

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

PREVIEW

Order Number 9132945

**Meta-analysis of hypnosis and biofeedback pain control with
children, adolescents and young adults**

Weisz, Gaston, Psy.D.

Pace University, 1991

Copyright ©1991 by Weisz, Gaston. All rights reserved.

U·M·I

**300 N. Zeeb Rd.
Ann Arbor, MI 48106**

PREVIEW

META-ANALYSIS OF HYPNOSIS AND BIOFEEDBACK PAIN CONTROL

WITH CHILDREN, ADOLESCENTS AND YOUNG ADULTS

by

Gaston Weisz

**A Doctoral Project Submitted in Partial Fulfillment of the
Requirements for the Degree of Doctor of Psychology in the
Department of Psychology at Pace University**

New York

1991

PREVIEW

(Please type all information)

NAME: Gaston Weisz

TITLE OF PROJECT: Meta-Analysis of Hypnosis and Biofeedback
Pain Control with Children, Adolescents
and Young Adults

DOCTORAL PROJECT COMMITTEE:

PROJECT ADVISOR: Alfred Ward, Ph.D.
(Name)
Assoc. Prof. Psychology Pace Univ.
(Title) (Affiliation)

PROJECT CONSULTANT: Janice Jackson, Ph.D.
(Name)
Professor of Psychology Pace Univ.
(Title) (Affiliation)

FINAL APPROVAL OF COMPLETED PROJECT:

I have read the final version of the doctoral project and certify that it meets the relevant requirements for the Psy.D. degree in School-Community Psychology.

Alfred W. Ward
(Project Advisor's Signature)

7/17/91
(Date)

Janice Jackson
(Project Consultant's Signature)

7/16/91
(Date)

PREVIEW

Copyright © 1991 by Gaston Weisz

All rights reserved

Acknowledgements

I gratefully thank various people for contributing to the conception and completion of this project and of my Doctoral training. I thank the excellent faculty of Pace University, previous instructors, supervisors and others, who have helped me in my development. Dr. Ward and Dr. Jackson, my advisor and consultant, have constantly been a source of essential guidance and support. Dr. Rohr and various other experts in the approaches of hypnosis or biofeedback are owed my thanks for their illuminating for me these fascinating and important, though often neglected areas in psychology.

I wish to thank my families. I met my wife, Sheri, when I had decided upon my topic of interest. We married the year I presented my "proposal" of the project. Our son, Daniel, endured my divided interest as I completed my project, during his first year of life. I formally thank both Sheri and Daniel for their tolerance and support. I also thank my original family for providing me with so much for so many years of growing, learning and changing.

My friends who I went to school with are very special to me. I cannot conceive of having gone through the trials and challenges of Doctoral training without friends and colleagues, particularly Cheryl Palter-Zadek and Kenneth Mann.

TABLE OF CONTENTS

Chapter	Page
Acknowledgements.....	iv
List of Tables.....	vii
Abstract.....	viii
I. Introduction.....	1
Hypnosis and Pain Control	
Biofeedback and Pain Control	
Meta-Analysis in Behavioral Research	
Statement of Problem	
Hypotheses	
II. Methodology.....	56
Description of The Sample	
Instruments	
Procedure	
III. Results.....	66
Description of The Sample	
Exploration of Study Biases	
Tests of Hypotheses	
Further Findings	
Summary of Findings	
IV Discussion.....	81
Summary of Findings	
Implications	
References.....	89

Appendices	99
A. Source Study References	
B. Coding Form	

PREVIEW

List of Tables

Table	Page
1. Computer Search Terms.....	62
2. Number of Effect Sizes for Each Variable Value.....	68
3. Correlations Between Sample Size, Effect Size, and Year of Publication for Hypnosis (Top Diagonal) and Biofeedback (Bottom Diagonal).....	70
4. Mean Effect Sizes, Binomial Effect Size Displays for Hypnosis and Biofeedback.....	71
5. Mean Effect Sizes and Binomial Effect Size Displays for Treatment and Type of Design.....	73
6. Mean Effect Size and Binomial Effect Size Displays for Treatment and Type of Dependent Variable Measure.....	74
7. Mean Effect Sizes and Binomial Effect Size Displays for Treatment and Age Band.....	76
8. Mean Effect Sizes and Binomial Effect Size Displays for Treatment and Type of Pain.....	77
9. Largest and Smallest Effect Sizes for each Coded Variable Within Hypnosis Studies.....	78
10. Largest and Smallest Effect Sizes for each Coded Variable Within Biofeedback Studies.....	78

ABSTRACT

The effective application of hypnosis and biofeedback for pain and anxiety control with both adults and children is an area which has shown great promise in the research literature. However, a number of investigators have indicated relative weaknesses both in the amount and in the methodological quality of such studies with children. The current study investigated the issues related to treatment efficacy in child, adolescent and young adult pain and anxiety control with the treatments of hypnosis and biofeedback. The study applied the research approach of meta-analysis, investigating aggregated archival data both to test treatment efficacy and to explore moderator effects as a function of a number of relevant variables.

