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Hypnosis and Children: Analysis of Theory and Research

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RUNNING HEAD: Child Hypnosis

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Although hypnosis has over 200 years of formal study, practice and development, it remains surrounded by a mystique that obscures its scientific framework. Research has progressed much slower than would be expected over this period of time. Many questions are still unanswered, especially concerning children and hypnosis. Part of the problem is that contemporary researchers have made greater use of adult rather than child subjects. This practice continues even though there is reason to believe that hypnosis with young children is different from hypnosis with adults (Hilgard & LeBaron, 1982). Still more problematic is the continuing disagreement among researchers about what hypnosis is, exactly.

Hypnosis Paradigms

In order to make an informed comparison of research outcomes in child hypnosis it is necessary to understand multiple hypnosis paradigms, each having a unique set of implications for research and clinical practice. Unfortunately, the field remains fragmented by arguments between groups regarding the nature of hypnosis. Even within groups there is disagreement over the most appropriate means of defining hypnosis. At this point, even the nature of the controversy is controversial (Rhue, Lynn & Kirsch, 1993).

Conceptual Models

At the conceptual level there are at least three distinct camps: *state theorists* who believe hypnosis results in an altered state of consciousness, *neodissociationists* who believe hypnosis results in a split of consciousness, and *sociocognitive theorists* who believe hypnosis is the result of ordinary social influences (e.g., motivation and expectancy). The following analysis of these theoretical perspectives examines implications for hypnosis with children.

State Theory

According to the state theory of hypnosis, the proper development of a hypnotic trance is essential. This idea has evolved from 18th-century attempts to explain why magnetized subjects, when awakened, had full amnesia for all that had occurred. In 1825, Abbé Faria argued that the best way to induce somnambulism was to tell the subject, "I wish you to go to sleep." Soon after, James Braid theorized that a special sleep state follows fatigue caused by fixation of attention. During this era, the goal of hypnotism was not to increase suggestibility but rather to induce a state of sleep (Janet, 1925).

Although sleep is no longer the main objective, these beliefs still provide the rationale behind common practice. For example, hypnotic inductions are performed using an object that the subject is asked to gaze at until a state of sleepiness ensues, or relaxation procedures are used to focus the subject's attention on various parts of the body until a relaxed/sleepy state is achieved. However, these ideas have in some ways been difficult to translate into work with children. For instance, young children are notorious for having a shorter attention span than adults yet they are still highly responsive to hypnotic suggestions. Rather than becoming relaxed and sleepy, young children tend to be active or playful. State theorists have attempted to resolve these differences by arguing that an altered-state of consciousness

manifest itself differently during childhood. For instance, in contrast to hypnosis with adults, it is expected that children will keep their eyes open during trance. This model of hypnosis leads one to assume that there is a critical moment of opportunity (i.e., the trance state) during which therapeutic suggestion is more effective. The most serious consequence of this belief is the corollary assumption that at other moments the child is not susceptible to the practitioner's influence. A large amount of research in childhood suggestibility indicates the contrary (Ceci & Bruck, 1993). Children are extremely vulnerable to adult suggestion even without the use of hypnotic induction.

Neodissociation

Although similar to traditional state theory, the neodissociation model distinguishes itself by emphasizing the ordinary nature of hypnosis. This view has evolved from a 19th-century view of hypnosis as a special case of hysteria. In the original dissociation theory (Janet, 1889) hypnosis was considered evidence of a second consciousness, formed by a group of associated ideas. Each consciousness was believed to have content that was not available to the other. Using experimental methods, Ernest Hilgard (1979) applied the notion of a "hidden observer" to demonstrate how it is possible to access information that is not available to other cognitive systems. According to Hilgard's neodissociation theory, a partial dissociation is created by an amnesic barrier, separating certain cognitive systems from the executive ego allowing them to be directly activated by hypnotic suggestion. This splitting of consciousness is considered normal and can be seen in routine behaviors, such as an adult carrying on a conversation while driving down the road, or a child watching TV while speaking with a parent (but without remembering the content of the conversation). However, there is reason to question whether these events are equivalent to hypnosis. Are we to assume that a child is more likely to respond to suggestion while his attention is absorbed in a favorite TV program? Many parents would argue that by turning the TV off responsivity is increased. Driving a car to a particular location, or replying to a request with an automatic answer, are behaviors that can just as easily be explained in terms of habitual response, rather than dissociative reasoning produced by cognitive systems that are operating independently. Regarding Hilgard's research findings, it is possible that the dissociative states observed in the laboratory were a product of suggestion rather than the cause of hypnosis. As with the state model, this theory seems less convincing when taken outside the context of adult behavior and applied to children.

Sociocognitive Theory

According to sociocognitive theory all hypnotic phenomena are social behaviors that are direct by-products of suggestion. A similar explanation of hypnosis dates back to 1784 when a series of clever experiments were conducted to determine the legitimacy of Mesmer's claims. After studying both adult and child subjects, the commissioners concluded that the phenomenon in question was due to the "excitement of the imagination" (Hull, 1933, p. 8). Although the term "hypnosis" and the idea of suggestive therapeutics was not introduced until 57 years later, this early conceptual definition decisively

removed hypnosis from the domain of physical science. Contemporary theorists, such as Irving Kirsch (1990), have argued that the power of hypnosis does not originate from within the hypnotist but instead in the subject's belief or expectation that the hypnotic procedure will work (also see Barber, 1972). Thus the most appropriate hypnotic technique is the one that the subject believes will work.

Along with providing a parsimonious explanation, sociocognitive theories account for circumstances that are otherwise unexplainable. For example, a mother found herself baffled when her son's warts (which had resisted standard medical treatment) disappeared on the morning of his appointment with a hypnotherapist, even though he had not yet seen nor spoken to the clinician. Further questioning revealed that the mother had attempted to prepare the eight year old boy for this special day by telling him that a nice person was going to use words to make his warts disappear. While it is difficult to explain this outcome in terms of hypnotic induction or split consciousness, it is easy to see how the mother's instructions would have created an expectancy in her son that he would lose his warts on the day of his appointment. Unfortunately for the hypnotherapist, the mother did not make it clear that he should wait until *after* hypnosis to lose his warts.

Operational Definitions

The influence of Clark Hull's 1933 synthesis and interpretation of research in the area of hypnosis can still be seen in current attempts to define hypnosis (Page, 1992). After noting that all the phenomena produced by suggestion, following a hypnotic induction, can also be produced without a hypnotic induction; Hull dealt with the problem of separating waking suggestibility from hypnotic suggestibility by using two criteria. One is the action of the hypnotic operator and the other is the subject's response. At the conclusion of his definitive work, *Hypnosis and Suggestibility*, Hull states that, "The essence of hypnosis thus lies in the fact of *change* in suggestibility." In other words, hypnosis occurs when the subject develops a heightened responsiveness to suggestion. Hull then added a second criterion to his definition by stating that the increase in suggestibility must occur "...after submitting to the hypnotic procedure" (Hull, 1933, p. 392). In other words, hypnosis is defined in part by the actions of the hypnotic operator (i.e., the induction procedure). These two elements can still be seen in contemporary attempts to operationalize hypnosis and are described in this paper as procedure-based criteria and behavior-based criteria.

A Procedure-Based Definition of Hypnosis

A procedure-based definition of hypnosis is an attempt to operationalize hypnosis by the action of the hypnotic operator. The Executive Committee of the American Psychological Association, Division of Psychological Hypnosis has prepared the following definition, "Hypnosis is a procedure during which a health professional or researcher suggests that a client, patient, or subject experience changes in sensations, perceptions, thoughts, or behavior." Notice, this definition says nothing about the behavior of the subject. In a sentence immediately following, it is mentioned that the hypnotic context is "generally" established by an induction procedure (Kirsch, 1994). Using a similar approach, Peretz (1996) more

concisely defined hypnosis as "suggestion and repetition." In both of these definitions, hypnosis functions as a verb, an indication of the operator's action.

When using a procedure-based definition of hypnosis, the role of the subject is, by default, less significant. Thus, after implementing a standardized induction, a researcher can accurately state that hypnosis was accomplished, regardless of subject's response. While procedure-based definitions are precise, their logic is lost on those who are interested in function rather than form. In clinical practice, a procedure-based view of hypnosis may be disadvantageous. Defining hypnosis as a specific set of induction techniques hazards unnecessary restrictions on treatment methodology thus making it less individualized. Furthermore, the implication that hypnosis always follows induction may be unwarranted.

