6-1969

A Comparison Between Differences of Body-Image and Self-Concept for Pre- and Post-treatment Orthodontic Patients

Roy D. Atkin

LOMA LINDA UNIVERSITY

Graduate School

A COMPARISON BETWEEN DIFFERENCES OF BODY-IMAGE AND SELF-CONCEPT FOR PRE- AND POST-TREATMENT ORTHODONTIC PATIENTS

by

Roy D. Atkin

A Thesis in Partial Fulfillment

of the Requirements for the Degree

Master of Science in the Field of Orthodontics

June 1969

Each person whose signature appears below certifies that he has read this thesis and that in his opinion it is adequate, in scope and quality, as a thesis for the degree of Master of Science.

Howard W. Conley, Chairman
Howard W. Conley, Associate Professor
Department of Orthodontics

Edward T. Himeno, Associate Professor
of Psychiatry

Judson Klooster, Associate Professor
Department of Restorative Dentistry

Shirou Kunihira, Assistant Professor
of Community Dentistry

Paul Y. Yahiku, Assistant Professor of
Preventive Medicine and Public Health

ACKNOWLEDGMENTS

I would like to express my sincerest appreciation to all those who have given me assistance in the preparation and writing of this thesis. Recognition must be given to the following:

Dr. Howard W. Conley, Dr. Paul Yahiku, Dr. Judson Klooster, and Dr. Edward Himeno, for constructive assistance as members of my thesis guidance committee

Jere Chrispens of the Scientific Computation Facility

Gary Aubert for proofreading

Janet Roller and Carol Aubert as typists

Members of my family

Special appreciation must be given to Dr. Shirou Kunihira for his guidance and encouragement which were given throughout the duration of this thesis.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Orthodontic treatment provides a combination of unique circumstances which may exert considerable influence on the personality and attitude of the patient.

First, the orthodontist has the opportunity of meeting with the same patient regularly for an extended period of time, which is fast becoming a rare occurrence for most other medical and dental clinicians. This extended patient-relationship allows for considerable interpersonal interaction and communication.

Second, the orthodontist provides services in an area of the body which may exert the most sensitive influence on the individual's body-image and self-concept.

A large segment of the patient population which undergoes orthodontic treatment is in adolescence, when one's body-image is reflected in one's self-concept, social confidence, and personality (Mussen, Conger, and Kagan, 1963). Changes made in any of the socially sensitive areas of one's body may be generalized to one's total body-image and may, in turn, influence one's self-concept, social confidence, and personality.

It is reasonable to expect, therefore, that orthodontic treatment may produce changes in the patient's body-image, self-concept, social confidence, and possibly other aspects of his personality structure.

A Need for the Study

Psychological studies in dentistry have dealt mainly with the problems of pain, fear, and anxiety (Klein, 1967; Kominek and Rozkovcova, 1966; Croxton, 1967). In recent years, some studies have appeared, dealing with psychological problems in orthodontics. With the utilization of a questionnaire Herren, et al. (1965) predicted the cooperation of the patient during orthodontic treatment. Allan and Hodgson (1968) tested parent's attitudes toward child rearing and patient's self-concept to determine their relationship to the degree of cooperation of the patient during orthodontic treatment. Baldwin and Barnes (1965-1966) examined psychosocial factors of children's mothers in motivating orthodontic treatment.

No refined study was found which attempted to determine the effect of orthodontic treatment on the adolescent patient in regard to possible personality and attitude changes. Orthodontic treatment by itself may not produce direct changes in personality and attitudes. These tend to be rather stable after they have attained a high degree of organization during the course of development into adolescence (Lecky, 1945; Engel, 1959). However, orthodontic treatment may change body-image. Possession of desirable bodily characteristics are typically associated with sexual attractiveness and group acceptance (Mussen, Conger, and Kagan, 1963), the facial characteristics being of extreme importance.

To determine the influence of orthodontics on personality changes it must first be established to what extent and in what aspects of

personality do malocclusions exert influence. Second, in what aspects and to what extent does orthodontics produce change?

This study proposed to provide a partial answer to these questions, specifically, the influence of orthodontic treatment on the body-image and self-concept.

Objectives of the Study

The main objective of the study was to determine to what extent orthodontic treatment which the adolescent patient undergoes produces changes in his body-image and self-concept. Body-image and self-concept may be measured with a Likert-type scale, which Secord and Jourard (1953) and Rosen and Ross (1967) used in their studies on the relationship of body-image to self-concept.

Self-concept has been found to be relatively stable (Engel, 1959). It is not expected to show significant changes within a period of a year or two for a large number of subjects. It therefore was assumed that if any significant changes in self-concept occurred between the subjects who were just beginning treatment and those who had completed treatment, which lasted from a year to two years, the differences could be attributed mainly to the effect of the orthodontic treatment.

The second objective of the study was to determine in which areas of the body the orthodontic treatment produces more significant changes in body-image. In order to accomplish this the instrument constructed to measure body-image was further refined so that it could be divided into several sub-scales to measure body-image for different areas of the body.

The third objective of the study was to assess the subjects' evaluation of the value and significance of orthodontic treatment in their lives and to determine the difference in evaluation between the subjects who were just beginning treatment and those who had completed treatment.

CHAPTER II

REVIEW OF LITERATURE

Body-image is a term which has been used in two senses: (1) subject's perceptions of his physical characteristics and his feelings and attitudes toward his physical characteristics; (2) subject's "general attitudes which are associated with the body as a social object" (Wylie, 1967) but have little to do with the actual physical appearance of the individual's body (Fisher and Cleveland, 1958).

In psychological discussions the word "self" has been used in many different ways. Two chief meanings emerge, however: (1) the self as subject or agent, and (2) the self as the individual who is known to himself (English and English, 1958). Self-concept has come to refer to the latter of the above definitions.

Boundaries of definitions are a basic problem in the evolution of any percept. Phenomenologically oriented theorists have drawn boundaries between body-image and self-concept in terms of the degree of accessibility to direct awareness. The self-concept is organized perceptions of the self which are admissible to direct awareness. Body-image on the other hand has been referred to as attitudes, knowledge, motivations and perceptions hypothesized to be definitely unconscious, defined by theorists as nonphenomenal (Wylie, 1967).

The importance of body-image (physical) characteristics to subjects' evaluation of themselves has been demonstrated in various studies. Using college students as subjects, Secord and Jourard (1953)

demonstrated that "feelings about the body are commensurate with feelings about the self." Rosen and Ross (1968) hypothesized that the correlation, established by Secord and Jourard (1953), between satisfaction with self-concept and satisfaction with body-image would increase as a function of the importance of the attributes rated. Their study verified the hypothesis.