The hypotheses of the study were investigated by evaluating if hypnosis was effective in contrast to non-hypnosis, if biofeedback was effective in contrast to non-biofeedback, and if the two treatments were different in their effects. Additional moderator variables, consisting of both methodological and substantive factors, were explored. Overall, treatments were effective in pain and anxiety reduction, and some moderator variables were found to influence outcomes. Hypnosis and biofeedback, overall, were

equally effective, with effect sizes of .42 and .43 respectively. Differences between the treatments occurred within some of the group comparisons, as a function of moderator variables. Information regarding the existence of bias and inequitable distribution of data within certain comparison groupings were noted. Significant variables moderating outcome were found for the type of design, age band and type of treatment.

Implications of the findings of this study apply to issues of treatment usage and research methods. The use of hypnosis and biofeedback to manage pain and anxiety with youngsters at various ages was supported by the results. Information about methodological factors, such as the impact of design, sampling and measurement instruments, were assessed. Investigators may wish to attend to the methodological variables which might distort or reduce the size of obtained effects. Investigators may also note the areas not explored sufficiently when deciding upon future study in the area. Treatment evaluators may use some of the findings as an aid in constructing guidelines for assessment. Psychologists working with children can potentially provide a very useful service if equipped with appropriate information and training in pain reduction procedures.

CHAPTER I

Introduction

The application of psychological/behavioral interventions, particularly in pain control, has been considered by many as an area of great promise. The present study was conducted specifically to help determine the nature and efficacy of hypnosis and biofeedback for pain control with children, adolescents and young adults. An interest in alternative psychological approaches and the ability of the individual to potentially manage one's physiology led to this choice of topic. Additionally, the effects of mediating variables on treatment efficacy were of interest and were explored in order to gain a better understanding of the nature of hypnosis and biofeedback.

Pain is a multidimensional phenomenon, involving both a sensation, which is informational, and an affective connotation, which can translate the information into the experience of suffering. Pain may at times be more a function of such a translation than the actual sensory stimuli. Barber and Adrian (1982) identify numerous variables, which they liken to a kaleidoscope of cross connections that influence the experience of pain. Aside from nociception, the perception of noxious stimuli, the authors note the influence of, for example, cognitive mediation of the significance of the pain, perceptual

activity, behavioral responses to the pain, and various psychosocial and psychophysiological factors, all of which may define the pain experience much more than the noxious stimuli. In a similar formulation, Spiegel (1985) reported a two part theory of pain, viewing pain as a combination of physical disability and psychological distress.

Pain reduction is perhaps as complex a phenomenon as pain itself. For example, at times chemical anesthesia poses greater dangers than the medical procedures for which it is providing relief. Even the use of relatively safer pain reduction, such as non-prescription analgesic medications, may cause harmful or unpleasant side effects. There is ample rationale to investigate adjunctive or substitutive non-pharmacological treatments for pain. Unlike psychophysiological treatments for pain (i.e., hypnosis, cognitive techniques, biofeedback, etc.) there is widespread acceptance of medication as evident in the vast amount of advertising which praises the merits of various pain medicines. Consider the lack of commercial promotion of alternative pain reduction methods. In fact, so often when hypnosis has been marketed, it has been promoted as a panacea or associated with mystical connotations or the trappings of chicanery.

An increasing understanding of a variety of psychophysiological aspects of pain impacts upon current conceptions and practices in the management of pain. The natural ability of the body to activate internal chemical

responses, including the release of neurotransmitters, such as endorphins and enkephalins and individual differences, influence the experience of pain. In order to more effectively meet the needs of patients along a wide developmental continuum, pediatric pain experience and treatment response needs to be better understood.

The growing evidence of an interactive relationship between mind and body generates interest, as well as skepticism. Phenomena such as voodoo, faith healing, medicine show cures, and placebo effects hint at the potential of psychophysiological mechanisms. Nevertheless, there is a strong tendency among many to adhere to a traditional view of the mind and body as separate. When people feel physically ill the tendency usually is to seek medical or physiological treatments. Similarly, emotional or cognitive difficulties are not generally associated with the various physiological correlates which may accompany them, such as ulcers, headaches, backaches and so forth. Siegel and Roistacher (1988) note that, "pain has not found its place in the consciousness of organized professional psychology." The authors suggest that with appropriate training and experience, psychologists could assume invaluable roles in pain treatment teams. Such an advance would certainly lessen the false conception of the mind-body duality and, hopefully, enhance services to sufferers.

