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CHILDREN'S ATTITUDES TOWARD THE DENTAL EXPERIENCE

by

Tom Leo Day

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Human Development

Approved:

Major Professor

Committee Member

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Logan, Utah

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Tom L. Day

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ABSTRACT

Children's Attitudes Toward the Dental Experience

by

Tom Leo Day, Master of Science

Utah State University, 1977

Major Professor: Dr. Don Carter
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The purpose of this study was to examine the attitudes of children toward the dental visit. A group of children who had undergone dental treatment with the use of nitrous oxide-oxygen served as the experimental group while children who had received dental treatment without the use of nitrous oxide-oxygen served as the control group. Attitudes toward the dental experience among these two groups were compared to determine any differences or similarities due to the type of treatment used. Data were also collected on the parents of the children to determine whether the child's attitude toward the dental visit tended to reflect the attitude toward dentistry as expressed by the accompanying parent.

Forty-five children between the ages of four and ten years old were asked to identify a hypothetical child depicted in three specific situations as being either "Happy" or "Sad." The three situations were defined as follows: (1) A child coming from the ice cream shop, (2) A child who just cut a finger, and (3) A child just leaving the dentist's office. The parents in this study were asked to rate their anxiety related to visiting the dentist as being either (1) very relaxed,

(2) generally relaxed, (3) generally anxious, or (4) very anxious.

No significant difference was established between the nitrous oxide-oxygen children and the nonnitrous oxide group in relation to their attitudes toward the dental experience. No significant relationship was noted between the child's attitude and the respective parent's attitude in relation to the dental visit. A significant relationship between the boys and the girls was noted in the "Happy" classification group when the sex of the child was compared to the child's point of reference as given in the hypothetical dental situation.

(65 pages)

CHAPTER I

INTRODUCTION

A short article with a catchy title appeared in local newspapers, "Fear of Dentist Blamed in Death." The article reported that a London coroner ruled the death of four-year-old Denise O'Connor was accidental as a direct result of her fear of the dentist. Although this example may be a bit extreme, it displays the possible effects that the powerful emotion of fear can have upon a child. It remains intriguing but ever factual that the human emotion of fear coupled with the element of anxiety can create gross distortions of reality, especially in the minds of young people who have not yet clearly defined the boundaries of reality and fantasy.

A question arises at this point, "What are the circumstances behind and leading to such an attitude toward the dental experience?" A possible answer might be that there are many external and internal influences working together to shape a person's attitude of the dental visit. Some of these influences include parents, siblings, friends, stories, personal perceptions and interpretations, the child's self-concept and the actual dental experience.

Breer and Locke (1965) contend that "task experience provides much of the raw material out of which men construct their fundamental ideas about life (p. 6)." Although Breer and Locke hold to this statement throughout their book, they also note that for the most part, suggested answers to the origin of beliefs and values are "speculative, intuitive and devoid of adequate empirical support (p. 2)."

A theory on the attitude formation process presented by Woelpel (1969) states that:

Attitudes are informational structures consisting of the relationship the actor perceives between his conception of self and his concept of object, and that attitudes are formed and changed principally by the influence of self-reflexive activity and significant others. These significant others exert that influence by word or example by modifying either the actor's definition of self, his definition of the object, or the larger cognitive structures on which those definitions depend (p. 120).

Karlins and Abelson (1970) ask the question why people should be influenced at all by the judgments of others? "For one thing," they reply, "each day we rely on the judgments of other people as guides to our own behavior (p. 60)."

Through the process of maturation and growth, people are exposed to many situations which they have not been exposed to before. The attitudes formed during these initial experiences can be very significant in how the individual perceives this same experience at a later date. During the original experience the individual is taking in bits of information related to the situation and possibly organizing them into an attitudinal structure: pleasant, painful, difficult, frustrating, satisfying, boring, etc. (Wadsworth, 1971). This information is based on how the individual perceives and interprets what is happening; of course, the perceptions and interpretations can be quite different from person to person, even for the same experience.

Along with the individual's personal perceptions and interpretations, he is exposed to the differing attitudes of those around him. Depending on whether the individual judges these other attitudes to be trustworthy and accurate, he may be influenced as to his own personal

attitude. A child, for example, may have the attitude that a particular experience is painful when he has never directly experienced any pain in the same situation before. Kleinknecht, Klepac and Alexander (1973) reported that the most common response for people's negative perceptions of their dentist was that they had received negative expectations from others.

Plainfield (1965) points out that "not only does the young child react to a danger situation, he soon learns to anticipate the possibility of a danger situation, and he may react with anxiety before its advent (p. 41)." This kind of reaction can create a distorted perception of the dental visit. It not only produces negative feelings in the child, but also makes the experience unpleasant for the dentist and parents as well.

The dentist is well aware of the influence that parents can have upon the child's attitude toward the dental experience. In an attempt to prevent some of this undesirable influence, a letter prepared for the Belmont Dental Arts in Pueblo, Colorado (n.d.) suggests some appropriate behavior for parents:

1. Don't give the child the time or opportunity to hear any "neighborhood experiences." It is best to tell a child about a dental visit the night before the appointment. Of course, always refer to the dentist as "our friend."
2. Please convey the feeling that dental visits are a part of growing up. Please don't offer rewards or indicate in any way that there is anything to fear.
3. Make a point now and in the future to eliminate from your dental vocabulary such words as: hurt, grind, drill, etc.

The experience of pain and anticipation of pain during the dental visit also contributes to the patient's attitude and behavior

Hawley, McCorkle, Wittemann and Van Ostenberg, 1974). In his book, Relative Analgesia in Dental Practice, Langa (1968) writes:

We know that an individual's reaction to a painful stimulus depends on factors other than the strength of the stimulus. We have also come to realize that past experiences having symbolic meaning can alter the degree of pain experienced during dental treatment and hence can effect the patient's attitude and opinion relative to his dentist (p. 50).

Despite the great improvements in techniques and instruments used in dentistry to relieve pain and anxiety, fear of the dental experience still exists to a great degree (Kleinknecht, 1973; Freidson and Feldman, 1958; Ship and White, 1960). Langa (1968) lists some possible explanations for this persisting attitude. (1) He attributes the significance of the oral zone to much of this attitude.

Those who lean toward Freudian theory explain the fear of dental treatment by emphasizing the erotic importance of the oral zone and its important linkage to the id of the individual, so that manipulations of the dentist may assume the significance and severity of much more dire and foreboding acts (p. 74).

(2) Early conditioning of the child by the people who surround him can have a great influence. Even though this child may some day know, intellectually, that dental treatment is not a "matter of life and death," he will still approach the dental visit with extreme apprehension and fear. (3) The nature of dental work being repetitive often increases the amount of anxiety as time goes on. (4) Fear of the unknown is also a factor which should be considered when initiating a child to dental treatment. (5) Jokes and cartoons also have some influence on the anticipation of pain and effect the attitude toward the experience.

Spitz (1955) refers to the oral cavity as "the cradle of all

external perception and its basic model; it is the place of transition for the development of intentional activity, for the emergence of volition from passivity (p. 238)."

In a discussion of Freudian theory, Plainfield (1965) writes:

In the beginning the infant's total world centers about the mouth. It is through the mouth that he calls for help or attention, that his needs to be nurtured are gratified. The oral cavity becomes his first link with the outside world.

Although we realize this is a temporary state of affairs, the young individual's scope of awareness will naturally broaden during the process of maturation, we must never lose sight of the fact that the emotional significance of the state of development is not a temporary thing. Initially the mouth is the infant's total universe; awareness of pleasure or displeasure is primary here; yet, throughout life the strong feeling tones about the mouth will persist (p. 33).

The investigator does not dispute the influence of all these factors upon the child's attitude toward dentistry, but has directed the efforts of this study to only one item of concern, the impact of the actual dental experience as it is related to the child's attitude structure about dentistry.

Statement of the problem

The greatest single deterrent to regular dental care is the fear of pain (Freidson and Feldman, 1958; Kleinknecht, et al, 1973). With this in mind, the dentist offers a variety of pain relievers with the endeavor to eliminate pain and the fear of pain during dental treatment.