An Experiential-Based Definition of Hypnosis

An experiential-based definition of hypnosis uses the subject's experience as the primary criterion. Most commonly, hypnosis is associated with the experience of involuntariness (Plotnick, Payne & O'Grady, 1991). This experience has been labeled by Weitzenhoffer (1978) as the classic suggestion effect. In this way, hypnosis is used as a noun indicating the state of a person whose actions are momentarily subject to external suggestion. This philosophy fits best with the objectives of an authoritarian approach (i.e., benevolent use of the practitioner's influence over the subject). An ironic twist on this perspective is when the subject experiences a decrease in voluntary control in response to self-suggestion. When framed this way, the subject's autonomy is restored allowing the hypnotist to operate from a more egalitarian approach. In either case, the subjective experience of involuntariness is best suited to the state model of hypnosis.

Does the experience of involuntariness mean that subjects truly have no control over their behavior during hypnosis? Lynn and colleagues (1990) have argued that even though hypnotic responding may be described by the subject as involuntary, when tested it is not automatic nor involuntary. This is not a novel idea. Sixty years earlier, Hull alluded to the voluntary nature of all hypnotic behavior (Hull, 1933, p. 400). Summarizing research using undergraduate subjects Lynn, Rhue and Weeks (1990) found that, "subjects who engage in minimal critical thinking and introspection and whose hypnotic performance matches their expectancies of appropriate responding are likely to perceive their suggestion-related actions as involuntary" (p. 174). Their conclusion was that hypnotic communications promote the identification of voluntary action as automatic or involuntary. If this is true, then defining child hypnosis in this way would necessitate training young children to believe they have no control over actions that are in fact voluntary. Because children are so highly suggestible this practice seems unwarranted and is even contrary to important developmental goals such as the child's drive toward mastery and sense of autonomy (Olness & Kohen, 1996),

A Behavior-Based Definition of Hypnosis

A behavior-based definition of hypnosis is premised on the observable behavior of the subject. Contrary to procedure-based definitions, Bowers and LeBaron (1986) assert that hypnosis is an activation of hypnotic potential rather than a specific set of rituals. By this use of the term, hypnosis is a consequence (noun) rather than an activity.¹ In other words, a change in the subject's behavior indicates the attainment of hypnosis. From this perspective the use of induction and the experience of involuntariness are still permissible but not perquisite.

The problem with this type of definition is that it requires agreement on which behaviors to use as indicators. Because of the argument that children do not always demonstrate hypnotic behaviors typical of adult hypnosis, the identification of "legitimate" hypnotic behaviors is especially challenging. These differences are listed along with general similarities in Table 1.

Table 1

Similarities and Differences between Child Hypnosis and Adult Hypnosis

Child Hypnosis	Similarities	Adult Hypnosis
* highly suggestible * weak fantasy-reality distinctions	heightened state of suggestibility	* need a reason to believe that hypnosis has truly occurred
* desire to keep eyes open * highly active	spontaneity of behavior	* eye closure leads to a series of other nonvolitional acts
* imagination is expressed through play	absorption in imaginative activities	* imagination is expressed through internalized imagery
* enjoyment of make-believe play	involvement in positive, reinforcing activities	* enjoyment of physical relaxation

These items were collected from the following sources: Ceci & Bruck, 1993; Hilgard & LeBaron, 1982; Kuttner, 1988; Morgan & Hilgard, 1979.

In 1974 Gardner, a leader in the field of child hypnosis, defined hypnotic responsivity using five types of behavior: 1) capacity for intense concentration, focused attention on limited stimulus field, 2) literal thinking, 3) readiness to shift back and forth from reality to fantasy, 4) intensity of emotion, 5) openness to new ideas and new experiences. When viewing hypnosis from a state theory, this list of behaviors helps provide markers by which hypnosis can be identified. However, non-state theorists are likely to dismiss these characteristics as artifact, a self-fulfilling prophecy created by the hypnotist's unstated expectations. As most informed practitioners know, the history of hypnosis is replete with examples of hypnotic subjects performing unique behaviors that conform to the operator's theories of what hypnosis should look like (e.g., Mesmer's convulsive subjects, Braid's sleeping subjects and Charcot's subjects who passed through three exact stages of hypnosis). Therefore, Gardner's more general point of increased responsiveness may be more useful for purposes of defining hypnosis than her attempt to capture the specifics of how a child's increased responsivity is manifest.

This type of definition is highly useful for research because an increase in responsivity is easily available for empirical verification by use of baseline measurements. Another advantage of using heightened responsiveness as a defining variable is that it permits the study of phenomena, such as self-hypnosis or auto-hypnosis, that do not require a formal induction or the presence of a hypnotic operator.

Summary

Is hypnosis best defined as a procedure, a behavior, a phenomenon, or as a combination of these? How we choose to define hypnosis is important because it is this understanding that will ultimately determine when, how and for what purpose it is applied.

Weitzenhoffer (1989) argues that it is a mistake to use a single term to describe what is being done to the subject as well as what is being experienced by the subject. Instead, Weitzenhoffer recommends the use of the word "hypnotism" when speaking of procedural matters and the use of the word "hypnosis" when describing the subject's response to hypnotism. He then defines hypnotism as "...a form of influence by one person exerted on another through the medium or agency of suggestion" (p. 13). According to Hull, it is not the degree of suggestibility that is the best indicator of hypnosis but rather the fact that there has been an increase in suggestibility as observed through a change in behavior. Gardner makes a similar point but places greater emphasis on the activation of innate abilities by using the term "responsivity" in place of "suggestibility."²

For a clinician, this type of behavioral-based definition is probably the most practical. For example, when distraught parents seek help for their child, the procedure that is used, or the child's sense that he has experienced involuntary behavior, is not as important as the end result (e.g., an increased ability to endure an extremely painful medical procedure without screaming and without recoiling in pain). Also, given the use of standardized research procedures, defining

hypnosis in terms of the subject's observable behavior best fits with the philosophies and objectives of empirical investigation.

Analysis of Research on Child Hypnosis

Predicting Hypnotic Responsiveness (Susceptibility)

Since the seventeenth hundreds investigators have been intrigued by differences in hypnotizability.³ To better determine differences in hypnotic susceptibility, modern researchers have developed psychometric instruments designed to quantify the hypnotic susceptibility or "hypnotizability" of a given individual.

Psychometric Instrumentation

The first standardized measure of hypnotic susceptibility, formally developed for children, was the *Children's Hypnotic Susceptibility Scales* (CHSS) (London & Cooper, 1969; Cooper & London, 1979). The CHSS consist of 22 items that can be administered in approximately one hour. Items on the scale were originally scored according to overt behavior (OB) which indicates how well a child's behavior complies with the suggestion, subjective involvement (SI) which indicates the experimenter's guess at whether the child was faking or deeply involved, and a total score (TOT) which is a weighted combination of OB and SI. In 1969, test retest of the CHSS, after one week, resulted in a reliability of .78 for the total score. Investigators interpreted this finding as meaning that susceptibility is remarkably stable and not subject to manipulation or change. In a later report (1979) which included the results of a two year retest, there was a decline in the size of the correlations. After two years the total score only had a .46 correlation with the first session. This figure was reported as being significant at the .01 level. Interscorer reliability scores, using a second examiner not acquainted with the child's earlier performance, ranged from .97 for OB to .88 for SI and .94 for the TOT score.

Another well-known instrument is the *Stanford Hypnotic Clinical Scale for Children* (SHCSC) (Morgan & Hilgard, 1979). This scale uses a slightly modified wording of the *Stanford Hypnotic Susceptibility Scale, Form A*, and is assumed to be appropriate for children aged 6 to 16 years. The SHCSC was designed for clinical use. Therefore, it is brief and contains items assumed to be useful in therapy. The SHCSC consists of a relaxation or eye closure induction followed by five test items: hand lowering, hallucinated TV, a dream, age regression and a posthypnotic suggestion to reenter hypnosis at a hand-clap signal. Later, in a revised version, Zeltzer and LeBaron (1984) added "realness" and "object behavior" to the SHCSC scales. The object behavior scale is based on observed behaviors and reported experiences. The realness scale is based on reports of involuntary responses, versus those which the subject was trying to make happen.

The experimental use of susceptibility scales has remained relatively unchallenged, partly because of the high reliability scores. However, there has been some question about whether these scales adequately distinguish between waking and hypnotic suggestibility (Kirsch, 1996). The boundaries separating waking and hypnotic susceptibility become even more vague when considering children. For

instance, young children often keep their eyes open throughout a hypnotic procedure making it less clear whether the child is in a "waking" or "hypnotic" condition (Gardner, 1974). Furthermore, many of the experts in child hypnosis use individualized rather than standardized procedures.⁴ Therefore it becomes more difficult to distinguish hypnotic procedures from other techniques such as behavioral distraction, progressive relaxation or task oriented play.

