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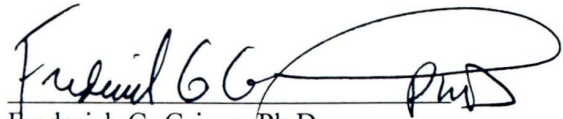
LASIK EYE SURGERY
AND SELF-ESTEEM

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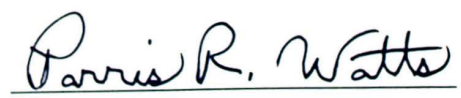

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LASIK EYE SURGERY
AND SELF-ESTEEM

A Thesis Defense
Presented for the Master of Arts
Degree
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Brenda Lynn Musgrave

April 2002

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DEDICATION

In loving memory of my twin brother,

Bryan Glenn Musgrave

ACKNOWLEDGEMENTS

I am indebted to a number of individuals for their unyielding support and assistance during the completion of this project. First, I would like to thank my major professor, Dr. Frederick Grieve, for his guidance, support, and patience which enabled me to finally complete this study. I would also like to thank Dr. Charles Grah and Dr. Maureen McCarthy for their guidance in this study and other areas of my education. Additionally, I would like to voice my appreciation to Dr. James Venerable and the medical staff at Eye Health Partners for their technical support and guidance as I would not have been able to complete this study without their assistance. Last but not least, I would like to thank Cheryl and other family and friends for their faith, love, and patience. I am truly indebted to you all.

ABSTRACT

This study examined the outcomes of LASIK eye surgery on self-esteem. Participants were individuals ($N = 21$) who presented to an eye clinic in Middle Tennessee for surgical correction of refractive error. All participants wore either glasses or contacts prior to the surgery. Each participant completed the Self-Esteem Rating Scale (SERS) pre- and postoperatively. The first question addressed by this study was whether participants would have a higher self-esteem rating postoperatively than pre-operatively. The second analysis assessed whether participants who wore glasses would show a greater increase in self-esteem than those who wore contacts. Third, this study examined whether the age participants first reported wearing corrective lenses (childhood, adolescence, or adulthood) resulted in any differences in self-esteem scores postoperatively. Although statistical significance was not obtained to support the hypotheses, meaningful differences were obtained in several areas when effect size was taken into consideration. Results indicated a marginal difference (increase) in self-esteem scores postoperatively when compared to pre-operative scores. Likewise, people who wore glasses versus those who wore contacts scored slightly higher on the self-esteem scale postoperatively than pre-operatively. Notable differences between pre- and postoperative scores were found when first age of wearing corrective lenses was assessed for childhood, adolescence and adulthood age groups. Finally, the effects of pre- and postoperative side effects/complications were examined and discussed.

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CHAPTER 1

INTRODUCTION

With today's technology, elective surgery to correct vision is a growing phenomena (Arrowsmith, 2000). The question arises as to why people choose to undergo potentially painful elective surgery. An individual's perception of his or her own physical appearance and physical capacities may be altered by cosmetic or elective surgical procedures.

Therefore, how an individual feels about himself or herself may be one factor contributing to a person's decision to alter facial appearance (Robin, Copas, Jack, Kaeser & Thomas, 1988). Self-esteem is developed by intra- and interpersonal factors throughout the course of people's lives. While there is some research regarding the psychological effects of cosmetic surgery, little research has been conducted to assess the psychological impact LASIK Vision Correction (LVC) has on self-esteem for patients who elect to have this surgical procedure. This study will examine the impact LVC, and, more specifically, LASIK (Laser Assisted In-Situ Keratomileusis) eye surgery has on self-esteem.