Novocaine, one possible pain reliever, is used extensively for local anesthesia. It has proven to be a very effective and safe

means of eliminating pain during treatment. However, novocaine is administered by the use of a hypodermic syringe, which in itself induces great anxiety in many people (Sorenson and Roth, 1973). Kleinknecht, et al (1973) surveyed junior high, high school and college students to isolate the main stimulus responses on a 27 item scale. They found that of the many stimuli assessed, the highest fear ratings were given to the sight of the syringe and the sensation of anesthetic injection.

Nitrous oxide-oxygen relative analgesia, another possible dental procedure, has shown to be effective in reducing the anxiety and pain experienced during the actual dental treatment (Sorenson and Roth, 1973; Hogue, Ternisky and Iranpour, 1971). Langa (1968) claims that "by eliminating fear and relaxing the patient, a high proportion of the pain involved in dental procedures is eliminated (p. 54)."

With the factor of pain being controlled during the dental visit, the question arises, "Has the patient's attitude toward the dental experience changed from one of apprehension to a more positive one due to this pain control?" If a child experiences very little or no pain during the dental visit, but perceives the dentist as a man who inflicts pain, where did this attitude come from?

As previously mentioned, parents have a great influence upon the child's attitude toward dentistry and dental treatment. The actual dental experience will also contribute to this attitude, along with other factors (Wright and Alpern, 1971; Hawley, et al, 1974). Some dentists believe that the parent's influence overpowers any precautions the dentist may take to present a friendly and comfortable

experience for the child. Koenigsberg and Johnson (1972) studied the relationship between the behavior of 86 children on their initial visit to the dentist and the anxiety level of each mother who accompanied her child. They found that the behavior of children undergoing a dental examination during their initial visit was significantly related to the anxiety level of their mothers, as measured by scores on the Taylor Manifest Anxiety Scale (MAS). Children whose mothers scored high on anxiety demonstrated behaviors which were classified as negative with regards to the dentist and the examination. These relationships were not demonstrated on the second and third visits, however. This seems to suggest that the actual dental experience may have some overriding influence on the child's initial attitude, that is if the dental experience does not support his initial attitude.

The total impact of the dental visit upon the child's attitude remains uncertain. Research concerning nitrous oxide-oxygen has primarily been limited to its effects upon the patient during treatment and any after effects (Hogue, Ternisky and Iranpour, 1971; McAneny and Doughty, 1963; Eastwood, 1964; Houck and Ripa, 1971). If it is possible to change a fearful attitude toward dentistry by the use of nitrous oxide-oxygen, it would make the dentist-child relationship more pleasant for the child and also relieve the origin of much anxiety for the child-patient.

Purpose of the study

It has been established that through the use of nitrous oxide-oxygen the anxiety and pain commonly associated with dental treatment

can be greatly reduced during the dental visit. The purpose of the present study was to examine the differences in attitudes of children using nitrous oxide-oxygen and children not using relative analgesia to determine whether this type of pain reliever and its relaxing effects had significantly influenced the child's attitude toward the dental experience as compared to novocaine treatment.

The attitudes of the parents were also compared to that of their respective children in order to observe any similar correlation between the parent and child attitudes toward the dental visit. This helped determine the impact of the dental visit as opposed to the parental influence in shaping the child's attitude.

Hypotheses

Due to the lack of information related to this area of attitude formation and the dental visit, the following null hypothesis was tested. In the judgment of the investigator, other influences in attitude formation would overpower the significance of the actual dental treatment.

1. The attitudes toward the dental experience of children using nitrous oxide-oxygen will not be significantly different from the attitudes of children not using nitrous oxide-oxygen.

Information concerning the following hypothesis was also gathered and compared for use in evaluating the impact of the dental treatment upon the child's attitude.

2. The child's attitude toward dental treatment will tend to reflect the attitude of the accompanying parent.

CHAPTER II

REVIEW OF LITERATURE

In the two hundred years that have passed since Joseph Priestly synthesized and discovered nitrous oxide in 1772, man has tried to utilize this "laughing gas" and its relaxing effects in a manner that would prove beneficial to him. The analgesic properties of nitrous oxide were discovered by Sir Humphry Davy in 1779 during inhalation of the gas while suffering with a tooth ache. Since that time much research has been done concerning the different concentrations of nitrous oxide and oxygen and its effects upon the patient in terms of consciousness, pain awareness, dreaming, vomiting, nausea and amnesia (Eastwood, 1964; Hogue, et al, 1971; Houck and Ripa, 1971; McAnery and Doughty, 1963); however, very little research is found that pertains to the influence of this treatment on dental attitude formation.

In order to consider the possible effects of nitrous oxide-oxygen on the dental attitude of fear and apprehension in children, it is helpful to look at the sources of that fear. Preschool children tend to adopt the fears of their parents, particularly of dogs, insects and storms (Hagman, 1932). As the preschool child grows in knowledge and imagination his fear of actual objects or unusual stimuli declines while his fear of anticipated, imaginary or supernatural dangers increases (Hagman, 1932).

Jersild, Markey and Jersild (1933) reported that about 20% of childhood fears are unrealistic and deal with imaginary creatures, the dark and being alone.

Maurer (1965) reported that the most mentioned fear by school age children (80% of five to six-year-olds and 73% of seven to eight-year-olds) was of animals. Fear of snakes was mentioned most followed by lions, tigers and bears. Rarely did children report fear of things that parents try to teach, such as traffic, germs and kidnappers.

A common concern for many preschoolers is bodily injury. In a recent study concerning children's fears (Bauer, 1976), it was reported that fear of bodily injury and physical danger increased from 11% among Kindergarten subjects to 53% among second-graders and 55% among sixth-graders. Fear of monsters decreased from 74% for Kindergarten children to 53% among second-graders and 5% among sixth-graders.

A comparison of ghetto children and middle-class suburban children revealed that the greatest difference in their fears was in the category of animal fears (Nalven, 1970). Ghetto children had a greater number of animals in their fears than had the middle-class children. The mean number of animal fears reported by the ghetto children equaled 1.82 while the mean number of animal fears reported by the middle-class children equaled .29. Nalven (1970) also reported that no significant differences were observed among childhood fears as a result of the child's sex.

Cecil and Coleman (1966) reported that when a child visits a dentist or a physician, two great fears are evoked: "(1) Fear of injury or pain, (2) fear of the unknown, which includes strange instruments and strange environment (p. 51)."

They state also that parents should take an active part in adequately preparing the child to meet this experience involving pain and the unknown.

The dentist can also help in this task of introducing the child to dental procedures. Hill and O'Mullane (1976) suggest a series of visits which are appropriate for frightened children.

There are a number of stimuli associated with dental pain which elicit a response of stress or fear from the patient. Kleinknecht, et al (1973) mention that the stimulus most frequently noted was sight of the syringe and the sensation of anesthetic injection. Other fear-producing stimuli involved reaction to the sight, sound and feeling of the drill as well as probing and general examination by the dentist. For many children and adults then, the most unpleasant and pain-evoking procedure they must endure at the dental office is the injection of the local anesthetic. Many dentists have found that through the use of nitrous oxide-oxygen the fear and anxiety which accompany the injection can be reduced, and due to the relaxing effects of the gas, pain can also be reduced to a mild tingling sensation (Langa, 1968).

Sorenson and Roth (1973) support the use of nitrous oxide-oxygen in helping the child acquire positive attitudes about the dentist:

The injection of the local anesthetic for the apprehensive child is often accomplished by forcible restraint. This method requires the dental assistant to hold the child's hands and feet while the dentist steadies his head, all the while endeavoring to keep the mouth open and directing the needle to the proper injection site. This experience is disconcerting to all participants. The dentist is fatigued and upset; the child is even more reluctant to return for another injection in the future The technique of inhalation sedation utilizes the properties of the anesthetic gas nitrous oxide to achieve a state of altered consciousness, minimal muscular relaxation and sedation (p. 51).

In a study involving children of differing ages, however, Klein (1967) reports that only a small percentage (18.1) of all the children mentioned pain during treatment. He writes:

A conjecture could be made that in the group showing cooperative behavior, pain experienced was not a decisive factor in modifying the child's positive attitude to dental treatment and to the dentist. As opposed to this, children with a defensive attitude either repressed the pain factor experienced during their last dental visit or did not experience it It is possible therefore that a previous pain-arousing experience was the cause for their defensive behavior (p. 32).