At this point it is not clear whether hypnotizability data are meaningful for purposes of treatment or psychometrics. While some studies have discovered a relationship between high-hypnotizability and treatment success (Hilgard & LeBaron, 1982; Smith, Barabasz & Barabasz, 1996), other have found that hypnotizability is not related to treatment outcomes (Banerjee, Srivastav & Palan, 1993; Spanos et al, 1988; Wall & Womack, 1989; Zeltzer, Franurik & LeBarron, 1989; Zeltzer, LeBaron & Zeltzer, 1984). It is also possible that measures of hypnotic susceptibility best represent the child's performance on a particular set of activities; and that this performance can not be generalized, at least not to certain treatment outcomes such as those described above. For example, even though a child does not perform well on the items of a standard scale, that child may still have an extraordinary capacity for hypnosis, given the proper set of circumstances (e.g., after a serious injury).

Developmental Differences

Age

What is the youngest age at which hypnosis will be effective? London and Cooper's (1969) norms of susceptibility begin at 5 years of age. Gardner (1977) and LaBaw (1973) have observed infant behaviors which they believed to be indicators of hypnosis. But, what might be evidence of hypnosis for one, may be meaningless to another. Before experts will be able to agree on the age at which hypnosis is possible, it will be necessary to first establish a mutually agreed upon definition of hypnosis.

A point researchers have agreed upon is that responsiveness to specific hypnotic techniques changes with age. As early as 1933 Hull observed that both waking and hypnotic suggestibility vary with age. According to this early data, suggestibility reaches a peak at age eight and then slowly declines. Modern researchers have also found that hypnotic ability declines with age (Ambrose, 1968; London, 1965; London & Cooper, 1969; Sah, 1968) after having reached a peak between 9-12 years of age (Morgan & Hilgard, 1973). Along with changes in over-all suggestibility, there might also be subtle changes in the nature of the child's hypnotic responsiveness. Gardner (1974) has suggested that an induction technique that is successful one year may have to be discarded the next year.

Along with evidence provided by the hypnotizability scales, there are outcome studies that indicate a similar difference in responsiveness. For instance, while comparing treatments for enuresis, hypnosis was found to be less effective than imipramine for children younger than seven years of age. But, hypnosis was significantly effective for children aged 7 to 16 years of age (Banerjee, Srivastav & Palan, 1993). The most obvious explanation for this outcome is that younger children are less responsive

to hypnosis and more responsive to this type of drug therapy, than are older children. However, this is not the only way of interpreting these results.

It has been argued that due to the shift in thinking style and maturity, around 10 years of age, different approaches are required for children above and below this age (Benson, 1995). Thus, another explanation for differences across age groups is that hypnotic procedures may need to be varied in accord with particular stages of development. In the previous study of enuresis, a relaxation-oriented induction was used followed by suggestions to go to a favorite place. It is possible that this was inappropriate methodology for the younger subjects. In a study using a different hypnotic procedure, Kuttner and colleagues (1988) found that the distress of younger children (aged 3 to 6 years) was best alleviated by hypnosis in the form of imaginative involvement. Older children (aged 7 to 10 years) responded equally well to both distraction and imaginative involvement techniques. Had more appropriate techniques been used in the study by Banerjee and colleagues, the younger subjects might have responded equally well to hypnosis.

Moore and Cooper (1966) were among the first to systematically explore age related differences. Their finding was that the difficulty of eye closure and arm immobilization differed over a two year administration. Both of these were more difficult at the earlier testing. In a more recent study, of 42 subjects (aged 7 to 13), none of the children were able to pass the negative visual hallucination item (Plotnick et al, 1991). This finding should be followed up with further investigation to determine whether this failure is related to research methodology or developmental issues, and at what age negative hallucination is possible.

There are few child related outcome studies that analyze hypnotic techniques to determine which are most effective for various age groups. As Hilgard and LeBaron (1982) have suggested, some of the existing literature on child development and play may hold important clues for the type of hypnotic procedure that will work best. Olness and Kohen (1996) have published a list of induction techniques by age. However, because of variation within age groups, a more individualized approach is recommended by these authors.

Environmental factors

In a landmark investigation, Hilgard (1970, 1974, 1979) found that subjects with the highest hypnotic susceptibility scores remembered a childhood history of severe parental punishment. This finding has since been supported in several studies (Lynn & Rhue, 1988; Nash and Lynn, 1986; Wilson & Barber, 1983). The general finding has been that subjects, who acknowledge having been injured by parental punishment, score higher on tests of hypnotic susceptibility than subjects who do not report such punishment. However, as with all correlational research, it is possible that some other variable, independent of physical punishment, plays a more causal role. For instance, children who are severely punished may experience an increase in fantasizing due to loneliness and isolation, or as an escape from

an aversive environment (Lynn & Rhue, 1988). In such a case, fantasizing would be the causative agent rather than punishment.

In a study using 128 undergraduates, the expected relationship between punishment severity and hypnotic susceptibility was not found. Instead, subjects with high hypnotic ability reported significantly higher family cohesion than did subjects of low hypnotic ability (Mann, 1992). Therefore it was hypothesized that children from families with high cohesion may be more likely to suppress expressions of negative affect and instead use fantasy as a coping mechanism. Another possibility is that parents, who are highly involved with their children, encourage the development of absorptive capacities through reading or creative activities that foster imaginative development. Without further research, this area remains highly speculative.

Absorption in imaginative activities

In an attempt to predict hypnotic susceptibility before hypnosis, Josephine Hilgard (1965, 1970, 1979) conducted intensive-interview and rating research, using university students. This research revealed that good hypnotic subjects often report a history of long-standing imaginative involvement in sensory experiences, reading, and dramatic arts. This finding was later corroborated in other, independent studies using child and adult subjects (LeBarron, Zeltzer & Fanurik, 1988; Lynn & Rhue, 1986; Wilson & Barber, 1983). Fantasy proneness, which has been used as a synonym for imaginative involvement (Lynn & Rhue, 1988), has been defined by Wilson and Barber (1983) as the subject's ability to "set the theme, and then an imaginative scenario unfolds that has some of the characteristics of a dream and some of a motion picture" (p. 342).

Imaginative involvement has been studied in greater detail by looking at a series of related variables such as absorption, vividness of mental imagery, and creativity (Lynn & Rhue, 1986). In one such study, using subjects 7 to 13 years of age, Plotnick, Payne and O'Grady (1991) found correlations as high as .50 for fantasy play, .46 for vividness of imagery and .42 for absorption. During an outcome study, vividness of imagery was correlated with wart loss after hypnotherapy (Spanos, Stenstrom & Johnston, 1988).

In contrast, while describing research on fantasy proneness, Lynn and Rhue (1988) report that their combined research does not support fantasy proneness and hypnotizability as a robust measure. According to their study, the two are only modestly related. Another finding was that hypnotic responsiveness is possible even without well-developed imaginative abilities. In this study, more than a third of the nonfantasizers scored as high hypnotizables, and nonfantasizers were just as hypnotizable as medium fantasy-prone subjects. These authors cite several cognitive, interpersonal, and situational factors that have been shown to augment hypnotic responding along with cognitive involvement. These include: positive attitudes, beliefs, motivation to participate fully in the events of hypnosis, correct interpretation of hypnotic suggestions, and comfort and rapport with the hypnotist (p. 38). Another criticism of the research in imaginative involvement comes from Kirsch (1990) who argues that these

outcomes are mediated by the subject's expectancies. More research will need to be conducted before general agreement is achieved.

Psychopathology

Since the writings of Paracelsus there has been a belief that mental illness renders a person more vulnerable to suggestion.⁵ In 1882, the famous researcher Charcot argued convincingly that hypnosis was the result of a disorder in the nervous system (Janet, 1925). More recently, treatment models being taught in child abuse and dissociative disorder workshops, propose that clinical dissociation is a form of hypnosis. However, there is experimental evidence that contradicts this popular belief (Putnam et al, 1995).

It has been discovered that adult phobic patients, particularly those suffering from multiple phobias, are more likely to have high hypnotizability scores than are nonphobics (Frankel & Orne, 1976). Similarly, Gerschman and colleagues (1987) found a significant relationship between hypnotizability and severity of phobic disorders, in 120 dental patients of various ages. This possibility still needs further experimental investigation using child subjects.

