiety and stress reduction. Being that many object-relationships theorist believe BPD is caused by a client having difficulties during differentiation and separation processes, hypnosis can help clients to develop object constancy. Hypnosis can further assist in developing boundaries and building self-regulation (Sapp, 2000). Additionally, Yapko (2001, 2006) has shown that therapeutic hypnosis can integrate with CBT for the treatment of depressive disorders, which are frequently comorbid with BPD

Educational Applications of Hypnosis

A key benefit of hypnosis is its ability to help clients manage their anxiety, and this benefit has been extended to research of hypnosis for treating test related anxiety. For instance, Hart (1996) conducted a study of 28 students between the ages of 13-17 years of age. In the study, students attended both test anxiety workshops and received 30-minutes sessions of hypnosis. At 4-month follow-up, students reported hypnosis helped them to manage their anxiety both before and after testing. Similarly, Nath and Warren (1995)

utilized hypnosis as a stress management intervention for high school students in England, and found it to be useful for treating anxiety and stress. Similarly, Benson (1989) discusses several case studies of British students who had benefited from hypnotic interventions in order to illustrate how hypnosis can be utilized by school psychologists to improve educational outcomes.

Likewise, Stanton (1988) studied the effectiveness of self-hypnosis for reducing Australian high school students' test anxiety. Stanton (1988) randomly assigned 40 participants to either an experimental condition which involved a 5-step self-hypnosis group or to a control group. At a six-month follow-up assessment, students in the experimental group were shown to have significant reductions in test anxiety.

Obiakor and Utley (2002) pointed out that African American and Latino adolescents are often academically at-risk and have issues with academic self-concepts, test anxiety, and learning. Sapp (1999, 2004a, 2004b, 2005, 2010) suggest cognitive-behavioral hypnosis has applications for these students, since they could benefit from study skills training with the addition of hypnotherapy. Moreover, the benefits of relaxation associated with hypnosis are likely to reduce test anxiety and stress with these students and could be easily adapted within a classroom setting (Sapp, 2004c).

Illovsky and Fredman (1976) conducted a study of 48 children ages 4-8 years who exhibited short attention spans, externalized behavior and distractibility. The authors implemented hypnotherapy with remedial academic instructions. The children received recorded hypnotic suggestions with suggestions for general relaxation. Although there was not a control group, the authors reported increased ratings of the students' self-confidence and ability to relax.

Additionally, hypnosis may have benefits for children with learning disabilities and special needs. Young et al. (1991) describe how self-hypnosis can be utilized to help students with learning disabilities to decrease their anxiety and improve their writing output. Gardner and Tarnow (1980) also describe a case study in which hypnotherapy was used with a 16 year old child with mild autism spectrum disorder. The authors were able to use a combination of music from Bach in combination with hypnosis to extinguish the boy's finger biting, which lasted over an 18-month follow-up. Additionally, they reported he was able to improve his ability to verbalize his frustrations.

Multicultural Considerations for Adolescents Hypnosis

Sapp (2004b) provided research on the hypnotizability of African American college students. Through use of the HGSHS:A and the SHSS:C, Sapp (2004b) investigated students' hypnotic suggestibility. This study provided insight into the subjective experiences of African American students through their experiences of hypnosis, as the Inner Subjective Experiences Method was used for scoring the HGSHS:A. As opposed to measuring overt behavioral responses to hypnotic suggestion, the inner subjective experiences method is essentially a measure of whether hypnotic responding occurred as a result of the participants' own will or through responsiveness which occurred as a direct result of the hypnotic induction. It was found that this method produced more reliable results than did the standard behavioral scoring method from the HGSHS:A manual. This was found to be true for both African American and non-African American college students. In contrast to the HGSHS:A, the SHSS:C standard scoring method and the inner subjective scoring method both produced reliable results.

Sapp's (2004b) further compared African American college students' scores on the Waterloo-Stanford Group Scale of Hypnotic Susceptibility: Form C (Bowers et al., 1982) with and non-African American college students on the WSGC. Point estimates for coefficient alphas for African American students on the SHSS:C standard scores and inner subjective experiences scores did not differ from Caucasian students.

Further, Sapp and Hitchcock (2001) assessed 217 undergraduate African American college students with the HGSHS:A, the General Dissociation Scale, and the Dissociative Experiences Scale (Waller, Putnam, & Carlson, 1996). Of the students, 124 were female and 78 male, with a mean age of 19.88. Sapp and Hitchcock (2001) did not find a significant difference between HGSHS:A scores for male versus females. Yet they were able to show correlations of .391 between the HGSHS:A and the Inner Subjective Experiences Scale, .252 between the DES and the Inner Subjective Experiences Scale, and a .51 correlation with the GDS and the DES.

In addition to Sapp (2004b) study of African American undergraduate students, Sapp (1999) suggests that hypnosis can have applications for academically at-risk African American high school students. For example, Sapp (1999) describes how academically at-risk high school students often struggle with academic self-concept, test anxiety, and issues with learning. Further, these students typically live in socially and economically disadvantaged homes which may impede their academic potential.

Sapp (1999) found cognitive-behavioral hypnosis was useful for helping at-risk African American high school students in reducing test anxiety and aiding study skills training. Additionally, Sapp suggests the relationship benefits of hypnosis can be capitalized upon to reduce anxiety. Sapp (2004c) describes how the ABCs of REBT can

be implemented via hypnosis to help at-risk students to challenge their irrational beliefs about their perceived failures in academics. Sapp (2004c) suggest African American high school students often hold irrational beliefs which amplify their test anxiety, and hypnotic suggestions can help to counter their fear of failure.

Absorption and Hypnotizability

As previously discussed, there have been varying definitions of hypnosis, hypnotic suggestibility, and what it means to be hypnotized. Although it is generally agreed upon the hypnotizability lies upon a continuum, there are different theories about what creates individual differences in a person's responsiveness to hypnotic inductions and suggestions. One variable which has been shown to be meaningfully correlated with a person's level of responsiveness to hypnosis is absorption.

Sarbin and Coe (1972) hypothesized individual differences in hypnotic responsiveness can be accounted for by the extent to which they become absorbed in hypnosis. Further, Barber, Spanos and Chaves (1974) suggested that differences in responsiveness to hypnotic suggestions could be explained in terms of absorption and imaginative involvement. Likewise, Wilson and Barber (1981; 1983) studied the influence of fantasy proneness for understanding subject's responsiveness to imagery and hypnosis.

Measuring Absorption

Much of the original work on the construct of absorption is credited to Tellegen and Atkinson (1974). In their study, 481 female subjects responded to questionnaires which contained various items which are believed to be correlated with hypnotic susceptibility. Their study consisted of personality measures, which included dimensions

of absorption, stability versus neuroticism, and introversion versus extraversion. Of these three dimensions, the only one which was consistently associated with hypnotizability was absorption. The authors reported correlation of .43 between the TAS and hypnotizability as measured by the HGSHS:A (Tellegen & Atkinson, 1974). Thus, this study became significant in the investigation of the role absorption and self-altering experiences have in hypnotic responsiveness.

There have been a number of assessments of the construct of absorption, such as interviews and standardized scales. In order to assess for openness to experience, Coan (1972) developed the *Experience Inventory*. Likewise, McCrea and Costa (1983) explored this construct with *The NEO Inventory* and *NEO Rating Form*, which were created to assess for openness to experience along neuroticism and extroversion. Yet the Tellegen Absorption Scale (TAS) (Tellegen 1981, 1982) is perhaps the most frequently utilized measure of absorption and has been frequently utilized in hypnotizability research. Studies have found that responsiveness to the engaging or inductive stimuli subscales of the TAS were more highly correlated with hypnotizability than were imagistic thought, episodes of expanded awareness, or absorption in thoughts and imaginings. Although norming data has not yet been published for the TAS, it has been commonly used in both research and amongst clinicians as a measure of variability in hypnotic susceptibility. The TAS has also shown strong correlations with measures of openness to experience (Radtke & Stam, 1991). The TAS (1981,1982) does not contain any subscales, but does provide useful information about subjects through its nine content clusters which have been defined as responsive to engaging stimuli, responsive to inductive stimuli, often thinks in images, can summon vivid and suggestive images, has

"cross-modal" experiences, can become absorbed in own thoughts and imaginings, can vividly re-experience the past, has episodes of expanded awareness, and experiences altered states of consciousness (Roche & McConkey, 1990).

The TAS has been used specifically for investigating adolescents' level of absorption. In a recent study, Strucker (2012) utilized the TAS with a population of eating disorder patients. Strucker (2012) aimed to provide descriptive data for the TAS for a sample with eating disorders. Being that there is a substantial evidence of the relationship between eating disorders and hypnotizability, this study utilized TAS scores to strengthen our understanding of this correlation. Strucker (2012) gathered this data from 159 patients' archival records. These patients had attended an outpatient eating disorder program in Texas which provided intensive services for female patients. Each patient who received these services was asked to complete the TAS upon their admission to the clinic.

Strucker (2012) analyzed the data through use of one-way analysis of variance. The resulting p -value of .021, suggested eating disorders diagnoses were related to specific TAS scores. Interestingly, more severe eating disorders such as bulimia and anorexia (purging types) achieved higher scores on the TAS than non-purging eating disorders. Less severe forms of eating disorders, such as restricting type anorexia and obesity or binge eating achieved moderate TAS scores. These results were highly similar to the data for hypnotic susceptibility for other samples which researched patients with eating disorders.

According to Roche and McConkey (1990), Tellegen has continued to enhance his definition of the construct of absorption. Tellegen and Atkinson (1974) refer to

absorption as “a disposition for having episodes of "total" attention that fully engage one's representational (i.e., perceptual, enactive, imaginative, and ideational) resource (p. 268).” Tellegen added to this construct by describing absorption as a disposition for episodes of attentional involvement. Further, these episodes are inherently interactive and that high-absorption individuals are prone to experiential experiences which include vivid imagery and affect. Tellegen (1981) contrasts these individuals to low-absorption individuals who tend to be reality oriented, instrumental, and pragmatic. In 1986, Tellegen further added that absorption included a disposition or capacity for entering experiential states, which include cognitive restricting and are dissociative or holistic depending upon the individual’s characteristics (Roch & McConkey, 1990).

Children’s Level of Absorption

Researchers have investigated absorption and imaginative involvement as a central feature of hypnosis with children. In particular, researchers have investigated the fantasy prone individual’s responsiveness to hypnosis along with developmental antecedents (Lynn & Rhue, 1988). As would be expected, those children who have a tendency to be open to creative experiences and deeply imaginative tend to have higher responses to the experience of hypnosis. Gardner (1974) described the emotional and cognitive development aspects which are believed to be relevant to the relationship between imaginative involvement and hypnotizability, such as the capacity for intense concentration and full absorption in immediate present. In addition to full absorption, readiness to shift between reality and fantasy, intense feelings states, as well as openness to new ideas and experience are thought to be important to this relationship.

London (1966) began to investigate correlations between children's imaginative characteristics and their level of hypnotizability based upon CHSS scores. London used interviews with parents about their child's imaginative play and included a large number of variables in the study of this relationship. Although London (1966) found little evidence of this relationship, Bowers and London (1986) later suggested that children are more likely to benefit from hypnosis largely because their imaginative powers are highly intact and have not been negatively influenced by the realities of life. A benefit of this imaginative power is that children who are highly imaginative tend to be highly suggestible (Hilgard, 1970). Hilgard (1974, 1979) described certain characteristics of children who tended to have higher levels of hypnotizability, such as having a propensity towards drama as opposed to sports. As with adults, children have displayed correlations between their level of fantasy proneness, absorption, and hypnotizability (LeBaron, Zeltzer & Fanurik, 1988).

In order to better understand the relationship between children's fantasy proneness and their level of hypnotizability, LeBaron et al. (1988) assessed two pilot studies to investigate the moderating influence of imaginative involvement on hypnotizability. The first pilot study consisted of 30 medical patients who had been diagnosed with some form of childhood cancer (mostly leukemia). These children ranged in age from 6-18 years old with a mean age of 11.8 and 18 of the participants were female. The children were assessed through utilization of the Stanford Hypnotic Clinical Scale for Children and a separate structured interview scale which assessed for fantasy proneness (LeBaron & Zeltzer, 1984; Zeltzer & LeBaron, 1982; Zeltzer, LeBaron, &

Zeltzer, 1984). In this study, LeBaron et al. found a significant correlation of .42 ($p < .03$) between fantasy proneness and hypnotic susceptibility.

LeBaron et al. (1988) also conducted a second series of the study which involved 54 children from a private elementary school in Texas who were 6-12 years old with a mean age of 9.1. These children also completed the same measures. Again, there was a correlation between hypnotizability and fantasy-proneness. The authors found a modest correlation between the measures. This study found a similar correlation between children's fantasy proneness and hypnotic susceptibility with a correlation coefficient of $r = .39$ ($p < .02$). In both studies, the authors found that children who scored highest on measures of hypnotizability also reported a high number of imaginative and fantasy experiences. It was also found that children who had little fantasy involvement scored lower on measures of hypnotic susceptibility.

Plotnick et al. (1991) conducted an investigation of the relation between children's absorption, imaginary involvement and their hypnotizability. The authors used a sample of 42 children between the age of 7 and 13 years of age to further investigate the relationship between hypnotizability. The authors administered the Stanford Hypnotic Clinical Scale for Children-Revised (Zeltzer & LeBaron, 1984) individually to each of the participants. Participants were also asked to complete the Fantasy Questionnaire (FQ) which was developed by LeBaron, Zelzer, and Fanurick (1988). The FQ consists of seven questions which are based upon The imaginative Play Predisposition Interview used by Singer (1973). In order to assess for absorption in imaginative involvement and vividness of imagery, the participants were also asked to complete The Children's Fantasy

Inventory: Absorption and Vividness Scale (CFI: A and V). The CFI was developed by Rosenfeld et al. (1982) and contains 45 items which assess for imaginal processes.

In regards to Plotnick et al.'s finding on absorption in imaginary involvement in children (CFI:A), the authors found a significant positive relationship between subject's SHCS:C-R observed score ($r = .42$) as well as participants' total score ($r = .44$). Plotnick et al. (1991) compare their findings with Allen (1985), who found a lesser correlation of .34 between the CFI:A and the Children's Hypnotic Responsiveness Scale.

Further, vividness-of-imagery (CFI: V) was shown to correlated with the SHCS:C-R observed score ($r = .46$) and SHCS: C-R total score ($r = .53$). Plotnick et al. (1991) drew a comparison to Palmer and Field (1968) who found a .40 correlation between imagery and the SHSS:A, and Crawford (1982) who found a .39 correlation between vividness of imagery and SHSS: A and C. Likewise, Allen (1985) found a similar correlation of .38 between CFI:I and the Children's Hypnotic Responsiveness Scale.

Lastly, the authors investigated the relationship between involvement in fantasy play correlated and hypnotizability. Plotnick et al. (1991) reported a positive correlation with both SHCS:C-S observed score ($r=.50$) and total score ($r =.49$). This correlation was found to be comparable to previous studies of the relationship, including Lebaron et al. (1988) who found a correlation of .42 between the Fantasy Involvement Questionnaire and the SHCS:C in a medical sample of 30 children.

It should be noted Braffman and Kirsch (1999) found response expectancies to be the greatest predictor of behavioral responses to hypnosis when nonhypnotic suggestibility was controlled for. Further, the authors concluded neither fantasy

proneness nor absorption were significantly related to increases in hypnotic responsiveness.

Dissociation

Dissociation simply means that two or more mental processes are not integrated. Dissociation may be indicative of psychological pathology, such as during dissociative fugue. Dissociation may also occur in mentally healthy individuals, such as when a person is daydreaming. Therefore, as with absorption, dissociation lies on a continuum from healthy dissociation to pathological dissociation.

Dissociation and hypnotizability

Dissociation plays an important role in hypnosis, as it has been shown to both increase hypnotic depth and assisting in exploring non-conscious phenomena (Sapp & Hitchcock, 2003b). Dissociative processes have been linked conceptually to processes of hypnosis, such as described in *neodissociation theory of hypnosis* (Hilgard, 1991) as well as *dissociated control theory of hypnosis* (Woody & Bowers, 1994). For instance, according to Bowers (1990, 1992a) hypnotic behavior can be seen as spontaneous deviations away from planned behaviors, which parallel frontal lobe disorders that alter control of behaviors. Dissociation has also been empirically researched in its relationship with hypnotic responsiveness.

Measures of Dissociation

A person's ability to dissociate can be measured with several standardized scales which have been developed to measure the construct of dissociation. One of the most commonly used scales is the Dissociate Experiences Scale (DES), which consists of 28 items which have response categories on a scale from 0 to 100 percent (Bernstein and

Putnam, 1986). This scale has displayed strong test-retest reliability of .84 and correlated with hypnotizability up to .62.

Likewise, Sapp (2000) developed the General Dissociation Scale (GDS) that allows dissociation to be measured based on the Diagnostic Statistical Manual of Mental Disorders (4th edition) (DSM-IV): dissociative identity, depersonalization, dissociative amnesia, and dissociative fugue. The GDS correlates with the DES, $r=.34$ and has a Cronbach's alpha of .85.

The GDS has also been utilized in hypnotizability research (Sapp and Hitchcock, 2003a). For instance, Lynn, Martin, and Frauman (1996) found moderate to high correlations between measures of dissociation and measures of imagination. The GDS has also been specifically utilized in researching children who have experienced trauma (Kohl, 2010).

Pathological Dissociation

Amongst the more common forms of pathological dissociation are Dissociative Amnesia (*formerly* Psychogenic Amnesia), Dissociative fugue (*formerly* Psychogenic Fugue), Dissociative identity disorder (*formerly* multiple-personality disorder), Depersonalization Disorder, and Dissociative Disorder NOS.

Dissociative Amnesia has been shown to occur when a person is unable to remember important personal information and the occurrence is too extensive to be attributed to regular forgetfulness (DSM-IV-TR, 2000). This may occur due to a traumatic experience and can result in memory impairment, such as causing a person to forget their name, telephone number or address. This type of amnesia occurs even without the presence of alcohol or substances. This typically is assessed for when

individuals have a series of gaps in their ability recall important events in their life history. Dissociative amnesia is associated with self-mutilation, violent outburst, and suicide attempts (DSM-IV-TR). All of these symptoms commonly lead to inpatient psychiatric hospitalization.

Dissociative fugue occurs when a person suddenly, and unexpectedly, travels away from their home and are unable to recollect their past. Dissociative fugue is also accompanied with confusion about personal identity and a person may assume a new identity (Sapp, 2000). As with dissociative amnesia, dissociative fugue is known to occur without the physiological effects of substances or medications.

Dissociative identity disorder (formerly multiple-personality disorder) is characterized by the presence of two or more distinct identities which recurrently take control of a person's behaviors (DSM-IV-TR, 2000). This may cause a person to experience multiple identities which have different ways of perceiving, relating, and thinking about the environment (Sapp, 2000).

Depersonalization Disorder is characterized "persistent or recurrent episodes of depersonalization characterized by a feeling of detachment or estrangement from one's self" (DSM-IV-TR, 2000, p. 530). During these periods of time, a person may feel as if he or she is living in a dream world. They may also feel robotic or as if they are outside of themselves. Depersonalization disorder includes features feeling like an observer of one's mental processes or body. However, the person is quite aware that they are not actually disconnected from their body (DSM-IV-TR, 2000)

Dissociative Disorder NOS is a category of dissociative disorders which includes dissociative symptoms which do not meet the criteria for a more specific diagnosis. For

instance, a person may partially match the criteria for Dissociative Identity Disorder, but be absent of amnesia features (DSM-IV-TR, 2000).