Jaffe (1965) states that the way the patient responds to the dentist and his treatment depends on "the perception of the dentist . . . not his (the dentist's) actual values, interests and concerns (p. 335)." This finding is also supported by Hawley, et al (1974).

Rule (1957) suggests that children may be afraid of going to the dentist because of (1) previous experience with another dentist or doctor, or someone perceived by the child to be similar, (2) "borrowed anxieties" as a result of the parents' uneasiness about him or about themselves.

Wright and Alpern (1971) revealed that the most cooperative children in their study were from the upper socioeconomic group. They also found, however, that maternal anxiety was a significant factor in cooperative behavior at the first dental visit, especially in the cases of younger children. Older children seemed to be more independent from their mother. They report that the relationship between past medical experiences and the child's cooperative behavior was not significant; however,

It is the child's attitude toward physicians and the quality of his relationship with his physician, rather than the frequency of medical experiences, which greatly influence his

cooperative behavior at the first dental visit (p. 124).

Although the child's relationship with his dentist appears to be very important, the importance of the family must not be overlooked as a potential influence upon the child's perception of the dentist. In considering the child's occupational perceptions and preferences, Borow (1966) states that the family has a tendency to define the child's occupational universe by: " (a) furnishing work role models with which the child can identify and (b) by transmitting a set of values about work in general and types of work in particular (p. 382)." He also states that the occupational concepts and attitudes acquired by the child tend to associate themselves with the socioeconomic status of the family.

Some support to the idea of occupational preference being based upon socioeconomic status was offered by Maccoby (1962) when she reported that sixth-grade middle-class and upper-class boys favored occupations presumably reflecting middle-class values. Favor was shown to occupations providing opportunities for training, supervising or controlling others.

Gunn (1964) reported that children's concepts of occupations changed as children grew older and that the concepts tended to reflect a conceptual developmental sequence consistent with Piaget's theory of cognitive development. She noted that fourth-, fifth-, and sixth-grade boys could rank occupations better than the younger subjects and tended to rank occupations based upon presumed service value to the community or nation. Third-grade boys were the youngest group to begin perceiving occupations in a hierarchy. High status occupations

for this group were judged upon their perceived importance to the community rather than prestige of the worker. The first- and second-grade boys characterized occupations in highly personal terms reflecting Piaget's "age of egocentrism." These boys avoided terms of rejection and disapprobation in explaining their rankings.

The dentist knows that many parents are haunted by fear and anxieties related to dentistry and that they possibly could transmit these fears and anxieties to their children. Shoben and Borland (1954) studied dental fears as related to family relationships and they conclude:

The attitudes and experiences of ones family in relation to to dentistry seem to be a most important factor in determining whether an individual will react with anxiety to the prospect of dental treatment and will therefore tend to avoid oral care for a detrimentally long period.... People come to the dentist set to respond with tension and fear chiefly because of the way dentistry has been represented to them in their home (p. 174).

It appears that the child's perception of the dentist will likely reflect certain values and attitudes shared within the family unit. His perception will also be influenced by the child's own ability to conceptualize. The perception of the dentist and the dental visit could then act as the basis for the child's behavior as he develops this apparently significant relationship with the dentist.

It has been suggested by Chambers (1970) that "the major problem in patient management is not anxiety, but the possibility that that patient may learn dysfunctional strategies for coping with his anxiety (p. 363)." Indeed a child may learn dysfunctional behavior and retain such behavior as long as he perceives that it helps him deal with the situation at hand. Sometimes children become aware of

how others deal with this same situation and even at times identify with this person and adopt his more appropriate behavior. This technique is called "modeling" and has proven to be very beneficial in helping children overcome their fears and anxieties (Melamed, Hawes, Heiby and Glick, 1975).

In a recent study (Adelson and Goldfried, 1970) it was noted:

By observing a model, a child is able to learn complex behavior patterns which would otherwise require much trial and error before they could be obtained. Learning through modeling is particularly effective when the observer is in a state of arousal, when the model has relatively more status and prestige, and when there are positive consequences of the model's behavior... The most relevant application to dentistry appears to be in the introduction of the child to a new, unstructured environment, and in the reduction of anxiety (p. 476).

Putman (1970) declares that "we should be concerned not only about how to manage the child's undesirable reactions, but also, about giving him the kind of experience that will prevent such reactions from occurring (p. 96)." She feels that behavior management in dentistry is a cooperative process and that there exists a real need for deucational programs "dealing with methods of guidance with respect to the child patient and his parents (p. 96)."

Some dentists have attempted to adequately introduce their child patient to dentistry in a nonthreatening manner (Hill and O'Mullane, 1976; Pinkham and Fields, 1976). Part of this introduction includes hints to parents on how they might deal with their child as related to the dental experience. Letters are sometimes sent out to the parents of the patient or are available to the parents at the clinic such as the one previously mentioned from the Belmont Dental Arts in Pueblo, Colorado. Preappointment visits are also sometimes

scheduled to help introduce the child patient to this new environment.

In an attempt to treat the child's fear of the unknown, a clinic in England has introduced a "children's open day" in which the children are allowed to sit in the chair, look at instruments, look in each others mouths with mirrors and even examine the dentist's teeth. Reports indicate that the children are having an enjoyable time and even faking tooth aches so they can return to the now popular clinic (Unknown, 1972).

Research is supportive of the effects that anxiety can have upon the minds and behavior of children. Even though fantasies are defined as not real, in the perception of the child anxiety about things known and unknown can create fantasies which to him appear to be very possible and real.

A recent article (Miller, 1970) attempts to explain the relationship between fear and anxiety in dentistry:

Consideration of the phenomenon of fear and anxiety and the difference between them is important in understanding the patient's reaction to dental procedures. Fear is a reaction in response to something that is real, an actual potential danger. This response can be allayed by reassurance and the patient having an opportunity to test out the situation. Anxiety, although it appears similar to fear, is not primarily due to a real or potential danger existing in the patient's environment. Anxiety arises from within the patient's psyche, as a consequence of conflict between unconscious, unacceptable impulses and the demands of the patient's ideals and standards. Real events may have a complimentary connection with the unconscious conflicts of the patient and serve to precipitate or intensify the reaction of anxiety (p. 941).

Speculation and theory have attempted to link the fears, stresses and anxieties associated with dentistry to a more profound and deeply rooted source. As previously mentioned by Spitz (1955),

the oral cavity serves as the "cradle of all external perception and its basic model (p. 238)," as well as a "bridge between the perception of inner sensations and reactions to outside stimuli (p. 238)." The belief that there are deeply rooted psychological implications surrounding the oral zone is shared by many Freudians and non-Freudians.

Schwartz (1971) attempts to explain some of the significance and symbolism of the oral cavity:

Though vestiges of the anxiety originally aroused remain hidden in the mind, psychologists allude to them in trying to account for the element of threat injected into subsequent situations which entail an intrusion into the oral cavity. Some of this pervasive and unrealistic anxiety is attributed to the fact that the dental situation symbolizes punitive aspects of the developmental experience, thus evoking emotions which psychoanalysts identify with the psychic pain of childhood

Youngsters at this stage of development are greatly concerned with their own well-being, which they regard as threatened by the reactions of the parent to their own hostility. Feelings of guilt plague them and associated with these are fears of being dismembered by the offended parent. Freudians attach symbolic significance to the teeth and it is their notion that childhood fears of dismemberment are frequently projected onto them (p. 166).

There appears to be some real significance associated with the oral cavity in reference to oral pain or even the anticipation of oral pain. Many experiences, both pleasurable and unpleasurable, associate themselves with the oral cavity and the imprint of these experiences remains with the person throughout his life. These experiences can be the influencing factor which leads the individual to feelings of trust and contentment or to feelings of anxiety, fear and apprehension. Although, theoretically, the tremendous significance of oral sensation is but a temporary state and other sensations help to broaden the individual's scope of awareness, the emotional

impact of oral experiences has created strong feeling tones about the mouth, both positive and negative, which persist throughout life (Plainfield, 1965). These feeling tones or attitudes function as reinforcers to perceived dental experiences and can create a state of emotional anxiety which intensifies any real feeling and possibly distorts the actual experience (Miller, 1970). Under extreme anxiety the child may believe that he actually is feeling intense pain and respond accordingly, when in reality he is not experiencing a high level of pain. This type of distorted stimulus-response could reinforce the child's attitude toward dentistry, that it is painful, unpleasant and something to be feared.