Jersild (1952) in a study of junior-high school students asked what the students did and did not like about themselves. They mentioned physical characteristics more often than intellectual or social characteristics. Douvan and Kay (1957) interviewed a group of 1,925 girls, age range 11 to 18 years, revealing the subjects strong concern about physical characteristics or appearance. The subjects were asked, "What would you like to change about yourself if you could, your looks, your personality, or your life?" Fifty-nine per cent mentioned their physical appearance, whereas four per cent mentioned a desire for greater ability.

Cowen, Heilizer and Axelrod (1955) investigated the influence of self-concept on learning. They demonstrated that subjects who showed wide variance between their self-concept and what they wished their self-concept to be, had great difficulty in learning situations.

Cartwright (1956) demonstrated that the well-adjusted subject recalled more accurately particular stimuli which he had perceived and organized into some relationship to "self" than the maladjusted subject.

Theorists have felt that the "adjusted person" has a higher self-concept than the "maladjusted person." Jones (1956) compared

self-concepts of normal, neurotic, and schizophrenic subjects. He found that departure from normality of self-concept was greater with increasing degrees of maladjustment.

Academic underachievement is generally considered to be indicative of "maladjustment." Walsh (1956) compared self-concepts of high and low achieving boys and showed differences in pursuit of interests, expression of feelings, acceptance by family, and adequate response to environmental stimuli.

Antisocial or delinquent behavior was found to be related to the subject's self-concept by Reckless, Dinitz, and Kay (1957). They found differences in self-concept of delinquent boys and socially oriented boys.

A wide variety of instruments have been used to measure the various aspects of self-concept. The following are representative of the most common instruments:

1. Q-Sort Procedure
2. Rating Scales
3. Questionnaire
4. Adjective Check Lists
5. Interviews

The Q-Sort procedure is a commonly used technique for measuring self-concept (Engel, 1959; Kelman and Parloff, 1957; Klausner, 1956). The subject being tested is given a large number of personality-descriptive items and asked to sort the items into nine piles according to the way that is characteristic of the subject's self. The items are

arranged by the subject on a continuum and a specified number of items must be present in each of the nine piles, thus forcing the subject to yield a normal distribution.

With rating scales the patient rates characteristics of actual self on a point system or someone else rates the subject on a point system (Zimmer, 1956; Lorr, Katz, and Rubenstein, 1958).

By way of questionnaires the subject is asked negatively and positively phrased items which are deemed relevant to self-concept (Fey, 1957; Roessler and Greenfield, 1958). Secord and Jourard (1953) and Rosen and Ross (1968) scaled responses of self-concept in a manner similar to their body-image questionnaire. This enabled the results of body-image to be correlated to self-concept scores.

Adjective Check Lists consist of numerous adjectives which describe a person's attributes. Subjects are asked to check the words they feel most accurately describe themselves. The words are scaled by the investigator in ways which will be correlated to various aspects of self-concept, e.g., self-control, self-confidence, personal adjustment, etc. (Gough, 1965; Sarbin and Rosenberg, 1955).

Interview techniques are used in many investigations to assess the subject's self-concept. Interviews are of two types: (1) standardized interviews, where predetermined questions are asked in a set order, and (2) informal interviews which can be varied and adapted to the subjects (Ruch, 1958).

Studies on body-image have been few in number. The following instruments, however, have been used in connection with body-image evaluations:

1. Thematic Apperception Test, Picture-judging and Story-telling techniques
2. Rorschach Scores
3. Figure drawing
4. Distorted pictures
5. Questionnaires

The Thematic Apperception Test is composed of three series of ten pictures, each picture representing a different situation. The subject is asked to make up a story about each picture describing the events, the situation, and what the outcome may be. By evaluating the stories for formal characteristics and content, the examiner tries to discover the thought content of the subject (Morgan, 1935).

Picture-judging and story-telling techniques may be used separately or in combination. Subjects may be asked to judge photographs or pictures and to rate them according to body-image attitudes, e.g., attractiveness, proportions, etc. (Rogers and Walsh, 1959).

Rorschach tests have been utilized to demonstrate the subject's feelings concerning adequacy and acceptance (Cohen, 1954; Diller and Riklan, 1957).

By means of figure-drawing, conclusions can be made about the acceptance a subject has concerning his body-image (Fisher and Cleveland, 1958).

Fisher and Abercrombie (1958) presented photographs of normal persons and distorted persons at one-fifth of a second or less. Subject's scores were based upon the number of errors the subjects made in

seeing distortions and in reading distortion into normal pictures.

Secord and Jourard (1953) and Rosen and Ross (1968) by use of a five point Likert-type scaled questionnaire rated the body-image. The subject indicates on a scale the strength and direction of feeling which he has about the various parts and functions of his body. The questionnaire approach has specific advantages: (1) it can be administered easily; (2) comparisons can readily be made between subjects; (3) scores are direct, and (4) test situations can be controlled.

CHAPTER III

METHODS AND PROCEDURES

I. MATERIALS

The following materials were used in the present study to gather relevant information concerning the subjects and to measure the body-image and self-concept of the subjects as well as their evaluation of orthodontic treatment and the orthodontist:

1. The Body-Image Scale
2. The Self-Concept Scale
3. Attitude Scale concerning the value of orthodontic treatment and the role of the orthodontist
4. Questionnaire on the evaluation of orthodontic treatment
5. Case files for the subjects

Each of the measurement instruments was constructed in the following manner:

A. The Body-Image Scale

To assess the subject's body-image a modification of the instrument used by Secord and Jourard (1953) was constructed (Appendix I). This modified instrument contained items or words and phrases representing parts and functions of the human body, e.g., legs, ears, tooth arrangement, hair color, chewing, etc. There were 55 items in Secord and Jourard's original instrument. The number of items was reduced to

31 items for the purpose of the present study. However, items concerning the parts of the body in the oral region and the face were added, e.g., skin condition (face), chewing, tooth color, etc. The 32 items selected for the scale were randomly sequenced.

These 32 items in the Body-Image Scale were divided into three subdivisions; namely (1) the peri-oral area; (2) above the clavicle; and (3) below the clavicle (Appendix II). When the Body-Image Scale was scored, it yielded the following four scores:

1. The total body-image score
2. The peri-oral body-image score
3. The above-clavicle body-image score
4. The below-clavicle body-image score

Scores of one to five were assigned to each item in the scale according to a five-point Likert-type scaling system. The five levels of scaling were as follows:

1. I really wish I could change this.
2. I don't like this, but I can put up with it.
3. I don't think about this one way or the other.
4. I am satisfied.
5. I am fortunate.