Culturally bound dissociative syndromes are also referenced in the DSM-IV-TR (2000). The DSM-IV-TR (2000) provides specific examples of culturally defined and "running" syndromes. Examples of such culturally defined symptoms that may be similar to the diagnostic features of *dissociative fugue* include *pibloktoq* among native peoples of the Arctic, *grisi sikllis* among the Miskito of Honduras and Nicaragua, and Navajo "frenzy" witchcraft (DSM-IV-TR, 2000, p. 524). These are conditions characterized by a "sudden onset of a high level of activity, a trancelike state, potentially dangerous behavior in the form of fleeing, and ensuing exhaustion, sleep, and amnesia for the episode" (DSM-IV-TR, 2000, p. 524). It is important to note that voluntarily induced experiences of dissociation may be associated with cultural traditions and are not to be attributed with pathology. Therefore, dissociation may be seen as part of religious practices, trance, and cultural practices.

Trauma and Dissociation

Kohl (2010) explored the relationships among trauma, dissociation, and posttraumatic stress in a clinic-referred sample of adolescents living in urban poverty. Trauma was investigated broadly, including a range of traumatic experiences, with particular attention given to different types, chronicity, multiple exposures, and severity of trauma. Dissociation was investigated as a mediator of the relationships among trauma and posttraumatic stress symptoms, internalizing and externalizing behaviors. Dissociation was measured using the GDS. The results of this study confirmed that

dissociation significantly mediated the relations among trauma (violence, exposure, and severity), posttraumatic stress, and internalizing symptoms.

Moreover, it has been shown there is a “frequent comorbidity of posttraumatic and dissociative symptomatology (Van der Kolk, McFarlane, & Weisaeth, 1996), high hypnotizability among patients with posttraumatic symptomatology (e.g., Spiegel, Hunt, & Dondershine, 1988), and high correlations between dissociation and PTSD subscales (Gold & Cardeña, 1998)” (Cardeña & Weiner, 2004, page 496). While there is a strong link between posttraumatic stress symptoms and dissociation, evidence for the relationship between hypnotizability, trauma, and dissociation, is uncertain. Some authors have argued that empirical studies show hypnosis and dissociation are mostly unrelated, while others have noted a correlation in clinical cases (Putnam, 1997).

Critique

A limitation of research on hypnotizability and dissociation is that most studies of the relationship between trauma, dissociation, and hypnotizability have been conducted with samples that consist primarily of war veterans, emergency service workers, and other adult samples. There is far less research conducted on children and adolescents. Due to necessity, generalizing of results from adult literature is often conducted when discussing trauma and dissociation in children. However, this is problematic and may lead to misunderstandings of children’s symptoms due to vast differences in their developmental levels and manifestations of dissociation.

Summary

In summary, there are still many looming questions regarding the importance of hypnotic inductions for producing increases in suggestibility and whether there is a

'hypnotic state' which people enter. For instance, several authors ascribe to *state theories* or *dissociative theories of hypnosis* in which subjects are believed to enter into a hypnotic trance, thus increasing their suggestibility (Hilgard, 1991; Bowers, 1992a). While others believe response expectancies largely moderate this suggestibility and that non-hypnotic suggestibility accounts for most of the variation in responding (Spanos, 1986; Kirsch, 1985, 1994).

Additionally, there is a fair amount of debate regarding the validity of hypnotic susceptibility scales. As they have been developed, hypnotic susceptibility scales are intended to measure hypnotic potential or hypnotic talent (Hilgard, 1980). Yet there are differing views of what they are actually measuring along with how they should be scored and which types of items should be included (Weitzenhoffer, 1980). Further, there is a fair amount of debate about the selection of scales for certain types of participants and how these scales should be administered. However, to date, there has been no other method of measuring a person's responsiveness to hypnosis or their potential to benefit from hypnotherapy.

Hypnosis researchers have generally agreed that hypnotizability is important to clinical outcomes (Lioffi, White, & Hatira, 2006; Flammer & Bongartz, 2002). There have been a number of variables which have been associated with higher levels of hypnotizability, such as a person's imaginative involvement and ability to dissociate. Persons who score high on measures of hypnotizability tend to have certain characteristics such as open to experiences, those who have a tendency to be absorbed in activities, and those who easily dissociate. Children are shown to have high rates of absorption and significantly higher rates of suggestibility than adults (London, 1965;

London & Cooper, 1969). This creates many applications of hypnotherapy for children, as they tend to be imaginative and open to experiences (Kohen & Olness, 2011).

Hypotheses

This study aims to understand how hypnotherapy can be utilized to improve clinical outcomes in inpatient psychiatric settings which serve adolescents. In order to do so, this study utilizing a standardized hypnotic susceptibility measure under a hypnosis and non-hypnosis condition. The study also aims to develop the field's knowledge of predictors of adolescent hypnotizability.

In order to develop the understanding of inpatient adolescent hypnotizability, the study has five hypotheses which were tested. It was hypothesized that: 1) Adolescents' level of hypnotic responding will be significantly increase by a hypnotic induction. Therefore, the hypnosis groups' responsiveness to suggestions are greater than the comparison group which receives the same suggestions without a hypnotic induction. 2.) Dissociation and absorption explain a significant proportion of variations in adolescents' level of hypnotic susceptibility. Therefore, subjects with higher levels of dissociation will have greater levels of hypnotic responsiveness. Likewise, subjects with greater levels of imaginative absorption will also be more hypnotizable. 3.) There are significant between variations in hypnotizability and suggestibility based upon gender. 4.) Adolescents who have diagnoses with dissociative features will be more susceptible to hypnosis. 5.) There is a curvilinear relationship between adolescents' age and their level of hypnotizability.

Rationale for Hypotheses

It has been shown that adolescents tend to be more susceptible to hypnosis than adults, but it is unclear if this is true for patients in acute psychiatric care. It is probable

that these same trends will hold true in an inpatient psychiatric hospital setting. The group format of the WSGC will be particularly useful for determining if hypnotherapy can be useful for group treatment modalities, which are most often used in inpatient psychiatric hospital settings. Likewise, it will be beneficial to understand whether hypnotic suggestibility, under the hypnotic induction condition, is significantly greater than non-hypnotic suggestibility.

Moreover, being that inpatient psychiatric hospitals often serve adolescents who have suffered some form of physical or emotional trauma, it is expected adolescents in this setting will present with a high level of dissociative features, which have also been consistently shown to produce higher levels of hypnotic responding (Bliss, 1980; Frischolz et al., 1992). This is also likely to be true for absorption, as teenage patients are likely to become more imaginatively involved in activities such as hypnosis.

Lastly, it has repeatedly been demonstrated that hypnotizability peaks in early adolescence. It is likely the sample from this study will exhibit a similar negative relationship between age and hypnotizability (London, 1965; London & Cooper; 1969; Morgan & Hilgard, 1978, 1979).

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

Research Questions

The primary objective of this study was to determine the hypnotic susceptibility of a diverse group of adolescents in an inpatient psychiatric hospital setting. Therefore, the main research questions were: Is a hypnotic induction necessary to produce hypnotic responding? This information on hypnotizability was collected in order to provide insight into whether responding occurred primarily out of expectancies or as a result of the hypnotic induction. Further, this provided descriptive information of whether adolescents in inpatient psychiatric level of care responded to hypnotic suggestions at the same level as participants from the norming group. This question was further investigated through the use of subjective scoring methods as well as through the use of a comparison group who received identical suggestions but without a hypnotic induction.

Secondly, the variables of dissociation and absorption were also investigated. The second research question was: Are variations in adolescents' hypnotic responsiveness significantly explained by their level of dissociation and absorption? This question was investigated to provide insight into the processes of hypnosis as well as ways in which therapists can capitalize on adolescents' creativity and their openness to experiences.

Next, the study gathered demographic information in order to determine if hypnosis is likely to benefit the diverse urban populations that inpatient hospitals serve. Investigations of the impact of diagnoses with dissociative features as well as the impact of psychopharmacuetical medications on adolescents' level of hypnotizability were also investigated in regards to hypnotizability.

Additionally, to investigate developmental components of hypnotizability, participants' age was collected to determine if the trends which have been identified in previous studies (London & Cooper, 1969) hold true for adolescents' in acute psychiatric hospital settings. Therefore, this study will answer the question of: Is the curvilinear relationship between age and hypnotizability true for inpatient adolescents?

Sample

Participants were recruited between March 2013 and July 2014 (16 months). These participants were recruited from an inpatient unit of an acute care psychiatric hospital in a major Midwestern city. The primary inclusion criteria were the participants needed to be between the ages of 13 years to 17 years of age and were currently admitted to the Child and Adolescent Inpatient Unit and/or the Inpatient Eating Disorder Services. It should be noted there were a very few patients who met the inclusion criteria in the Inpatient Eating Disorder Services Unit and several mental health providers on the Eating Disorder Services Unit thought it was best not to recruit from the unit; therefore, no participants were contacted from Inpatient Eating Disorder Services. However, there were patients from the Child and Adolescent Inpatient Unit who did identify as having a comorbid eating disorder.

This study included adolescents who self-identified as male, female, and transgender. Further, the hospital's IRB required participants to give assent, have informed consent from both parents/legal guardians, have approval from their primary care physician, and hospital staff were consulted with regarding subjects' mental health conditions.

Although one of the original aims of the study was to understand the relationship between specific categories of dissociative pathology and their relationship to hypnotizability, participants were excluded if they were at an high level of psychosis as judged by their primary care physician or if their primary care physician felt that it would not be appropriate to include them in the study. Moreover, considering the moderately high rate of recidivism in the psychiatric hospital, participants were only allowed to participate in the study one time, even if they were hospitalized at a separate point in time for different reasons.

All participants were recruited to volunteer for the research through the use of flyers which were distributed by hospital staff, discussions during family visitation hours, and through meetings with potential participants during unstructured hours. A total of six hospital staff completed online institutional training courses in order to be listed as key personnel for the purposes of obtaining informed consent and assisting with project administrative responsibilities. Participants were not offered an honorarium for their participation as it was deemed unsuitable by the hospital's institutional review board.

General Design and Experimental Procedures

All participants were recruited from one inpatient psychiatric hospital unit which serves child and adolescent patients. In order to ensure confidentiality, potential participants were asked individually if they would be interested in the study. If participants were interested in being involved, Michael Quant contacted their parents and physicians to ask if they thought it would be appropriate for the adolescent to be involved in the study. Adolescents who were currently admitted to the inpatient unit and who met the inclusion criteria were asked for permission from their treating physician. If

permission was obtained from their physician, both parents or legal guardians were contacted to obtain informed consent in-person (unless one parent is deceased, unknown, incompetent, or not reasonably available, or when only one parent has legal responsibility for the care and custody of the child). Following informed consent, participants were asked for their assent to participate in one group format session of either the experimental group (hypnotic induction – Appendix D) or the comparison group (guided relaxation– Appendix E). Consent and assent were typically obtained during family visitation hours or during family therapy sessions. Consent and assent were rarely obtained during participants' first day of admission to the hospital, and participants were never asked to be involved in hypnosis groups on their first day of admission in order to ensure participation did not interfere with their treatment. All consents were either obtained by Michael Quant or one of the hospital staff members who had completed the hospital's research ethics training and had officially been added to the research protocol. If possible, participants were given 24 hours after consent was obtained to decide if they still wanted to participate.

Participants were made known that they would be randomly assigned to one of two groups with directions that "If you decide to be part of this study, you will be asked to participate in a group hypnosis session or a guided relaxation session with hypnotic suggestions." Subjects were intended to be blind to their condition, so they were informed that they would not know which group they would participate in until after the assessment had been completed. All of these sessions occurred in a family therapy office or art therapy room. Rooms were chosen based upon the amount of participants and availability of rooms. A sign was hung outside of the room which indicated "Relaxation

Therapy in Progress” in order to prevent staff from entering the room. However, a one-sided viewing window was in the door, so that hospital staff could continue with their rounds. Hospital staff was made aware of where the assessments were taking place, yet other patients were not informed of the study in order to preserve participants’ confidentiality.

Both the hypnosis and comparison groups began with the participants filling out a demographics form (Appendix A), the Tellegen Absorption Scale (Appendix B), and the General Dissociation Scale (Appendix C). Following the completion of these scales, subjects were randomly assigned (via virtual coin toss) to either one assessment with the Waterloo-Stanford Group Scale of Hypnotic Susceptibility: Form C with the full hypnotic induction or the Waterloo-Stanford Group Scale of Hypnotic Susceptibility: Form C without the hypnotic induction. Subjects were allowed to ask questions and reminded several times that their participation was voluntary. Subjects were also reminded they were allowed to leave the room at any time, but were asked to be as quiet as possible when exiting. The comparison group simply consisted of providing participants with preliminary instructions then asking participants to close their eyes, followed by the relaxation component of the WSGC and counting backwards from 20. This was followed by identical suggestions from the WSGC manual.

Throughout the entirety of the study, Michael Quant conducted all assessments. These assessments either occurred during patients’ regularly scheduled “room time” from approximately 2:30pm-4:30pm or following visitation hours in the evening from approximately 8:00pm-9:30pm. The times for these assessments were chosen so as not to interfere with participants’ treatment. Each assessment began with an introduction to

hypnosis as well as an opportunity for participants to ask questions and an opportunity to exit the study if they decided against participation. Following the assessment of hypnotic susceptibility, participants were asked to fill out the Waterloo-Stanford Group Scale of Hypnotic Susceptibility: Form C response booklet and the Inner Subjective Experiences Rating Scale. Subjects were debriefed to ensure that they experienced no ill-effects of hypnosis. Subjects were also made aware of which condition they had been assigned to.

Variables

This study contained one manipulated variable, which was simply the hypnotic induction. The hypnotic induction occurred at two levels; either the participant was in the experimental condition (with a hypnotic induction by eye fixation) or in the comparison group (guided relaxation followed by non-hypnotic suggestions).

The study included two dependent variables. The first dependent variable included all participants' behavioral scores on the WSGC. These scores are based upon whether the participant believed an outside observer would have noticed an overt behavioral change. The second dependent variable was participants' subjective scores on the WSGC, which was measured by the Inner Subjective Experiences Rating Scales. This scale is intended to measure participants' subjective rating of the suggestions from the WSGC on a 5-point Likert scale.

The study also gathered self-reported demographics data (age, gender, race, diagnosis, and current psychopharmacuetical medication) in order to better understand the sample and indicators of responsiveness. Further, the independent variables of absorption (TAS) and dissociation (GDS) were investigated to determine their ability to explain variations in adolescent's hypnotic responsiveness.

Measurement Instruments

Demographics Questionnaire. A demographics questionnaire (Appendix A) was used to collect self-report information on the participants' age, gender, ethnicity, diagnosis and current psychopharmaceutical mediations. In order to test the third hypothesis that there are significant differences in hypnotizability between subjects based upon gender and racial background. This information will provide further insight into the multi-cultural implications of hypnotizability. This demographics survey will also help to test the fourth hypothesis, as people who have diagnoses with dissociative features have been shown to be more susceptible to hypnosis. Lastly, in order to test the fifth hypothesis, participants' ages will be gathered in order to test if the curvilinear relationship between hypnotizability and age that was present in London and Cooper (1969) is also present amongst this inpatient adolescent population.

Tellegen Absorption Scale. The Tellegen Absorption Scale is a 34-item true/false survey that was created to measure responsiveness to engaging stimuli, inductive stimuli, imagistic thought, and the ability to summon vivid and altered states of consciousness. An example of an item is "When I listen to music I can get so caught up in it that I don't notice anything else." People who are capable of rich fantasies and vivid imagery score highly on the TAS (Sapp, 2000). The TAS has been shown to correlate approximately .38 with hypnotizability (Sapp, Evanow, & Arndt, 1997). In order to test the moderating impact of absorption on hypnotizability, participants will also be asked to complete the dichotomous version of the Tellegen Absorption Scale (TAS). Subjects can achieve a range of scores from 0-34. The average score on this scale is approximately 20, with a standard deviation of 6 (Glisky et al., 1991). The TAS also contains two subscales. One of

which is “*Sentient*” which included external focus. The other is *Prone to imaginative and altered states*.

General Dissociation Scale. Was used in order to test the moderating impact of dissociation, subjects were also asked to complete the General Dissociation Scale (GDS), which is a 15-item scale with scores ranging from (1) “Not at all” (2) “Somewhat” (3) “Moderately So” (4) “Very Much”. The scoring of the GDS is straightforward in that all responses are given the point value of the level of endorsement of the participant, and these points are summed. Therefore, subjects can obtain a range of scores from 15-60. Sapp and Hitchcock (2003) reported that scores above 45 are generally suggestive of a dissociative disorder.

Sapp (1997) developed the GDS to allow for dissociation to be assessed in the Diagnostic and Statistical Manual of Mental Disorders (4th Edition) (DSM-IV): dissociative identity, depersonalization, dissociative amnesia, and dissociative fugue. Each item on the scale directly relates to diagnostic criteria for dissociative pathology. The GDS measures dissociative pathology, but not gross psychopathology. The GDS was utilized with two hundred and five undergraduate males and females (age 18 through 55) and found a significant correlations with the Dissociative Experiences Scale (DES), with $r = .34, p < .01$. This suggests that the scale has strong alternate-forms validity. The GDS had a Cronbach’s alpha of .84, $p < .01$, indicating strong internal reliability.

The Waterloo-Stanford Group Scale of Hypnotic Susceptibility: Form C (WSGC). Bowers (1993, 1998) published on a group scale of hypnotizability called the Waterloo-Stanford Group Scale of Hypnotic Susceptibility, Form C (WSGS). This scale is an adaptation of the Stanford Hypnotic Susceptibility Scale, Form C, yet it was developed

for use with groups of up to 12 participants. This scale has a reliability measure of .80 (Bowers, 1998).

The WSGS is an assessment of hypnotizability that begins with an introduction to hypnosis followed by a hypnotic induction intended to evoke the mental state of hypnosis. This induction begins with an eye fixation procedure, while the subject is given suggestions for muscle relaxation, deep breathing, and guided relaxation.

Following the induction, participants are guided through 12 specific suggestions including; hand lowering, moving hands together, experience of mosquito, taste experience, arm rigidity, a dream, arm immobilization, age regression, music hallucination, negative visual hallucination, automatic writing, and amnesia. Following these suggestions, participants are gradually taken out of their hypnotic state and then asked to complete the Waterloo-Stanford Experience Scale. This scale is developed to measure the subjects' responsiveness to the hypnotic suggestions from the WSGS:C script. This includes both their experiences of sensations and self-ratings of overt behaviors. These ratings include questions related to whether an outside observer would have noticed a change in their behaviors, such as "Would you estimate that an onlooker would have observed that your hand lowered at least 6 inches?" Scores on this scale provide information about the participants' level of hypnotizability.

Although there have been scales developed specifically to look at children's responsiveness to hypnosis, these scales were designed for individual administration. For the purposes of this study, the WSGS:C was specifically selected in order to investigate responsiveness to hypnosis in a group setting. Being that inpatient adolescent treatment is

primarily conducted in group settings, the WSGS is the more appropriate measure for determining if hypnosis would be an effective intervention for a typical inpatient settings.

Waterloo-Stanford Inner Subjective Experiences Rating. The Waterloo-Stanford Inner Subjective Experiences Rating was developed as a subjective measure of responsiveness to the suggestions in the WSGC and helps to test for the automaticity of hypnosis. This scale is also comprised of 12 items which are related to the subjects' experiences of the WSGC suggestions, yet this scale more specifically investigates the nature of the participants' hypnotic responding. These items include continuous variables on a scale from 1-5, with higher scores suggesting that the subjects vividly experienced the hypnotic suggestion and lower scores indicating that they had no experience of the suggestion. Lower scores also differentiate if the subject decided to make physical movements based upon their own decision, rather than due to being in a hypnotic state. For instance, if a subject endorsed that they moved their hand in the WSGC, this does not necessarily measure if the response was involuntary. The Inner Subjective Experience Rating helps the research to determine if the cause of this responsiveness is due to hypnotic suggestion or simple suggestion. For instance, the first item includes a Likert response for the "hand lowering" suggestion and includes responses such as "My hand did not feel heavy" on the low end of the scale and "My hand felt heavy and lowered all by itself." on the high end of the scale.