Shoben and Borland (1954) compared individuals classified as being "fearful" of the dental experience with individuals who were "non-fearful," and found no significant difference related to: (1) pain tolerance, (2) traumatic dental experience, (3) traumatic medical experience, (4) traumatic facial experience and (5) emphasis on orality. This finding seems to support the idea that a traumatic experience does not necessarily have a lasting significant influence on the attitude and behavior of individuals.

Recent research (Kleinknecht, et al, 1973) has shown that not all people react negatively toward the dentist and dental treatment. The individuals noted as manifesting positive reactions to dentistry listed the following reasons:

1. Personal liking for dentist 11.6%
2. Doesn't bother me (unexplained) 8.4%
3. Positive expectations from others 2.7%

(p. 842).

It appears that the image of the dentist and consequently the attitude toward dentistry could be changing to a more positive one. In a study testing the child's attitude of dentists and dentistry, Rosenweig, Sforza and Addelston (1968) were impressed that the dentist-child relationship seemed quite positive. Although the dentist was not perceived to be on the same level as a father, "there is no departure from the perception of significant others when the child described the dentist (p. 129)."

In a study regarding the image of the dentist, McKeithen (1966) noted that a low percentage of the respondents had referred to pain and fear of pain. McKeithen suggested that possibly the nature of the dental visit, in regards to the group she interviewed, had influenced their image of the dentist. The values placed upon dental services could have encouraged more frequent visits and consequently their dental problems were not regarded as serious, or were corrected before the more serious and painful problems could arise. This more frequent treatment could have made the patients more aware of modern dentistry with its emphasis on relief of pain and thus lead the respondents to seek out a dentist who uses newer and less painful techniques.

McKeithen (1966) concludes:

If so, this would indicate that fear of pain in the dental situation is one which can be modified by a certain kind of dental experience. In addition, it would indicate that in a very important way the image of the dentist today is changing, and can be changed in the future (p. 87).

Based on these findings she raises two very interesting questions:

1. Has "painless" dentistry, the use of high speed drills and other modern techniques, eliminated much of the fear of pain usually thought to be typical of a trip to the dentist?

2. Is the dentist no longer looked upon as a prime purveyor of pain, but as someone who can make the experience of receiving dental care more pleasant (p. 87).

The research concerning dental attitudes and children's behavior during dental treatment indicates that there are many possible factors influencing these attitudes and behaviors. Among these factors are included: fear of the unknown, apprehension of pain, importance of the oral cavity, personal perceptions, fantasies, and parental anxiety. Attempts have been made to adequately understand the child's perception of the dental visit. Attempts have also been made to accommodate the young patient by providing pleasing colors in the dental office, music in the headrest, rewards after treatment, smiling and attractive dental assistants, and dentists who are sensitive to the concerns of young children. These provisions have been made in order to establish a pleasing environment for the patient with the hopes of developing positive perceptions of the dental experience.

Although the research suggests that attitudes toward the dentist and dental visit are changing and becoming more positive, definite answers regarding the reasons for this change are lacking, and some attempts to provide answers remain speculative.

The present study examines the possibility of nitrous oxide-oxygen as an influencing factor in the changing attitudes of children toward the dental visit.

CHAPTER III

METHODS AND PROCEDURES

In preparation for the present study, two pilot studies were conducted to determine whether the proposed age range of four to eight-years of age was appropriate. It was necessary to determine whether this age range would be able to respond to the type of questions on the survey by identifying with three specific character situations which were accompanied by a blank character face: (1) A child coming from an ice cream shop, (2) a child who just cut a finger and (3) a child coming from the dentist's office. The children were to appropriately fill in the blank situational character faces as being either "Happy" or "Sad" for later evaluation. The situational character faces were represented as the same sex as the subject so that there might be a closer identification between the child-patient and the child in the questionnaire. Girl's faces in the questionnaire differed from the boy's faces only in representation of hair style and absence of visible ears. The rest of the face was left blank.

The first pilot study revealed that some of the younger four-year-olds had not developed enough muscle coordination and representational art skill to enable them to fill in the character faces for evaluation. It also revealed that additional knowledge on the child survey was necessary. A parent survey was not included in the first pilot study as the researcher was only testing the appropriateness of the child questionnaire.

The age range for the second pilot study was broadened to

include children from five to ten-years of age. An informational sheet was added to the child survey to include a place for type of treatment, name of child, age of child, previous treatment, amount of time since last visit, and total number of visits. Besides filling in the faces depicting the three specific situations, the child was also asked to respond as to why the child in the dentist's office situation felt this way. A parent survey was also included in the second pilot study which included age, vocation, education and time since last dental visit. Parents were asked to respond as to being: (1) very relaxed, (2) generally relaxed, (3) generally anxious or (4) very anxious while in three specific situations. The three situations were defined as: (1) routine examination by dentist, (2) routine examination by doctor, and (3) treatment by dentist. Parents were also to rate their own feelings about going to the dentist on a scale of 1 to 6, with 1 representing "love to go" and 6 representing "hate to go," after which they were asked to comment on why they felt this way.

The second pilot study proved to be more satisfactory than the first, but the format of the child survey was not particular enough to ensure correct interpretation of the information recorded on the character faces. The researcher assumed that the filled in character faces themselves would be sufficient for interpretation of "Happy" or "Sad" classification, however, this proved to be inadequate in the cases where the face was not characteristically happy (smiling) or sad (frowning). To avoid any doubt as to the child's response it was necessary to change the format of the questioned situations to include

an area for marking the child's verbal response pertaining to "Happy" and "Sad" for the present study. Some weakness was shown in the parent survey as well, as it only allowed for information on one parent.

The child questionnaire for the present study was adapted to provide additional information to the researcher (birth order of child and whether the child received a reward following the visit) as well as allowing for the format changes mentioned above (space was provided for recording the child's response regarding "Happy" or "Sad" in each situation on the survey). The parent survey was modified to include room for information on both parents pertaining to age, vocation and education.

Sample

The sample for the present study consisted of forty-five children and their parents. Due to no response for type of treatment on four of the questionnaires, the computer disallowed them in the data analysis. This procedure allowed for analysis of a sample of forty-one children and their parents. The children ranged in age from four to ten years old. One older four-year-old who was able to fill in the questionnaire was included in the present study. Twenty-one children, between the age of five and eight with an average age of 6.14 years, were selected at random for the experimental group from a list of patients who had undergone dental treatment with the use of nitrous oxide-oxygen. The control group was made up of twenty children between the age of four and ten years of age with an average age of 7.20 years. They were chosen at random from a list of patients who had never

received treatment with nitrous oxide-oxygen.

With the use of an information sheet, an attempt was made to control such items as previous dental treatment, age, time lapse between visits, proximity of last visit, total number of dental visits and whether a reward was given following treatment. Both groups of children had received similar dental treatment: fillings, polishings and few extractions (only two children had experienced an extraction during their present visit and eight children total had experienced extractions during their dental history). Children who had received extreme dental treatment, such as serious oral surgery or damaged tissue due to an accident were excluded from the sample. All of the children in the present study received a reward (a small ring) following treatment except one nine-year-old girl. The subjects all resided in the Ogden area since dental records from that area were used to compile the sample list.

Four dentists of the Ogden Dental Clinic assisted in the use of their records for compilation of the sample lists. They were also instrumental in the use of the clinic as the testing site for the pilot studies as well as the present study.

The child's questionnaire and the parent survey were conducted at the Ogden Dental Clinic. A dental assistant administered the child questionnaire immediately following treatment in the presence of the accompanying parent. The child's dentist and dental assistant aided in providing the child's dental history information. After completing an initial "Happy-Sad" identification sheet in which the child filled in two blank faces (one defined as sad, the other as happy), the child was asked to respond to the three specific situations listed above and

to verbally identify the child in each situation as being either "Happy" or "Sad." This verbal response was marked in the space provided on the questionnaire. The child was then asked to fill in the blank face so as to represent his verbal response (either happy or sad). This procedure was followed for each of the three situations. The child's verbal responses and drawings were categorized according to being positive ("Happy" classification) and negative ("Sad" classification) toward the dental experience.