The subject was asked to indicate the degree of acceptance for each part or function of his body by choosing one of the five statements. The following instructions were given to the subject before the administration of the scale:

This is a questionnaire which will ask you how you feel about certain parts of your body. Some parts of your body you probably like just as they are, some you don't even think about, and some parts you wish could look or be different.

Think about each body part or activity listed . . . then circle the number which represents how you feel. . . .

B. The Self-Concept Scale

To assess the subject's self-image a modified form of the instrument used by Jourard and Secord (1953) was constructed (Appendix III). This instrument contained items consistent with the self-concept (popularity, will-power, personality, fears, etc.). There were 55 items in the original instrument used by Jourard and Secord (1953). Thirty of the 55 items were selected for the purpose of the present study.

These 30 items in the Self-Concept Scale were divided into two subdivisions; namely (1) self-directed, and (2) other-directed (Appendix IV). When the Self-Concept Scale was scored, it yielded the following three scores:

1. The total self-concept score
2. The self-directed self-concept score
3. The other-directed self-concept score

Scores were assigned to each item of the self-concept instrument according to a five-point Likert-type scaling system. These five levels of scaling were as follows:

1. I really wish I could change this.
2. I don't like this, but I can put up with it.
3. I don't think about this one way or the other.

4. I am satisfied.

5. I am fortunate.

The subject was asked to indicate the degree of acceptance for each item or characteristic of himself by choosing one of the five statements. The following instructions were given to the subject before the administration of the scale:

> This is a questionnaire which will ask you how you feel about certain abilities and habits. Some you will probably like just as they are, some you don't even think about, and some you would like to change.
>
> Think about each ability or habit listed . . . and then circle the number which represents how you feel. . . .

C. Attitude Scale Concerning the Value of Orthodontic Treatment and the Role of the Orthodontist

To assess the subject's attitudes toward orthodontic treatment and the orthodontist, a scale to measure these attitudes was constructed (Appendix V). It consisted of 13 statements expressing different evaluative attitudes toward orthodontic treatment and the orthodontist, e.g., orthodontic treatment is more necessary for girls than boys, and the orthodontist is personally concerned with the good of the patient, etc.

Scores of one to five were assigned to each of the statements according to a five-point Likert-type scaling. The five levels of scaling were as follows:

1. I strongly agree.

2. I agree.

3. I am uncertain.

4. I disagree.

5. I strongly disagree.

A score of five was given to the most positive attitude toward orthodontic treatment or attitude toward the orthodontist. A score of one was given to the most negative attitude toward orthodontic treatment or attitude toward the orthodontist. Each statement was so written that when the subject indicated agreement with the statement, it indicated either a positive or a negative attitude toward the orthodontic treatment or the orthodontist. These 13 statements were randomly sequenced in the scale.

D. Questionnaire on Accepting Orthodontic Treatment

A questionnaire with six questions to elicit the subject's responses on the following aspects of accepting orthodontic treatment was constructed (Appendix VI):

1. Who wanted the subject to have orthodontic treatment?
2. When should orthodontic treatment begin?
3. How does the subject feel about orthodontic treatment?
4. What does poor tooth arrangement affect most?
5. What type of occupation would the subject most likely choose?
6. In what area would you think orthodontic treatment would or is helping you the most?

The subject was asked to check one of the several choices listed under each question.

E. Case Files for the Subjects

From the patient's case record the following information was collected:

1. Chronological age
2. Sex
3. Treatment type (extraction or non-extraction of teeth)
4. Age at beginning of treatment
5. Length of treatment
6. Number of missed appointments

II. PROCEDURE

Subjects

The subjects were sampled from the patients who came to the Orthodontic Department of Loma Linda University, School of Dentistry during the years 1965 to 1969. The members of the pre-treatment group were patients beginning treatment in January of 1969. The members of the post-treatment group were patients who had already completed treatment and who returned to the clinic for periodic check-ups, at 1-3 month intervals. Those patients who returned for their check-up in the month of January, 1969, were used as subjects for the post-treatment group. There were 74 subjects in the pre-treatment group and 64 in the post-treatment group.

The age range of the subjects was 134 to 239 months. The mean age was 164.28 months for the pre-treatment group and 188.69 for the post-treatment group. There were 29 males and 45 females in the

pre-treatment group and 20 males and 44 females in the post-treatment group.

Table I presents the mean ages in terms of months, and the standard deviations for the subject in the pre-treatment and post-treatment groups. The expected difference between the mean ages for the two groups was 22 months.

These subjects came from the white population of the lower-middle socio-economic class of the tri-county area which includes San Bernardino, Los Angeles, and Riverside counties. Payment of a set fee was required for all of the subjects in order to receive orthodontic treatment.

If there had been a large number of dropout patients due to dissatisfaction with orthodontic treatment, the post-treatment group would be more selective than the pre-treatment group. Two of 536 patients (post-treatment group) who received treatment during the past two years discontinued treatment due to apparent dissatisfaction with treatment. It, therefore, may be assumed that the two groups were essentially the same concerning this factor.

Administration of the Measurement Instruments

In December, 1968, letters were written to one hundred pre-treatment subjects, one hundred post-treatment subjects, and their parents. The letter contained the following information:

1. The time when they (the subjects) were to come to the orthodontic clinic to complete the desired information
2. Information used would not contain their names, but other information such as age, sex, etc., would be used

3. Parent permission was necessary

4. Response to the instrument was to be honest, frank and without assistance from anyone except the examiner

The subjects to be tested reported to the orthodontic clinic during the month of January, 1969, one-half hour prior to their orthodontic appointment. They were given a booklet (Appendix I - VI) which was to be completed in the reception area prior to their orthodontic appointment. The subjects were informed again that their names would not be used in the investigation, that they should complete all of the items requested, and that they should not seek assistance from anyone except the monitor.

At the end of the month of January, all testing procedures ceased. Seventy-four pre-treatment subjects and sixty-four post-treatment subjects responded to the questionnaire.

TABLE I

MEAN AGE OF PRE-TREATMENT AND POST-TREATMENT
MALE, FEMALE, AND TOTAL SUBJECTS

Group	No. of Ss	Mean	S.D.
Males			
Pre-treatment	29	162.17	14.88
Post-treatment	20	190.65	19.72
Females			
Pre-treatment	45	165.64	16.46
Post-treatment	44	187.80	20.02
Total			
Pre-treatment	74	164.28	15.86
Post-treatment	64	188.69	19.81

CHAPTER IV

ANALYSIS AND INTERPRETATION OF RESULTS

The primary objective of this study was to quantitatively address the three following questions:

1. Does orthodontic treatment when administered to the adolescent patient produce changes in his or her body-image and self-concept?
2. In which areas of the body does the patient experience changes in body-image after orthodontic treatment?
3. What significance or value does the patient place on orthodontic treatment relative to changes in the subject's life?