In addition to the control group, this measure strengthens the study through further determining if hypnosis was the cause of responsiveness to hypnotic suggestions. Sapp and Hitchcock (2003) found that the Inner-Subjective Experiences Scale was a better

measure for African American students than behaviorally based items, such as in the Waterloo-Stanford Experience Scale.

Threats to Internal Validity

One threat to internal validity stems from disagreement over the nature of hypnotizability. Hypnotizability has been operationally defined as responsiveness to suggestion following a hypnotic induction. Weitzenhoffer (1980) argued that hypnotizability scales measure the effects of suggestion, not the pure effects of hypnosis. Therefore, there is a threat to the validity of hypnotizability assessment in that there is a potential that the induction of hypnosis may not be the true cause of responsiveness to the suggestions. Some researchers have suggested that suggestibility may not be mediated by a hypnotic state, but rather are a function of social and cognitive variables such as expectancies or motivation (Sapp, 1997). Sheehan and Perry (1976, p.55) argued that “no behavior following hypnotic induction can be attributed to hypnosis unless the investigator first knows that the response in question is not likely to occur outside of hypnosis in the normal waking state.” Moreover, Weitzenhoffer and Sjoberg (1961) have argued for the necessity of assessing change scores in determining if the hypnotic induction is truly what accounted for the change in hypnotic responsiveness. Although this study will attempt to control for this threat by measuring participants’ subjective experiences, it will not contain a repeated measure of hypnotizability, as patients are often only available for assessment for one or two days while in the hospital. In order to partially control for this threat, the results of the experimental group will be compared to the non-induction group.

Another threat to the internal validity of this study is that the researcher also conducted the hypnotizability groups. Therefore, the investigator's expectations may influence the delivery of the hypnotizability study. In turn, this may also influence the participants' responsiveness to the hypnotic suggestions. Moreover, the investigator is a behavioral health therapist at the hospital where the study is taking place. There were a number of times when the participant also receiving therapy services from the investigator. In order to control for the delivery of the assessment, a standard script was read to each group. Although it would have been preferable to utilize a standard recording, the WSGC contains suggestions which are group-based, which may have been awkward for administration with individual participants.

Additionally, in order to partake in the study, participants' parents had to consent to their child's participation. Moreover, their primary care physician also had to give permission for their patients to be involved in the study after judging whether or not the adolescents' participation could potentially be harmful to their care. Therefore, it is likely that patients with lower levels of distress are over-represented in this study.

Moreover, group administration of hypnotherapy occurred at various times of the day, which may have had particular influence on suggestibility due to how recent medications (such as nighttime sleeping aids) were administered. Further, administrations occurred in different rooms, which often had different furniture and outside noises. Likewise, group sizes varied from 1-6, which may have influenced suggestibility. These variables were not measured, but may have influenced the results.

Lastly, participants have limited motivation to complete the surveys carefully or accurately. Given the acute state of distress that subjects are in while admitted to an

inpatient psychiatric hospital, there is potential for them to not put forth their full effort in completing the scales.

Threats to External Validity

A sample size of 200 would produce statistical power of greater than 80% at the .05 level of significance. Although this would be considered a strong statistical power for rejecting the null hypothesis when it is in fact false, there is a 20% probability that the test will fail to reject the null hypothesis when the null hypothesis is false. Although these are generally considered standard research criteria in the social sciences, there is a chance that this study will contain type II measurement error (Guadagnoli & Velicer, 1988).

An additional threat to external validity is related to the generalizability to other inpatient adolescent units. The first aim of this study was to investigate whether therapeutic hypnosis is a suitable group intervention for inpatient adolescents. Being that this is a quasi-experiment due to sampling from only one inpatient hospital and lack of randomization, there is a threat that these findings may not be generalizable to adolescents at other inpatient hospitals. This study would need to be replicated in another inpatient setting in order to ensure external validity.

Statistical Procedures

Hypothesis 1: In order to test the second hypothesis of whether adolescents' level of hypnotic responding was significantly increased by the hypnotic induction, a between group comparison of hypnotizability scores from the WSGS:C and Inner Subjective Experience Rating was made using a between-groups (independent samples) t-test. Participants' scores on each of the dependent variables were analyzed separately for each of the study conditions.

Hypothesis 2: In order to test the amount of variation in hypnotizability explained by dissociation (GDS) and absorption (TAS), linear and multivariate regression analyses were conducted. Linear regression was analyzed and the coefficient of determination (R-squared) was investigated in order to build a model of hypnotizability. Further, multivariate regression analyses were conducted using MANOVA, with a model of two dependent variables (behavioral and subjective scores) with two independent variables (TAS and GDS) for each of the two groups (hypnosis and comparison).

Hypothesis 3: In order to test for significant differences in hypnotizability by gender, a t-test was conducted based upon these independent variables. This was conducted in order to determine if there are statistically significant differences between group scores based upon the collected demographics information.

Hypothesis 4: In order to test the fourth hypothesis, there was an investigation of the relationship of both primary diagnosis and psychopharmacuetical medications as moderating variables related to adolescents' level of hypnotizability. Correlation coefficients will be analyzed in order to determine the strength and direction of the correlation. This will help in the understanding of which adolescents are most likely to benefit from hypnosis and will provide insight into its appropriateness in inpatient settings.

Hypothesis 5: A test of orthogonal trends will test the fifth hypothesis that there is an inverse relationship between age and hypnotizability. That is, whether or not the early adolescent peak in hypnotizability found by Morgan and Hilgard (1973) holds true for adolescents in inpatients settings. Linear trends will also be analyzed for significance.

Statistical Assumptions

T-Test

For this study's independent sample t-tests, there is an underlying assumption of normal distribution under the null hypothesis. Since this study will be using the *t*-test to compare the means of two independent samples, the following assumptions should be met for each of the populations (experimental and comparison). The test of normality will be conducted in SPSS with the Levene's test of normality (Levene, 1960).

Additionally, the data used to carry out the test between the two groups should be sampled independently (Markowski & Markowski, 1990). The assumption of independence of observations was met because the groups were assessed at different times and it was ensured participants only participated one time.

Analysis of Variance

Analysis of variance most commonly is used with linear modeling related to the response to the treatments. Assumptions of ANOVA also include normality in that the distributions of the residuals. The Levene's test will be used as a test of normality of distribution. Further, the two populations should have the same variance.

Independence of observations – this is an assumption of the model that simplifies the statistical analysis. The data used to carry out the test should be sampled independently from the two populations being compared. (Snedecor & Cochran, 1967). This was assured by randomly assigning participants to one of two conditions.

Correlation Coefficients

The correlation coefficient (*r*) includes an assumption that the bivariate relationship is normally distributed. Further, the correlation coefficient *r* measures only linear

relationships of how close data falls along a straight line. The correlation coefficient r is not a good summary of association if the data have outliers (Rodgers & Nicewander, 1988), therefore correlations will be visually assessed for outlying data.

Linear Regression

There are four assumptions of linear regression. The first of which is weak exogeneity, which means independent variables are assumed to be free from measurement errors. Secondly, the assumption of linearity which means the average of the dependent variables is a linear combination regression coefficients (R-squared) and the independent variables. Thirdly, the assumption of homoscedasticity refers to dependent variables having the same variance in their errors, regardless of the independent variables. Further, the assumption of independence of errors refers to errors of the dependent variables are not correlated. Lastly, there should be a lack of multicollinearity in the independent variables, that is, no independent variable should be perfectly correlated with other independent variables. Further, independent should be linearly independent. This assumption implies the parameter estimates will be unbiased, consistent, and efficient in the class of linear unbiased estimators (Cressie, 1996). Additionally, there is an underlying assumption that the sample is representative of the larger population, which was ensured by randomly selecting participants from the inpatient unit.

Multivariate Analysis of Variance

In order to assess the hypothesized model, a multivariate design was assessed using Multivariate Analysis of Variance (MANOVA). In the design, the two independent variables of TAS and GDS were regressed on the two dependent variables of WSGC

behavioral and subjective. MANOVA is a statistical technique used to analyze designs with more than one dependent variable and multiple independent variables. The three assumptions of MANOVA include independence of observations, which will be assessed by testing for multicollinearity. Secondly, MANOVA also requires the dependent variables in each of the groups to be normally distributed. If this assumption is violated, there is an increased chance of the researcher committing a Type I error (Stevens, 2012). The third assumption is the data from each group has a common variance-covariance matrix (Stevens, 2012).

Power analysis

Power analysis for this study was completed using the power analysis table from Stevens (2012). Statistical power is the probability that a test will correctly reject a null hypothesis when the null hypothesis is actually false (Sapp, 2006). That is, Type I error or level of significance (α) is the probability of incorrectly rejecting the null hypothesis when it is true. Whereas, Type II error (β) is the probability of incorrectly accepting the null hypothesis when it is actually false. Power ($1 - \beta$) is the probability of correctly rejecting the null hypothesis when it is actually false (Stevens, 2012). Researchers generally want to have power of .70 or greater, which indicates a 70% chance of correctly rejecting the null hypothesis when there is in fact a significant difference between the two groups (Stevens, 2012). The power of statistical tests is mainly determined by the α level set by the experimenter, sample size, and effect size.

Power is highly influenced by sample size. When sample sizes are large, such as 100 or more per group, power is generally not an issue. Therefore, this study aimed for a

sample of 200 participants. Yet there was an *a priori* analysis of the necessary sample size to reject the null hypothesis.

When using an independent samples t-test, effect size can be calculated using $d = (\mu_1 - \mu_2)/\sigma$ (Cohen, 1977). By using the assumed population standard deviation (σ), we can measure how many standard deviations units the group averages are separated by. Cohen (1997) has suggested that effect sizes of .20 are small, approximately .50 is medium, and $>.80$ is large. It is expected hypnosis will cause a medium effect size of .50. In order to have statistical power or 0.8 and detect a statistically significant change with a two-tailed hypothesis at the 0.05 level, there would need to be 64 participants in each group, with a total of 128.

$$no = \frac{(t)^2 * (s)^2}{(d)^2} = \frac{(1.96)^2 (3.07)^2}{(12 * .04)^2} = \frac{36.21}{0.23} = 157$$

Where t = value for selected alpha level of .025 in each tail = 1.96

Where s = estimate of standard deviation in the population = 3.07

*3.07 is the standard deviation for the WSGS provided Bowers (1993)

Where d = acceptable margin of error for mean being estimated. WSGS has 12 items and I have run acceptable margin of error for .03 and .04. A sample size of 200 will provide a margin of error between the .03 and .04 level.

CHAPTER IV

RESULTS

This study had several aims, but the study's primary purpose was to provide insight into the potential for group-based hypnotic interventions for serving adolescent patients who are currently admitted to an inpatient psychiatric setting. These inpatient-care settings pose a number of challenges to clinicians, as patients suffer from a wide range of emotional difficulties. Hypnotherapy stands out as a treatment with great potential for serving this population, as it has been shown to have therapeutic benefits for adolescents with a wide range of medical issues (Wester & Sugarman, 2007), educational difficulties (Sapp, 1999), and psychiatric symptoms (Fromm & Gardner, 1979; Rhue & Lynn, 1991; Torem, 1999; Sapp, 2000). Being that psychiatric hospital settings serve widely diverse patients, the multicultural applications of hypnotherapy also suggest it as an appropriate treatment modality (Sapp, 2004).

It is widely accepted that the characteristic of hypnotic susceptibility is necessary for participants to benefit from hypnosis. Further, it has been repeatedly demonstrated that adolescents tend to have higher rates of hypnotic susceptibility than adult populations (London, 1965; London & Cooper, 1969). Therefore, in order to investigate the participant's hypnotizability, this study's dependent variable was participant's scores on the WSGC through behavioral and subjective scoring methods.

A key area of debate in hypnosis research is the importance of hypnotic inductions for producing a hypnotic state. In order to better understand the importance of inductions, this study contained the manipulated variable of which condition participants were randomly assigned to. These conditions included an experimental group which received a

full hypnotic induction from the WSGC and a comparison group which did not receive a hypnotic induction; but rather, the group received guided relaxation followed by suggestions. The comparison was drawn between the groups in order to examine the importance of a hypnotic induction for increasing suggestibility.

It was hypothesized that: 1.) Adolescents' hypnotic suggestibility would be significantly higher than participants in the non-hypnotic comparison group. 2.) Hypnotic responding would be significantly explained by variations in dissociation and absorption. 3.) There are significant variations in suggestibility based upon participants' gender. 4.) Adolescents who have diagnoses with dissociative features will be more susceptible to hypnosis. 5.) There is a negative relationship between adolescents' age and their level of hypnotizability.

Sample demographics

Participants who completed the study included 167 adolescents for an inpatient unit of major psychiatric hospital. 84 of the participants were randomly assigned to the hypnosis group which received a hypnotic induction (Appendix D). The other 83 participants were randomly assigned the comparison group which received simple guided relaxation (Appendix F). Over 300 participants total met the inclusion criteria and were recruited. However, the remainder did not complete the study for a number of reasons including parent(s)/guardians withdrawing consent (2), their physicians deciding against allowing the subject to participate (3), the subject withdrawing assent (2), or due to discharge prior to assessment. Although the original aim was to obtain a sample of 200 participants, Due to the vulnerable population status of inpatient adolescents and the

behavioral health hospital's stringent institutional review board's protocol, data collection began considerably later than was originally anticipated.

The demographic data which was gathered included participants' age, gender, diagnosis, and current medications. These variables were generally obtained through self-report on the demographics questionnaire (Appendix A). Participants ranged in age from 13-17 years ($\bar{x} = 15.1$, $SD = 1.2$). 36 participants were male, 130 participants were female, and 1 participant identified as transgender. In regards to race, 105 (62.9%) participants identified as White or European American, 20 (12%) participants identified as Hispanic or Latino, 13 (7.8%) participants identified as Black or African American, 4 (2.4%) participants identified as American Indian or Alaska Native, 3 (1.8%) participants identified as Asian, 1 participant identified as Native Hawaiian or Pacific Islander, 8 (4.8%) identified as White or European American and Hispanic or Latino, and 13 (7.8%) participants identified as multiracial - other.

Description of Variables

This study contains only one manipulated variable, which was the hypnotic induction. The experimental group received a fully hypnotic induction from the WSGC, which included an eye fixation technique. The comparison group did not receive a hypnotic induction, but instead, the comparison group was provided with guided relaxation instructions followed by a counting procedure from 20 to 1 (Appendix E). Both groups received the same suggestions from the WSGC, which included both behavioral and imaginative suggestions.

There were two dependent variables for each of the groups. Each group was asked to rank their experiences of suggestions after the procedure. Their rankings were

collected through their “pass” or “fail” ratings of whether an outside observer would have witnessed a behavioral response following the 12 suggestions from the WSGC response booklet. The second dependent variable was the participants’ subjective rating of their experiences of the 12 suggestions from the WSGC. Participants were asked to complete a Likert scale rating of their experiences of the 12 suggestions on a scale of 1-5. This measured both their subjective experiences and the automaticity of their responses.

Additionally, the variable of absorption was assessed with the Tellegen Absorption Scale (TAS) (Tellegen, 1974). Absorption is believed to be predictive of hypnotic susceptibility, and it has been demonstrated that persons who are absorbed in the process of hypnosis tend to have higher rates of suggestibility (Sarbin & Coe, 1972). Therefore, subjects who score higher on measures of absorption tend to have high scores of hypnotizability.

Dissociation was measured through the General Dissociation Scaled (GDS) (Sapp, 2000). Dissociation has also been shown to be predictive of hypnotizability. Several theories have posited that dissociative processes underlie hypnosis and suggestibility (Hilgard, 1991; Bowers, 1992). The GDS was used in order to examine dissociation’s influence on hypnotizability.

Waterloo-Stanford Group Scale of Hypnotic Susceptibility: Form C

The WSGC is measured behaviorally and subjectively. The behavioral scoring method is based upon the participant’s report of whether an outside observer would have observed an overt behavioral score. These scores are measured as *pass* = “1” or *fail* = “0”. Therefore, behavioral scores range from 0-12. The subjective scoring method is

based upon the participant's experience and the automaticity of the suggestion. This method of scoring is conducted in a 1-5 Likert scale with a range of scores from 15-60.

Following administration of the WSGC, all participants' responses to the behavioral measure and subjective measures were investigated by the assessor for completeness of each item. If participants missed an item on either measure, they were prompted to respond to the items to the best of their recollection. Therefore, there were no issues of missing data on either the WSGC behavioral scale or the WSGC subjective score.

Analysis

All data analysis was conducted with SAS 9.3 and IBM SPSS 20. An alpha level of .05 was used for statistical tests. Prior to analysis, the WSGC behavioral and subjective measures were assessed for multicollinearity. That is, when a regressor has close to a linear relationship with other variable in the model being assessed, the estimates have a high standard error and estimates become unstable. In order to assess for multicollinearity with other variables, a collinearity analysis was performed through a test of variable inflation (Belsley, Kuh, & Welsch, 1980). This procedure produces condition indices which are the square roots of the ratio of the largest eigenvalue to each individual eigenvalue. There were no issues with multicollinearity. Further, a Levene's test for quality of variance was not violated in the comparison of WSGC behavioral measure $F(1, 165) = 2.27, P = .13$. Nor was it violated for the WSGC subjective measure $F(1, 165) = 1.05, P = .31$. Being that there was a similar sample size between the groups with 83 subjects in the comparison group and 84 in the hypnosis group, the assumptions of equality of variance was not violated.

Reliability of Measures

These WSGC was not developed for use with adolescents, so it was important to ensure the behavioral and subjective measures were both reliable and valid for this population. In comparing inpatient adolescents' hypnotic susceptibility to the norming population provided by Bowers (1993), a one sample t-test was conducted to compare the mean scores on the behavioral measure. It was found that adolescents in the current study ($M = 5.89$, $SD = 2.80$) did not score significantly different than the sample from Bowers (1993) ($M = 5.71$, $SD = 3.07$), $t(0.72) =$, $p = 0.47$. This is suggestive that the average WSGC scores were not significantly different than the average adult.

In order to test the internal consistency of the measures, Cronbach's alpha, and 95% confidence intervals were calculated for the WSGC, TAS, and GDS and are displayed in Table 1. As with the WSGC, the TAS and GDS were not developed for use with adolescents. However, all scales displayed $\alpha \geq .70$, which is generally considered to be acceptable for research purposes. (Thomson, 2002).

Table 1 - Cronbach's Alpha with Confidence Intervals for WSGC, TAS and GDS

Scale	Cronbach's Alpha	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
WSGC: Behavioral	.76	.70	.82
WSGC: Subjective	.85	.81	.88
TAS	.87	.83	.89
GDS	.87	.84	.87

Hypothesis I

In order to test the first hypothesis that there would be a statistically significant increase in responsiveness in the hypnosis group, an independent samples t-test was conducted to compare WSGC behavioral scores from the experimental group to WSGC

behavioral scores on the comparison group at $\alpha = .05$. As opposed to previous studies who have utilized change scores, this study utilized two independent groups (hypnosis and guided relaxation). Therefore, the independent samples t-test worked to determine if there is a statistically significant difference between suggestibility between the two conditions which would not have occurred by chance alone (Sapp, 2006). For this two-tailed hypothesis, alpha was divided by two, thus significance was tested at the .025 level. The results of this test suggest participants who received a hypnotic induction scored significantly higher on WSGC behavioral scores ($M= 6.55, SD=2.93$) than the comparison group who did not receive a hypnotic induction ($M=5.19, SD=2.52$); $t(165)=3.23, p = .001, d = .50$.