Each child was also asked to give a verbal response as to why the child in the hypothetical dental situation felt happy or sad, depending upon the child's initial classification. These responses were recorded on the questionnaire and later evaluated and identified as belonging to one of four particular points of reference which had been determined from the total responses: (1) Pain, (2) Tooth, (3) Dentist, and (4) No particular reason.

While the child-patient was receiving treatment, the parent accompanying the child was asked to fill out the parent survey, giving information about both parents and personal attitudes regarding dental examination and treatment. This information was used to compare any similarities and differences between the child's attitude and that of his parent.

CHAPTER IV

FINDINGS

The data included in the child surveys were tabulated and tested to determine any significant relationship between nitrous oxide patients and nonnitrous oxide patients in reference to their attitude toward the dental experience. Evaluation of the data revealed no significant difference in attitudes between children receiving treatment with nitrous oxide-oxygen and those receiving treatment without nitrous oxide-oxygen, thereby supporting the original null hypothesis:

The attitude toward the dental experience of children using nitrous oxide-oxygen will not be significantly different from the attitudes of children not using nitrous oxide-oxygen.

Table 1 shows the distribution of the two groups of children and their relative "Sad-Happy" classification.

Table 1. Distribution of subjects relative to type of treatment and "Sad-Happy" classification.

Treatment	SAD	HAPPY	total
Nitrous Oxide		4	4
Novocaine	1	19	20
Both	1	16	17
total	2	39	41

$$\chi^2 = 0.243$$

As indicated by Table 1, only two respondents were classified as "Sad" whereas thirty-nine of the forty-one children evaluated in the survey were classified as "Happy."

In evaluating the children's responses to the hypothetical dental situation, four main points of reference were identified: (1) Pain, (2) Tooth ("His tooth got fixed" and "His tooth got better"), (3) Dentist (that they liked him or that he was good) and (4) No particular reason ("I don't know, 'cause" or left the space blank). The child's point of reference for his "Happy-Sad" classification was then evaluated according to the type of treatment used (nitrous oxide-oxygen or novocaine). The data evaluating treatment with point of reference are indicated in Table 2.

Table 2. Distribution of subject's point of reference according to treatment used.

Point of Reference	Novocaine	Nitrous Oxide	total
Pain		1	1
Tooth	6	8	14
Dentist	1	4	5
No Reason	13	8	21
total	20	21	41

$$\chi^2 = 4.165$$

Analysis of the data in Table 2 revealed no significant difference between point of reference for children receiving dental treatment with nitrous oxide and those receiving dental treatment with

novocaine. This finding also lends support to the original hypothesis.

It appears according to Table 2 that the nitrous oxide group is more diversified as to point of reference than the novocaine group. This observation suggests that the nitrous oxide group was attending more to reference factors (Pain,Tooth,Dentist) while a majority of the novocaine group did not identify any particular reason for their judgements. This difference could be due to the fact that the nitrous oxide children were more relaxed and therefore able to concentrate more on these factors or possibly that they were under more stress due to the procedures of administering the nitrous oxide and therefore developing stronger reference points than the novocaine group.

A closer look at the "Sad-Happy" classification reveals an interesting trend in relation to the point of reference and the sex of the child. Table 3 identifies the two "Sad" respondents as both being boys, one referring to pain ("'cause it hurt him") and the other to tooth ("because he just got a filling"). All twenty-three girls were classified as "Happy," as shown by Table 4. The girls also were more diversified as to point of reference than were the boys.

According to the information displayed in Table 4, some differences are readily acknowledged. Five girls (22%) made reference to the dentist (that they liked him or that he was good) whereas none of the boys referred to the dentist in responding to why the child in the dental situation felt "Happy." Twelve of the sixteen boys (75%) indicated no particular reason ("'cause, I don't know," or left the space blank) when asked why the child in the dental situation felt that way. Nine girls (39%) responded with no particular reason in this

situation. Reference to tooth was made by four boys (25%) as compared to nine girls (39%).

Table 3. Distribution of "Sad" point of reference relative to sex of child.

"SAD" Point of Reference	Boys	Girls	total
Pain	1	0	1
Tooth	1	0	1
No Reason	0	0	0
total	2	0	2

Table 4. Distribution of "Happy" point of reference relative to sex of child.

"Happy" Point of Reference	Boys	Girls	total
Dentist	0	5	5
Tooth	4	9	13
No Reason	12	9	21
total	16	23	39

$$\chi^2 = 6.228 \quad df = 2 \quad \text{significance} = .05$$

An evaluation of the data indicated in Table 4 comparing the "Happy" point of reference and sex of child revealed a significant difference between boys and girls at the .05 level in relation to their particular point of reference. This seems to suggest that the girls were either more able or willing to provide reasons for their judgements

than were the boys. This possibly could be attributed to an age difference between boys and girls in this study, to better cognitive development and better reasoning ability among girls than boys in this study or possibly to factors involving interpersonal relationships between the girl-patient and the dentist which were not present during the boy's relationship with the dentist. This latter possibility seems interesting since all of the dentists involved in this study were men.

When these data were examined according to the specific age of the girls, Table 5, and age of the boys, Table 6, it suggested that the particular point of reference had not been influenced by the child's age. Five to six-year old children had responded basically the same as the seven to nine-year olds. This finding suggests that factors other than age are the cause of differences between the boys point of reference and that of the girls. Type of treatment used seemed a possible answer to the differences in point of reference between the boys and the girls.

Table 5. Distribution of "Happy" girls point of reference according to age of child.

Point of Reference	Age of Child							total
	4	5	6	7	8	9	10	
Tooth	0	3	1	1	2	2	0	9
Dentist	0	1	2	1	1	0	0	5
No Reason	0	2	2	0	5	0	0	9
total	0	6	5	2	8	2	0	23

Average age= 6.8 years

Table 6. Distribution of "Happy" boys point of reference according to age of child.

Point of Reference	Age of Child							total
	4	5	6	7	8	9	10	
Tooth	0	1	1	1	1	0	0	4
Dentist	0	0	0	0	0	0	0	0
No Reason	1	4	2	2	3	0	0	12
total	1	5	3	3	4	0	0	16

Average age= 6.2 years

Table 7. Distribution of "Happy" girls point of reference according to type of treatment used.

Point of Reference	Nitrous Oxide	Novocaine	total
Tooth	5	4	9
Dentist	4	1	5
No Reason	2	7	9
total	11	12	23

Table 8. Distribution of "Happy" boys point of reference according to type of treatment used.

Point of Reference	Nitrous Oxide	Novocaine	total
Tooth	3	1	4
Dentist	0	0	0
No Reason	6	6	12
total	9	7	16

Data concerning the child's point of reference and type of treatment used were then organized according to sex in order to examine any relationship occurring within the two sex groups in relation to type of treatment. This information is presented in Tables 7 and 8.

Evaluation of these data indicated no significant relationship occurring between point of reference and type of treatment when subjects were separated according to sex. Among the girls, however, it was observed that four out of the five references to the dentist fell in the nitrous oxide group (80%). It was also observed that seven of the nine girl respondents giving no particular reason for their "Happy" response had received the novocaine treatment (78%).

This finding seems to suggest a trend, at least among the girls, that point of reference may be influenced by the type of treatment used during the dental visit and consequently by the actual behavior of the dentist himself. Since the dentist routinely administers the selected treatment (nitrous oxide or novocaine) the behavior and personality of the dentist could be considered as complimentary factors along with the treatment itself in influencing the attitudes of young children.

The second hypothesis states that the child's attitude toward dental treatment would tend to be similar to that of his parent's. Data pertaining to the accompanying parent's attitude toward going to the dentist were rated on a scale of one to six with one representing "Love to go" and six representing "Hate to go." This information when viewed in relationship to the child's "Sad-Happy" classification

yields the distribution indicated in Table 9. The two "Sad" respondents correlate with indicators on the parent survey of high anxiety in the parent and a rating of six on the "Love to go - Hate to go" scale. Ten parents (83%) who had also indicated a five or six rating for their attitude about going to the dentist were represented by "Happy" attitudes from their children.

Table 9. Parent anxiety rating as compared to respective child's "Sad-Happy" classification.