Situational Factors

Individual attributes, such as age or personality, may not be the only means of explaining differences in hypnotizability. It has been argued that hypnotizability may be influenced by situational factors. According to Spanos and colleagues (1988) it is not advisable to use global measures of cognitive involvement, because "situation specific indicators of subject's cognitive involvements and motivations may be better outcome predictors" (p.252). According to Gardner (1974) the finding that certain traits are more conducive to hypnosis may reflect the limitations of the therapist rather than the child's actual hypnotic potential.

Research pioneered by Barber and colleagues (1965, 1972) has provided a means of considering the effects of immediate social influences. Barber demonstrated experimentally that certain instructions will increase responsiveness to test suggestions to the same degree as traditional hypnotic induction. These instructions are aimed at enhancing expectancies, attitudes and motivations. However, these findings were not based on studies that incorporated child subjects.

While studying expectancy with a wide age range (10 to 74 years), Spanos and colleagues (1988) found that suggestion-induced wart removal was likely to occur when subjects held moderate to high expectations for treatment success. In this study, subjects with low expectations for treatment success did not lose any warts.

One factor that may be important in shaping children's expectancies is the attitude of the parents. Gardner (1974) suggests that the major obstacle to successful child hypnotherapy is more often the attitude of the parents than that of the children themselves. Others have even argued that hypnotherapy with children may not be effective if there are family dynamics that motivate behavioral symptoms

(Kling, 1971; Ritterman, 1982). More research is needed to determine the extent to which parent's attitudes and beliefs influence a child's responsiveness to hypnosis.

Comparison of Hypnotic Procedures

As previously mentioned, a common finding in studies of hypnosis with children is that differences exist between child and adult hypnosis. Two of the most well documented features that distinguish child hypnosis are: a) young children like to keep their eyes open throughout the procedure and b) young children respond well to procedures that involve make-believe or pretend play (Hilgard & LeBaron, 1982). Perhaps this is why some of the techniques, which have traditionally worked well with adults, have not worked as well with children. For this reason, studies that examine the effectiveness of one procedure versus another are crucial to the continued development of child hypnosis.

Hypnotic Induction

Hypnotists use hypnotic induction with the expectation that the subject's responsiveness to suggestion will increase after exposure to the induction procedure. But, is a formal induction always necessary with children? To address this question Hogan, MacDonald and Olness (1984) measured children's voluntary control of auditory evoked responses, with and without a hypnotic induction. They found that children can modify peripheral auditory input to the brain after hypnotic induction as well as after simple verbal suggestion. The authors interpreted this result as an indication that "children may move into an altered state of awareness via other means than formal induction" (p. 93). These authors are not the first to suggest this possibility. Milton Erickson argued the existence of what he referred to as "autohypnosis," something that occurs naturally, without an induction (Erickson, 1964). While the possibility of autohypnosis has not been disproven, there is yet another explanation.

As early as 1910, Emile Coué began to argue that there is no such thing as "trance." Instead, Coué believed that all hypnosis is autosuggestion (Hull, 1933). If there is no such thing as trance, then time does not need to be wasted on an attempt to induce children into an altered-state of consciousness (i.e., trance). Research conducted in the educational context (Oldridge, 1982) and medical context (Edwards & Van der Spuy, 1985) has shown no significant difference between groups that receive a trance induction and those that do not. Thus, the altered-state paradigm may be the least parsimonious explanation for behavior that can be explained in terms of social learning (Silva & Kirsch, 1992).

Spanos and colleagues (1988) report that while treating children (10 to 74 years of age) for warts, there was not a significant difference between the trance group (i.e., the children who received a hypnotic induction) and the group receiving "waking" suggestions. Both of these groups did significantly better than the no treatment control. In this study, four groups were compared a) hypnotic induction plus suggestion, b) same suggestion preceded by non-hypnotic relaxation, c) suggestion alone, and d) a no-treatment control condition. The group that received an induction and the group that received suggestion only, more frequently lost warts than the control. These results led the authors to conclude that the use of an induction is unnecessary.

Unfortunately, these authors did not address the fact that in the third group (i.e., non-hypnotic-relaxation-plus-suggestion), suggestion did not produce results that differed from the no-treatment control. Another problem with this study is its failure to address the possibility of self-hypnosis. In the first experiment, subjects were given the instructions to, "count their wart every day, and after each counting to close their eyes and spend 3 to 4 minutes imagining the warts on their target hand disappearing" (p.248). If this suggestion was used in the "suggestion only" group, then it is possible the results were contaminated by the presence of self-hypnosis. The suggestion to go home and practice imagining the wart disappearing, could be described as an exercise in self-hypnosis because of the use of imagery.

Even more curious, while investigating hypnotherapy as a treatment for enuresis, Edwards and Van der Spuy (1985) found that child subjects (aged 8 to 13 years) responded better if suggestions were provided during a waking state rather than during hypnosis! A third treatment group, that received a hypnotic induction but with no suggestions, performed even worse over a six week period. Such a finding leads to the question of whether the use of an induction is detrimental in certain treatment contexts.

Before rushing to the assumption that a hypnotic induction is not beneficial, it is important to consider the possibility that these researchers failed to observe a significant difference because they used inappropriate induction techniques. Morgan and Hilgard (1979) have commented that some children respond better to one type of induction over another. If this is true, then rather than identifying a single type of induction that works with young children, it may be necessary to identify a wide variety of induction procedures that are paired with particular personality types or particular age groups. For instance, Gardner (1974) has recommended gentle rocking or rhythmic presentation of an interesting visual stimulus when attempting an induction with infants. With a slightly older child it might be more effective to use storytelling. More research will need to be conducted before any conclusions can be made about the use of induction in child hypnosis.

Imagery and Relaxation

Imagery and relaxation are common in adult hypnosis and frequently paired with one another as though they were a single procedure. The hypnotic subject is asked to relax. In order to relax, pleasant images are called to mind. However, as will be explained in the following studies, these two techniques are not equivalent when applied to child hypnosis.

There have been studies that suggest imagery is useful for children. Lee and Olness (1996) found that the deliberate changing of mental imagery by children (5 to 15 years of age) results in immediate autonomic changes. For instance, pulse rate significantly decreases when subjects imagine a quiet, pleasant place. Pulse significantly increases during imagery about an exciting activity. During this exercise the children sat in a chair and were not exposed to a formal induction prior to the imagery exercise.

However, in a randomized study of children aged 9-17 years, with a control group, the use of imagery did not significantly reduce children's pain or anxiety during cardiac catheterization (Pederson, 1995). The author hypothesized that imagery was not a strong enough intervention to reach statistical significance. It is important to note that although imagery and direct suggestion were utilized, the term "hypnosis" was not introduced to the treatment group. The reasoning for this seems to be based on the researcher's desire to make the procedural aspects of the two conditions comparable. However, effectiveness that comes from cognitive rather than behavioral components of hypnosis may have been sacrificed. Another reason why imagery may have failed in this study is because, as mentioned in studies of induction, imagery may be more effective with some children and less effective with others.

While using a cold-pressor-stimulus to evaluate the usefulness of imagery, Fanurik and colleagues (1993) found imagery to be more effective than sensory focusing or no intervention. But, this effect did not generalize to all subjects. Instead it was discovered that children who spontaneously used distraction techniques (e.g., trying to think about something else, looking away, breathing techniques) benefited more from imagery than children who spontaneously focused on the painful procedure. Children's self-attempts at distraction were not as effective as being assisted in the use of a specific distraction technique, such as imagery. The outcome of this study suggests the importance of individualized techniques. A cold-pressor-stimulus is not as intrusive as actual medical procedures (e.g., cardiac catheterization), therefore it remains undetermined whether these results can be generalized to a medical setting. Overall, the use of imagery in child hypnosis is supported by research outcomes.

The traditional association of hypnosis with sleep or relaxation may be contraindicated in cases of child hypnosis. Kuttner (1988) states that the therapist needs to be flexible allowing the child to move out of trance, and knowing that as easily as the child moves out of trance, he or she can reenter trance. Hilgard and LeBaron (1982) argue that the use of relaxation techniques, which is common with adults, does not take into account the active state associated with make-believe play in early childhood. With children it may be beneficial to incorporate methods more akin to play, than to sleep. Although this recommendation has a common sense appeal, more research is needed to determine the effectiveness of relaxation in child hypnosis, and what ages it is or is not useful.

Direct versus Indirect Suggestion

While conducting this literature review, only one study was found that specifically addressed the topic of direct versus indirect suggestion. During a comparison of self-hypnosis tactics, comparing specific and nonspecific instructions to increase immune substances, only those subjects given specific suggestions were able to increase immune substances (Olness, Culbert & Uden, 1989). Gardner (1974) hypothesized that subtle cues intended to direct the child's behavior may be misunderstood by the child, resulting in frustration or an unexpected response. If a child needs to be encouraged to eat more food, it might be necessary to instruct the child to see, smell and EAT specific foods rather than using a more

general suggestion to experience feelings of hunger. More research is needed to know if this finding is consistent across different ages and treatment contexts.