Barber (in Barber & Adrian, 1982) cites a number of factors suggesting the efficacy of psychological treatment

for pain. The author notes that pain is not purely physiological in cause or experience; the body's pain sensory system is not a closed system, being affected by various external and internal factors. Psychological treatments have been used successfully in conjunction with or in place of pharmacological or surgical treatments. Psychological treatments furthermore, are not associated with side-effects such as addiction potential, tolerance reactions, invasiveness and cost, as are found with other medical procedures.

A number of authors have called for an increase in child pain research (Fowler-Kerry & Lander, 1987; Gardner, 1974; Hilgard & LeBaron, 1984). Beyer and Levin (1987) report that, in contrast to the adult pain literature, few researchers have undertaken the investigation of pain in children. Children appear at least as capable as adults in their ability to benefit from pain reduction techniques. Hilgard and LeBaron (1984) reveal many methods which children naturally employ to reduce pain experience, including distraction, humour, reliance upon religious beliefs, and imagery, all of which suggest various inherent psychological pain reduction strategies.

Two psychological behavioral approaches, hypnosis and biofeedback, have undergone clinical and experimental investigation and appear to show great promise for pain control. Both treatments have been employed with children, adolescents and young adults.

Hypnosis and biofeedback are not routinely taught to psychologists or used extensively in health facilities. The treatments are often neglected in psychological training and practice, in contrast to such mainstays as psychotherapy and psychological assessment, among others. Perhaps relatively less attention to and professional association with these methods occurs due to an absence of knowledge or accurate information about the efficacy and role of hypnosis and biofeedback in psychology and health delivery. An increase in accurate and encouraging information about the treatments could enhance their reputation and appropriate utility.

Hypnosis and Pain Control

Hypnosis has an extensive history in psychology and allied fields. It has been applied in a variety of ways, including use as a method of pain control. The literature has included investigations in its application with children.

Overview of Hypnosis

While a great deal is written about the nature of hypnosis, there is a lack of agreement regarding not only its definition but its optimal usage. Sacerdote (in Barber & Adrian, 1982) maintains that hypnosis has been among the earliest and most useful methods for managing acute and chronic pain. The author notes the irony that after more than twenty years since hypnosis has been accepted by the American Medical Association in its role in medicine, skepticism regarding its medical applications continues to be greater than is its qualified use. Hypnosis is not

consistently perceived as useful within many disciplines. Bias, misunderstanding, skepticism and fear account for a great deal of the avoidance of hypnosis. Alternatively, the employment of hypnosis by poorly trained practitioners in inappropriate ways further contributes to its controversial image. Place (1984) notes that the use of hypnosis for entertainment purposes has often made the technique vulnerable to an unsavory reputation and indicates that proponents who claim it to be a panacea for all ills have also hurt its credibility.

Hypnotic experience remains difficult to comprehend as it defies simple, straightforward definition. It may be most useful to consider hypnosis as more than a single phenomenon. Gilligan (1987) delineates the early evolution of theoretical and practical models of hypnosis, likening hypnotic trance to energy channeling, sleep, pathology, suggestibility and dissociation. He also notes modern views conceptualizing hypnotic trance as involvement in role enactment. Gilligan (1987) proposes adopting an eclectic view, since the various positions can actually be seen as accentuating diverse aspects of hypnosis.

The dispute over the nature of hypnosis and trance dates back many generations. Hypnosis has probably existed naturalistically in one form or another since the birth of humankind. For example, Collison (1972) reports that psychological treatments similar or identical to hypnosis were employed centuries ago by priest-physicians in the

Babylonian Empire. However, hypnosis as it is generally known today is most often traced back to the early 19th Century when Franz Mesmer (1734-1815) applied his unique hypnotic technique which he called "animal magnetism." Mesmer's procedures involved the purported application of an energy channeling type of procedure. Mesmer proposed that health and illness were influenced by planetary and lunar forces affecting magnetic bodily fluids within humans. His interventions involved rituals which Mesmer believed corrected imbalances of fluids of individuals suffering from various illnesses and complaints, including symptoms of conversion reaction. Gilligan (1987) identifies Mesmer as having been the main proponent of an energy channeling model. The energy channeling paradigm may, in some respects, be seen to resemble the current interest among some individuals in the purported power of crystals.

Calof (1985) notes that Mesmer's success in treating patients may suggest that his approach managed to elicit responses similar to the therapeutic responses found today in the application of modern hypnosis. However, despite Mesmer's reportedly successful results in his energy channeling treatments, he was ultimately discredited. An investigation conducted by the French Academy of Science did not support Mesmer's explanations for his results, concluding he was a fraud (Calof, 1985). The committee suggested that imagination played a role in the effects of Mesmer's treatments. Although the energy channeling model was

officially discredited, other theoretical formulations and applications of hypnotic and trance phenomena were later constructed by numerous practitioners.