Child's Classification	Parent Anxiety			total
	1-2	3-4	5-6	
"Sad"	0	0	2	2
"Happy"	5	24	10	39
total	5	24	12	41

The data presented in Table 9 does not suggest a significant relationship between the parent's attitude and the child's "Sad-Happy" classification. Although two children were found to be similar to their parent's attitude of "Hate to go," 83% of the "Hate to go" parents were represented by children who had not identified with their parent's actual feelings in relationship to their their own attitude about dentistry. These parents possibly had promoted or projected a more positive attitude than they actually felt. This would account for some children developing positive attitudes about dentistry while the parents actually feel anxious and negative. Based upon this finding, the second hypothesis was rejected. Children in this study did not tend to reflect their parent's attitude concerning the dental visit.

The parent's anxiety rating was also compared to the respective child's point of reference in the hypothetical dental situation. These data are presented in Table 10. Evaluation of the data indicated no significant relationship occurring between the parent's anxiety rating and the child's point of reference. This finding also lends support to the rejection of the second hypothesis.

Table 10. Parent anxiety rating as compared to respective child's point of reference.

Point of Reference	Parent Anxiety			total
	1-2	3-4	5-6	
Pain	0	0	1	1
Tooth	2	6	6	14
Dentist	1	3	1	5
No Reason	2	15	4	21
total	5	24	12	41

$$\chi^2 = 5.818$$

Although rejection of the second hypothesis has been supported by the findings of this study, an interesting comparison results in the evaluation of data related to the two "Sad" boys. These two cases, although different in many ways, did reflect the attitude of the parent accompanying the child to the dentist. A comparison of the two "Sad" respondents is presented in Figure 1.

	<u>Boy #1</u>	<u>Boy #2</u>
Age	7 yrs.	10 yrs.
Birth Order	First	Last
Treatment	NO ₂	Novocaine
Present Visit	Filling	Filling
Previous Visits	Polishing Filling Extraction	Filling
Last Visit	3 months	more than 6 months
No. of Visits	3	2
Reward Given	Yes	Yes
Point of Reference	Pain	Tooth
Age of Father	34 yrs.	36 yrs.
Age of Mother	26 yrs.	36 yrs.
Father's Education	High School	High School
Mother's Education	High School	High School
Anxiety Ratings for Parent in Dental Chair	very anxious	very anxious
Parent Attitude Toward going to Dentist	Hate to go	Hate to go

Figure 1. A comparison of two "Sad" respondents.

CHAPTER V

SUMMARY AND CONCLUSIONSSummary

McKeithen (1966) questioned whether new techniques in dentistry had significantly effected attitudes toward visiting the dentist and the child's perception of the dentist. The development and use of high speed drills and better techniques of controlling pain and anxiety could possibly effect the development of children's attitudes toward the dental experience.

Kleinknecht, et al (1973) noted that negative expectations from others was the most common reason for a person's negative perceptions of the dentist. These expectations from others result from exposure to parental attitudes, friends, TV shows, cartoons and experiences of other acquaintances. Due to the fact that parents are a primary source of information to the child in his early years, parental attitudes concerning dentistry could also be an important element in the development of the child's attitude toward dentistry.

The present study examined two different types of dental treatment, nitrous oxide-oxygen and novocaine, as possible factors in the attitude formation of children toward dentistry and the dental experience. Parental attitudes were examined along with the children's attitudes to determine any tendency for children to reflect their parent's attitude toward the dental experience.

Two pilot studies were conducted to determine an appropriate age range for the children involved in this project and to develop a

workable child questionnaire and parent survey. Forty-five children and their accompanying parents participated in the present study. Due to lack of information on four of the questionnaires only forty-one children and parents were used in the evaluation of the data. Eleven girls and ten boys, between five and eight years of age, who had undergone dental treatment with the use of nitrous oxide-oxygen constituted the experimental group. The control group consisted of Twelve girls and eight boys, between four and ten years of age, who had never received nitrous oxide-oxygen as a dental procedure during treatment.

Data for the present study were gathered at a local dental clinic. While the child was in the dental chair receiving treatment from one of four participating dentists, the accompanying parent was asked to fill out the parent survey providing information regarding his/her personal attitude toward visiting the dentist. Following treatment the child was asked to respond to the child questionnaire by filling in two blank character faces (one defined as happy, the other as sad) and by filling in three additional blank character faces after judging whether the character was happy or sad: (1) a child coming from the ice cream shop, (2) a child who just cut a finger, and (3) a child coming from the dentist's office. The child-subject also was asked why the child in situation number three felt that way. The child's response to this question was then recorded on the questionnaire.

The data contained on the child questionnaire and the parent survey were organized in order to test the following two hypotheses:

- (1) The attitudes toward the dental experience of children using nitrous oxide-oxygen will not be significantly different from the attitudes of children not using nitrous oxide-oxygen.
- (2) The child's attitude

toward dental treatment will tend to reflect the attitude of the accompanying parent.

Conclusions

The researcher recognizes that any conclusions drawn from the present study should be viewed as tentative conclusions due to the small number of children and parents participating in the study, as well as the fact that the sample selected represented only one dental clinic, although four dentists were involved in the treatment process.

Neither of the two original hypotheses of this study were supported by the data; however, the findings did present some interesting questions in relation to the interpersonal relationships between the child and the dentist. The findings also seem to be particularly important in that they lend support to the conclusion that modern preventive dentistry appears to have a positive potential as an influence on children's attitudes toward the dentist and dental care.

The findings of this study showed that 95% of the children involved in this project responded in a positive manner to the dental situation. Only two children in this study responded in a negative manner, of which only one made reference to pain. In light of this finding it seems that the attitude toward the dental visit for the children in this study has become one of positive expectation.

Evaluation of the data indicated that the type of treatment used (nitrous oxide-oxygen or novocaine), although possibly effecting the child's perception of the situation, had no significant effect upon the attitudes of the children interviewed. This finding made it necessary

to reject the first hypothesis and conclude that type of treatment used was not a significant element in the dental attitude formation process for this group of children.

Evaluation of the data did show, however, a significant difference occurring between boys and girls relative to the point of reference used in the verbal "why" response given in situation number three (a child coming from the dentist's office). Further examination indicated that these sex differences were not due to age differences between the boys and the girls.

Examination of the data regarding parental attitudes and respective child's attitude revealed that there was not a tendency for children in this study to reflect their parent's dental attitude. Due to this finding, the second hypothesis was also rejected.

Discussion

Many adults, including the researcher, can easily recall a childhood visit to the dentist which involved a lengthy stay and much pain and anxiety due to anesthetic injection and tooth removal or repair. A parent exposing his/her child to personal dental experiences such as this can influence the child's perception of the dental visit and expectation of dental treatment.

Exposure to parental attitudes does not necessarily mean, however, that the parent's true feelings are reflected in that attitude. Some of the parents in this study admitted to being very anxious about going to the dentist, but that they tried very hard not to reflect these feelings to their children. These parents seem to understand that their

child might anticipate a dental visit and project attitudes based upon the parent's projected feelings about dentistry. This would mean that a child possibly could receive positive expectations from the parents, even though they (the parents) actually felt differently, and a few negative expectations from other sources such as friends and TV. This would account for some anxiety on the first dental visit, keeping in mind that the child also is not familiar with the dentist nor the dental procedures. This first visit acts as a very important source of information about the dental experience and this new relationship with the dentist. If this first dental visit reflects a sensitive, warm and caring person in the dentist and with the actual dental treatment being held minimal, the child would likely assume that this new person (the dentist) is OK. Based upon this assumption the child may also incorporate into his dental perception that the experience is OK and somewhat positive and fun.

Supposing the child's first dental visit reveals an insensitive, cool and not too caring person in the dentist. The child may not receive the necessary feedback for the development of trust and security in this situation, as well as the establishment of a positive relationship based upon positive interaction between the dentist and the child. Even if the dental treatment remains minimal during this visit, it appears unlikely that the child would perceive the dentist in the role of a friend or significant other. This child could, however, still develop positive expectations and attitudes related to dentistry based upon the manifested parental attitudes and the minimal amount of treatment involving extended dental work.

The possible consequences for the child exposed to negative parental attitudes toward dentistry who also experiences a dental visit involving an insensitive and cool dentist appear to be more negative than positive.

It seems that parents are effecting their child's attitude toward dentistry; however, this attitude may be a more positive one to the child than it is to the parent. The findings of this study showed that children's attitudes do not reflect the attitudes of their parents to a significant degree. The researcher feels that parents are for the most part adequately projecting a positive expectation for their child even though they may hold within themselves feelings and expectations of a more negative nature.