In seeking answers to the above questions, the following approach was taken:

A questionnaire (See Appendix I - VI) was given to a group of 138 male and female orthodontic patients. The patients were classed into one of four categories depending upon their sex and whether they were pre-treatment or post-treatment subjects. A comparison of the pre- and post-treatment patient responses to the questionnaire would indicate whether orthodontic treatment can influence the psychology of the patient.

Listed below is a brief synopsis of the more significant results of the study. In this section, the results are initially treated in a quantitative fashion. A summary of the results appears in Tables II,

III and IV. A qualitative review of the data appears in Chapter V (Summary, Conclusions, and Recommendations).

The results can be best categorized in terms of the question each attempts to address:

I. Does orthodontic treatment when administered to the adolescent patient produce changes in his or her total body-image and self-concept?

A. Total Body-Image

When the mean scores for changes in total body-image were compared between the pre- and post-treatment subjects, no significant differences were observed with the total groups (male and female subjects together), the male groups, and the female groups. A slight difference in mean scores was noted between groups; i.e., male subjects showed a greater increase in total body-image after treatment than did the female subjects, but the degree of deviation was not of sufficient magnitude to consider the observations statistically significant.

B. Total Self-Concept

When the mean scores for total self-concept were compared between the pre- and post-treatment subjects, no significant differences were observed with the total groups (male and female subjects, together), the male subjects and the female subjects.

III. What significance or value does the patient place on orthodontic treatment relative to changes in the subject's life?

In order to objectively appraise the above inquiry, the subjects were asked to respond to a series of six questions. With each question, the proportion of responses between the pre- and post-treatment male subjects and the pre- and post-treatment female subjects were compared to determine if there were statistically significant differences.

Listed below is a brief summary of the results for this analysis:

A. Who most wanted you to have orthodontic treatment? (Table V)

No significant differences were observed between the pre- and post-treatment male subjects or between the pre- and post-treatment female subjects in their responses to this question.

B. What should determine when orthodontic treatment should begin? (Table VI)

In response to this question, no statistically significant differences were observed between the pre- and post-treatment male subjects or pre- and post-treatment female subjects.

C. When should orthodontic treatment begin? (Table VII)

Statistically significant differences were observed in the responses of the pre- and post-treatment subjects in the answering of this question. A significantly greater proportion (P less than .01) of post-treatment male and female subjects indicated they "wanted treatment" more than pre-treatment male and female subjects. Pre-

treatment male and female subjects indicated "earlier treatment" more than the post-treatment male and female subjects, significant at P less than .05. Pre-treatment female subjects indicated a lack of "need for treatment" more than post-treatment female subjects, significant at P less than .05. Other differences of proportions for responses when compared for this question were not statistically significant.

D. What does poor tooth arrangement affect most? (Table VIII)

A significantly greater proportion (P less than .05) of the post-treatment female subjects indicated that "appearance" was affected more by orthodontic treatment than did the pre-treatment female subjects.

E. What type of job would you choose? (Table IX)

Post-treatment male subjects indicated that "entertaining" was their choice of job more than pre-treatment male subjects, the difference in proportions being significant (P less than .05).

F. Where would orthodontic treatment help you the most? (Table X)

In response to the above question the pre-treatment female subjects chose the response, "maintain better health," more frequently than did the post-treatment female subjects (P less than .01). The post-treatment female subjects chose the response, "confidence" more frequently than did the pre-treatment female subjects (P less than .05). The chi-square test for association between subject responses and age indicated that the response concerning, "confidence," however, was

probably attributed to the age difference of the post-treatment female subjects.

TABLE II

OBSERVED AND ADJUSTED[+] MEAN SCORES FOR TOTAL PRE-TREATMENT AND POST-TREATMENT SUBJECTS

	Pre-treatment Means		Post-treatment Means		F^{++} df(1,135)	Regression Coefficient on Age
	(Observed)	(Adjusted)	(Observed)	(Adjusted)		
BODY-IMAGE						
Total	110.18	109.97	111.40	111.64	0.29	-0.02
Above Clavicle	62.08	61.85	64.73	65.01	3.54*	-0.02
Below Clavicle	48.62	48.61	47.20	47.21	0.45	-0.00
Peri-Oral	21.31	21.24	25.56	25.65	31.47***	-0.01
SELF-CONCEPT						
Total	109.65	108.40	104.48	105.93	0.56	-0.11
Self-Directed	76.53	75.64	73.88	74.90	0.08	-0.08
Other-Directed	31.85	31.57	30.47	30.79	0.39	-0.02
SUM OF ATTITUDES	48.04	48.37	48.45	48.07	0.03	0.03

\+ The adjusted means, obtained from the analysis of covariance, are corrected for differences in age

++ Obtained from the analysis of covariance, adjusting for age

* Significant at P less than .10

*** Significant at P less than .01

TABLE III

OBSERVED AND ADJUSTED[+] MEAN SCORES FOR PRE-TREATMENT AND POST-TREATMENT MALES

	Pre-treatment Means		Post-treatment Means		F^{++} df(1,46)	Regression Coefficient on Age
	(Observed)	(Adjusted)	(Observed)	(Adjusted)		
BODY-IMAGE						
Total	116.76	115.40	119.50	121.47	1.31	-0.12
Above Clavicle	63.90	62.24	68.40	70.80	6.91**	-0.14
Below Clavicle	52.86	53.16	51.10	50.67	0.61	0.06
Peri-Oral	21.52	20.99	27.35	28.11	23.66***	-0.04
SELF-CONCEPT						
Total	115.96	113.93	110.35	113.30	0.02	-0.18
Self-Directed	81.55	80.10	77.65	79.76	0.01	-0.12
Other-Directed	33.83	33.24	32.40	33.25	0.00	-0.05
SUM OF ATTITUDES	47.38	47.18	48.45	48.74	0.18	-0.02

\+ The adjusted means, obtained from the analysis of covariance, are corrected for differences in age