Early models of hypnosis reflected a previous but erroneous conception of trance as a special form of sleep. The sleep construct was later discredited. Subsequently, Sarbin and Coe concluded that there was no physiological similarity between hypnosis and sleep (cited in Gilligan, 1987). Nevertheless, the early sleep model, continues to have impact even in current conceptions of hypnosis. Actually, some hypnotized subjects, may be surprisingly active and alert. Generally though, trance is characterized by a reduction in motor activity making subjects appear to be in a sleeplike state.

In the 19th Century Faria and Braid contributed to the development of conceptions of hypnosis. Faria likened hypnosis to a special sleep state he named "somnambulism", due to subjects' appearance of being asleep. Braid also believed that subjects entered a sleeplike neurophysiological state when in hypnosis, which he first called "neurohypnotism," and, later, "hypnotism". Braid later rejected the theory which compared hypnotism to sleep, and suggested instead that trance is a state of mental concentration, which he termed "monoidism", meaning having one dominant idea. Braid recognized the utility of hypnosis as a surgical tool, due to its pain relieving effects. During the 1800's, hypnosis was relied upon as a method of

alleviating surgical pain in England, France and India (Hall, 1986). Braid used hypnosis in his medical practice, even treating his own pain with the technique (Hilgard, 1975). Pavlov, in the 1800's, posited that the trance state was an "incomplete sleep state", also involving a neuro-physiological process (Gilligan, 1987). The contribution of the sleep metaphor, shifted the focus away from a physical conception toward a more psychophysiological one.

Puysegur (Fancher, 1979) proposed a psychological theory of trance and hypnosis. Puysegur used the term "artificial somnambulism" to describe the quiet sleeplike state subjects appeared to experience. In such a state, Puysegur felt, subjects would be more responsive to therapeutic communication.

In contrast to earlier views of hypnosis, in the latter part of the 1800's Charcot noted similarities between hypnosis and pathological states, in his work with patients suffering from symptoms of hysteria. In contrast, Liebeault, a contemporary of Charcot, viewed hypnosis in a more positive manner. He was impressed with his patient's success with suggestions for symptom removal. Bernheim, a student of Liebeault, expanded upon the suggestibility features in his theory, proposing hypnotic trance to be a state of suggestibility (Hall, 1986). Bernheim and Liebeault were both proponents of viewing hypnosis as a therapeutic tool, useful in treating disease (Hall, 1986).

Gilligan (1987) traces the conception of hypnosis as dissociation. The conception was developed by Janet in the late 1800's originally and later expanded upon by Hilgard in the 1970's. Dissociation provides a framework for explaining such hypnotic phenomenon as amnesia, hallucinations, analgesia, anesthesia and other altered sensation (Hilgard & LeBaron, 1984). By partitioning from aspects of perception or experience it is possible to distort or to refrain from perceiving, remembering or experiencing certain phenomenon. In the early 1900's, Janet viewed hypnotic trance as a state involving part of the personality operating outside of the usual awareness of other parts, (Gilligan, 1987). Janet used hypnosis primarily to treat patients suffering from hysterical disorders. However, due to his perception of the treatment's inconsistent results he eventually considered it limited in utility. A perennial problem for hypnosis has been the inadequate understanding and inefficient use of the technique, compromising perceptions of its efficacy. Olness and Gardner (1978) report that suggestion and expectation have long been associated with therapeutic outcome in medical treatment, but have not always been applied well or systematically.

Sacerdote (in Barber & Adrian, 1982) describes hypnosis as an altered biopsychological state where such symbolic communications as language are more adeptly translated into helpful corresponding somatic responses

by the subject. O'Hanlon and Hexum (1990) offer a definition which incorporates a number of important features of current views of hypnosis. In An Uncommon Casebook: The Complete Clinical Work of Milton H. Erickson, M.D., the authors define hypnosis as following:

An altered state of awareness or the induction of an altered state of awareness. This state is usually characterized by a sense of dissociation and a narrowing of the focus of attention (O'Hanlon & Hexum, 1990, p.332).

Hilgard and LeBaron (1984) propose a child-focused definition, in Hypnotherapy of Pain in Children with Cancer. "Believed-in-imagination," they state is characterized by such experiences as actually feeling one's eyelids as heavy, as a result of the imagining of eyelids as heavy. Hilgard (1979) characterizes child hypnosis as intense involvement in imagination. Zeltzer and LeBaron (1986) add that this intense involvement in imagination usually involves dissociation. Gardner (1974) describes children undergoing hypnosis as employing heightened concentration, utilizing concrete or literal thinking, and sustaining limited reality-testing.

Hypnotic processes and variables related to the phenomenon have been written about by many authors. Bowers (1977) discusses hypnotic ability in terms of mediating information transmitted in suggestions. Mediation occurs by either amplifying, distorting, filtering or transducing