Definition of Self-esteem

Attempts to define self-esteem have proven to be a rather difficult undertaking as a number of factors are seemingly interwoven. Steffenhagen & Burns (1987) defined self-esteem as the totality of the individual's constructs of self: self-concept (mental), self-image (physical), and social concept (cultural). Their definition is based on three levels of self-esteem. The first level, material/situational level, corresponds to the physical, material aspect and includes three components of the unified self, which are mental, physical, and social. The mental includes the cognitive processes, the physical includes the self-image of the body, and the social refers to interpersonal functioning. The second level,

transcendental level, refers to the consciousness level and is differentiated by a perceived subjective, rather than objective, evaluation of self. The three components of the unified self on level two include mind, body, and spirit. Level three is referred to as awareness integration and is comprised of goal orientation, degree of activity and social interest. In the first level, our perceptions of our bodies are viewed to be important in how we feel about ourselves. Similarly, our evaluation of ourselves is partly contingent upon how we relate to others. In the transcendental level, the body image is on a higher level of abstraction; transcendental self-image is the individual's subjective response to perceived objective attitudes of others. On the third (highest) level, ego strength or self-awareness includes the subjective components of goal orientation, degree of activity, social interest, and the integrative elements of perception, creativity, and adaptation. This paradigm presented by Steffenhagen & Burns is derived from the Adlerian model of individual psychology (Ansbacher & Ansbacher, 1956) and implies that goals must be socially definable and have a means of achievement. Steffenhagen & Burns' three level system denotes self-esteem to be a very complex and social process.

How we view ourselves and perceive our past experiences impact our daily lives. A generally held belief is that people with high self-esteem are more likely to strive to meet goals. According to Albert Bandura (1977, 1982), an accurate view of one's own capabilities (i.e., efficacy) has considerable functional value. Persons who have a strong sense of efficacy focus their attention and effort to the demands of the situation and are spurred to greater effort by obstacles (Bandura, 1982). The principle assumption is that psychological procedures serve as a means of creating and strengthening expectations of personal efficacy. Within this analysis, efficacy expectations are distinguished from

response-outcome expectations. Bandura defined response-outcome expectancy as “a person’s estimate that a given behavior will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes” (1977, p. 193). He further differentiated outcome and efficacy expectations indicating individuals can believe that a particular course of action will produce certain outcomes, but if they have serious doubts about whether they can perform the necessary activities, such belief does not influence their behavior. This conceptual framework suggests expectations of personal mastery effect both initiation and persistence in coping behavior. Given appropriate skills and acceptable incentives, however, efficacy expectations are a major factor influencing people’s choice of activities, how much effort they will expend, and of how long they will engage in effort in dealing with stressful situations. Bandura’s theory of behavior change, based on self-efficacy expectations, may correspond, in part, to Steffenhagen & Burns’ (1987) third and highest level of ego strength.

Self-worth may be viewed as a global judgment of one’s self. Children (older than eight years old) are thought to not only make domain-specific evaluations of the self, but also possess a more global concept of self-worth (Lapsley & Power, 1988). The specific identified domains included scholastic competence, athletic competence, social acceptance, physical appearance, and behavioral conduct. Lapsley and Power indicate that while a low score in one or more domains may very well serve to lower one’s overall (global) view of self, the importance the child ascribed to each domain had a greater impact on the child’s global score. For example, if a child rated himself or herself low in athletic competence but rated it as largely unimportant when compared to other domains,

the low rating may not have had an adverse effect on the global self-worth rating. Lapsley and Power describe the individual with low self-worth as one who cannot discount the importance of areas in which he or she is unsuccessful. Conversely, the individual with high self-esteem is able to discount the importance of those domains in which he or she does not feel adequate. With this in mind, if a person ascribes significant importance to physical appearance and is not comfortable with his/her own appearance, a negative view of self-worth may result.

Boldrick (1983) examined the subjective importance between self-esteem and satisfaction with physical attributes. The author sought to assess whether the principle of psychological centrality could be applied to physical attributes. Psychologically central aspects were defined as “those which, because of their importance, affect self-esteem to a greater extent than do less important aspects” (p. 97).

In Boldrick's (1983) study, participants were 175 females and 85 male volunteers at the University of Maryland. Self-esteem was measured with the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Participants rated their personal satisfaction with 24 physical attributes on a 7-point Likert scale (1 = *not at all satisfied*; 7 = *very satisfied*). The physical attributes were then rated on the basis of personal importance to each participant (1 = *not at all important*; 7 = *very important*). Participants were then divided into four groups: High Satisfaction-High Importance (HH), Low Satisfaction-High Importance (LH), High Satisfaction-Low Importance (HL), and Low Satisfaction-Low Importance (LL). The *t*-tests comparing the self-esteem of the high importance groups (LH and HH) revealed that there were significant ($p < .05$ or less) differences in self-esteem between the two groups for 21 of the 24 physical attributes. The set of *t*-tests comparing the HL and

LL groups showed results which were quite similar to those of the first set of tests.