A separate independent samples t-test was conducted for subjective scoring of the WSGC. Similarly, participants who received the hypnotic induction scored significant higher on WSGC subjective measures ($M=36.54, SD=9.89$) than the comparison group who did not receive an induction ($M=33.1, SD=8.49$) $t(165)=2.43, p = .016, d = .38$. Therefore, at the .025 alpha level, we reject the null hypothesis that there is not a significant difference between the experimental group and the comparison group on subjective measures. The mean increase was 1.36 behavioral suggestions passed in the hypnosis group. There was a mean increase of 3.47 on WSGC subjective scores in the hypnosis group.

Univariate Measure of Effect (D)

The process of null hypothesis testing simply tells us whether there is a statistically significant difference between groups on dependent variables (Sapp, 2006). Therefore, the *d effect* sizes with 95% confidence intervals were calculated to determine

the degree to which the experimental group differed from the comparison group. Cohen's d is a frequently used measure of effect size. The general standards for the strength of effects size are 0.2-0.3 equals a "small" effect, 0.5-0.8 is a "medium" effect, and an effect of 0.8 or larger is considered a "large" effect (Cohen, 1988).

Cohen's d effect sizes and 95% confidence intervals were calculated for behavioral and subjective scores for each group. The hypnotic induction had a univariate d effect size of 0.50, $CI=(0.17, 0.81)$ for the behavioral measure and 0.38, $CI=(0.07, 0.68)$ for subjective measure. The lower limit of the 95% confidence interval is the estimate of the population's lower bound parameter. Likewise, the upper limit of the 95% confidence interval is the estimate of the population parameter's upper bound limit. Since zero is not included in the confidence interval, there is further confirmation that there was a statistically significant increase in suggestibility in the hypnosis group.

The WSGC behavioral measures and subjective measures have cut scores for "low", "medium" and "high" hypnotizability. Table 2 illustrates the total number of participants falling into low, medium, and high suggestibility. Kirsch et al. (1998) reported a 77% correlation between participants' categorization based upon their subjective scores and behavioral scores. The current study found an 87.7% correlation between participants' categorization based upon behavior and subjective scoring methods. Table 2 illustrates the number of participants falling into each of the three categories of hypnotizability.

Table 2 - Number of ‘Low’, ‘Medium’, and ‘High’ Suggestible Participants

Scale	Hypnosis	Comparison	Total
Behavioral			
LOW (0-3)	12	24	36
MEDIUM (4-8)	48	50	98
HIGH (9-12)	23	10	33
SUBJECTIVE			
LOW (12-21)	9	9	18
MEDIUM (21-42)	48	63	111
HIGH (42-60)	26	12	38

The WSGC contains 12-items which are of increasing difficulty to pass. The following table contains the percentage of participants obtaining a “pass” or “1” on behavioral measures of hypnotic susceptibility. Table 3 illustrates the behavioral scale’s item difficulty by the hypnosis group, relaxation group, and total group.

TABLE 3 - WSGC - Behavioral: Item Difficulty

Percent passing	Hypnosis	Comparison	Total
1. Hand Lowering	.93	.85	.89
2. Moving hands together	.86	.75	.80
3. Experiencing of mosquito	.45	.33	.39
4. Taste experience	.46	.31	.38
5. Arm rigidity	.80	.58	.69
6. Dream	.54	.57	.56
7. Arm immobilization	.73	.67	.56
8. Age Regression	.55	.40	.48
9. Music Hallucination	.27	.15	.21
10. Negative Visual	.20	.11	.16
11. Posthypnotic Drawing	.49	.29	.39
12. Amnesia	.28	.18	.23

Subjective scoring contains 12-items rated on a scale of 1-5. A score of “1” indicates a participant had no subjective experience of the suggestion. A score of “5”

indicates the suggestion was strongly experienced and the response occurred automatically. Table 4 illustrates subjective item difficulty.

Table 4 - WSGC - Subjective: Item Difficulty

Average Score (1-5)	Hypnosis	Comparison	Total
1. Hand Lowering	4.47	4.11	4.29
2. Moving hands together	4.11	3.80	3.95
3. Experiencing of mosquito	2.57	2.20	2.38
4. Taste experience	2.89	2.68	2.78
5. Arm rigidity	3.53	2.87	3.20
6. Dream	3.51	3.44	3.47
7. Arm immobilization	3.58	3.26	3.42
8. Age Regression	3.36	2.92	3.14
9. Music Hallucination	2.34	2.05	2.19
10. Negative Visual	1.59	1.50	1.54
11. Posthypnotic Drawing	1.94	1.65	1.80
12. Amnesia	2.69	2.58	2.63

Subjective scoring of the WSGC includes five response categories from 1-5 for each of the 12 hypnotic suggestions. Table 5 illustrates the distribution of responses to each of the 12 Likert-scale items on the subjective scale.

Table 5 - WSGC - Subjective: Percentage of Endorsement

<i>1. Hand lowering</i> My hand did not feel heavy.	1 (5.4)	2 (3.0)	3 (7.8)	4 (25.1)	5 (58.7)	My hand felt heavy and lowered all by itself.
<i>2. Moving hands together</i> I did not feel anything pulling my hands together.	1 (7.8)	2 (4.2)	3 (16.2)	4 (28.7)	5 (43.1)	I felt a very strong force pulling my hands together.
<i>3. Experience of mosquito</i> I did not hear or feel mosquito.	1 (37.1)	2 (17.4)	3 (22.8)	4 (15.6)	5 (7.2)	I heard and felt a mosquito as vividly as if it were really there.
<i>4. Taste Experience</i> I did not experience either sourness taste at all.	1 (25.1)	2 (17.4)	3 (22.8)	4 (23.4)	5 (11.4)	I tasted the sweetness and as though there really were sweet and sour things in my mouth.
<i>5. Arm Rigidity</i> My arm did not feel stiff at all.	1 (18.6)	2 (7.2)	3 (24)	4 (36.5)	5 (13.8)	My arm felt so stiff that I could not bend it.

6. <i>Dream</i> I did not have a dream.	1 (14.4)	2 (9.6)	3 (20.4)	4 (25.7)	5 (29.9)	I had a dream that felt exactly like a dream.
7. <i>Arm immobilization</i> I could easily lift my arm.	1 (12.0)	2 (7.2)	3 (30.5)	4 (27.5)	5 (22.8)	My arm felt too heavy to lift.
8. <i>Age regression</i> I did not feel any younger	1 (19.2)	2 (10.2)	3 (25.7)	4 (27.5)	5 (17.4)	It was as though I were in the fifth and second grades again.
9. <i>Music hallucination</i> I did not hear anything	1 (48.5)	2 (16.8)	3 (15.0)	4 (6.6)	5 (13.2)	I vividly heard Jingle Bells” being played quite loudly.
10. <i>Negative visual</i> I saw all three balls clearly.	1 (76)	2 (7.2)	3 (5.4)	4 (8.4)	5 (3.0)	I saw only two balls.
11. <i>Posthypnotic automatic</i> I just decided whether or not to draw a tree.	1 (62.9)	2 (9.0)	3 (16.2)	4 (9.0)	5 (3.0)	I was surprised to find myself drawing a tree.
12. <i>Amnesia</i> I easily remembered everything.	1 (27.5)	2 (16.2)	3 (27.5)	4 (22.2)	5 (6.6)	It was impossible to remember anything.

Hypothesis II

It was hypothesized variations in hypnotizability could be explained by absorption and dissociation. The Tellegen Absorption Scale was used to measure absorption. This measure contained 34 items which are scored dichotomously as “True” = 1 of “False” = 0. Therefore participants’ scores ranged from 0-34. Two subscales were also analyzed “Sentient” which contains 11 items and “Prone to imaginative and altered states” which contains 18 items. Missing data for the TAS was handled with the ‘Replace Missing Values’ function in SPSS 20 using the ‘Series Mean’ method. The average scores on the TAS was 20.94 (SD = 7.18), with minimal variation between the hypnosis group (M = 22.1; SD = 6.9) and the comparison group (M = 19.73, SD = 7.26).

The General Dissociation Scale was utilized to measure adolescent’s level of dissociation. This scale contains 15 items which are scored on a continuous scale of (1) “Not at all” (2) “Somewhat” (3) “Moderately So” (4) “Very Much”. All items are written

in the positive direction, so the scoring of the GDS simply involves summing of each of the 15 items. Thus, scores range from 15-60, with scores about 45 being suggestive of dissociative disorders. However, there were only 9 participants who had scores of 45 or greater, so separate analyses were not run based upon this criterion. Missing data on the GDS was also handled with the 'Replace Missing Values' function in SPSS 20 using the 'Series Mean' method. It should be noted that the exclusion criteria of physician's judgment and abnormal levels of psychosis made it impossible to conduct a separate analysis of subjects with dissociative disorders. The average scores on the GDS was 28.74 (SD = 9.76), with minimal variation between the hypnosis group (M = 29.26 SD = 10.21) and the comparison group (M = 28.74, SD = 9.76).

Linear regression analyses were conducted in order to determine how much of the variation in hypnotic responsiveness could be explained by dissociation (GDS) and absorption (TAS) on adolescents' hypnotizability. The coefficient of determination (R-Squared) indicates the degree to which the variable explains the model. R-squared provides a measure of how much variation of an outcome can be accounted for by that variable (Steel & Torrie, 1960).

Absorption. Absorption explained a significant proportion of variance in behavioral measures of hypnotizability $R^2 = .214$, $F(1, 165) = 44.95$, $p < .001$. This suggests that 21.4% of the variance in WSGC behavioral scores can be accounted for by absorption. Likewise, absorption explained a significant proportion of variance in subjective scores can be accounted for by absorption $R^2 = .147$, $F(1, 165) = 28.48$, $p < .001$. This suggests that 14.7% of the variance in WSGC subjective scores can be accounted for by absorption

Dissociation. Dissociation explained a significant proportion of variation in behavioral measures of hypnotizability $R^2 = .047$, $F(1, 165) = 8.11$, $p = .01$. Yet it accounted for less variation than absorption, with only 4.7% of variance in WSGC behavioral scores can be accounted for by the GDS. Dissociation also explained a significant proportion of variation in subjective measures of hypnotizability $R^2 = .042$, $F(1, 165) = 7.18$, $p = .01$. Therefore, 4.2% of variation in subjective measures of hypnotizability can be accounted for by dissociation.

*Absorption * Dissociation.* The interaction effect of absorption * dissociation on behavioral scores explained a significant proportion of the variation in behavioral scores $R^2 = .214$, $F(2, 164) = 22.37$, $p < .001$. That is, 21.4% of subjective measures of hypnotizability can be accounted for by *Absorption * Dissociation*. The residual of absorption * dissociation on subjective scores was also significant, $R^2 = .147$, $F(2, 164) = 14.18$, $p < .001$. That is, 14.7% of subjective measures of hypnotizability can be accounted for by the interaction of *Absorption * Dissociation*. However, the interaction effect of absorption*dissociation did not explain significantly more variation in hypnotizability than absorption alone. Although each variable had a significant bivariate relationship with hypnotizability, dissociation did not improve the model by explaining more variation over absorption alone. In comparison to absorption alone, by adding dissociation to the model of hypnotizability, the adjusted R^2 actually decreased from .209 to .205 for behavioral measures. Likewise, the adjusted R^2 decreased from .142 to .137 for subjective measures.

The proportion of variation in behavioral measures of hypnotizability and subjective measure of hypnotizability which can be accounted for by absorption and dissociation is further broken down by group conditions in Table 7.

Table 6 - Goodness of Fit - R Squared –WSGC by Group

	Behavioral		Subjective	
	Hypnosis	Comparison	Hypnosis	Comparison
Absorption	.22*	.17*	.24*	.07*
Dissociation	.04	.05	.09*	.00
Abs * Dissoc	.25*	.19*	.25*	.08

* Denotes a significant relationship.

MULTIVARIATE ANALYSIS OF VARIANCE

In addition to testing for goodness of fit, a test of multivariate regression was conducted with MANOVA. Being that the WSGC produces two dependent variables and the study included two independent variables, MANOVA was utilized. In the MANOVA, the two dependent variables were the behavioral scores and subjective scores on the WSGC. The TAS and GDS were entered as covariates. Stevens (2012) suggests focusing on Wilk's Λ as the most commonly investigated multivariate test statistic.

The assumptions of MANOVA include independence of observation. This was assured through a design which included a hypnosis group and a comparison group. Further, the population covariance matrices for the dependent variables are equal (Stevens, 2012). The final assumption is that the observations should be normally distributed or the research runs the risk of committing a Type I error (Stevens, 2012). In order to ensure the assumption of normality, each of the dependent variables were first

assessed by graphing the normal probability plot for the WSGC behavioral and WSGC subjective sum.

Figure 1 – WSGC Behavioral Sum – Normal Probability Plot

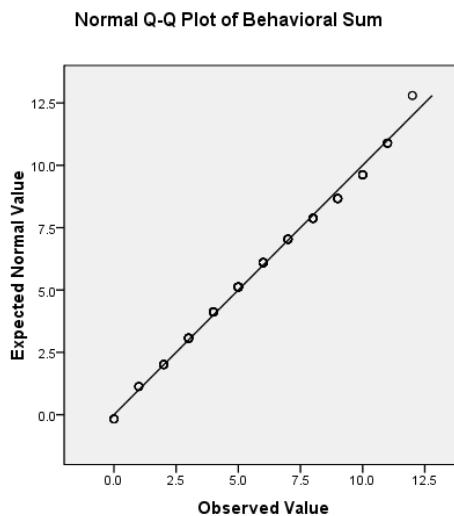
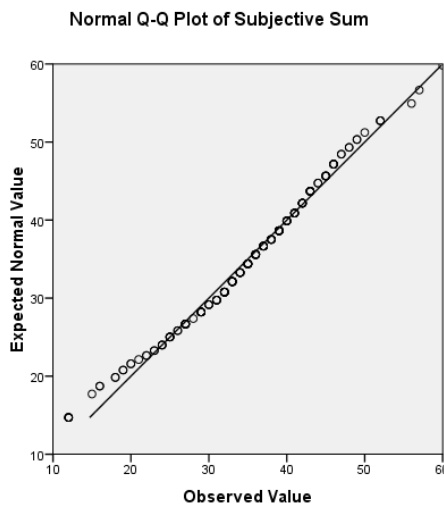


Figure 2 – WSGC Subjective Sum – Normal Probability Plot



The Q-Q plots represented in Figure 1 and Figure 2 demonstrates bivariate normality for both subjective measures and behavioral measures of hypnotizability.

Therefore, based on these statistical analyses, a multivariate normal distribution is assumed (Stevens, 2012).

The final assumption assessed prior to the MANOVA is the population covariance matrices for the dependent variables are equal. According to Stevens (2012), this assumption is conditionally robust if the group sizes are equal or are approximately equal, with less than a 1.5 difference in group size. The groups in this study were made up of 83 and 84 participants. Thus, this assumption is met.

The results of the MANOVA provide the Hotelling's Trace statistic which can be utilized to obtain an F statistic to determine statistical significance. Results of the MANOVA did not reveal a statistically significant results for hypnotizability by dissociation, Hotelling's Trace = .004, $F=.34$, $p=.71$. Although the overall F value was not statistically significant for this sample ($N = 167$), follow-up analyses were performed to determine the effect size. The effect size statistic provides a standardized estimate of effect strength without regard to sample size. The power analyses demonstrated power for dissociation was equal to .10. This means that there was a 10 percent chance of finding a difference between the measures if one existed (Stevens, 2012).

There was a statistically significant difference in hypnotizability at the .05 level for hypnotizability by absorption. There was also a statistically significant results for hypnotizability by dissociation, Hotelling's Trace = .19, $F=15.66$, $p=.00$. The power analysis for absorption was equal to 1.0., meaning that 100% chance of finding a true difference between the measures if one existed.

Table 8 – Multivariate Tests

Multivariate Tests ^a						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.563	104.552 ^b	2.000	162.000	.000
	Wilks' Lambda	.437	104.552 ^b	2.000	162.000	.000
	Hotelling's Trace	1.291	104.552 ^b	2.000	162.000	.000
GDS_Sum	Pillai's Trace	.004	.303 ^b	2.000	162.000	.739
	Wilks' Lambda	.996	.303 ^b	2.000	162.000	.739
	Hotelling's Trace	.004	.303 ^b	2.000	162.000	.739
TAS_SUM	Pillai's Trace	.162	15.658 ^b	2.000	162.000	.000
	Wilks' Lambda	.838	15.658 ^b	2.000	162.000	.000
	Hotelling's Trace	.193	15.658 ^b	2.000	162.000	.000
Group	Pillai's Trace	.039	3.308 ^b	2.000	162.000	.039
	Wilks' Lambda	.961	3.308 ^b	2.000	162.000	.039
	Hotelling's Trace	.041	3.308 ^b	2.000	162.000	.039

a. Design: Intercept + GDS_Sum + TAS_SUM + Group

Table 9 – Tests of Between Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Subjective Sum	2364.865 ^a	3	788.288	10.583	.000
	Behavioral Sum	317.064 ^b	3	105.688	17.436	.000
Intercept	Subjective Sum	7980.391	1	7980.391	107.135	.000
	Behavioral Sum	74.141	1	74.141	12.231	.001
GDS_Sum	Subjective Sum	5.284	1	5.284	.071	.790
	Behavioral Sum	.150	1	.150	.025	.875
TAS_SUM	Subjective Sum	1312.522	1	1312.522	17.620	.000
	Behavioral Sum	185.210	1	185.210	30.555	.000
Group	Subjective Sum	226.331	1	226.331	3.038	.083
	Behavioral Sum	37.310	1	37.310	6.155	.014
Error	Subjective Sum	12141.746	163	74.489		
	Behavioral Sum	988.037	163	6.062		
Total	Subjective Sum	216987.000	167			
	Behavioral Sum	7056.000	167			
Corrected Total	Subjective Sum	14506.611	166			
	Behavioral Sum	1305.102	166			

a. R Squared = .163 (Adjusted R Squared = .148)

b. R Squared = .243 (Adjusted R Squared = .229)

Hypothesis III

Comparisons were drawn between male and female subjects' WSGC subjective and behavioral scores. There were significantly fewer males than females in both groups; therefore, a Welch's t-test was used to make comparisons by gender. There, for a two-tailed test at the .025 level, was not a significant difference in WSGC behavioral score between males ($M = 6.67$, $SD = 3.46$) and females ($M = 5.67$, $SD = 2.57$) $t(164) = -1.16$, $p = 0.11$. Nor was there a significant difference in subjective scores between males ($M = 36.81$, $SD = 11.94$) and females ($M = 34.35$, $SD = 8.46$) $t(164) = -1.61$, $p = 0.25$. This matches previous literatures' findings that there are not significant differences based upon gender. Table 14 illustrates descriptive information for the WSGC by gender.

Table 10 – Descriptives of Hypnotic Susceptibility by Gender

Scale	Mean	SD
WSGC - Behavioral		
Male	6.67	3.46
Female	5.67	2.57
WSGC - Subjective		
Male	36.81	11.94
Female	34.35	8.460

HYPOTHESIS IV

There was not enough data to analyze the relationship between dissociative diagnoses and adolescents' hypnotizability, as no participants had diagnoses of dissociative disorder. It should also be noted the DSM-V (APA, 2013) was released during the completion of this study, and the hospital adopted diagnoses with DSM-V criteria. Early in the data collection process, diagnostic criteria were gathered based upon DSM-IV-TR Axis I criteria. Being that the DSM-IV-TR used multiple-axis diagnoses, and the DSM-V does not, participants recruited after the DSM-V criteria was adopted were asked for their

diagnosis most closely related to their hospitalization. For instance, information was collected on acute psychological symptoms, but not long-term medical conditions.