Storytelling

Storytelling, which accesses fantasy and imagination, is usually described within the rubric of "hypnosis" in psychological literature (Rhue & Lynn, 1991). Hypnotic storytelling may be differentiated from play therapy by the fact that it incorporates either direct or indirect suggestions. Play therapy tends to be more nondirective (Landreth, 1991).

Using a child's favorite story as the hypnotic framework, is a simple way of individualizing treatment. The goal is to capture the child's interest. Kuttner and colleagues (1988) describe how to use a child's favorite story as a means of creating a pleasant imaginative involvement during painful medical procedures. It is noteworthy that in this experimental study, the favorite-stories technique was more effective in reducing pain and anxiety than behavioral distraction or standard medical practice.

Utilizing Preexisting Abilities

During tests of cold pressor and finger pressure pain, Spanos and colleagues (1984) found that many of the subjects who possessed the ability to reduce pain refrained from doing so until provided explicit permission by the investigator. This finding was interpreted as an indication that coping suggestions may often produce their effects simply by sanctioning the use of preexisting cognitive strategies rather than instilling new abilities. Because this study was conducted using an older population (17 to 35 years of age) the question remains whether these results can be replicated in studies with younger subjects. If children are able to respond best to suggestion by using preexisting skills, then it would seem appropriate to inform the child that during hypnosis he or she will be using skills that already exist.

Play

Experts in child development have argued that children use play to make sense of their world and to communicate (Landreth, 1991). Cognitive psychologists have found that children will accept premises, that violate their empirical knowledge, as a basis for reasoning when the information is presented with a make-believe intonation rather than a literal mode (Dias & Harris, 1990). These findings implicate a central role of play in the practice of child hypnosis. But, surprisingly, there are few if any studies that focus directly on the role of play in child hypnosis.

Although at least one writer has suggested that play can be incorporated in hypnosis by using toys (Sugarman, 1996), there are no studies that have experimentally examined the utility of play as a hypnotic procedure. Yet, some studies do suggest the usefulness of play. For example, while using hypnotic storytelling with traumatized children, Rhue and Lynn (1991) have noticed that some children, particularly those younger than eight years of age, spontaneously act out some aspects of the story or talk using the voice of one of the story characters. The tendency to respond in a more active, rather than

passive manner might explain why children under the age of eight do not respond as well to eye closure or other sedentary exercises. Perhaps a play-oriented induction might be more successful.

Self-hypnosis

Self-hypnosis, which has also been referred to as a "cyberphysiologic technique," has been shown in various studies to be useful for self-regulating physiological processes (Olness, 1996). In a large case study, 29 of 36 children (referred for pain management) showed an improvement after being trained in self-hypnosis (Sokel, Lansdown & Kent, 1990). In an experimental study using a four week baseline period, placebo group and drug comparison group; Olness and colleagues (1987) found that self-hypnosis produced a significant decrease in juvenile migraine headaches when compared to other treatments. The subjects in this study were 6 to 12 years of age and were all taught self-hypnosis using progressive relaxation and imagery of the child's choosing. It has also been reported that children experienced in the use of self-hypnosis are able to change tissue oxygen to a greater degree than children who are unfamiliar with such exercises (Olness & Conroy, 1985).

Self-hypnosis is considered a particularly useful technique because it places control over the illness in the hands of the child thus validating the child's coping abilities (Olness, MacDonald & Uden, 1987). In a similar manner, Sokel and colleagues (1991) argue that self-hypnosis is a means of providing a rehabilitation program that allows the child to develop a sense of control over the illness while saving face and dignity. For instance, in one study adolescents collaborated with the therapist in the production of suggestions recorded on audiocassette (Aronson, 1986). Thus, the most common element distinguishing self-hypnosis from traditional hypnosis is the increased emphasis on the subject's central role in the treatment process. After an initial training period, treatment is no longer dependent on the presence of the clinician. Furthermore, it is possible that training in self-hypnosis can provide the child with a skill that will find application in future problem areas.

As with all techniques, self-hypnosis has its drawbacks. For instance, some subjects may be unable to repeat the procedure at home (Olness, MacDonald & Uden, 1987). Some children may prefer the attention and security of having hypnosis performed by an external agent. Kuttner and colleagues (1988) report that younger children's ability to use techniques, which must be self-initiated, are short-lived. These authors found that younger children seem to rely more heavily on staff for direction than children aged seven or more years. If this is true, then it might contraindicate the use of self-hypnosis with younger children. However, further testing is warranted.

Unfortunately, there are no studies with child subjects that compare self-hypnosis with traditional hypnosis. If such a study were to be carried out, it would be important to note whether differences in personality (e.g., locus of control) influence responsiveness to these procedures.

Outcome Studies

Hypnotherapy in Medicine and Psychotherapy

Suggestion and imagination, whether used intentionally or unintentionally, have played a critical role in the healing arts, possibly from the very beginning. In his treatise *De Philosophia Magna* (1567), Paracelsus wrote that the mentally ill can be helped by "giving suggestions and admonitions." He alluded to the power of imagination by stating that "particular care should be exercised in the use of imagination" (Mora, 1967, p. 809). Despite its long history of success, hypnosis was not formally recognized by the American Medical Association until 1958 (Spink, 1983). Since its formal acceptance as a legitimate medical procedure, there have been numerous medical studies indicating the general effectiveness of hypnosis. Before reviewing these data, it is important to understand that "hypnosis" is broad a term that has been used to describe a variety of approaches.

Hypnotherapeutic modalities

Within the clinical setting a distinction is often made between hypnosis and hypnotherapy. The first is a more general phenomenon. The latter is a use of this phenomenon within the framework of a particular treatment protocol. Within the category of hypnotherapy, there are several types of therapy. Currently, cognitive behavioral hypnotherapy is the most commonly studied type of hypnotherapy and perhaps the most popular, especially in treatments of pain.

Taken individually, techniques such as progressive muscle relaxation, guided imagery, meditative breathing, distraction, or fixation of attention are often referred to as behavioral techniques, rather than hypnosis. In several studies, techniques such as these have been used in comparison to hypnotherapy. It is especially common in studies of painful medical procedures to see hypnosis compared with distraction (e.g., Smith, Barabasz & Barabasz, 1996; Zeltzer, LeBaron & Zeltzer, 1984). But, what exactly is the difference between distraction and cognitive-behavioral hypnotherapy? Where does one end and the other begin?

While describing common behavioral techniques used to reduce pain and anxiety in young children, Kuttner (1989) used three separate categories: behavioral distraction (e.g., bubbles and pop-up books), kinesthetic methods (e.g., holding and rocking), and imaginal methods (e.g., hypnosis). According to Kuttner (1988) distraction, when used with young children, typically involves toys or other such objects that contain elements of surprise or play. A similar distinction was made by Smith, Barabasz and Barabasz (1996) in which distraction incorporated the use of toys. Hypnosis was limited to storytelling. In this last study both interventions were infused with coping suggestions. In these studies the distinction between the two methods is based on the use of physical props (i.e., toys) in contrast to primarily linguistic interventions (i.e., storytelling or imagery).

Other authors (Kuttner, Bowman & Teasdale, 1988; Zeltzer et al, 1991) have described distraction using a much broader range of procedures, such as relaxation, deep breathing and physical activity. Zeltzer and colleagues (1991) differentiated the "non-hypnotic, active cognitive

distraction/relaxation" condition from hypnotic procedures by describing hypnosis as an "imagination-focused therapy." In an earlier study, Zeltzer and colleagues (1984) included other activities (e.g., telling jokes, squeezing the therapist's hand, and playing guessing games) under the rubric of distraction technique. Here again, hypnosis was differentiated by the use of imagery or fantasy. This type of distinction is consistent with Hilgard and LeBaron's (1984) statement that distraction which compels attention away from the pain may be nonhypnotic or it may be hypnotic, depending on whether or not fantasy is involved. Ellis and Spanos (1994) have also used the term "hypnosis" as a subset of cognitive-behavioral strategies, which is differentiated from other techniques such as distraction or imagery. Two other terms that have added to the confusion include "cognitive-behavioral self-regulatory techniques" (Walco, Varni & Ilowite, 1992) and "cognitive-behavioral hypnotherapy" that may or may not include all the practices outlined above.