++ Obtained from the analysis of covariance, adjusting for age

** Significant at P less than .05

*** Significant at P less than .01

TABLE IV

OBSERVED AND ADJUSTED[+] MEAN SCORES FOR PRE-TREATMENT AND POST-TREATMENT FEMALES

	Pre-treatment Means		Post-treatment Means		F^{++} df(1,86)	Regression Coefficient on Age
	(Observed)	(Adjusted)	(Observed)	(Adjusted)		
BODY-IMAGE						
Total	105.93	106.32	107.73	107.33	0.09	0.04
Above Clavicle	60.91	61.29	63.07	62.68	0.58	0.03
Below Clavicle	45.89	45.82	45.43	45.50	0.02	-0.01
Peri-Oral	21.18	21.27	24.75	24.65	14.01***	0.01
SELF-CONCEPT						
Total	105.58	104.80	101.82	102.62	0.29	-0.07
Self-Directed	73.29	72.76	72.16	72.70	0.00	-0.05
Other-Directed	30.58	30.47	29.59	29.70	0.26	-0.01
SUM OF ATTITUDES	48.47	49.00	48.45	47.91	0.35	0.05

\+ The adjusted means, obtained from the analysis of covariance, are corrected for differences in age

++ Obtained from the analysis of covariance, adjusting for age

*** Significant at P less than .01

TABLE V

RESPONSES TO THE QUESTION: "WHO MOST WANTED YOU TO HAVE ORTHODONTIC TREATMENT?"

Response	Pre-treatment Male	Post-treatment Male	Z	Pre-treatment Female	Post-treatment Female	Z
1. Parents	19 (66%)	14 (70%)	- .28	25 (56%)	27 (61%)	- .47
2. Siblings & Peers	0	1 (5%)	-1.21	1 (2%)	1 (2%)	.00
3. Myself	10 (34%)	4 (20%)	1.07	16 (36%)	16 (36%)	.00
4. Other	0	1 (5%)	-1.21	2 (4%)	0	1.26

TABLE VI

RESPONSES TO THE QUESTION: "WHAT SHOULD DETERMINE WHEN ORTHODONTIC TREATMENT SHOULD BEGIN?"

Response	Pre-treatment Male	Post-treatment Male	Z	Pre-treatment Female	Post-treatment Female	Z
1. Family can afford	4 (14%)	3 (15%)	- .09	5 (11%)	7 (16%)	- .66
2. Parents want	8 (28%)	3 (15%)	1.07	4 (9%)	2 (5%)	.73
3. I want	1 (3%)	0 (00%)	.73	6 (13%)	4 (9%)	.58
4. I can finance	0	0	0.00	0	0	0.00
5. Doctor recommends	16 (55%)	14 (70%)	-1.05	27 (60%)	31 (70%)	- .98

TABLE VII

RESPONSES TO THE QUESTION: "WHEN SHOULD ORTHODONTIC TREATMENT BEGIN?"

Response	Pre-treatment Male	Post-treatment Male	Z	Pre-treatment Female	Post-treatment Female	Z
1. Postpone	3 (10%)	0	1.44	3 (7%)	1 (2%)	1.13
2. Wanted	8 (28%)	14 (70%)	-2.90 ***	17 (38%)	33 (75%)	-3.49 ***
3. Didn't need	1 (3%)	1 (5%)	- .34	4 (9%)	0	2.03 **
4. Earlier	17 (59%)	5 (25%)	2.35 **	20 (44%)	9 (20%)	2.39 **

** Significant at P less than .05
*** Significant at P less than .01

TABLE VIII

RESPONSES TO THE QUESTION: "WHAT DOES POOR TOOTH ARRANGEMENT AFFECT MOST?"

	Pre-treatment Male	Post-treatment Male	Z	Pre-treatment Female	Post-treatment Female	Z
1. Speaking and voice	4 (14%)	1 (5%)	.97	3 (7%)	2 (5%)	.41
2. School work	0	0	0.00	0	0	0.00
3. Popularity	1 (3%)	0	.69	2 (4%)	0	1.26
4. Chewing	2 (7%)	4 (20%)	-1.29	17 (38%)	9 (20%)	1.85 *
5. Feeling about self	3 (10%)	2 (10%)	0.00	4 (9%)	6 (14%)	.73
6. Breathing	1 (3%)	0	.69	1 (2%)	0	.89
7. Appearance	15 (52%)	13 (65%)	- .89	17 (38%)	27 (61%)	-2.15 **

* Significant at P less than .10
** Significant at P less than .05

TABLE IX

RESPONSES TO THE QUESTION: "WHAT TYPE OF JOB WOULD YOU CHOOSE?"

Response	Pre-treatment Male	Post-treatment Male	Z	Pre-treatment Female	Post-treatment Female	Z
1. Entertaining	0	3 (15%)	-2.14 **	5 (11%)	5 (11%)	0.00
2. Working with public	3 (10%)	2 (10%)	0.00	15 (33%)	8 (18%)	1.59
3. Teaching or counseling	3 (10%)	2 (10%)	0.00	12 (27%)	17 (39%)	-1.18
4. Science and research	12 (41%)	7 (35%)	.42	8 (18%)	7 (16%)	.25
5. Outdoor employment	7 (24%)	6 (30%)	- .46	1 (2%)	3 (7%)	-1.10
6. Other	4 (14%)	0	1.76	3 (7%)	3 (7%)	0.00

** Significant at P less than .05

TABLE X

RESPONSES TO THE QUESTION: "WHERE WOULD ORTHODONTIC TREATMENT HELP YOU THE MOST?"

Response	Pre-treatment Male	Post-treatment Male	Z	Pre-treatment Female	Post-treatment Female	Z
1. Making more friends	3 (10%)	1 (5%)	.59	0	4 (9%)	-1.93 *
2. Improvement in school	0	1 (5%)	-1.12	1 (2%)	0	.84
3. Better health	12 (41%)	7 (35%)	.40	21 (47%)	9 (20%)	2.58 ***
4. Better jobs	0	0	0.00	0	0	0.00
5. Confidence	13 (45%)	9 (45%)	0.00	19 (42%)	30 (68%)	(-2.41) **

* Significant at P less than .10
** Significant at P less than .05
*** Significant at P less than .01

Parenthesis under the "Z" column for females indicates that age affected the response, as determined by the chi-square test

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

An investigation was undertaken, by use of a questionnaire (Appendix I - VI) administered to 74 pre-orthodontic treatment subjects and 64 post-orthodontic treatment subjects, to provide an answer to the following questions:

1. Does orthodontic treatment when administered to the adolescent patient produce changes in his or her body-image and self-concept?
2. In which areas of the body does the patient experience changes in body-image after orthodontic treatment?
3. What significance or value does the patient place on orthodontic treatment relative to changes in the subject's life?

The following section provides a brief discussion of the results and the conclusions of the investigation followed by recommendations for future studies of this nature.

SUMMARY AND CONCLUSIONS

I. Does orthodontic treatment when administered to the adolescent patient produce changes in his or her body-image and self-concept?