The following information regarding adolescent's self-report of their primary diagnosis. It should be noted that "multiple" diagnoses included all subjects who identified as having more than one diagnosis which was not "Depression with Anxiety". Further, all types of depression (i.e. severity, recurrent) were condensed to "depression" for the purposes of analysis and demographics illustration. Two of these participants identified their diagnosis as Autism Spectrum Disorders; other diagnoses included obsessive compulsive disorder, borderline personality disorder, or a mixture of diagnoses.

The majority of participants identified as having depression (N = 94, 56.4%), with 30 participants identifying as having depression with anxiety (18%). 12 participants identified as having 'Mood Disorder – NOS" (7.2%). 7 participants identified as having just anxiety (4.2%). 5 participants reported having ADD/ADHD (3%). 4 participants identified as having bipolar disorder. While 15 participants reported having multiple diagnoses which did not fit into other categories (9%).

HYPOTHESIS V

It has repeatedly been shown there is a curvilinear trend in hypnotizability by age. Hypnotizability tends peaks in early adolescence and remains relatively stable throughout a person's life (Morgan & Hilgard, 1973; London & Cooper, 1969). In order to test this hypothesis, analyzes were conducted between age and WSGC behavioral scores and subjective scores. In regards to behavioral scores, there were no significant differences between any of the age groups 13-17. Nor was there a significant difference between the highest scoring age of 15 (M = 6.36, SD = 3.00) and the lowest scoring age of 13 (M =

5.81, SD = 2.90) $t(58)=-.636$, $p=0.527$. Likewise, there were no significant differences by age group in subjective scores between the highest scoring age of 15 ($M = 36.27$, $SD = 10.48$) and the lowest scoring age of 14 ($M = 33.43$, $SD = 8.39$) $t(82)=-1.37$, $p=0.176$. Figure 3 suggests both WSGC behavioral and subjective scores were relatively stable across each of the five age groups.

Figure 3 – WSGC Behavioral and Subjective Scores by Age

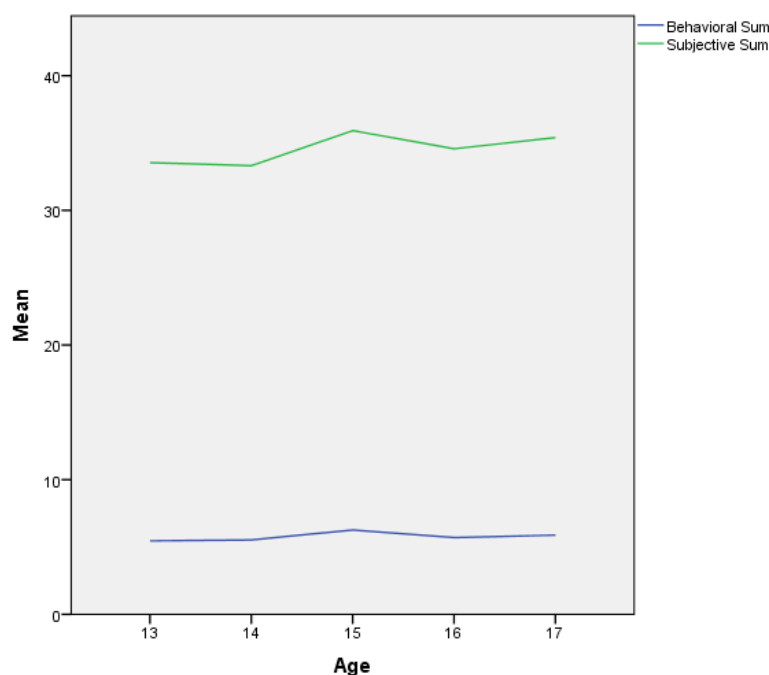


Table 11 further illustrates participants' average behavioral and subjective scores and standard deviations by age group.

TABLE 11 WSGC: SCORES BY AGE

AGE		13	14	15	16	17
n		16	40	44	42	25
Behavioral	Mean	5.81	5.60	6.36	5.62	5.88
	SD	2.88	2.75	3.00	2.82	2.55
Subjective	Mean	34.75	33.43	36.27	34.24	35.40
	SD	7.85	8.39	10.48	10.14	8.74

Correlations

Correlations between the instruments were analyzed. There were several measures which had significant positive correlations. A Pearson's correlation of zero indicates that there is no relationship between the two variables, while a correlation of the absolute value of 1 indicates a perfect correlation between two variables. In this study, there were statistically significant relationships at the $p < .05$ level between behavioral scores and subjective scores $r = .88$; behavioral scores and the GDS $r = .27$; and behavioral scores on the TAS $r = .46$. There were also significant correlations between subjective scores and the GDS with $r = .22$; as well as subjective scores and the TAS $r = .46$. Likewise, there was a significant relationship between the GDS and the TAS $r = .50$.

Table 12 – Correlations

Measure	1	2	3	4
1. Behavioral Sum	--			
2. Subjective Sum	.88**	--		
3. GDS	.27**	.21*	--	
4. TAS	.46**	.38**	.50**	--

**Denotes a significant relationship at the .01 level.

*Denotes a significant relationship at the .05 level.

CHAPTER V

DISCUSSION

This study was designed in order to help understand the utility of hypnotic interventions in inpatient psychiatric hospitals who serve adolescent populations. Hypnotic interventions have been repeatedly shown to assist adolescents with a wide variety of mental health issues (Fromm & Gardner, 1979; Rhue & Lynn; 1991 Wester, 2007; Wester & Sugarman, 2007). Being that adolescents have shown a peak in hypnotizability which is significantly above adult populations (London, 1965; London and Cooper, 1969), the study aimed to test if pattern is also true for a diverse group of adolescents in an acute care settings. More specifically, due to the apparent linkage between hypnotizability and clinical outcomes of therapeutic hypnosis (Lioffi, White, & Hatira, 2006; Flammer & Bongartz, 2002), the study aimed to build to understanding of adolescent hypnotizability so as to understand its utility for effective treatment in inpatient settings.

In order to test the first hypothesis, the study utilized a group administered hypnotic susceptibility test (WSGC; Bowers, 1993). Although this tool was not developed for adolescents, its group-format administration was preferable for this study, as inpatient adolescent units are almost entirely group therapy format. The WSGC was administered to participants in one of two conditions. The experimental condition was with a hypnotic induction (eye fixation), whereas the comparison condition was conducted without a hypnotic induction (guided relaxation). By randomly assigning participants to one of the two conditions, the study aimed to investigate the influences of response expectancies, which have been theorized to influence much of hypnotic

responding (Kirsch, 1985). Moreover, subjects were blind to their conditions until after the administrations were completed; thus, partially controlling for response expectancies.

Additionally, children's hypnotic susceptibility has been shown to be largely correlated with absorption (LeBaron, Zeltzer & Fanurik, 1988). It has been theorized this correlation is due to hypnotizability being largely influenced by a person's ability to become absorbed in hypnosis (Sarbin & Coe, 1972). In order to test if this held true for inpatient adolescents, the Tellegen Absorption Scale (Tellegen & Atkinson, 1974) was used to measure participants' characteristics of absorption and assess for the proportion of variation in hypnotizability which could be accounted for by absorption.

Further, there was an investigation of the role of dissociation in hypnotizability. It has been theorized that dissociative processes largely explain hypnotic experiences (Hilgard, 1991; Bowers, 1992). Therefore, the correlations between dissociation and hypnotizability was measured with the General Dissociation Scale (Sapp and Hitchcock, 2001), which is a measure of features associated with DSM-IV (APA, 2000) criteria for dissociative disorders. The proportion of variance in hypnotizability which could be explained by dissociation was also analyzed.

The study attempted to minimize threats to internal validity, such as testing or carry-over effects, by utilizing a comparison group which received WSGC without a hypnotic induction. This is in contrast to other studies which have investigated changes within subjects from non-hypnotic suggestibility to hypnotic suggestibility (Braffman & Kirsch, 1999; Poulson & Matthews, 2004). The study attempted to control for threats to external validity by conducting a study in group-format, which was on-site in the inpatient unit of a major psychiatric hospital. Participants were recruited and completed

all measure in rooms which were inside of the psychiatric hospital, which would be expected to be quite similar to settings in other psychiatric hospitals. Moreover, the selection criteria allowed for a fair amount of diversity within the sample.

Summary of Results

Prior to interpreting results, it was ensured that all measures were reliable. This was specifically important for this study, as none of the measure were developed for use with adolescents. After correcting for missing data and testing the measures for internal consistency, it was apparent that all measures were in fact reliable. The measures were also tested for underlying statistical assumptions.

In a one-sample t-test comparison of the current study to the norming data (Bowers, 1993), it was found that adolescents in the current study ($M = 5.89$, $SD = 2.80$) did not score significantly different than the sample from Bowers (1993) ($M = 5.71$, $SD = 3.07$), $t(0.61) =$, $p = 0.54$. Further, the between-group comparison of the experimental group with the comparison group suggest participants who received a hypnotic induction scores significantly higher on behavioral scores ($M= 6.55$, $SD=2.93$) than the comparison group who did not receive an induction ($M=5.19$, $SD=2.52$); $t(165)=3.23$, $p = .001$, $d = .50$. This results was also true for the subjective measures, as participants who received the induction scored significant higher on subjective measures ($M=36.54$, $SD=9.89$) than the comparison group ($M=33.1$, $SD=8.49$) $t(165)=2.43$, $p = .016$, $d = .38$. There were no significant differences by subjects based up age, race, gender, or diagnosis.

Interpretation of Results

In the investigation of why this significant relationship may exist, the influence of absorption (TAS) and dissociation (GDS) were investigated. Absorption explained a

significant proportion of variation in behavioral measures of hypnotizability $R^2 = .21$ $F(1, 165) = 44.95, p < .00$). Absorption also explained a significant amount of variation in subjective scores of hypnosis $R^2 = .15$ $F(1, 165) = 28.48, p < .00$).

Likewise, dissociation explained a significant amount of variation in behavioral scores in the hypnosis group $R^2 = .047$, $F(1, 165) = 8.11, p = .01$. It also explained a significant amount of variation in subjective measures of hypnotizability $R^2 = .042$, $F(1, 165) = 7.18, p = .01$. Although dissociation explained a significant amount of variation in hypnotic responding, it explained less than 5% of the total variation. One possible explanation for this may be that the measure was developed for adults. One of the dissertation committee members brought up the concern that the scale has a continuous scale of 1-4, with 2 = "somewhat" and 3 = "moderately so". It was suggested that kids may not understand the difference, so a new set of variables was created with the following transformed values of 1=1, 2=2, 3=2, 4=3. After this modification, dissociation was found to explain a marginally higher proportion of variance in behavioral measures of hypnotizability $R^2 = .05$ $F(1, 165) = 9.20, p < .03$ and subjective measures of hypnotizability $R^2 = .05$ $F(1, 165) = 8.27, p < .00$).

Theory of Results

Upon examining the results of the study, it is apparent the hypnotic induction was associated with a significant increase in suggestibility. Moreover, on behavioral measures, there were 23 participants who fell into the "high hypnotizability" category in the experimental group as opposed to 10 participants who fell into the "high hypnotizability" category in the comparison group. This is suggestive that a number of

participants were in fact in a hypnotic state, and had a high level of what Hilgard (1981) described as hypnotic potential.

Interestingly, although the experimental group obtained a significantly higher average score on both behavioral and subjective measures of hypnotizability, there was still a high level of suggestibility in the comparison group. This could be interpreted in two ways. First, some authors have found that a formal hypnotic induction is not necessary to evoke a state of hypnosis. For instance, Kelly and Kelly (2000) described hypnotic inductions based upon simple counting techniques or exercise bikes. Being that participants in the control group did receive both guided relaxation and the counting procedure from the WSGC, it is possible they may have been able to easily enter into a state of hypnosis without a full hypnotic induction with an eye-fixation technique. This phenomenon may be better examined in future studies through measures of physiological responses, such as MMRI or EEG.

Another possible explanation for the high level of suggestibility in the comparison group would be similar to Kirsch's Response Expectancy Theory of hypnosis (1990). For instance, participants in the comparison group were meant to be blind to their conditions. If subjects were truly blind to the condition they were in and scored high on the WSGC, it is possible their expectations of responsiveness to the suggestions is what caused them to score relatively high on WSGC behavioral and subjective measures.

Being the comparison group received a mean score of 5.19, which was within half of a point of the means score for the norming sample ($M = 5.71$) (Bowers, 1993), it is likely the mean score of participants in the comparison group would have been raised to 5.71 or higher if they had received the entire hypnotic induction.

Limitations

There were a number of limitations to this study which may be a threat to the generalizability of the findings. One major threat to the generalizability of the findings is the participants in this study are likely to over represent lower levels of emotional distress and psychopathology than an average group of adolescents in an inpatient psychiatric facility. There were a number of systematic reasons why this occurred. The main reason was the final approved protocol included the IRB's stipulation that adolescents' not be included in the study if they were in an acute state of psychosis. Therefore, patients who exhibited symptoms such as reality testing or pathological dissociation were not included in the sample. Furthermore, there was a requirement that participants had approval from their primary physician. After all physicians on the unit were made aware of the study, a number of psychiatrists were highly cautious about allowing their patients in the study or refused to allow any of their patients to participate. This has implication for the generalizability of these findings to group hypnotherapy in similar settings, as patients in inpatient care are separated by age but not separated by their level of pathology.

A further threat to the generalizability of this study was that the approved protocol required both parents'/guardians' informed consent. It was required that consent was to be obtained in-person, which had the greatest impact on the studies sample size. This IRB stipulation also resulted in an over-sampling of participants who had lower levels of pathology and who had high levels of parental support. Additionally, adolescents were not asked to be in the study on their first day in the hospital in order to prevent interference with their treatment or additional agitation. This resulted in an

overrepresentation of adolescents with relatively low levels of distress and an omission of adolescents with impaired reality, severe dissociation, or acute trauma.

Lastly, there was an over representation of female subjects. This is partially caused by the demographics of the hospital with more females admitted to inpatient services. This does not appear to match demographics from adult populations which generally show equal amounts of male and female patients in emergency psychiatry settings (Chaput & Lebel, 2007). Further, during the recruitment period, there were less male subjects interested in participating. There were also a number of male participants who assented to participate in the study and later refused. This limitation was unavoidable, and if this study were to continue, it would be expected that there would still be an overrepresentation of female subjects.

Threats to the Internal Validity

Threats to the internal validity of the study included the use of the WSGC as the dependent variable. Bowers (1993) suggests the SHSS:C (Weitzenhoffer, 1962) or Stanford Hypnotic Clinical Scale for Children (Morgan & Hilgard, 1979) are preferable when clinical patients are to be measured. Moreover, there is no norming data for the use of the WSGC with child populations. However, being this study was conducted in an inpatient psychiatric hospital, where group therapy is the primary modality of therapy, the WSGC was chosen because it most closely emulates conditions in which therapy is conducted in such settings. Moreover, the administration is significantly less time-consuming and there were limited hours which participants were available.

As with the WSGC, neither the Tellegen Absorption Scale nor the General Dissociation Scale were not developed for use with children. Although, both of the

measures have been used with adolescents in previous studies (Dauphin & Heller, 2010; Kohl, 2010; Strucker, 2012), there has been no norming data collected with child or adolescent populations. It was noted during the administration of the TAS and GDS that several participants asked for clarification on a number of items such as “Sometimes I feel as if my mind could envelop the whole world.” Although participants were encouraged to ask questions, this suggests that many children may have misunderstood the question, yet responded anyways.

In regards to the manipulated variable of which group participants were randomly assigned to, there was also an issue regarding whether subjects were actually blind to their conditions. For instance, several participants asked for explicit descriptions of the full hypnotic induction. It was recorded that upon post-group interviews that these participants reported knowing which condition they were in following the administration of the assessment. Yet, several participants were wrong when guessing their conditions.

Also, the number of participants in each of the group administrations was an issue. Bowers suggests that “there is no reason to use a group test of hypnotic ability if the investigator is primarily interested in the hypnotic ability of a single person or only a few people.” (Bowers, 1993, p. 44). Although there were groups as large as six, approximately half of the administrations were conducted individually. During times of low hospital census, there were a number of times when only one subject was involved in the protocol at a time. It is unknown how this influences their responsiveness, but this is a threat to the generalizability to group hypnotherapy interventions. Additionally, the administrations were slightly modified based upon whether there was an actual group of participants or if there was only one participant. Likewise, it should be noted the author

only had four years of experience using hypnosis when the project began. None of these experiences were in a research context using standardized hypnotizability measures.

It is also important to note that hypothesis IV was based upon hypnotizability in relation to dissociative disorders, and the diagnostic criteria for numerous disorders changed with the onset of the DSM-IV (2013). Although no children met the criteria for any dissociative disorder, the descriptives of diagnoses may have been impacted (i.e. from Asperger's Syndrome to Autism Spectrum Disorder).

Additional threats included environmental variables, such as time of day and noises around the hospital. There were additional variable which could not be controlled such as how recent medication (such as sleeping aids or stimulants) were administered.

Lastly, being that the measures used were subjective in nature, this study's finding do not distinguish whether there is a qualitatively different hypnotic "state". The finding simply support that subjects who received the hypnotic induction level of responsiveness was significantly higher than those who were in the nonhypnotic group.

Current Study in Relation to Previous Literature

To the author's knowledge, this is the first study of hypnotizability of adolescents in an acute care psychiatric hospital setting. Further, to this author's awareness, Poulsen and Matthews (2003) is the only other study to investigate a clinical sample of children's hypnotic suggestibility in hypnotic state versus a nonhypnotic state. However, Poulsen and Matthews (2003) used a dependent sample where participants were first in a hypnotic state followed by a nonhypnotic state. Although they found a very high correlation between the two conditions ($r = 0.83$; $p < 0.001$), the fact that subjects were given the same suggestions twice poses the question of a testing effect.

Another distinct feature of this study was that it was one of few studies to measure two independent sample's responsiveness to suggestions. In a similar study with a non-clinical population, Ruch, Morgan and Hilgard (1973) administered The Barber Suggestibility Scale and the Stanford Hypnotic Susceptibility Scale, Form A (SHSS) to 80 high school students, half with imagination instructions and half with hypnotic induction instructions. The Stanford Profile Scale of Hypnotic Susceptibility, Form I was subsequently administered to test the predictive effectiveness of the scales. It was found that the induction conditions raised both BSS objective ($p < .01$) and BSS subjective scores ($p < .00$) above the comparison imagination conditions. It also raised the SHSS objective score ($p < .00$) and subjective score ($p < .00$) above the comparison imagination group. The current study mirrors these findings in that the induction group's scores were significantly higher in both behavioral ($p < .00$) measures and subjective ($p < .01$) measures.

In comparison to a number of studies who did not find significant increases in hypnotic suggestibility over non-hypnotic suggestibility (Weitzenhoffer & Sjöberg, 1961; Barber, 1965; Braffman & Kirsch, 1999), these studies did not use independent samples, but rather, analyzed differences between the same participants in hypnotic and non-hypnotic conditions. Although the research questions in these studies were different than the question in the current study, it is interesting to see that the between-group comparison in the current study did show a statistically significant increase in suggestibility under the hypnotic condition.

Recommendations for Future Research

Being that this study was entirely conducted at one site, the findings of this study should be repeated with a multi-site study in order to maximize the generalizability of the findings. It is possible that adolescents for various geographic locations may respond differently. It has been shown that there are important multicultural considerations for hypnotherapy (Sapp, 2000), which may not have been accounted for with this rather homogenous sample.