The question of the dentist's relationship with the patient is raised in light of the present findings involving the five girls who referred to the dentist in their point of reference as compared to no boys making this reference. When this finding was originally noted, the possibility that age might have been an influencing factor was recognized. A comparison of age according to sex revealed that this was not a significant element in the child's point of reference. In fact, there hardly existed any differences in reference point for any age group. This finding suggests that girls possibly are experiencing something related to the dental visit that boys are not.

A comparison of "Happy" girls point of reference according to type of treatment used identified four of the five dentist-oriented girls as being recipients of nitrous oxide-oxygen treatment. This finding indicates that type of treatment may have influenced the point

of reference, however, the results also showed that no boys had made reference to the dentist in either the nitrous oxide group or the novocaine group.

The dentist in attempting to provide a pleasant experience for the child proceeds to develop a positive relationship with the child by talking to and showing interest in the child. The researcher suggests that it is very possible that the dentist could relate to his child-patient in a manner dependent upon the child's sex. The dentist would then reflect certain expectations, stereotypes and mannerisms perceived to be sexually and socially appropriate. His style of dealing with children could possibly be quite different for girls than it is for boys. The possibility of the dentist being more sensitive, warm and caring toward girls than he is toward boys suggests that girls might interpret the dentist's behavior in a very positive way and that they ultimately might develop a more dentist-oriented attitude than boys. The matter of sex type and child-dentist relationships could also have an effect upon the child's perception of the dentist and he, like the dentist, could also exhibit behaviors perceived to be sexually and socially appropriate for his role. The present finds seem to suggest that this could be a likely factor in the apparent differences between the boys point of reference and that of the girls. It appears that the dentist-child relationship and even the dentist's ability to form personal relationships could be very important factors in the developing attitude toward dentistry among children. The manner in which the child perceives the dentist, based upon their interpersonal relationship, could be a determining factor in how the child perceives the dental

experience. The child may not mind a little discomfort at the dentist's office if he feels that the dentist really cares about him and likes him. If, in fact, this is happening, the dentist could serve as a very powerful source of positive expectation by developing and practicing behaviors which promote positive interpersonal interaction. This approach could have very meaningful effects upon both girls and boys as well as to the adult patient.

In an attempt to eliminate the necessity of extended dental work, many dentists have incorporated techniques of preventive dentistry as part of their regular patient care. For many patients participating in this preventive treatment, dental work is limited to an examination or an occasional minor filling. One of the techniques includes regular dental checkups and treatment with fluoride for the prevention of tooth decay.

The researcher's step-daughter, who is presently eight years old, has been visiting the dentist regularly since she was three years old. She has received regular treatment with fluoride to prevent decaying of her teeth. She has never experienced a cavity or extraction in her dental history. Her perception of the dental visit is remarkably positive and she often inquires as to when it will be time to go back to the dentist. Her attitude is not uncommon among children who have received preventive dentistry treatment. Her attitude also is similar to the attitudes of the girls in the present study.

The use of preventive dentistry and the elimination of much extended dental work has helped to move the attitude of the dental visit in a positive direction. This movement has been supported by improve-

ments in the dental treatment process (including drugs and special tools), sensitive parents who attempt to portray positive expectations toward dentistry and warm sensitive dentists who develop meaningful personal relationships with their young patients.

Recommendations

The dynamics of the dental attitude formation process are very complex. There are many factors effecting and counter-effecting each other throughout the process. The effects of the type of treatment used (nitrous oxide-oxygen or novocaine) seem to be insignificant as do the parents actual feelings toward the dental visit. However, the potential for the dentist-child relationship as a possible factor in this attitude formation process appears to be an area worthy of investigation.

Since all of the dentists participating in the present study were male, future investigation of the dentist-child relationship should also include female dentists. A more accurate comparison of attitude differences among boys and girls would result from the inclusion of female and male dentists as possible dependent variables.

The data for the present study were gathered immediately following the child's visit with the dentist. This procedure was followed with the expectation that the child would relate to the hypothetical dental situation due to the fact that he (the patient) also was just coming from the dentist's office. It should be noted that the researcher realizes that some anxiety and pain which may have existed before the visit could likely have been replaced by relief and reduction of pain after the visit. This feeling of relief could defin-

itely effect the child's own perceptions of the situation and consequently the child could identify and project these feelings into the hypothetical situation. To deal with this possible consequence, it would be valuable in future studies related to dental attitude to gather data immediately preceding the dental visit as well as following the visit.

The sample for the present study consisted of forty-one subjects, eighteen boys and twenty-three girls, which for evaluation purposes seemed to be insufficient in some areas. This small of sample resulted in small numbers of respondents in certain categories which made evaluation and conclusion somewhat speculative. In order to provide a more accurate representation of the dental population, it would be advisable to include larger samples in future studies of this nature.

LITERATURE CITED

- Adelson, Richard and Goldfried, Marvin R. 1970. Modeling and the Fearful Child Patient, *Journal of Dentistry for Children*. 37:476, November-December.
- Bauer, David H. 1976. An Exploratory Study of Developmental Changes in Children's Fears, *Journal of Child Psychology and Child Psychiatry*. 17:69-74.
- Baum, James J. and Tekavec, Mel M. n.d. The Control of Apprehension and Fear Through the Use of Nitrous Oxide-Oxygen Relative Analgesia in the Practice of Dentistry. Rocky Mountain Analgesia Society, Colorado: by the authors.
- Borow, Henry. 1966. Development of Occupational Motives and Roles, Review of Child Development Research Vol. II. Hoffman, L.W. and Hoffman, M.L. Russell Sage Foundation: New York. 373-422.
- Breer, Paul E. and Locke, Edwin A. 1965. Task Experience as a Source of Attitudes. The Dorsey Press, Homewood, Illinois. 2-6.
- Cecil, Henry S. and Coleman, Thomas L. 1966. Behavioral Patterns of the Child Patient, *Journal of Dentistry for Children*. 33:51, January.
- Chambers, David W. 1970. Managing the Anxiety of Young Dental Patients, *Journal of Dentistry for Children*. 2:363.
- Eastwood, D. W. 1964. Clinical Anesthesia (Nitrous Oxide). F. A. Davis, Philadelphia.
- Freidson, E. and Feldman, J. J. 1958. The Public Looks at Dental Care, *Journal of the American Dental Association*. 57:325.
- Gunn, Barbara. 1964. Children's Conceptions of Occupational Prestige, Personnel and Guidance Journal. 42:558-563.
- Hagman, R.R. 1932. A Study of Fears of Children of Preschool Age, *Journal of Experimental Education*. 1:110-130.
- Hawley, Bruce P., McCorkle, Allen D., Wittemann, Joseph K. and Van Ostenberg, Paul. 1974. The First Dental Visit for Children from Low Socioeconomic Families, *Journal of Dentistry for Children*. 41:376-380.
- Hill, Frederick J. and O'Mullane, Denis M. 1976. A Preventive Program for the Dental Management of Frightened Children, *Journal of Dentistry for Children*. 43:30, September-October.