While studying hypnosis and behavioral distraction the most common question has been which is more effective? After dozens of studies, the answer is not yet clear. Some studies have shown the two techniques to be equally effective (Wall & Womack, 1989; Zeltzer, LeBaron & Zeltzer, 1984). Others have shown hypnosis to be more effective (Smith, Barabasz & Barabasz, 1996; Zeltzer et al, 1991). How can these inconsistencies be explained? One explanation might be the use of different measures of pain and anxiety. Another problem is the difference in hypnotic techniques or the different methods of distraction which may not produce equal results. To illustrate some of these differences, two of the most well-designed studies will be described in the following paragraphs.

Wall and Womack (1989) found that hypnosis and behavioral distraction were equally effective in reducing pain reported by children undergoing painful medical procedures. It is important to note that in this study hypnosis was administered using a standardized procedure, whereas subjects in the behavioral distraction condition were allowed to select their own means of distraction. In other words, the latter condition was individualized to suit the interests of the child but this option was not provided for the subjects in the hypnosis condition. Because several experts have described the importance of using an individualized approach to hypnotherapy, it is questionable whether this experiment represents a fair comparison.

More recently, Smith, Barabasz and Barabasz (1996) conducted a well-designed comparison of hypnosis and distraction, in which hypnosis was found to be significantly more effective than distraction for reducing pain and anxiety. In contrast to the standardized induction procedure described earlier, this study incorporated innovative hypnotic strategies such as having the parent's administer the hypnosis, after being trained to do so. Another factor that might have made hypnosis more effective in this study, is the use of an individualized approach, in which each child was able to select a favorite place as the topic of the hypnotic story. An important feature of this study is the use of research assistants who were blind to the experimental hypothesis. Each assistant was lead to believe that his or her treatment approach was an effective means of reducing pain, thus controlling for expectancy effects.

As can be seen, it is difficult to make a clear interpretation of these collective findings. At this point the researchers are not speaking a common language. What is called distraction in one study may be referred to as cognitive-behavioral hypnotherapy in another. This is a problem that must be dealt with before treatment comparisons can be synthesized and interpreted in meaningful ways.

Hypnotherapy as the primary treatment and as an adjunct to other medical procedures

While there are hundreds of case studies documenting the successful use of hypnotherapy for the treatment of childhood disorders, there are few well-designed experimental outcome studies. The studies that do exist can be divided into two groups: those in which hypnotherapy is expected to produce a cure, and those in which hypnotherapy is used as an adjunct to other medical procedures.

One of the most well documented applications of pediatric hypnotherapy is its use with cancer patients. Hypnotherapy has helped pediatric patients control anxiety and increase sleep. It has also been used to reduce or eliminate pain and emesis associated with the cancer and its medical treatment (Genuis, 1995; Kaufman, Tarnowski & Olson, 1989; LaBaw et al, 1975). Nausea and vomiting, associated with chemotherapy, commonly occur after administration of the drug regimen. Pediatric patients also develop these symptoms in anticipation of treatment. Zeltzer and colleagues (1991) hypothesize that, "Some children may become 'conditioned' to the antiemetic because it is paired with aversive chemotherapy" (p. 41). This would explain why children begin to vomit even before receiving chemotherapy. Experimental studies have shown consistently that hypnosis can be used to accomplish significant reductions in nausea, vomiting, and the extent to which these symptoms bother pediatric patients (Jacknow et al, 1994; Zeltzer, Dolgin, LeBaron & LeBaron, 1991; Zeltzer, Kellerman & Ellenberg, 1983; Zeltzer, LeBaron & Zeltzer, 1984).

Hypnotherapy has also been used to help children diminish cancer pain and pain caused by invasive medical procedures necessary for diagnosis and treatment. Such procedures include lumbar punctures (LPs) and bone marrow aspirations (BMAs) both of which are extremely painful. In such cases traditional hypnosis and self-hypnosis have been praised as a nonpharmacologic approach that can diminish anxiety, and increase mastery, cooperation and hope (Erickson, 1991). Other advantages of hypnotherapy include the speed with which it can be accomplished and that it does not require a therapist to be present immediately before or during chemotherapy (Walker et al, 1988).

Another well-documented application of pediatric hypnotherapy is its use in dentistry. Possibly one of the first reports of hypnosis used in dentistry comes from Puységur who in 1784 wrote, "His daughter was suffering from a violent toothache; I asked her in jest if she wished to be cured; she, of course, consented. I had not been ten minutes magnetizing her, when her pain was completely gone; and she felt no return of it after" (Teste, 1843, p. 18).

In modern times, hypnosis is more commonly used as an analgesic, often referred to as "hypnoanalgesia." Hypnoanalgesia has been especially useful when a pedodontic patient is unresponsive to local anesthetic or is hypersensitive to these agents. In some cases the child may have an immediate

physical reaction to the injection procedure such as dizziness, shortness of breath, or tachycardia. In other cases there is a delayed reaction that might include excessive swelling or urticaria. In some cases there is failure of both inhalation sedation and local anesthesia. Hypnotic imagery has been found to be a useful adjunct to chemical sedation, even with pedodontic patients who have previous histories or violent emotional reactions before and after dental treatment (Lu, 1994). In one report (Shaw & Welbury, 1996) the success rate with the use of "informal hypnotic imagery" was 80% for children otherwise unable to accept dental extractions. One experimental study, using a double blind research design, reported anesthetic injection with hypnosis, versus anesthetic injection without hypnosis, resulted in less crying and a decreased pulse rate (Gokli et al, 1994). In such cases, hypnosis is not only useful for providing hypnoanalgesia but also in developing coping strategies to help children overcome their fears (Svalland, 1966).

Hypnotherapy has also been demonstrated experimentally to be effective in the removal of warts (Spanos et al, 1988). In some cases hypnotherapy has been reported to work with children when other standard treatments, such as liquid nitrogen, curettage and electrodesiccation, were unsuccessful (Morris, 1985; Noll, 1994; O'Loughlan, 1995; Tasini & Hackett, 1977). Because it has been shown that children are able to use self-hypnosis to control tissue oxygen (Olness & Conroy, 1985) it is also likely that wart removal might be accomplished by using self-hypnosis. But, there has not yet been any formal tests of self-hypnosis and wart removal.

Along with the clinical issues mentioned above, treatment outcome studies have demonstrated hypnotherapy to be effective in the treatment of nocturnal enuresis (Banerjee, Srivastav & Palan, 1993; Edwards & Van der Spuy, 1985), juvenile migraine (Olness, MacDonald & Uden, 1987), cystic fibrosis (Belsky & Khanna, 1994) and postoperative recovery (Lambert, 1996).

How is hypnotherapy able to accomplish such a wide variety of tasks? Even though not all the exact mechanisms are known, it has been demonstrated that hypnosis can affect changes in children's body chemistry. For instance, in a randomized controlled experiment, 57 children were studied to determine whether salivary immunoglobulin concentrations could be increased voluntarily within a half-hour period. The finding was that children who practiced self-hypnosis (which was taught by means of an audio-recording) with specific suggestions for increasing salivary immune substance, increased salivary IgA concentrations (Olness, Culbert & Uden, 1989). Another factor that makes hypnosis useful in a wide variety of medical contexts is its ability to inhibit pain. This has been demonstrated in both laboratory and hospital settings (Zeltzer, Fanurik & LeBaron, 1989).

Contraindications

Is hypnosis a cure that can be applied to any clinical problem, or are there certain instances where its use is not warranted? One clear contraindication is in cases with a serious organic difficulty. In a revealing study, Olness and Libbey (1987) conducted a retrospective review of a large number of child patients, 80 of these children having been referred specifically for hypnotherapy. Medical investigation

indicated that 20 (25%) of those referred for hypnotherapy suffered from organic conditions including hyperthyroidism, diabetes, diastometyelia, partial oxalotranscarbamylase deficiency, sinusitis, carbon monoxide poisoning, vitamin overdoses, food allergy, amebiasis, constipation, urinary tract infection, paroxysmal atrial tachycardia, and seizures. Two of these children had been hospitalized in child psychiatry inpatient units. Each child had complete remission of symptoms when treated for the underlying disease. It has been suggested that the clinician should have knowledge and skills to evaluate and treat children in pain with or without hypnotherapy (Zeltzer & LeBaron, 1986). Others have warned that in some cases hypnotherapy might provide a subjective improvement of symptoms while internal conditions continued to deteriorate (Bower & LeBaron, 1986).