Likewise, a more diverse sample size would help to improve the generalizability of these findings. Although it would not have been possible for the current study, future studies should aim to including more males subjects and more racial minorities in order to further develop our understanding of the utility of hypnotic interventions for adolescents in inpatient psychiatric programs.

Another suggestion for future research would be to include change scores for participants. That is, a manipulated variable of waking suggestion as compared to hypnotic suggestion. This could make for an important within-subject comparison in addition to between-subject comparison. The previously mentioned debate over the importance of change scores (Weitzenhoffer & Sjoberg, 1961; Barber, 1965; Braffman & Kirsch, 1999) has not been addressed with inpatient populations.

Lastly, and perhaps most importantly, implications for clinical outcomes of hypnosis should be researched in inpatient settings. The current study has clear inferences that adolescents in acute care settings are likely to benefit from hypnotherapy. The author noted that during informal post-study follow-ups with patients, parents and hospital staff, it was clear that many participants received therapeutic benefits from the relaxation components of both groups. Although the current study did not assess for clinical

outcomes, it would be interesting to investigate the lasting influence of hypnosis on mood stabilization or psychiatric symptoms.

Conclusions

This study investigated inpatient adolescents' hypnotic susceptibility as measured in a group setting. Due to the significant correlation between hypnotic susceptibility and clinical outcomes of hypnosis (Lioffi, White, & Hatira, 2006; Flammer & Bongartz, 2002), the information gathered from this study is deemed to be valuable for future studies of clinical outcomes of hypnosis in similar settings. Being that participants in the experimental group ($M = 6.55$, $SD = 2.93$) scored significantly higher than participants in the comparison group ($M = 5.19$, $SD = 2.52$) on both behavioral measures of suggestibility and subjective measures of suggestibility, $t(165) = 3.23$, $p < .01$, $d = .50$, it is suggested hypnotic inductions are likely to foster clinical outcomes in such settings.

Further, absorptions accounted for a significant amount of variance in behavioral measures $R^2 = .21$, $F(1, 165) = 44.95$, $p < .001$; and subjective measures $R^2 = .14$, $F(1, 165) = 24.48$, $p < .001$. This relationship may provide insight into how practitioners can capitalize on adolescent's creativity. In addition to hypnotic therapy, this may be beneficial for therapist using other expressive and imaginative therapies, such as guided imagery or guided relaxation techniques. Likewise, dissociation accounted for a significant proportion of variation in behavioral $R^2 = .047$, $F(1, 165) = 8.11$, $p = .01$; and subjective measures $R^2 = .042$, $F(1, 165) = 7.18$, $p = .01$. However, although the bivariate relationship between dissociation and hypnotizability was significant, the interaction effect of absorption*dissociation did not explain significantly more variation in hypnotizability than absorption alone. Further, although this study did not include

subjects with dissociative disorders, it is likely that children with dissociative features are likely to benefit from hypnotherapy.

Results from this study may be helpful in guided future research on the clinical applications of group-based hypnosis. Regardless of which group participants were in, they showed levels of suggestibility that were similar to the norming data for the WSGC (Bowers, 1993). It is likely participants in the comparison group would have increased susceptibility scores if provided with a hypnotic induction. These findings strongly suggest group-based hypnosis has strong potential as an intervention in inpatient psychiatric hospitals which serve adolescents.

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Tellegen Absorption Scale. Multidimensional Personality Questionnaire™ (MPQ™).

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Appendix A
Demographic Questionnaire

Demographics Survey

How old are you (in years)?

What is your biological gender?

Female Male Transgender

How would you describe yourself? (Choose one or more from the following racial groups)

- American Indian or Alaska Native
(A person having origins in any of the original peoples of North and South America and who maintains a tribal affiliation or community attachment)
- Asian
(A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam)
- Black or African American
(A person having origins in any of the Black racial groups of Africa – includes Caribbean Islanders and other of African origin)
- Hispanic or Latino
(A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race)
- Native Hawaiian or Pacific Islander
(A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands)
- White
(A person having origins in Europe, the Middle East, or North Africa)

To the best of your knowledge, what is your primary diagnosis?

To the best of your knowledge, what medications are you currently taking?

Appendix B
Tellegen Absorption Scale

Tellegen Absorption Scale (Tellegen and Atkinson, 1974)

Tellegen Absorption Scale. Multidimensional Personality Questionnaire™ (MPQ™).

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1. T F Sometimes I feel and experience things as I did when I was a child.
2. T F I can be greatly moved by eloquent or poetic language.
3. T F While watching a movie, a TV show, or a play, I may become so involved that I may forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it.
4. T F If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture almost as if I were still looking at it.
5. T F Sometimes I feel as if my mind could envelop the whole world.
6. T F I like to watch cloud shapes change in the sky.
7. T F If I wish I can imagine (or daydream) some things so vividly that they hold my attention as a good movie or story does.
8. T F I think I really know what some people mean when they talk about mystical experiences.
9. T F I sometimes "step outside" my usual self and experience an entirely different state of being.
10. T F Textures - - such as wool, sand, wood - - sometimes remind me of colors or music.
11. T F Sometimes I experience things as if they were doubly real.
12. T F When I listen to music I can get so caught up in it that I don't notice anything else.
13. T F If I wish I can imagine that my body is so heavy that I could not move it if I wanted to.
14. T F I can often somehow sense the presence of another person before I actually see her/him.
15. T F The crackle and flames of a wood fire stimulate my imagination.
16. T F It is sometimes possible for me to be completely immersed in nature or in art and feel as if my whole state of consciousness has somehow been temporarily altered.
17. T F Different colors have distinctive and special meanings for me.
18. T F I am able to wander off into my thoughts while doing a routine task and actually forget that I am doing the task, and then find a few minutes later that I have completed it.

19. T F I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so.
20. T F Things that might seem meaningless to others often make sense to me.
21. T F While acting in a play I think I could really feel the emotions of the character and "become" her/him for the time being, forgetting both myself and the audience.
22. T F My thoughts often don't occur as words but as visual images.
23. T F I often take delight in small things (like the five-pointed star shape that appears when you cut an apple across the core or the colors I soap bubbles).
24. T F When listening to organ music or other powerful music I sometimes feel as if I am being lifted into the air.
25. T F Sometimes I can change noise into music by the way that I listen to it.
26. T F Some of my most vivid memories are called up by scents and smells.
27. T F Some music reminds me of pictures or changing color patterns.
28. T F I often know what someone is going to say before he or she says it.
29. T F I often have "physical memories;" for example, after I have been swimming I may still feel as if I am still in the water.
30. T F The sound of a voice can be so fascinating to me that I can just go on listening to it.
31. T F At times I somehow feel the presence of someone who is not there.
32. T F Sometimes thoughts and images come to me without the slightest effort on my part.
33. T F I find that different odors have different colors.
34. T F I can be deeply moved by a sunset.

Appendix C
General Dissociation Scale
General Dissociation Scale (GDS) (Sapp and Hitchcock, 2003)

1. I feel the presence of two or more distinct personal identities within me, each with its own pattern of perceiving, relating, and thinking about the environment.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

2. Two or more distinct personal identities recurrently take control of me.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

3. My inability to recall personal information cannot be explained by ordinary forgetfulness.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

4. My inability to recall personal information could occur even when I am not drinking, taking drugs, or taking medication.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

5. I have persistent experiences of feeling detached from my body or mental processes.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

6. I feel like I am in a dream world.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

7. When I feel detached, it could or does cause impairment in my social, occupational, and other areas of functioning.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

8. My detachment could occur even when I am not drinking, taking drugs or taking medication.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

9. I have trouble recalling personal information such as my name, phone number, where I live, and so forth.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

10. My ability to recall personal information could occur even when I am not drinking or on medication.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

11. My ability to recall personal information could cause impairment in my social, occupational, and other areas of functioning.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

12. I could have traveled away from home, and could, or have had difficulty remembering the past.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

13. I could have had partial or complete confusion about my identity.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

14. The possibility of partial or complete confusion could occur even when I am not drinking, taking drugs or medications.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

15. My partial or complete confusion could cause impairment in social, occupational, and other areas of functioning.

Not at all	Somewhat	Moderately so	Very much so
1	2	3	4

Appendix D
Waterloo-Stanford Group Scale of Hypnotic Susceptibility, Form C: Induction and
Response Booklet
Induction and Suggestions

Preliminary Instructions

In a few minutes, I am going to administer a standard procedure for measuring hypnotic ability. At the end of the standard procedure, you will be asked to report on your experience in the response booklet, which has been given to you. Place the clipboard and your pencil or pen on the floor in front of you. If any of you are wearing contact lenses, you may wish to take them out now.

Now, I think we can begin.

Induction by Eye Closure

Now, please seat yourself comfortably and rest your hands in your lap. That's right. Rest your hands in your lap. Now, look at your hands and find a spot on either hand and just focus on it. It doesn't matter what spot you choose; just select some spot to focus on. I will refer to the spot you have chosen as the target. That's right...hands relaxed...Look directly at the target.

I am about to help you to relax, and meanwhile, I will give you some instructions that will help you to gradually enter a state of hypnosis. Please look steadily at the target, and while staring at it, keep listening to my words. You can become hypnotized if you are willing to do what I tell you to and if you concentrate on the target and on what I say. You have already shown your willingness by coming here today, and so I am assuming that your presence here means that you want to experience all that you can. Just do your best to concentrate on the target-pay close attention to my words, and let happen whatever you feel is going to take place. Just let yourself go. Pay close attention to what I tell you to think about; if your mind wanders, that will be okay; just bring your thoughts back to the target and my words, and you can easily experience more of what it's like to be hypnotized.

Hypnosis is perfectly normal and natural and follows from the conditions of attention and suggestion we are using together. It is chiefly a matter of focusing sharply on some particular thing. Sometimes you experience something very much like hypnosis when driving along a straight highway and you are oblivious to the landmarks along the road. The relaxation in hypnosis is very much like the first stages of falling asleep, but you will not really be asleep in the ordinary sense because you will continue to hear my voice and will be able to direct your thoughts to the topics that I suggest. What is important here today is your willingness to go along with the ideas I suggest and to let happen whatever is about to happen. Nothing will be done to embarrass you.

Now, take it easy, and just let yourself relax. Keep looking at the target as steadily as you can, thinking only of it and my words. If your eyes drift away, don't let that bother you...just focus again on the target. Pay attention to how the target changes, how the shadows play around it, how it is sometimes fuzzy, sometimes clear. Whatever you see is all right. Just let yourself experience whatever happens and keep staring at the target a little longer. After awhile, however, you will have stared long enough, and your eyes will feel very tired, and you will wish strongly that they were closed. Then, they will close, as if by themselves. When this happens, just let it happen.

As I continue to talk, you will find that you will become more and more drowsy, but not all people respond at the same rate to what I have to say. Some people's eyes will close before others'. When the time comes that your eyes have closed, just let them remain closed. You may find that I shall still give suggestions for your eyes to close. These suggestions will not bother you. They will be for other people. Giving these suggestions to other people will not disturb you but will simply allow you to relax more and more.

You will find that you can relax completely, but at the same time, sit up comfortably in your chair with little effort. You will be able to shift your position to make yourself comfortable as needed without it disturbing you. For now, just relax more and more. As you think of relaxing, your muscles will actually begin to relax. Starting with your right foot, relax the muscles of your right leg...now the muscles of your left leg.. Just relax all over. Relax your right hand...forearm...upper arm...and shoulder...That's right...Now your left hand...forearm, upper arm...and shoulder...Relax your neck and chest...more and more relaxed...completely relaxed...completely relaxed.

As you become relaxed, your body will feel deeply at ease...comfortably heavy. You will begin to have this pleasant feeling of heaviness and comfort in your legs and feet...in your hands and arms...throughout your body...as though you were settling deep into the chair. Your body feels comfortable and heavy... Your eyelids feel heavy too, heavy and tired. You are beginning to feel very relaxed and comfortable. You are breathing freely and deeply, freely and deeply. You are becoming more and more deeply and comfortably relaxed. Your eyelids are becoming heavier, more and more heavy and difficult to keep open.

Staring at the target so long has made your eyes very tired. Your eyes may hurt from staring, and your eyelids feel very heavy. Soon, you will no longer be able to keep your eyes open. Soon, you will have stood the discomfort long enough; your eyes are tired from staring, and your eyelids will feel too tired to remain open. Perhaps your eyes are becoming moist from the strain. You are becoming more and more relaxed and comfortable. The strain in your eyes is getting greater and greater. It would be a relief just to let your eyes close and to relax completely, relax completely. The strain in your eyes will eventually be so great that you will welcome your eyes closing of themselves, of themselves.

Your eyes are tired, and your eyelids feel very heavy. Your whole body feels heavy and relaxed. You feel a pleasant, warm tingling throughout your body, as you become more and more deeply relaxed...deeper...deeper...more relaxed...completely relaxed and drifting down into a warm, pleasant state of relaxation. Keep your thoughts on what I am saying; listen to my voice. Your eyes are getting blurred from straining. You can hardly see the target, your eyes are so strained. The strain is getting greater, greater and greater, greater and greater. Your eyelids are heavy. Very heavy. Getting heavier and heavier, heavier and heavier. They are pushing down, down, down. Your eyelids seem weighted and heavy, pulled down by the weight...so heavy...your eyes are blinking, blinking...closing, closing.

Your eyes may have closed by now, and if they have not, they would soon close of themselves. But, there is no need to strain them more. You have concentrated well on

the target and have become very relaxed. Now, we have come to the time when you may just let your eyes close. That's it, eyes closed now.

You now feel very relaxed, but you are going to become even more relaxed. It is easier to relax completely, now that your eyes are closed. You will keep them closed until I tell you to open them or until I tell you to become alert... You feel pleasantly, deeply relaxed and very comfortable as you continue to hear my voice. Just let your thoughts dwell on what I'm saying. You are going to become even more relaxed and comfortable. Soon, I shall begin to count from 1 to 20. As I count, you will feel yourself going down further and further into a deeply relaxed, a deeply hypnotized state... But, you will be able to do all sorts of things I ask you to do without waking up... One... you are going to become more deeply relaxed and hypnotized... Two... down, down deeper, and deeper... Three... Four... more and more deeply hypnotized... Five... Six... Seven... you are sinking deeper and deeper into hypnosis. Nothing will disturb you.. Just let your thoughts focus on my voice and those things I tell you to think of. You are finding it easy just to listen to the things I tell you to think of. You are finding it easy just to listen to the things I tell you. Eight... Nine... Ten... halfway there... always deeper... Eleven... Twelve... Thirteen... Fourteen... Fifteen... Although deeply hypnotized, you can hear me clearly. You will always hear me distinctly no matter how deeply hypnotized you become. Sixteen... Seventeen... Eighteen... deeply hypnotized. Nothing will disturb you. You are going to experience many things that I will tell you to experience... Nineteen... Twenty... deeply hypnotized now! You will not wake up until I tell you to. You will wish to remain relaxed and hypnotized and to have the experiences I describe to you.

Even though you are deeply relaxed and hypnotized, I want you to realize that you will be able to write, to move, and even to open your eyes if I ask you to do so, and still remain just as hypnotized and comfortable as you are now. It will not disturb you at all to open your eyes, move about, and write things. You will remain hypnotized until I tell you otherwise... All right, then.

Hand Lowering

Now, hold your right hand out at shoulder height, with the palm of your hand facing up. Your right hand straight out in front of you, the palm up. There, that's right... Attend carefully to this hand, how it feels, what's going on in it. Notice whether or not it's a little numb, or tingling; the slight effort it takes to keep from bending your wrist; any breeze blowing on it. Pay close attention to your hand now. Imagine that you are holding something heavy in your hand... maybe a heavy baseball, or a billiard ball... something heavy. Shape your fingers around as though you were holding this heavy object that you imagine is in your hand. That's it... Now, the hand and arm feel heavy, as if the weight were pressing down... And as it feels heavier and heavier, the hand and arm begin to move down... as if forced down... moving... moving... down... down... more and more down... heavier... heavier... The arm is getting more and more tired and more strained... down... slowly but surely... down, down... more and more down. The weight is so great, the hand is so heavy... You feel the weight more and more... The arm is too heavy to hold back... It goes down, down... more and more down.

(Allow 10 seconds.)

That's good... Now, let your hand go back to its original resting position, and relax. You probably experienced much more heaviness and tiredness in your arm than you

would have if you had not concentrated on it and had not imagined something trying to force it down. Now, just relax...Your hand and arm are now as they were, not feeling tired or strained...All right, just relax.

Moving Hands Together

Now, extend your arms ahead of you, with palms facing each other, hands about a foot apart. Hold your hands about a foot apart, palms facing each other. I want you to think about a force acting on your hands to pull them together, as though one hand were attracting the other. You are thinking of your hands being pulled together, and they begin to move together...coming together...coming together...moving together...closer together...more and more toward each other...more and more.

(Allow 10 seconds.)

That's fine. You notice how closely thought and movement are related. Now, place your hands back in their resting position and relax...your hands back in their resting position and relax.

Mosquito Hallucination

You have been listening to me very carefully, paying close attention. You may not have noticed a mosquito that has been buzzing, singing, as mosquitoes do...Listen to it now...hear its high-pitched buzzing as it flies around your right hand...It is landing on your hand...Perhaps it tickles a bit...There, it flies away again... You hear it high-pitched buzz...It's back on your hand, tickling...It might bite you... You don't like this mosquito...You'd like to get rid of it...Go ahead, brush it off...get rid of it if it bothers you.

(Allow 10 seconds.)

It's gone. That's a relief...You are no longer bothered...The mosquito has disappeared. No more mosquito. Now, relax, relax completely.

Taste Hallucination

I want you to think of something sweet in your mouth. Imagine that you have something sweet tasting in your mouth, like a little sugar... And, as you think about this sweet tasted, you can actually begin to experience the sweet taste...It may at first be faint, but it will grow...and grow...Now, you begin to notice a sweet taste in your mouth...The sweet taste is increasing...sweeter...and sweeter...It will get stronger. It often takes a few moments for such a taste to reach its full strength...It is now getting stronger...stronger.

(Allow 10 seconds.)

All right. Now, notice that something is happening to that taste. It is changing. You are now beginning to notice a sour taste in your mouth...an acid taste, as if you had some lemon in your mouth, or a little vinegar...The taste in your mouth is getting more and more sour...more acid...more and more sour.

(Allow 10 seconds.)

All right. Now, the sour taste is going away, and your mouth feels just as it did before I mentioned any taste at all. Your mouth is normal now. There, it's quite normal now, and you just continue to relax...more and more relaxed.

Arm Rigidity

Please hold your right arm straight out in front of you, and fingers straight out too...That's right...right arm, straight out. Think of your arm becoming stiffer and stiffer...stiff...very stiff...As you think of its becoming stiff, you will feel it become stiff...more stiff and rigid, as though your arm were in a splint, so the elbow cannot

bend...stiff...held stiff, so that it cannot bend. A tightly splinted arm cannot bend...Your arm feels stiff as if tightly splinted...Test how stiff and rigid it is...Try to bend it...Try.

(Allow 10 seconds.)

That's fine. You will have an opportunity to experience many things. You probably noticed how your arm became stiffer as you thought of it as stiff, and how much effort it took to bend it. Your arm is no longer at all stiff. Place it back in position, and relax.

Dream

We are very much interested in finding out what hypnosis and being hypnotized means to people. One of the best ways of finding out is through the dreams people have while they are hypnotized...Now, neither you nor I know what sort of a dream you're going to have, but I'm going to allow you to rest for a little while and you are going to have a pleasant dream...a real dream...just the kind you have when you are asleep at night. When I stop talking to you very shortly, you will begin to dream. You will have a pleasant dream about hypnosis. You will dream about what hypnosis means...Now, you are falling asleep...deeper and deeper asleep... very much like when you fall asleep at night...Soon, you will be deep asleep, soundly asleep. As soon as I stop talking to you, you will begin to dream. When I speak to you again, you will stop dreaming, if you still happen to be dreaming, and you will listen to me just as you have been doing. If you stop dreaming before I speak to you again, you will remain pleasantly and deeply relaxed...Now, sleep and dream...Deep asleep!