No statistically significant difference in either self-concept or total body-image was observed between pre- and post-treatment subjects. A similar conclusion was reached by Engel who observed

that self-concept does not significantly change during adolescence.

During adolescence the patient's feelings concerning his self-concept and total body-image may not be at a sufficient level of awareness to relate orthodontic treatment to changes in their social, emotional and physical environment.

An increased awareness of body-image or self-concept may occur if the adolescent prior to treatment experiences some form of social chastisement because of the malocclusion. Therefore, a relationship may exist between the severity of the malocclusion that is treated and the possibility of a change in self-concept or body-image after treatment. However, the scope of this study was not of sufficient magnitude to quantitatively address the above hypothesis, thus, confirmation must be left to future researchers.

II. In which areas of the body does the patient experience changes in body-image after orthodontic treatment?

In general, post-treatment subjects are more satisfied with peri-oral and above clavicle body-images than are pre-treatment subjects. This result is not unexpected as a continuous focusing of attention on this anatomical area has made the patient aware that physical improvement has taken place in the peri-oral area of the body.

The data indicates that satisfaction with below clavicle body-image decreases slightly, but not significantly, after

orthodontic treatment. This change may be due to the orthodontic treatment itself which has made the subjects more sensitive to their body characteristics and thus more critical of below clavicle areas of their body.

It is recalled that the total body-image remains relatively unchanged when comparing patients before and after orthodontic treatment. This possibly results from the fact that individuals undergoing orthodontic treatment experience gains in body-image above the clavicle region and reductions in body-image below the clavicle region with the net result being little or no change in total body-image.

III. What significance or value does the patient place on orthodontic treatment relative to changes in the subject's life?

Female subjects were apparently the most dramatically influenced by the orthodontic treatment. The females indicated that both their appearance and their confidence in themselves, their orthodontist, and the treatment itself were significantly improved by their experience. This may result from the female adolescent having reached a level of maturation in which one's physical and emotional self-concept has become an influencing factor in their day to day life.

RECOMMENDATIONS

Outlined below are five areas in which additional work or future studies could potentially contribute to the better understanding of the

psychological and emotional impact of orthodontics upon the orthodontic patient:

1. A follow-up study on those subjects that have not yet begun orthodontic treatment, the purpose being to see if the treatment has any significant influence on particular individuals as opposed to the individual when classified within the group.
2. A follow-up study on those patients that have already undergone orthodontic treatment to see if any significant changes occur within the group over a period of years.
3. A separate study using the same type of questionnaire applied in this analysis on individuals who have not or will not undergo orthodontic treatment during their life. The responses of this control group could then be compared to the responses of the orthodontic patients to see if indeed the orthodontic patient is typical of the environment from which he comes.
4. A continued refinement of body-image and self-concept scales so that a more complete and in depth analysis can be made of the individual and group cases.
5. The development of a study in which the severity of an individual's malocclusion is related in some fashion to his test responses.

REFERENCES

REFERENCES

Allan, T. K., and Hodgson, E. W. The use of personality measurements as a determinant of patient cooperation in an orthodontic practice. American Journal of Orthodontics, 1968, 54, 433-440.

Baldwin, D. C., and Barnes, M. L. Psychosocial factors motivating orthodontic treatment. I.A.D.R., 1965, 43, 461. (Preprinted Abstracts)

_____. Patterns of motivation in families seeking orthodontic treatment. I.A.D.R., 1966, 44, 412. (Preprinted Abstracts)

Cartwright, D. S. Self consistency as a factor affecting immediate recall. Journal of Abnormal Social Psychology, 1956, 52, 212-218.

Cohen, L. D. Level of aspiration behavior and feelings of adequacy and self-acceptance. Journal of Abnormal Social Psychology, 1956, 52, 19-27.

Cowen, E. L., Heilizer, F., and Axelrod, H. S. Self-concept conflict indicators and learning. Journal of Abnormal Social Psychology, 1955, 51, 242-245.

Croxton, W. Child behavior and the dental experience. Journal of Dentistry for Children, 1967, 34, 212-217.

Diller, L., and Riklan, M. Rorschach correlates in Parkinson's Disease: motor inhibition, perceived cause of illness and self-attitudes. Psychosomatic Medicine, 1957, 19, 120-126.

Douvan, E. A., and Kaye, C. Adolescent girls. Ann Arbor Survey Research Center, University of Michigan, 1957.

Engel, Mary. The stability of the self-concept in adolescence. Journal of Abnormal Social Psychology, 1959, 58, 211-215.

English, H. B., and English, Ava C. A comprehensive dictionary of psychological and psychoanalytical terms. New York: Longmans and Green, 1958.

Fey, W. F. Correlates of certain subjective attitudes towards self and others. Journal of Clinical Psychology, 1957, 13, 44-49.

Fisher, S., and Abercrombie, J. The relationship of body image distortions to body reactivity gradients. Journal of Personality, 1958, 26, 320-329.

Fisher, S., and Cleveland, S. E. Body image and personality. Princeton, N.J.: D. Van Nostrand, 1958.

Gough, Harrison. The adjective check list manual. Palo Alto, California: Consulting Psychologists Press, 1965.

Herren, P., Baumann-Rufer, H., Demisch, A., and Berg, P. The teacher's questionary--an instrument for the evaluation of psychological factors in orthodontic diagnosis. European Orthodont. Soc., 1965, 41, 247-266.

Jersild, A. T. In search of self. New York: Teachers College, Columbia University, Bureau of Publications, 1952.

Jones, A. Distribution of traits in current Q-sort methodology. Journal of Abnormal Social Psychology, 1956, 53, 90-95.

Kelman, H. C., and Parloff, M. B. Interrelations among three criteria of improvement in group therapy; comfort, effectiveness, and self-awareness. Journal of Abnormal Social Psychology, 1957, 54, 281-288.

Klausner, S. Z. Social class and self concept. Journal of Abnormal Social Psychology, 1956, 20, 315-318.

Klein, H. Psychological effects of dental treatment on children of different ages. Journal of Dentistry for Children, 1967, 34, 30-35.

Kominek, Jaroslav, and Rozkovcova, E. Psychology of children's dental treatment. International Dental Journal, 1966, 16, 1-29.

Lecky, P. Self consistency, a theory of personality. New York: Island Press, 1945.

Lorr, M., Katz, M. M., and Rubenstein, E. A. The prediction of length of stay in psychotherapy. Journal of Consulting Psychology, 1958, 22, 321-327.

Morgan, C. D., and Murray, H. A. A method for investigation fantasies: the thematic apperception test. A.M.A. Archives of Neurological Psychiatry, 1935, 34, 289-306.