Educational and Developmental Applications

More than a century ago, Alfred Binet argued in favor of using suggestion in educational settings. However, he qualified his statement by saying, "...it would be a serious mistake to subject children of normal constitution to the regular practice of suggestion; there would be a great risk of making them into automata...It is more easy to defend the application of hypnotic suggestion to vicious children" (Binet & Féré, 1888, p. 359). Perhaps it is because of antiquated fears of "automata" that hypnosis has not gained widespread use in educational systems.

There are very few experimental studies of hypnosis in primary or secondary education. One quantitative study has shown that test anxiety, as reflected in exam results and the Test Anxiety Scale for Children (TASC), was significantly reduced after using a hypnotic imagery procedure (Stanton, 1992). In a later study, self-hypnosis again produced a significant reduction of TASC scores. This difference was maintained over a six month period (Stanton, 1994). In an earlier study that compared the effectiveness of hypnotic and nonhypnotic suggestion for progress in reading (Oldridge, 1982), hypnosis did not yield any apparent benefits. Before making any conclusions about the role of hypnosis in learning, much more controlled experimentation will need to be conducted.

Hypnosis has also been recommended for behavioral applications (Calhoun & Bolton, 1986). Some experts have argued that medication alone cannot modify or correct attention deficit hyperactivity disorder (Benson, 1989). It has been suggested that the long-term effects of taking medication may be aversive (Calhoun, Fees & Bolton, 1994). For reasons such as these, Benson (1989) has recommended the use of hypnosis when direct counseling or remedial provision in the classroom have not been effective. Others have suggested that, in conjunction with medication, hypnosis should be used to deal with inattention, impulsivity, hyperactivity and motivational needs (Burte & Burte, 1994). At this time there is not sufficient experimental data to support these claims.

A study of 48 hyperactive 6-8 year olds (Illovsky & Fredman, 1976) describes the successful use of a group setting with tape-recorded suggestions of relaxation, learning and the ability to cope with emotional problems. Referrals were made by classroom teachers so the amount of treatment varied with each child, with a range of 2 to 48 treatments. Unfortunately, this research was conducted without the

benefit of a comparison group. Therefore, it is impossible to determine if the positive outcome was a result of treatment. Future studies should highlight individual differences through the use of multiple, single-subject designs, using a series of staggered baseline measurements. For the purpose of group research, intervention procedures and length of treatment must be unvarying within groups. Controversial constructs, such as an ADHD diagnosis, should be carefully documented by using multiple diagnostic procedures (e.g., direct observation, behavioral checklists, and classroom productivity).

Implications for Future Research

After having reviewed a majority of the professional literature specific to hypnosis with children, the focus of this paper will now shift entirely to issues of research methodology and the challenges for future investigators. Leading researchers have commented, "Flexibility in a clinical research program is essential, and rigid adherence to a formal research design is unrealistic" (Hilgard & LeBaron, 1982, p. 438). However, there are certain guidelines that seem especially important to the investigation of child hypnosis.

Define the Intervention

While conducting research of any phenomenon, scientific integrity requires a careful definition of the subject of study. In the studies reviewed here, rarely was a formal, operational definition of hypnosis included. In the description of procedures, several studies simply report that "hypnosis was performed."

What exactly is hypnosis when practiced with children? This question is difficult to answer. Although there is still controversy about what hypnosis is exactly, it remains important for future investigators to include an operational definition of hypnosis. The most meaningful studies will be those that use the greatest degree of stringency. Three of the most broadly accepted criteria for hypnosis include: a) exposure to hypnotic induction, b) a report from the subject that a sense of involuntariness was achieved, c) an observable increase in responsiveness to suggestion. Of these three, the latter is the most appealing. Observing changes in the subject's behavior requires lower levels of inference than assumptions of procedural consummation. It is also questionable whether young children can fully understand and accurately describe when an involuntary response has occurred.

When the variable of interest is carefully defined, different forms of hypnosis can be sorted out. An operational definition will also help distinguish hypnosis from other similar treatments. Comparing outcome studies of child hypnosis is, in some cases, like comparing apples and oranges. In one study hypnosis might be conceptualized as "the use of imagination" and in another as "a relaxed state similar to sleep." This is problematic because one style might produce poor results with children while the other works very well. As shown in Table 2, there are a wide variety of tactics that have been employed in the research of child hypnosis.

Table 2

Differences in Hypnotic Technique Across Major Investigations of Child Hypnosis

	A	B	C	D	E	F	G	H	I	J	K
	Eyes Open	Stand Induct	Indiv Proced	Use Imagry	Use Story	Use Relax	Direct Suggst	Self-Hypn	Paren Partic	Train Period	Exsp Scale
H-82	com		yes	yes							yes
E-85		yes				yes	com				
O-87			yes	yes		yes		yes		yes	
K-88			yes		yes		com		yes		
S-88	no	yes		yes			yes				
T-88			yes	yes	yes		com				
W-89		yes		yes		yes				yes	yes
Z-91			yes	yes			no			yes	
B-93			yes	yes			com	yes		yes	
B-94		yes		yes			no	yes		yes	yes
L-96			yes	yes			com			yes	
S-96	yes		yes		yes		no		yes	yes	yes

Columns:

- A. Hypnosis is performed with the child's eyes remaining open.
- B. Standardized induction, by means of script, audiotape or group induction.
- C. Individualized procedure, child is allowed to select the method or story topic.
- D. Use of imagery, but without developing it into a story.
- E. Use of storytelling.
- F. Relaxation procedure, deep breathing, progressive relaxation, etc.
- G. Use of direct suggestion, specific instructions on what the child will experience.
- H. Use of self-hypnosis.
- I. Parental participation in the hypnotic procedure.
- J. At least one or more weeks of training in hypnosis prior to treatment.
- K. Child is exposed to hypnotic scales prior to treatment and outcome measures.

Studies:

- H-82. Hilgard & LeBarron (1982).
- E-85. Edwards & Van der Spuy (1985).
- O-87. Olness, MacDonald & Uden (1987).
- K-88. Kuttner (1988).
- S-88. Spanos, Stenstrom & Johnston (1988).
- T-88. Kuttner, Bowman & Teasdale (1988).
- W-89. Wall & Womack (1989).
- Z-91. Zeltzer et al (1991).
- B-93. Banerja, Srivastav & Palan (1993).
- B-94. Belsky & Khanna (1994).
- L-96. Lambert (1996).
- S-96. Smith, Barabasz & Barabasz (1996).

Note. An indication of "yes" is placed where authors specifically mentioned the use of a particular technique. In column A "no" means that the children were asked to keep eyes closed and "com" means a combination of these were used. In column G "no" indicates the use of indirect suggestion as opposed to direct suggestion and "com" means a combination of these were used. In all columns, a blank space indicates that the item was not addressed in the report. Some studies may have incorporated procedures which were not described in the report and therefore do not appear on this table.

Many inconsistencies found in outcome studies may be a result of techniques (such as direct suggestion versus indirect suggestion or standardized induction versus individualized induction) being treated as though they were all the same procedure. Therefore, what is needed is not only an operational definition of child hypnosis but also a specific description of the hypnotic procedure, including the exact

wording of suggestions when possible. Otherwise, comparisons of outcome studies will remain questionable and replication of these studies will be more difficult.

Disclosure

Having defined hypnosis for purposes of professional communication, researchers must also decide how to handle the disclosure of the treatment variable to subjects and their parents. For some individuals the word "hypnosis" remains enshrouded by a negative mystique. In a survey of 134 children (aged 7-11 years) it was discovered that these children shared a strong belief with adults in the omnipotence of the hypnotist to control the subject and to elicit the truth (Fellows & Paintin, 1989). Thus, the use of this term might cause some parents to worry and perhaps even refuse to allow their children to participate. As Gardner (1974) explains, "...parents often think of [hypnosis] as an ineffective technique bordering on quackery or as a powerful but dangerous phenomenon, akin to witchcraft" (p. 27).

One way of dealing with this problem is to educate the parents, perhaps by providing a book or pamphlet that describes "myths" or false beliefs related to hypnosis.⁶ It might also be useful to show parents how they may have unwittingly used hypnosis with their children (Gardner, 1974). A good example might be a mother who kisses her child's injury stating, "Now doesn't that feel better."

In order to reduce fears and suspicion, Cooper and London (1979) invited parents to watch the entire procedure from behind a one-way mirror. This method allowed guardians to ensure their children were not being mishandled or endangered. This resulted in such favorable relations with the parents that Cooper and London continued to use it in all subsequent experiments.

One interesting possibility, if the parent is willing to learn more about child hypnosis, is to involve them in the treatment. The parents can also be used to help the child practice self-hypnosis. In this way, the child, parent and therapist can function together as a team (Gardner, 1974).