(Allow 1 minute.)

The dream is over; if you had a dream, you can remember every detail of it clearly, very clearly. You do not feel particularly sleepy or different from the way you felt before I told you to fall asleep and to dream, and you continue to remain deeply hypnotized. Whatever you dreamed, you can remember quite clearly, and I want you to review it in your mind from the beginning so you could tell it to someone if asked to.

(Allow 20 seconds.)

All right. That's all for the dream.

Arm Immobilization (left hand)

Now, your left arm should be in your lap. You are very relaxed and comfortable, with a feeling of heaviness throughout your body. I want you now to think about your left arm and hand. Pay close attention to them. They feel numb and heavy, very heavy. How heavy your left hand feels...Even as you think about how heavy your left hand is, it grows heavier and heavier... Your hand is getting heavier...heavier and heavier...Your hand is getting heavier, very heavy, as though it were being pressed against your lap. You might like to find out a little later how heavy your hand is...It seems much too heavy to move...But in spite of being so heavy, maybe you can move it a little; but maybe it is too heavy even for that...Why don't you see how heavy it is.. Just try to lift your hand up, just try.

(Allow 10 seconds.)

That's fine. You see how it was harder to lift than usual because of the relaxed state you are in. Now, place your hand back in its resting position and relax. Your hand and arm now feeling normal again. They are no longer heavy. Just relax, relax all over.

Age Regression

Continue to go deeper and deeper into the hypnotic state. I am now going to give each of you a clipboard with some paper on it and a pencil. When I do, hold the clipboard on your lap and hold out your writing hand...and I will give you a pencil to write with. Keep your eyes closed for all of this.

(Give each subject their clipboard and pencil. Remember to turn over the response booklet so they will write on the back of it.)

You have a clipboard and a pencil with you, and now, I would like you to write your name on the paper while keeping your eyes closed. Keep your eyes closed through all of this. While you are writing your name, why don't you also write your age and the date. That's fine. Keep the clipboard and the pencil in your hands and listen closely to me. I would like you to think about a pleasant time when you were in the fifth grade of school; and in a little while, you will find yourself once again a little child pleasantly enjoying a nice day, sitting in class in the fifth grade, comfortably writing or drawing on some paper...I shall now count to five, and at the count of five, you will be back on a pleasant day in the fifth grade...But no matter what you experience, you will continue to hear my voice, and you will continue to do what I tell you to do. One, you are going back into the past. It is no longer (state present year), nor (state an earlier year), nor (state a still earlier year), but much earlier. Two, you are becoming increasingly younger and smaller...Three, presently, you will be back having a pleasant time in the fifth grade, and you will feel an experience exactly as you did once before on a nice day when you were sitting in class, writing or drawing. Four, very soon, you will be there...Once again a little child having a pleasant time in a fifth-grade class. You are nearly there now...In a few moments, you will be right back there. Five! You are now a small child in a classroom, sitting happily in school.

(Allow 30 seconds.)

You are sitting happily at school. You have a pad of paper and are holding a pencil. I would like you to write your name on the pad with this pencil...That's fine, and now, please write down your age...(pause until almost all are through writing)...and now the date, if you can...(pause until almost all are through writing)...and the day of the week.

Presently, you will no longer be in the fifth grade, but you will be still younger, back at a happy day in the second grade. I shall count to two, and then you will be in the second grade on a very happy day. One, you are becoming smaller still and going back to a nice day when you were in the second grade, sitting happily in school with some paper and a pencil...Two, you are in the second grade.

(Allow 30 seconds.)

You are sitting happily at school. Would you please write your name on the paper...That's good...And now, can you write how old you are?...Now, I would like you to write down who I am, or if you are not sure who I am, write down who you think I might be.

(Allow 30 seconds.)

That's fine...And now, you can grow up again and come right back to (state current day and date) in (name of locale of testing). You are no longer a little child but a grown-up person, sitting in a chair, deeply hypnotized. Fine, everything is back as it was. You won't need the pencil and clipboard for a while. Continue to hold the pencil in your hand. Turn the clipboard over and put it on your lap. Just place the clipboard face down on your lap. Your hand should be back in its resting position, resting comfortably in your

lap. Just keep your eyes closed and relax...deeply and comfortable. That's right, just relax completely.

Music Hallucination

In a few moments, a recording of "Jingle Bells" will be played for you. When the recording starts, the volume will be turned way down, and you will probably not be able to hear it, or you will hear it very faintly. Then the volume will increase, and I want you to let me know when you can hear it satisfactorily, hold up your right hand. Okay? Here we go...The recording of "Jingle Bells" has been turned on. This is level 1.

(Allow 5 seconds.)

Now it has been turned up a little. This is Level 2. Hold your hand up if you can hear it now.

(Allow 5 seconds.)

And now louder. This is Level 3.

(Allow 5 seconds.)

And now the loudest setting. This is Level 4. Hold your hand up if you can hear the music now.

(Allow 5 seconds.)

Now, the music has been turned off. There now, there is no longer any music. You can return your hand to its resting position and relax. Now...just sit back and enjoy being hypnotized.

Negative Visual Hallucination

Just relax and become even more deeply hypnotized, as you continue to breathe comfortably and effortlessly. As you sit comfortably in your chair with your eyes closed, I am going to place two balls in the center of the floor. I am going to place two colored balls right in the middle of the floor, so that you will be able to see them clearly. In a moment I am going to ask you to open your eyes. You will see just two balls in the center of the floor on a piece of wood...just two balls.

(Put three balls in the middle of the floor in a triangular configuration.) Okay, now is the time to open your eyes and to look at the center of the floor in front of you. See the two balls that I have placed there. Please make a mental note of the color of the balls you see. Remember the color of the balls you see, so that you can report them later. Okay, now, close your eyes and continue to relax...Now, I would like you to turn over the clipboard that is on your lap and write down the color of the balls you saw. Just write down the color of the balls...When you have written down the color of the balls, I want you to hold the pencil you've been writing with in the air...keep the pencil in the air until it is collected along with the clipboard... When your pencil has been collected, you may let your arm go back to its original resting position and relax completely.

(Collect pencils, turn over the response booklets, and place each booklet and pencil on the floor in front of the subjects. Remove the three balls from the floor and place them out of sight.)

Okay, you've done very well. Just keep your eyes closed and relax deeply and comfortably. That's right, just relax completely.

Posthypnotic Suggestion (doodle) and Amnesia

Stay completely relaxed and pay close attention to what I'm to tell you next. In a moment, I shall begin counting backwards from 20 to 1. You will awaken gradually, but

for most of the count, you will remain in the pleasant, relaxed state that you are now in. By the time I reach 5, you will open your eyes, but you will not be fully aroused. When I get to 1, you will be fully alert, in your normal state of wakefulness. You probably will have the impression that you have slept, because you will have difficulty in remembering all the things I have told you and all the things you did or felt since you started looking at the target. In fact, you will find it so much of an effort to recall any of these things, that you will have no wish to do so. It will be much easier simply to forget everything until I tell you that you can remember. You will remember nothing of what you did or felt from the time that you started looking at the target, until I say to you, "Now, you can remember everything!" You will not remember anything you did until then. After you open your eyes, you will feel fine. I shall now count backwards from 20, and at 5, not sooner, you will open your eyes but not be fully aroused until I say "one." At 1, you will be awake...A little later, I will tell you to turn to page 2 of your response booklet. When you turn to page 2, you will draw a small tree in the upper right-hand corner. You will draw a small tree but forget that I told you to do so, just as you will forget the other things, until I tell you, "Now, you can remember everything." Ready, now, 20...19...18...17...16...15...14...13...12...11...10, halfway ... 9... 8... 7... 6... 5...4...3...2...1. Wake up! Wide awake! Any remaining drowsiness that you may feel will quickly pass.

Testing

Now, turn to page 2 of your response booklet.

(Allow 10 seconds.)

Now, please write down briefly, in your own words, a list of the things that happened since you began looking at the target. Do not go into detail. Spend 3 minutes, no longer, in writing your reply. I will let you know when time is up.

(Allow 3 minutes.)

Listen carefully to my words. Now, you can remember everything. Now, please turn to the next page of the response booklet. On this page, write down a list of anything else that you now remember that you did not remember previously. Please do not go into detail. Spent 2 minutes, no longer, on this section. Again, I will let you know when time is up.

(Allow 2 minutes.)

Now, please turn to the next page of your response booklet. Please do not turn back to earlier pages. You will find listed on page 4, and on the following pages, the specific events that were suggested to you during the hypnosis session. Please read the instructions and then answer the questions in the remainder of the booklet. Work right through to the end, and let me know if you have any questions.

(When all subjects have completed the response booklet, make sure you have their attention before continuing.)

You may recall that during the session today, you were asked to hold up your hand when you heard a recording of "Jingle Bells." In fact, no recording was played there was no music in the room. Also, near the end of the session, you were told that when you opened your eyes, you would see two balls in the middle of the floor. Actually, there were three balls there.

The purpose of these two items was not to deceive you. We know from past research that the perception of persons who are highly responsive to hypnosis will sometimes be altered to coincide with suggestions that do not accurately reflect the

stimuli presented. Our intention with respect to the two suggestions just mentioned was to assess your responsiveness to suggestion that involve such perceptual alterations.

WATERLOO-STANFORD GROUP SCALE
Scoring Booklet Questions

Now, please briefly write down, in your own words, a list of the things that happened since you began looking at the target. Do not go into detail. Spend 3 minutes, no longer, in writing your replay.

Please DO NOT TURN THIS PAGE until the examiner specifically instructs you to do so.

(Remainder of page is blank.)

On this page, write down a list of anything else that you now remember that you did not remember previously. Please do not go into detail. Spend 2 minutes, no longer, in writing out your reply.

Please DO NOT TURN THIS PAGE until the examiner specifically instructs you to do so.

PLEASE DO NOT RETURN TO EARLIER PAGES.

(Remainder of page is blank.)

ITEM SCORING

Listed below in chronological order are the 12 specific happenings that were suggested to you during the standard hypnotic procedure. We wish you to estimate whether or not you objectively responded to these 12 suggestions, that is, whether an onlooker would have observed that you did or did not make certain definite responses by certain specific criteria.

It is understood that your estimates may in some cases not be as accurate as you might wish them to be and that you might even have to guess. But, we want you to make whatever you feel to be your best estimate regardless.

Beneath a description of most of the suggestions are two sets of responses, labeled A and B. Please circle either A or B for these questions, whichever you judge to be the more accurate. Please answer every question. Failure to give a definite answer to every question may lead to disqualification of your record. For a few of the suggestions, a special scale has been devised. Select the response that is the best estimate of your experience.

1. Hand lowering (right hand)

You were next told to extend your right arm straight out and feel it becoming heavy, as though a weight were pulling the hand and arm down. Would you estimate that an onlooker would have observed that your hand lowered at least 6 inches (before the time you were told to let your hand down deliberately)?

Circle one

- A. My hand had lowered at least 6 inches by then.
- B. My hand had lowered less than 6 inches by then.

2. Moving hands together

You were next told to hold your hands out in front of you about a foot apart and were then told to imagine a force pulling your hands together. Would you estimate that an onlooker would have observed that your hands were not more than 6 inches apart (before you were told to return your hands to their resting positions)?

Circle one

- A. My hands were less than 6 inches apart by then.
- B. My hands were more than 6 inches apart by then.

3. Experiencing of mosquito

You were next told to become aware of the buzzing of a mosquito that was said to become annoying, and then you were told to brush it off. Would you estimate that an onlooker would have observed you make any grimacing, any movement, any outward acknowledgement of an effect (regardless of what it was like subjectively)?

Circle one

- A. I did make some outward acknowledgement.
- B. I did not make any outward acknowledgement.

4. Taste experience

You were next told that you would have a sweet taste in your mouth, and then you were told that you would have a sour taste in your mouth.

How strong was the sweet taste in your mouth?

Circle one

none vague weak strong

Did you make any facial movements, such as lip movements or grimacing, that an onlooker would have observed?

Circle one

yes no

How strong was the sour taste in your mouth?

Circle one

none vague weak strong

Did you make any facial movements, such as lip movements or grimacing, that an onlooker would have observed?

Circle one

Yes No

5. Arm rigidity (right)

You were next told to extend your right arm straight out, then to notice it becoming stiff, and then told to try to bend it. Would you estimate that an onlooker would have observed that there was less than 2 inches of arm bending (before you were told to stop trying)?

Circle one

- A. My arm was bent less than 2 inches by then.
- B. My arm was bent at least 2 inches by then.

6. Dream

You were next told to have a dream. In the following space, describe your dream in detail.

(Empty space for writing.)

We have found that people have various sorts of experiences in response to this. How real would you say your dream was?

Not real or no dream 1 2 3 4 5 very real

Which of the following categories do you think best describes your experience?

Circle one

- A. Nothing went through my mind.
- B. Passing thoughts, no dreamlike imagery.
- C. Fleeting, vague, dreamlike imagery, play of colors, and so on.

- D. Dreamlike imagery, but no clear theme or sequence of events.
- E. Dreamlike imagery, plus sequence of events.
- F. Something other than these. (Describe.)

7. *Arm immobilization (left arm)*

You were next told how heavy your left hand and arm felt and then were told to try to lift your hand up. Would you estimate that an onlooker would have observed that you did not lift your hand and arm up at least 1 inch (before you were told to stop trying)?

Circle one

- A. I did not lift my hand and arm 1 inch by then.
- B. I did lift my hand and arm at least 1 inch by then.

9. *Music hallucination*

Next you were asked to hold your right hand up when you could satisfactorily hear the recording of "Jingle Bells."

Circle one

- A. I raised my right hand.
- B. I did not raise my right hand.

(Items 8, 10, and 11 scored from information recorded during the suggestions. Item 12 is scored from information recorded in the scoring booklet.)

Appendix E
INNER SUBJECTIVE EXPERIENCE RATINGS

We are also interested in your inner, subjective experience of each suggestion. We are as interested in vague, ambiguous experiences as we are in clear and powerful experiences. It is most important to us to have your honest, candid report of the nature of your experience, so that we can gain an accurate, scientific understanding of these phenomena.

Beneath the behavior rating for each suggestion are two opposite ways in which you might have experienced them subjectively. Please circle the number that best represents the nature of your experience. For example, on Suggestion 1 (hand lowering), circling the number 1 would indicate to us that either your hand did not lower at all or that you intentionally lowered it. Circling the number 5 would indicate that you experienced your hand lowering on its own, without any effort on your part to intentionally lower it. The numbers 2 to 4 represent experiences somewhat between these two extremes.

1. Hand lowering

My hand did not feel heavy.	1	2	3	4	5	My hand felt heavy and lowered all by itself.
-----------------------------	---	---	---	---	---	---

2. Moving hands together

I did not feel anything pulling my hands together.	1	2	3	4	5	I felt a very strong force pulling my hands together.
--	---	---	---	---	---	---

3. Experience of mosquito

I did not hear or feel a mosquito.	1	2	3	4	5	I heard and felt a mosquito as vividly as if it were really there.
------------------------------------	---	---	---	---	---	--

4. Taste Experience

I did not experience either taste at all.	1	2	3	4	5	I tasted the sweetness and sourness as though there really were sweet and sour things in my mouth
---	---	---	---	---	---	---

5. Arm Rigidity

My arm did not feel stiff at all that I could not	1	2	3	4	5	My arm felt so stiff bend it.
---	---	---	---	---	---	-------------------------------

6. Dream

I did not have a dream. felt exactly	1	2	3	4	5	I had a dream that like a dream.
--------------------------------------	---	---	---	---	---	----------------------------------

7. Arm immobilization
I could easily lift my arm. to lift. 1 2 3 4 5 My arm felt too heavy to lift.
8. Age regression
I did not feel any younger 1 2 3 4 5 It was as though I were in the fifth and second grades again.
9. Music hallucination
I did not hear anything. 1 2 3 4 5 I vividly heard Jingle Bells” being played quite loudly.
10. Negative visual hallucination
I saw all three balls clearly. 1 2 3 4 5 I saw only two balls.
11. Posthypnotic automatic writing
I just decided whether or not draw a tree. 1 2 3 4 5 I was surprised to find myself drawing a tree.
12. Amnesia
I easily remembered everything. 1 2 3 4 5 It was impossible to remember anything.

Appendix F
Dissertation Comparison-Guided Relaxation

Preliminary Instructions

In a few minutes, I am going to administer a standard procedure for measuring hypnotic ability. At the end of the standard procedure, you will be asked to report on your experience in the response booklet, which has been given to you. Place the clipboard and your pencil or pen on the floor in front of you. If any of you are wearing contact lenses, you may wish to take them out now. Now, I think we can begin.

Please seat yourself comfortably. I am about to help you to relax, and meanwhile, I will give you some instructions that will help you to gradually enter a state of deep relaxation. You can become hypnotized if you are willing to do what I tell you to and if you concentrate on what I say. You have already shown your willingness by coming here today, and so I am assuming that your presence here means that you want to experience all that you can. Just do your best to pay attention to my words, and let happen whatever you feel is going to take place. Pay close attention to what I tell you to think about; if your mind wanders, that will be okay; just bring your thoughts back to my words, and you can easily experience more of what it's like to be hypnotized.

Guided Relaxation

Now, take it easy, and just let yourself relax. Please close your eyes, as it is easier to relax completely with your eyes are closed. I would like you to keep them closed until I tell you to open them or until I tell you to become alert, because all that's important is that you relax more and more. As I continue to talk, you will find that you will become more and more drowsy. You will find that you can relax completely, but at the same time, sit comfortably in your chair with little effort. You will be able to shift your position to make yourself comfortable as needed without it disturbing you. For now, just relax more and more. As you think of relaxing, your muscles will actually begin to relax. Starting with your right foot, relax the muscles of your right leg...now the muscles of your left leg... Just relax all over. Relax your right hand...forearm...upper arm...and shoulder...That's right...Now your left hand...forearm, upper arm...and shoulder...Relax your neck and chest...more and more relaxed...completely relaxed...completely relaxed.

As you become relaxed, your body will feel deeply at ease...comfortably heavy. You will begin to have this pleasant feeling of heaviness and comfort in your legs and feet...in your hands and arms...throughout your body...as though you were settling deep into the chair. Your body feels comfortable and heavy. You are beginning to feel very relaxed and comfortable. You are breathing freely and deeply, freely and deeply. You are becoming more and more deeply and comfortably relaxed. You are becoming more and more relaxed and comfortable. Your whole body feels heavy and relaxed. You feel a pleasant, warm tingling throughout your body, as you become more and more deeply relaxed...deeper...deeper...more relaxed...completely relaxed.

You now feel very relaxed, but you are going to become even more relaxed. Soon, I shall begin to count from 1 to 20. As I count, you will feel yourself going down further and further into a deeply relaxed state...But, you will be able to do all sorts of things I ask you to do without waking up...One...you are going to become more deeply relaxed...Two... deeper and deeper...Three...Four...more and more deeply relaxed...Five...Six...Seven...you are sinking deeper and deeper into a deeply relaxed state. Nothing will disturb you...Just let your thoughts focus on my voice and those

things I tell you to think of. You are finding it easy just to listen to the things I tell you to think of..Eight... Nine... Ten... halfway there...always deeper...Eleven...Twelve... Thirteen...Fourteen...Fifteen...Although deeply relaxed, you can hear me clearly. You will always hear me distinctly no matter how deeply relaxed you become. Sixteen...Seventeen ...Eighteen...deeply relaxed and very comfortable. Nothing will disturb you. You are going to experience many things that I will tell you to experience...Nineteen... Twenty...deeply relaxed now! You will not wake up until I tell you to. You will wish to remain relaxed and to have the experiences I describe to you.