- Hogue, Donald, Ternisky, Michael and Iranpour, Bejan. 1971. The Responses to Nitrous Oxide Analgesia in Children, *Journal of Dentistry for Children*. 38:65, March-April.
- Houck, W. R. and Ripa, L. W. 1971. Vomiting Frequency in Children Administered Nitrous Oxide-Oxygen in Analgesic Doses, *Journal of Dentistry for Children*. 38:40, November-December.
- Jaffe, Paul E. 1965. Factors Affecting the Dentist-Patient Relationship, *Journal of the American College of Dentists*. 32:335.
- Jersild, A.T., Markey, F.V. and Jersild, C.L. 1933. Children's Fears, Dreams, Wishes, Daydreams, Likes, Dislikes, Pleasant and Unpleasant Memories, *Child Development Monographs*. No. 12.
- Karlins, Marvin and Abelson, Herbert. 1970. *Persuasion: How Opinions and Attitudes are Changed*. Springer: New York. 60.
- Klein, Hortence. 1967. Psychological Effects of Dental Treatment on Children of Different Ages, *Journal of Dentistry for Children*. 34:30
- Kleinknecht, Ronald A., Klepac, Robert K. and Alexander, Leib D. 1973. Origins and Characteristics of Fear of Dentistry, *Journal of the American Dental Association*. 86:842.
- Koenigsberg, Samuel R. and Johnson, Ronald. 1972. Child Behavior During Sequential Dental Visits, *Journal of American Dental Association*. 85:128, July.
- Langa, Harry. 1968. *Relative Anagesia in Dental Practice*. W.B. Saunders Company, Philidelphia-London-Toronto. 50-55, 64-82.
- Maccoby, E.E. 1962. Class Differences in Boys' Choices of Authority Roles, *Sociometry*. 25:117-119.
- Maurer, A. 1965. What Children Fear, *Journal of Genetic Psychology*. 106:265-277.
- McAneny, T. M. and Doughty, A. G. 1963. Self Administered Nitrous Oxide Analgesia in Obstetrics, *Anesthesiology*. 18:488.
- McKeithen, E. Jean. 1966. The Patients Image of the Dentist. *Journal of the American College of Dentists*. 33:87.
- Melamed, Barbara G., Hawes, Roland R., Heiby, Elaine and Glick, John. 1975. Use of Filmed Modeling to Reduce Uncooperative Behavior of Children During Dental Treatment, *Journal of Dental Research*. 54:797.
- Miller, Arthur A. 1970. Psychological Considerations in Dentistry, *Journal of the American Dental Association*. 81:941, October.

- Nalven, Frederic B. 1970. Manifest Fears and Worries of Ghetto vs. Middle-Class Suburban Children, Psychological Report. August, 285-286.
- Pinkham, Jimmy R. and Fields, Henry W. Jr. 1976. The Effects of Preappointment Procedures on Maternal Manifest Anxiety, Journal of Dentistry for Children. 43:44
- Plainfield, Sanford. 1965. Totality in Treatment. University of California, San Francisco Medical Center. 33,41.
- Putman, Konnetta E. 1971. Childhood Fears as Related to Dental Treatment, Journal of the American Dental Hygienist's Association. 45:96-99, March-April.
- Rosenweig, Sanford, Sforza, Alfred and Addelston, Harold K. 1968. Children's Attitudes Toward Dentists and Dentistry, Journal of Dentistry for Children. 35:129, March.
- Rule, Evelyn T. 1957. Why Do Children Act Like They Do? (especially in the dentist's office), Journal of Tennessee Dental Association. 37:210-216, July.
- Schwartz, Walter. 1971. Psychological Factors in the Practice of Dentistry, Journal of the American College of Dentists. 38:166, July.
- Ship, I.I. and White, C.L. 1960. Psysiological Response to Dental Stress, Bethesda, Maryland: National Institute of Dental Research, National Institute of Health. March.
- Shoben, Edward J. Jr. and Borland, Loren. 1954. An Empirical Study of the Etiology of Dental Fears, Journal of Clinical Psychology. 10:174, April.
- Sorenson, Herbert W. and Roth, Gerald I. 1973. A Case for Nitrous Oxide-Oxygen Inhalation Sedation: An Aid in the Elimination of the Child's Fear of the Needle, The Dental Clinics of North America. 17:51, January.
- Spitz, R. 1955. The Primal Cavity, Psychoanalytic Study of the Child. International Universities Press, New York. 10:238.
- Wadsworth, Barry J. 1971. Piaget's Theory of Cognitive Development. David McKay Company, Inc., New York. 23-30.
- Woelpel, Joseph. 1969. Significant Others, The Self Reflexive Act and the Attitude Formation Process, Sociological Abstracts. 17: No. 5, 120.

Wright, Gerald Z. and Alpern, Gerald D. 1971. Variables Influencing Children's Cooperative Behavior at the first Dental Visit, Journal of Dentistry for Children. 38:124.

_____ 1972. Who's Afraid? Not Children Who 'Play Dentist,' Dental Survey. 48:37.

APPENDICES



This boy is sad.

Fill in his face so
that he looks sad.



This boy is happy.

Fill in his face so
that he looks happy.

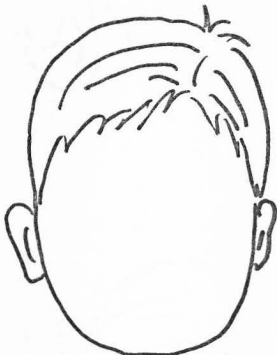


This boy just came from the ice cream shop.

Is he happy.....

or is he sad?

Fill in his face to show the way he feels.

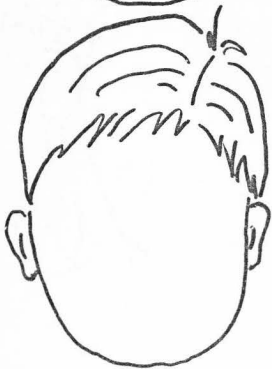


This boy just cut his finger on a piece of glass.

Is he happy.....

or is he sad?

Fill in his face to show the way he feels.



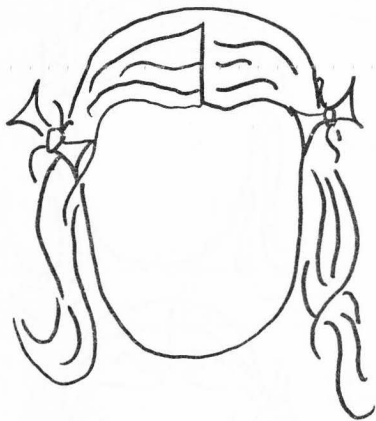
This boy just came from the dentist's office.

Is he happy.....

or is he sad?

Fill in his face to show the way he feels.

Why does he feel this way?



This girl is sad.

Fill in her face so
that she looks sad.



This girl is happy.

Fill in her face so
that she looks happy.



This girl just came from the ice cream shop.

Is she happy.....

or is she sad?

Fill in her face to show the way she feels.



This girl just cut her finger on a piece of glass.

Is she happy.....

or is she sad?

Fill in her face to show the way she feels.



This girl just came from the dentist's office.

Is she happy.....

or is she sad?

Fill in her face to show the way she feels.

Why does she feel this way?

PARENT

The information in this section will not be used in the study.
It is needed only in case clarification is necessary and for
reference to child's questionnaire.

NAME:

(Child's name)

ADDRESS

PHONE

The information in this section will be used in comparing
your attitudes with other parents who are similar to you in these
areas.

AGE ... Husband _____ Vocation ... Husband _____

Wife _____ Wife _____

EDUCATION: Husband (degrees) _____

Wife (degrees) _____

Do you wear dentures? Yes _____ No _____

How long has it been since you visited your dentist for a check-up
or treatment?

1 mo _____ 2 mo _____ 3-6 mo _____ 6-12 mo _____ more _____

How long has it been since the child being interviewed last visited
the dentist?

1 mo _____ 2 mo _____ 3-6 mo _____ 6-12 mo _____ more _____

** Please answer the following situations according to your
true feelings, your complete honesty will be appreciated.

-turn to next page-

1. While in the waiting room of my dentist, awaiting routine examination, I feel:

.....very relaxed
generally relaxed
generally anxious
very anxious

2. While in the examination room of my family doctor for a routine examination, I feel:

.....very relaxed
generally relaxed
generally anxious
very anxious

3. While in the dental chair at my dentist's office for treatment, I feel:

.....very relaxed
generally relaxed
generally anxious
very anxious

4. On the diagram below, please mark your true feelings about going to the dentist in general.

Love to go 0 0 0 0 0 0 Hate to go

** Please comment on why you feel this way.

VITA

Tom Leo Day

Candidate for the Degree of

Master of Science

Thesis: Children's Attitudes Toward the Dental Experience

Major Field: Family and Human Development

Biographical Information:

Personal Data: Born in Salt Lake City, Utah, November 10, 1945; son of Glade Riley and Nadine Stott Day; married Mary Ann Burdett August 29, 1968, married Judy Lea Linderman December 28, 1973; three children--Jason Riley, Cristie Lea and Erin Marie, one step-child--Tiffin Friese.

Education: Attended elementary school and secondary schools in Clearfield and Ogden, Utah; graduated from Ben Lomond High School, Ogden, Utah, 1964; received Bachelor of Arts degree, Weber State College with a major in Sociology and a minor in Child Development, 1972; completed requirements for Master of Science with a major in Child Development at Utah State University, 1977.

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