Another solution suggested by Gardner (1974) is to describe the treatment plan to parents in behavioral terms without using the word "hypnosis." However, it is possible that this method might alter the results due to the effect of expectancy.

Measurement

While conducting a study of cancer patients Hilgard and LeBaron (1982) observed age related differences in the expression of pain. Children below the age of ten commonly expressed their discomfort through observable behavior and rated pain at approximately the same level as the external observer. However, children age ten or older, tended to conceal their pain. Thus, their reports of pain were well above those inferred from their behavior. For reasons such as these, it is crucial for researchers to use multiple measurements. This will provide a means of analyzing data and controlling for effects caused by age, time of measurement and instrumentation.

Various types of measurements used in studies of child hypnosis include, self-report (using scales or pictures with the very young), behavioral checklists, physiological variables, and interviews with the

child and parent. Even though it may not be possible to use each of these in a single study, it has been recommended that researchers use multiple means of measurement (Achterberg & Kenner, 1988). For instance, to measure pain, researchers have used both subjective methods, such as self-report, and physiological measurements, such as testing the level of cortisol (Pederson, 1995). Changes in autonomic arousal, measured with biofeedback monitoring, has also proven useful (Culbert, Kajander & Reaney, 1996; Culbert Reaney & Kohen, 1994).

Another important practice for outcome studies is long-term follow-up. By conducting a long-term follow-up it is possible to better address issues of relapse, and it may uncover unrecognized treatment effects. For instance, it has been observed that the advantages of adding hypnosis to cognitive-behavioral treatment increase over time (Kirsch, Montgomery & Sapirstein, 1995). While treating children for warts, it has been found that warts removed with hypnosis may be less likely to return than warts removed with standard procedures (O'Loughlan, 1995; Tasini & Hackett, 1977). Without conducting measurements during a follow-up period this type of information is lost.

Controlling for Expectancy Effects

While testing children, Spanos and Hewitt (1980) found that highly responsive hypnotic subjects, given analgesia suggestions and exposed to ice water stimulation, could be induced to report either very high or very low levels of pain by varying the expectations transmitted to them. Because communication takes place by covert and overt means, it is not difficult to imagine how the experimenter's expectations, regarding treatment outcome, might influence subsequent reports of pain or discomfort.

When assessing hypnotizability it is crucial to control for the effect of the scores on the researcher and the subject. It is easy to conceive how children with high hypnotizability scores might be treated more enthusiastically than those who score low. This is an example of the kinds of biases that can become built into the experimental design. To control for this problem Putnam and colleagues (1995) had hypnotizability scales administered by an assistant who was unaware of the child's status. The examination was videotaped for later scoring. The scoring was completed using paired raters who were blind to the child's status and the study hypothesis. This type of design provides unbiased data that can then be further substantiated by inter-rater reliability coefficients. Another more simple procedure is to administer tests of hypnotizability after the treatment has occurred. Finally, when comparing hypnotic versus nonhypnotic treatments it is unacceptable for the experimenter who has designed the study to perform each of the interventions. Instead, an unbiased assistant, who is blind to the study hypothesis, should be solicited to perform an intervention in accord with prior training (i.e., even the training of assistants could introduce an expectancy bias).

Data Reporting

In order for the results of a study to be amenable to later analysis there are certain statistical data that should be included. To determine the magnitude of the effect, it is necessary to report confidence intervals along with levels of significance. For the results of an outcome study to be compared with other

studies using meta-analysis it is necessary to report exact means and standard deviations (Kirsch, Montgomery & Sapirstein, 1995).

Ethical Considerations

Perhaps there are few if any who would argue in favor of using hypnosis to induce suffering in experimental subjects. Yet in one case researchers used hypnosis to induce asthmatic attacks (Khan, Staerk & Bonk, 1974). While testing 20 asthmatic children, researchers were able to hypnotically induce a reaction in 4 subjects (20%). The problem with this type of experiment is it might teach the child to mistrust authority figures who use hypnosis. It is also alarming that such a high percentage of subjects would allow themselves to suffer, unnecessarily, at the suggestion of a hypnotist. Because children are so vulnerable, it is important to conduct all experimentation under the supervision of the child's guardian, whenever possible. This can be accomplished by: a) training parents to participate in hypnotic procedures, b) by use of a one-way mirror, c) by installing video equipment that can be monitored from another room.

Another serious problem that dates back to the time of Mesmer, is the propagation of exaggerated claims. As with any treatment or intervention, hypnosis has its limitations, and those limitations should be carefully defined in the literature. Hypnosis is not a "cure-all." Gardner (1974) has argued that one of the reasons why professionals do not consider hypnosis a credible therapeutic modality is because of the tendency of hypnotherapists to emphasize successful cases rather than discuss material in a balanced way. Therefore, future research should document areas in which hypnosis is *not* useful.

Summary and Conclusion

Throughout the research literature there is consistent evidence of differences that distinguish child hypnosis from adult hypnosis. For this reason some techniques commonly used for adult hypnosis may not be appropriate for use with younger subjects. And, information that comes from studies using adult subjects may not be generalizable to child hypnosis.

The children's hypnotizability scales have played an important role in developing the current body of knowledge. Even though these scales have been found to be a reliable measure, there are inconsistent findings regarding whether hypnotizability is related to treatment outcomes. Because of age related differences, actual hypnotic potential may not be recognized by the use of a single measure within a wide age range.

Research, which has been based upon the use of hypnotizability scales, has shown that children are most responsive to standard hypnotic tasks around eight years of age. Cooper and London (1966) have noted that differences between individuals are more substantial than differences between age groups. Even though there are outcome studies that have shown the need for hypnotic strategies to be varied according to age, it is possible that children of all ages may be equally responsive to hypnosis if the proper technique is used.

Two of the most popular techniques currently used with children are imagery and the use of storytelling. Hypnosis can easily be individualized to suit the interest of a particular child by asking the child what is his or her favorite story. Meaningful suggestions can then be incorporated into the story. Although there have not been any studies that specifically address the issue of whether indirect or direct suggestion is more effective with children, some evidence suggests that direct suggestion might be more effective. Another area that has been ignored is the use of play as a hypnotic technique. Play may be crucial to work with children since the child's imagination is sparked by this activity.

The absence of operationalized definitions in the literature on child hypnosis is a major problem. It is difficult to make a fair comparison of outcome studies when the word "hypnosis" is used to describe a wide range of activities. There may be a substantial difference between techniques such as direct or indirect suggestion yet these are often referred to using the same broad classification. If hypnotic procedures are not described in detail, and instead simply referred to as hypnosis, then inconsistent results will continue to appear. Regardless of whether researchers are able to agree on a single conceptual definition of hypnosis, it is imperative that members of the field communicate using a common language.

When studying hypnosis it is important to know the origin of ideas that are treated as "fact." Historically, the study of hypnosis has been plagued with the problem of attributing the cause of a behavior to the hypnotic condition, when it was instead a product of suggestion. In studying children it is important to always ask, "Could experimenter bias have influenced this outcome?" Studies which are most vulnerable to the effects of expectancy are those in which the same experimenter conducts treatments across all groups. Also suspect are studies in which hypnotizability scales are administered prior to treatment. The outcome of pretreatment measures may not only influence the researcher but the subjects as well.

Parent's influence on children's responsiveness is an important area that still needs to be explored. Is it more effective to have the parents, as opposed to a stranger, perform the hypnotic procedures? If parents are asked to prepare a child with positive comments about an upcoming procedure, will they respond better than children who are not given such preparation? Because cognitive involvement has been found to be closely related to hypnotic responding, an examination needs to be made of particular techniques and their relationship to various phases of childhood cognitive development. The answers to these types of questions should increase our proficiency in the practical application of child hypnosis. This type of research also brings us one step closer to understanding a phenomenon by which we witness previously unrecognized human potential.

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Footnotes

- ¹ This distinction is similar to that of "effect" versus "affect."
- ² Although I prefer the use of the term responsivity, much of the following research centers on the concept of susceptibility, therefore it is the descriptor that will be used when referring to such research.
- ³ The year 1786 is when Puységur introduced the term "somnambulism" to describe a subject's profound responsiveness to instruction.
- ⁴ Eight out of 12 outcome studies, analyzed in Table 2, p. __, used individualized procedures.
- ⁵ Paracelus (1567) was the Swiss physician who developed the concept of mental illness as opposed to demonology. He is now considered to be the father of modern psychiatry.
- ⁶ As an example, the American Society of Clinical Hypnosis publishes a book by Elkins entitled, *My Doctor Does Hypnosis*.