Even though you are deeply relaxed, I want you to realize that you will be able to write, to move, and even to open your eyes if I ask you to do so, and still remain just as comfortable as you are now. It will not disturb you at all to open your eyes, move about, and write things. You will remain deeply relaxed until I tell you otherwise...All right, then.

Appendix G IRB- Initial Approval

 Health Care




Research Subject
Protection Program


18 April 2013

Marty Sapp, EdD
Educational Psychology
University of Wisconsin – Milwaukee
Enderis Hall 739
2400 E Hartford Ave
Milwaukee, WI 53211


RE: #P-13-24: Hypnotizability of Inpatient Adolescents

Dear Dr. Sapp:

On behalf of the IRB Chair, I am pleased to inform you that the  IRB[†] Behavioral has found that the above named protocol (Sapp Hypnotizability V3), Parental Permission/Authorization to Participate in a Research Study (IRB approved consent final version date 3/25/13), Agreement to Be Part of a Research Study (Assent form for children between the ages of 13-17) (IRB approved consent final version date 3/25/13), as well as submitted surveys, questionnaires, recruitment, and patient materials to include patient diary cards and clinical trial cards, meet the IRB's criteria for approval and were approved on 25 March 2013. You will receive a stamped copy of all approved recruitment and written materials for your research record. This approval includes minors 13-17 years of age. The IRB finds that this research involves greater than minimal risk to children but presents the prospect of direct benefit to the individual subjects [45CFR46.405] and that the permission of both parents are required unless one parent is deceased, unknown, incompetent, or not reasonably available, or when only one parent has legal responsibility for the care and custody of the child.


In accordance with Wisconsin law pertaining to inpatient psychiatric research subjects, Ranbir Saini,  Research Compliance Officer, was identified as a consent monitor for this research study and will conduct the monitoring as deemed appropriate. Please notify Ms. Saini (414.299.1708) when enrollment begins to make arrangements for the consent monitoring to be conducted.







The approval period is effective on 18 April 2013 and expires on 24 March 2013. The internal IRB tracking number assigned to your research study is P-13-24. Please be sure to reference that number in any future correspondence with the IRB.

A summary of your obligations as Principal Investigator are outlined in the attached *IRB Approval Letter Addendum*. Feel free to contact me with questions regarding any aspect of your human subject research. I can be reached at 414.219.7740 or via e-mail at <lori.roesch@>.

Sincerely,



Lori Roesch, CIM, CIP
RSPP Manager
Sent on behalf of the  IRB

IRB Compliance Statement: The  Health Care Institutional Review Boards ( IRBs) comply with all applicable laws, guidelines, and federal regulations that oversee the operation of Institutional Review Boards, specifically 45CFR46 and 21CFR50 and 56, including International Conference of Harmonisation E6 Good Clinical Practice guidance (ICH GCPs). The  IRBs are duly constituted (fulfilling federal requirements for diversity), have written procedures for initial and continuing review of clinical trials, prepare written minutes of convened meetings, and retain records pertaining to the review and approval process. In accordance with these regulations: [45CFR46.107(e) and 21CFR56.107(e)], the  IRBs prohibit any member from participating in the IRB's initial or continuing review of any study in which the member has a conflicting interest, except to provide information requested by the IRB. Our policy is to require a voting member of the IRB to leave the room for final discussion and voting on a protocol in which the member is an investigator, or has any conflict of interest. In addition, the  IRBs have received FULL accreditation by  valid through September 2016).

Appendix H

IRB Continuing Review Approval (Institution Blacked Out for Confidentiality)

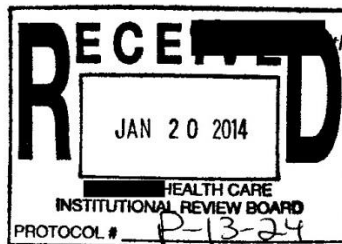
IRB

**Protocol for Research Involving Human Subjects
Application for Continuing Review/Final Report**

Research is currently being conducted at:

Select a site
Select a site
Select a site
Select a site

Center (list sites): _____
(list sites): _____
(list sites): _____



Handwritten signature: Lori Rosen

(IRB Chair or designee)
Approval date: 2-24-14 Full / Expedited
Expiration date: 2-23-15 Exp. Category: _____
For IRB Use Only

Principal Investigator: **Marty Sapp, EdD** Date of request: **12/30/2013**
IRB Protocol #: **P-13-24** Title: **Hypnotizability of Inpatient Adolescents**
Protocol and ICF currently expire on: **3/24/2014** Sponsor: **Investigator Sponsored**

- Please list the current contact person that the RSPP can call about this protocol (isn't always the study coordinator):
Name: **Michael Quant**
Mailing address: **106 W Seeboth St. Unit 303**
Phone: **414-949-9668** Fax: **414-229-2872** Pager: _____ e-mail: **mbquant@uwm.edu**
 - Please list all current co- and sub-investigators for this study: **Marty Sapp, Michael Quant, Kelsey Aspensen, Kara Theis, Jessica Allard, Melissa Whyte, and Kristine Jacobs.**
 - If applicable, indicate the sponsor's tracking number and/or version date of the most current IRB approved protocol: **V4 - 04/26/2013**
 - Is the study completed (no subjects have been enrolled, or all subjects have completed their final visit and data analysis at this site is complete, i.e. identifiable records/information collected will not be accessed or used again for the purposes of this research study)? **No**
If YES, date completed (or withdrawn): _____ (IRB file will be closed for this study). **Attach final results of research study, if available.**
 - Please indicate the expected end date of study duration (as indicated on the original submission or modification). **August 1, 2014**


	At local facility	Study-wide (if multicenter trial)
6. Has the study begun (e.g., have subjects been screened or enrolled)?	Yes	N/A
7. Is the study still open to subject accrual?	Yes	No
 - Number of subjects anticipated to be enrolled at Aurora sites (as reported at initial submission or by protocol modification): **200**
 - Number of screen failures, if applicable (cumulative): **0**
 - Number of subjects enrolled locally (signed consent AND met eligibility requirements) since last review: **72 73** Cumulative: **72 73**
 - If the study remains open to accrual and responses to questions 7, 8 and 9 above indicate that enrollment goals are not being met, the following questions must be addressed and considered by the IRB:
Describe whether resource issues (funding, personnel, etc.) are affecting your ability to conduct this study as originally anticipated: **N/A**
Describe institutional factors outside of your control that may be contributing to enrollment goals not being met: **N/A**
Is there a problem with the patient population such that you do not have enough prospective subjects who may meet eligibility criteria? **No**
What is the actual study-wide (versus local) enrollment compared to the projected? In other words, is the study accruing subjects nationally at a rate that would justify keeping the study open locally? **N/A**
- MH CA Feb 2014
See e-mail from Michael Quant*
- Responses will be shared with Patient-Centered Research Administration. The Aurora IRB and/or Research Administration may decide that it is not appropriate to allow the study to remain open as currently designed.**
- Number of subjects withdrawn, if applicable (cumulative): **1**
 - Number of subjects considered still active in study (this includes "registry" participants or subjects receiving investigational agent or interventions required as part of research protocol): **0**
 - Number of subjects in active follow-up (see 19 a.) (subjects have completed primary research-related interventions but in the case of relapse/reoccurrence/ device failure, subjects are required per protocol to complete other research interventions, treatments, specimen collection or diagnostic tests) that subjects would not undergo outside of the research study): **0** **You are required to complete Section II and III.**



Form RR 404-A v. 12/11/2012

On 2/24/14 agenda Approval sent to PI

Appendix I IRB- UWM Deferment of IRB Oversight

RE: P-13-24 IRB meeting follow-up (Quant/Sapp) Inbox x

 **Roesch, Lori** <lori.roesch@[REDACTED].org>

3/27/13  

to Melissa, Melody, mbquant 

Hi Melissa -

Please accept this e-mail as formal notification that [REDACTED] is willing to accept IRB oversight for UWM (pursuant to the blanket IRB Authorization on file between [REDACTED] and UWM) for the following protocol:

Study PI: Marty Sapp, PhD

Student PI: Michael Quant

Engaged personnel from deferring institution: Michael Quant, Marty Sapp

Title: Hypnotizability of Inpatient Adolescents [REDACTED] IRB #P-13-24

If you would like a copy of the final [REDACTED] IRB approved documents or meeting minutes, please let Melody Harries know and she will provide them to you when they are finalized.

Lori

Lori Roesch, CIM, CIP
Manager | Human Protections Administrator
Research Subject Protection Program | [REDACTED] Health Care, Inc.

An AAHRPP accredited program

-----Original Message-----

From: Melissa Spadanuda [mailto:spadanud@uwm.edu]

Sent: Wednesday, March 27, 2013 10:55 AM

To: Roesch, Lori

Subject: Fwd: P-13-24 IRB meeting follow-up (Quant/Sapp)

Hi Lori,

I wanted to follow up on this study we discussed previously. I don't think we "officially" deferred this study yet.

Please accept this e-mail as formal notification that UW Milwaukee is willing to defer IRB oversight to [REDACTED] IRB (pursuant to the blanket IRB Authorization on file between [REDACTED] and UWM) for the following protocol:

Study PI: Marty Sapp, PhD

Student PI: Michael Quant

Engaged personnel from deferring institution:

Title: Hypnotizability of Inpatient Adolescents

Please let me know if you need additional information from me.

Thanks,
Melissa

Melissa Spadanuda, MBA, CIP
IRB Manager
University of Wisconsin - Milwaukee
P.O. Box 413, Engelmann 270
Milwaukee, WI 53201
Phone: [414-229-3173](tel:414-229-3173)
Fax: [414-229-6799](tel:414-229-6799)

CURRICULUM VITAE
MICHAEL B. QUANT

EDUCATION

University of Wisconsin- Milwaukee

Ph.D.: Counseling Psychology; Anticipated Graduation, May 2015 GPA: 3.9

Dissertation: *Hypnotic Susceptibility of Psychiatric Inpatient Adolescents*

M.S.: Community Counseling; August 2010, GPA: 3.9

B.B.A.: Cum Laude; December 2007

CLINICAL EXPERIENCE

Aurora Psychiatric Hospital

Doctoral Practicum – Day Treatment

Behavioral Health Therapist

Supervisor: Munther Barakat, Psy.D.

Wauwatosa, WI

August 2010 – May 2011

May 2011 – July 2014

- Facilitate group therapy for inpatient children and adolescents who are at imminent risk of harming themselves or harming others.
- Provide individual and family therapy sessions for a caseload of children and adolescents presenting with a wide range of psychiatric diagnoses and behavioral disorders.
- Create and lead group activities for children in day treatment that provide them with opportunities to practice a variety of skills in exploring and understanding emotions, social situations, and problem solving.
- Conduct psychological assessments of children (ages 5-17) including MMPI-A, MCMI-III, Conners 3AI, and WISC-IV. in order to develop treatment plans that address children's specific needs at home, school, and in their community.

Lad Lake

Doctoral Practicum Student-Psychological Assessments

Practicum Supervisor-Psychological Assessments

Supervisor: Stephen Wester, Ph.D.

Milwaukee, WI

August 2012 – May 2013

May 2013- July 2014

- Train, supervise, and monitor several doctoral students' psychological assessments.
- Conduct psychological assessments of adolescent girls at St. Rose Youth and Family Center (ages 12-18) who typically present with trauma history as well as severe emotional and behavioral problems.
- Conduct intelligence, trauma, and social-emotional assessments of at-risk adolescent boys (ages 12-18) at Lad Lake's Residential Treatment Program. MMPI-A, WISC-IV, WAIS-IV, and TSSC.
- Write integrative reports, treatment plans, and present interpretations to children's care team.

Jewish Family Services

Doctoral Practicum Student

Supervisor: Michael Lubber, Psy.D.

Milwaukee, WI

August 2011 – May 2012

- Manage a caseload of uninsured children, adolescents, and families.
- Collaborate with school faculty to provide effective in-school therapeutic interventions for adolescents.
- Provide in-home therapy for clients with terminally ill family members.
- Administer and score outcome assessments for grant-funded clients in order to ensure quality of care.

St. Francis Children's Center
 Master's Practicum Student
 Supervisor: Rick Clark, Psy.D.

Glendale, WI
 January 2010 – August 2010

- Created and co-facilitated group therapy sessions for children with special needs. Sessions aided in development of children's social skills, understating of emotions, and group problem solving.
- Assisted children in their classrooms by providing personalized learning tools, heightened interpersonal and intrapersonal emotional awareness, impulse control, and conflict resolution skills.
- Lead individual, cognitive-behavioral therapy for children with emotional disturbances and cognitive delays.
- Conducted Autism Spectrum Disorders assessments to improve the accuracy of diagnosis and treatment planning.

Wrap Around
 Crisis Stabilizer: Youth Worker
 Supervisor: Christine O'Donnell, LCSW

St. Francis, WI
 October 2009 – January 2012

- Counsel youth on healthy coping strategies in order to improve home lives and academic success.
- Provide in-home, community, and school services to youth who are at risk of imminent placement in psychiatric hospitals or residential treatment centers due to their mental health needs.
- Collaborate with teachers, social workers, and families to create and execute effective care plans that maximize MPS students' academic potential.
- Partner with families and MUTT-MPS to diffuse crisis situations at schools and at homes.

RESEARCH

Research Team: Dr. Marty Sapp
 Research Assistant

Milwaukee, WI
 October 2008 – Present

- Administer hypnotic susceptibility scales to at-risk adolescents in an inpatient psychiatric hospital and collect data on hypnotic responsiveness.
- Aid in recruitment, data collection, and interviews for a project researching the benefits of cognitive therapies for improving freshmen's academic self-concept and adjustment to college living.

Center for Applied Behavioral Health Research

Research Assistant

Milwaukee, WI

May 2012 – Present

- Assist with preparation and analysis of data for CABHR publications, presentation, grants, and reports.
- Assess hypothesized models from Dr. Otto-Salaj's study 'Stories to Tell' to analyze the etiology of sexual risk, substance abuse, and trauma.
- Utilize SAS, SPSS, Mplus, QDS, Access, and Excel software packages.

VA Hospital

Research Assistant

Milwaukee, WI

June 2010 – February 2012

- Administered SCID-2 psychological assessments of veterans who are at high risk of committing suicide.
- Aided in the development of assessment materials and data collection from veterans returning from deployment.

Research Team: Dr. Anthony Hains

Research Assistant

Milwaukee, WI

October 2009 – May 2010

- Researched the effects of family and social support in the stabilization of A1C in youth with diabetes.
- Collaborated with Children's Hospital of Wisconsin to create effective interventions for juvenile diabetes patients.

PRESENTATIONS

- Quant, M., Alomá, A., DePratt, T., Lira, E., Hunt, J., Del Ponte, M. and Sapp, M. (2013). Hypnotic Susceptibility of Diverse Inpatient Adolescents. APA Convention 2013. Honolulu, HI.
- L.L. Otto-Salaj, D. Fuhrmann, Y. Cho, M.J. Brondino, M. Quant, S.J. Rose, M. Fendrich, and C. Gore-Felton. (2013) The Influence of trauma history, sexual assertiveness and relationship power on sexual risk, substance use and victimization in African-American women. Research Society on Alcoholism. Orlando, FL.
- Quant, M.B., Aloma, A., Lira, E., DePratt, T.M., Fallon, O., and Sapp, M. (2012). Adlerian hypnosis as a therapeutic intervention for in-patient adolescents. American Psychological Association. Orlando, FL.
- Sapp, M. Torres, J.B., McNeely, R.L., Aloma, A., Lira, E., DePrate, T.M., Quant, M.B., and Fallon, O. (2012). Hypnosis: A useful modality for serving African American and Latino Clients. American Psychological Association. Orlando, FL.
- Aloma, A., Lira, E., DePrat, T.M., Quant, M.B., Fallon, O., and Sapp, M. (2012). Medical providers' perceptions of hypnosis in the treatment of Latinos with Type 2 diabetes. American Psychological Association. Orlando, FL.

- DePratt, T., M., Aloma, A., Lira, E., Fallon, O., Quant, M.B., and Sapp, M. (2012). Investigating hypnosis: Increasing health behaviors in very overweight African American adults. American Psychological Association. Orlando, FL.
- Sapp, M., Lira, E., Lui, J., Chien, L., Bernfeld, S., Kihlslinger, D., Scholze, S., and Hitchcock, K. (2011). Hypnosis and Diabetes: Lationos. American Psychological Association. Washington, D.C.
- Sapp, M., Lira, E., Quant, M., Lui, J., Chien, L. Bernfeld, S., Kihlslinger, D., Scholze, S., and Hitchcock, K. (2011). Hypnosis and adaptive regression. American Psychological Association. Washington, D.C.
- Scholze, S., Sapp, M., Lui, J., Kihlslinger, D., Chien, L., Holguin, S., Bernfeld, S., Freund, D., and Quant, M. (2011). A randomized clinical trial: The use of hypnosis to improve academic self-concept in college students. American Psychological Association. Washington, D.C.
- Sapp, M., Scholze, S., Kihlslinger, D., Lui, J., Chien, L., Bernfield, S., Holguin, S., Quant, M., and Freund, D. (2010). Adlerian counseling and hypnosis: Strategies for African American adolescents. American Psychological Association. San Diego, CA.

TEACHING EXPERIENCE

University of Wisconsin-Milwaukee, Milwaukee, WI

SocWork 662- Methods of Social Welfare Research

Instructor: Spring 2013, Spring 2014

Discuss relationship between research and practice, assumptions underlying the use of empirical methods, the rationale for using these methods, the application of these methods in ideographic and nomothetic studies, and approaches to analyzing information gained from use of the methods. Develop students understanding of multicultural topics, values, assumptions and ethics that determine research decision-making. Teach the application of qualitative/quantitative research methods and designs; sampling procedures; guide tutorials on the use of SPSS for quantitative analysis; and prompt students to critically analyze research reports and published research materials through weekly in-class exercises.

University of Wisconsin-Milwaukee, Milwaukee, WI

SocWork 793 Advanced Methods of Social Welfare Research

Instructor: Fall 2013, Spring 2014, Summer 2014

Teach advanced curriculum to graduate social work students as part of their research requirement for the MSW degree. Develop students' scientific orientation to social work practice and increase knowledge and skill in the application of research methodology to the evaluation of their own practice. The course closely relates to students field placement, and is a means to acquire tools for assessing progress and outcomes. Facilitate the examination of ethical issues in practice and research, and ways in which research design and the interpretation of data can be influenced by factors related to race, ethnicity, social class, gender, and sexual orientation.

University of Wisconsin-Milwaukee, Milwaukee, WI

Instructor: August 2010 – May 2012

Ed-Psych 101 Foundations of Academic Success

Instructed twelve sections over two academic years. Implemented vocational counseling theory to help guide students through their career exploration process. Students were primarily sophomores and freshmen who were undecided about their academic majors. Collaborated with UWM's Career Development Center to create individualized plans to maximize students' professional experiences.

University of Wisconsin-Milwaukee, Milwaukee, WI

Instructor: June 2011 – July 2011

Urban Teacher World

Instructed courses on exploring careers in education to high school students from Milwaukee Public Schools. Created workshops to help adolescents in their exploration of interests and skills, taught students how to use online services to search for career information and jobs; taught skills for professional networking.

PROFESSIONAL AFFILIATIONS

American Psychological Association of Graduate Students (APAGS)

APA Division 17 - Counseling Psychology, 2010-Present

APA Division 30 – Society of Psychological Hypnosis, 2010-Present

UWM - Counseling Psychology Student Association, 2010-Present