Mussen, P. H., Conger, J. J., and Kagan, J. Child development and personality. (Second Ed.) New York: Harper & Row, 1963.

Reckless, W. C., Dinitz, S., and Kay, Barbara. The self component in potential delinquency and potential non-delinquency. American Sociological Review, 1957, 22, 566-570.

Roessler, R., and Greenfield, N. Personality determinants of medical clinical consultation. Journal of Nervous and Mental Disease, 1958, 127, 142-144.

Rogers, A. H., and Walsh, T. M. Defensiveness and unwitting self-evaluation. Journal of Clinical Psychology, 1959, 15, 302-304.

Rosen, G. M., and Ross, A. O. Relationship of body image to self-concept. Journal of Consulting and Clinical Psychology, 1968, 32, 100.

Ruch, F. L. Psychology and life. (5th Ed.) Chicago, Atlanta, Dallas, Palo Alto, Fair Lawn, N.J.: Scott, Foresman and Company, 1958.

Sarbin, T. R., and Rosenberg, B. G. Contributions to role-taking theory: IV. A method for obtaining a qualitative estimate of the self. Journal of Abnormal Social Psychology, 1955, 42, 71-81.

Secord, P. F., and Jourard, S. M. The appraisal of body-cathexis: body-cathexis and the self. Journal of Consulting Psychology, 1953, 17, 343-347.

Walsh, Anne M. Self-concept of bright boys with learning difficulties. N.Y. Bureau of Public Teachers College, Columbia University, XIII, 1956.

Wylie, R. C. The self concept. (3rd Ed.) Lincoln, Nebraska: University of Nebraska Press, 1967.

Zimmer, H. Motivational factors in dyadic interaction. Journal of Personality, 1956, 24, 251-261.

APPENDIX I

This is a questionnaire which will ask you how you feel about certain parts of your body. Some parts of your body you probably like just as they are, some you don't even think about, and some parts you wish could look, or be different.

Think about each body part or activity listed below and then circle the number which represents how you feel. The following list will explain what each number means:

1. I really wish I could change this
2. I don't like this, but I can put up with it
3. I don't think about this one way or the other
4. I am satisfied
5. I am fortunate

1. Hair color	1	2	3	4	5
2. Skin condition (face)	1	2	3	4	5
3. Appetite	1	2	3	4	5
4. Hands	1	2	3	4	5
5. Nose	1	2	3	4	5
6. Fingers	1	2	3	4	5
7. Forehead	1	2	3	4	5
8. Hair texture	1	2	3	4	5
9. Breathing	1	2	3	4	5
10. Waist line	1	2	3	4	5
11. Back of body	1	2	3	4	5
12. Ears	1	2	3	4	5

13.	Weight	1	2	3	4	5
14.	Finger nail	1	2	3	4	5
15.	Chin	1	2	3	4	5
16.	Legs	1	2	3	4	5
17.	Neck	1	2	3	4	5
18.	Eyebrow	1	2	3	4	5
19.	Shape of head	1	2	3	4	5
20.	Body build	1	2	3	4	5
21.	Height	1	2	3	4	5
22.	Tooth arrangement	1	2	3	4	5
23.	Age	1	2	3	4	5
24.	Chest	1	2	3	4	5
25.	Eyes (Shape)	1	2	3	4	5
26.	Lips	1	2	3	4	5
27.	Tooth color	1	2	3	4	5
28.	Feet	1	2	3	4	5
29.	Posture	1	2	3	4	5
30.	Shape of face	1	2	3	4	5
31.	Skin condition (body)	1	2	3	4	5
32.	Chewing	1	2	3	4	5

APPENDIX II

Subdivisions of the Total body-image score

Peri-oral						
* 5.	Nose	1	2	3	4	5
9.	Breathing	1	2	3	4	5
15.	Chin	1	2	3	4	5
22.	Tooth arrangement	1	2	3	4	5
26.	Lips	1	2	3	4	5
27.	Tooth color	1	2	3	4	5
32.	Chewing	1	2	3	4	5
Above-clavicle						
1.	Hair color	1	2	3	4	5
2.	Skin condition (face)	1	2	3	4	5
3.	Appetite	1	2	3	4	5
5.	Nose	1	2	3	4	5
7.	Forehead	1	2	3	4	5
8.	Hair texture	1	2	3	4	5
9.	Breathing	1	2	3	4	5
12.	Ears	1	2	3	4	5
15.	Chin	1	2	3	4	5
17.	Neck	1	2	3	4	5
18.	Eyebrow	1	2	3	4	5
19.	Shape of head	1	2	3	4	5
22.	Tooth arrangement	1	2	3	4	5
25.	Eyes (shape)	1	2	3	4	5

26.	Lips	1	2	3	4	5
27.	Tooth color	1	2	3	4	5
30.	Shape of face	1	2	3	4	5
32.	Chewing	1	2	3	4	5

Below-clavicle

4.	Hands	1	2	3	4	5
5.	Fingers	1	2	3	4	5
10.	Waist line	1	2	3	4	5
11.	Back of body	1	2	3	4	5
13.	Weight	1	2	3	4	5
14.	Finger nail	1	2	3	4	5
16.	Legs	1	2	3	4	5
20.	Body build	1	2	3	4	5
21.	Height	1	2	3	4	5
23.	Age	1	2	3	4	5
24.	Chest	1	2	3	4	5
28.	Feet	1	2	3	4	5
29.	Posture	1	2	3	4	5
31.	Skin condition (body)	1	2	3	4	5

* Note: Numbers preceding each of the items indicate the position of that item in the instrument.

APPENDIX III

This is a questionnaire which will ask how you feel about certain of your abilities and habits. Some you will probably like just as they are, some you don't even think about, and some you would like to change.

Think about each ability or habit listed below and then circle the number which represents how you feel. The following list will explain what each number means:

1. I really wish I could change this
2. I don't like this, but I can put up with it
3. I don't think about this one way or the other
4. I am satisfied
5. I am fortunate

1.	First name	1	2	3	4	5
2.	Taste in clothes	1	2	3	4	5
3.	Self-understanding	1	2	3	4	5
4.	Life goals	1	2	3	4	5
5.	Artistic talents	1	2	3	4	5
6.	Moods	1	2	3	4	5
7.	General knowledge	1	2	3	4	5
8.	Imagination	1	2	3	4	5
9.	Popularity	1	2	3	4	5
10.	Self-confidence	1	2	3	4	5
11.	Sensitivity to opinions of others	1	2	3	4	5
12.	Ability to lead	1	2	3	4	5

13.	Will-power	1	2	3	4	5
14.	Ability to make decisions	1	2	3	4	5
15.	Last name	1	2	3	4	5
16.	Manners	1	2	3	4	5
17.	Handwriting	1	2	3	4	5
18.	Intelligence	1	2	3	4	5
19.	Athletic skills	1	2	3	4	5
20.	Happiness	1	2	3	4	5
21.	Self-consciousness	1	2	3	4	5
22.	Ability to accept criticism	1	2	3	4	5
23.	Personality	1	2	3	4	5
24.	Self-respect	1	2	3	4	5
25.	Ability to concentrate	1	2	3	4	5
26.	Ability to take orders	1	2	3	4	5
27.	Fears	1	2	3	4	5
28.	Ability to meet people	1	2	3	4	5
29.	Self-discipline	1	2	3	4	5
30.	Neatness	1	2	3	4	5

APPENDIX IV

Subdivisions of the Total self-concept score

Self-directed

* 1.	First name	1	2	3	4	5
2.	Taste in clothes	1	2	3	4	5
3.	Self-understanding	1	2	3	4	5
4.	Life goals	1	2	3	4	5
5.	Artistic talents	1	2	3	4	5
6.	Moods	1	2	3	4	5
7.	General knowledge	1	2	3	4	5
8.	Imagination	1	2	3	4	5
13.	Will-power	1	2	3	4	5
14.	Ability to make decisions	1	2	3	4	5
15.	Last name	1	2	3	4	5
16.	Manners	1	2	3	4	5
17.	Handwriting	1	2	3	4	5
18.	Intelligence	1	2	3	4	5
19.	Athletic skills	1	2	3	4	5
20.	Happiness	1	2	3	4	5
24.	Self-respect	1	2	3	4	5
25.	Ability to concentrate	1	2	3	4	5
27.	Fears	1	2	3	4	5
29.	Self-discipline	1	2	3	4	5
30.	Neatness	1	2	3	4	5

Other-directed

9.	Popularity	1	2	3	4	5
10.	Self-confidence	1	2	3	4	5
11.	Sensitivity to opinions of others	1	2	3	4	5
12.	Ability to lead	1	2	3	4	5
21.	Self-consciousness	1	2	3	4	5
22.	Ability to accept criticism	1	2	3	4	5
23.	Personality	1	2	3	4	5
26.	Ability to take orders	1	2	3	4	5
28.	Ability to meet people	1	2	3	4	5

* Note: Numbers preceding each of the items indicate the position of that item in the instrument.

APPENDIX V

This is a questionnaire which will tell us how you feel about orthodontists and orthodontic treatment.

Read each question and think how you feel. Circle the number which represents how you feel. The following list will explain what each number means:

1. I strongly agree
2. I agree
3. I am uncertain
4. I disagree
5. I strongly disagree

---

1. Orthodontic treatment changes personality for many persons	1	2	3	4	5
2. Orthodontic treatment is more necessary for girls than boys	1	2	3	4	5
3. The success of orthodontic treatment depends much on the personal interest and concern of the doctor towards the patient	1	2	3	4	5
4. Orthodontic treatment changes social life for many persons	1	2	3	4	5
5. The main reason a person becomes an orthodontist is for money	1	2	3	4	5
6. The cost of orthodontic treatment is inexpensive compared to the benefits received	1	2	3	4	5
7. How teeth are arranged influences one's feeling about himself	1	2	3	4	5

8.	The orthodontist is a highly trained specialist among dentists	1	2	3	4	5
9.	The benefit one gets from orthodontic treatment is worth all the money and time it takes	1	2	3	4	5
10.	It is more important to have good teeth for health reasons than for appearance sake	1	2	3	4	5
11.	The orthodontist is personally concerned with the good of the patient	1	2	3	4	5
12.	How teeth are arranged influences one's personality	1	2	3	4	5
13.	How teeth are arranged has a strong influence on health	1	2	3	4	5

APPENDIX VI

Indicate by numbers 1, 2, 3 the answers to the following questions in the order you prefer:

Example

Which animal do you like most?

(2) a. cat

(1) b. dog

( ) c. chicken

( ) d. pig

(3) e. goat

---

1. Who most wanted you to have orthodontic treatment?

   ( ) a. Parents

   ( ) b. Brother, sister or friend

   ( ) c. Myself

   ( ) d. _____ (if other, write in)

2. Orthodontic treatment should begin when:

   ( ) a. the family has enough money for it

   ( ) b. the parents want it

   ( ) c. I want it

   ( ) d. I can pay for it myself

   ( ) e. the doctor recommends it

3. How I feel about orthodontic treatment:

   ( ) a. I would have rather postponed it

   ( ) b. I really wanted it to be done

   ( ) c. I don't think I really needed it

   ( ) d. I wish I would have had treatment sooner

4. Poor teeth arrangement affects most:

( ) a. speaking and voice

( ) b. school work

( ) c. popularity among friends

( ) d. chewing of food

( ) e. how one feels about himself

( ) f. proper breathing

( ) g. one's appearance

5. What type of job would you choose?

( ) a. Entertaining people such as acting and singing

( ) b. Working with the public such as a secretary or stewardess

( ) c. Helping people as in teaching or counseling

( ) d. Working in science and research

( ) e. Outdoor employment

( ) f. _____ (if other, write in)

6. In what area would you think orthodontic treatment would or is helping you the most?

( ) a. Making more friends

( ) b. Doing better school work

( ) c. Maintaining better health

( ) d. Getting better jobs

( ) e. Making yourself more confident

LOMA LINDA UNIVERSITY

Graduate School

A COMPARISON BETWEEN DIFFERENCES OF BODY-IMAGE AND SELF-CONCEPT FOR PRE- AND POST-TREATMENT ORTHODONTIC PATIENTS

by

Roy D. Atkin

An Abstract of a Thesis

in Partial Fulfillment of the Requirements

for the Degree Master of Science

in the Field of Orthodontics

June 1969

ABSTRACT

The primary objective of this study was to quantitatively address the three following questions:

1. Does orthodontic treatment when administered to the adolescent patient produce changes in his or her body-image and self-concept?
2. In which areas of the body does the patient experience changes in body image after orthodontic treatment?
3. What significance or value does the patient place on orthodontic treatment relative to changes in the subject's life?

In seeking answers to the above questions, a questionnaire was given to a group of 138 male and female orthodontic patients.

Results of the study indicate that (1) total body-image and self-concept are not influenced statistically by orthodontic treatment; (2) the peri-oral area experiences the greatest change in body-image because of treatment; (3) older female patients experience more dramatic changes in self-improvement due to orthodontic treatment.