Specifically, significant differences in self-esteem between high and low satisfaction groups appeared even when the attribute had been rated below the median on importance. The author concluded that the relationship between self-esteem and satisfaction with physical attributes was statistically significant whether or not the attribute was judged to be important. This study illustrates the importance physical attributes play in how people feel about themselves.

Social Psychological Implications of Physical Attractiveness

The attractiveness of an individual's physical appearance, specifically facial appearance, has an important impact upon the individual's life and the individual's self-esteem. This evidence has been obtained from a wide variety of nonclinical populations ranging from infancy to the elderly (Berscheid & Gangestad, 1982).

Physical attractiveness emerged as a factor whose effects could no longer be ignored based on a well known study conducted in the 1960's. Walster, Aronson & Abrahams (1966) constructed a college computer dance where each student was assured that with the purchase of a ticket, the student would be randomly assigned to a date. Participants were the first 376 male and 376 female freshman students who purchased tickets to a Friday night dance during Welcome Week at the University of Minnesota. Four college sophomores were hired to rate the physical attractiveness of the participants. As each participant passed by to purchase the ticket, the four raters rapidly (within 1 to 2 seconds) and individually evaluated the participant's physical attractiveness on an 8-point scale ranging from 1 (extremely unattractive) to 8 (extremely attractive). Participants' attitudes

toward their dates were assessed during the intermission. Following the dance, how often the couples actually dated was determined in a follow-up study 4-6 months later.

The correlation between physical attractiveness and popularity for men was .31 and for women .46 ($p < .001$) (Walster et al., 1966). While the authors hypothesized that an individual would most often expect to date, would try to date, and would like a partner of approximately his/her own social desirability, results did not support this. The only important determinant of whether or not the date was asked out again was the date's attractiveness. The most attractive girls were most often asked out, $F(1, 318) = 12.02, p < .001$. The greatest determinant of how much liking an individual felt for his partner was simply how attractive that she was. The more attractive the female date was, the better she was liked, $F(1, 318) = 59.26, p < .001$. Female participants responded similarly to their male counterparts. The more attractive the man was, the more the female partner liked him, $F(1, 318) = 55.79, p < .001$.

When the relationship between the individual's own estimation of the date's physical attractiveness and his or her expression for him or her was examined, the correlation was even higher. The correlation between liking of the date and the evaluation of the date's physical attractiveness was .78 for male subjects and .69 for female subjects (Walster et al., 1966). In no case did a participant's intellectual achievement or ability test scores have a significant relationship to the liking the date expressed for him or her. While participants also completed several personality measures including Berger's Scale of Self-Acceptance (Berger, 1952), the Minnesota Counseling Inventory (Dahlstrom & Welsh, 1962), and the Minnesota Multiphasic Personality Inventory - masculinity-femininity scale (Hathaway &

McKinley, 1943, revised 1970), these personality measures were not found to be as good predictors of liking as was the crude measure of physical attractiveness.

These results suggest that perceptions of another's physical attractiveness was not limited to the particular eye of the beholder. Prior to this study, physical attractiveness was overlooked as a psychological variable because people did not agree on who is and is not attractive. However, the ticket-takers reliably predicted the date's ultimate attraction to the individual; this suggests that people agree more than they disagree on another's physical attractiveness (Walster et al., 1966).

In a review of this study, Berscheid & Gangestad (1982) pointed out that the computer dance results suggested something else. The results were contrary to what young men and women for decades said was important to them in dating. The discrepancy between what people said was important to them and what they demonstrated to be important in the computer dance situation suggested two reconciling possibilities: "Either people lie a lot about what is important to them in dating and mating, or they are generally unaware of the impact of another's physical attractiveness upon them, perhaps because subtle cognitive processes are operating to help keep them unaware" (p. 291). The importance of physical attractiveness has important implications in interpersonal relationships; this supports Steffenhagen & Burns' (1987) explanation of self-esteem as a very complex and social process. How an individual is perceived by others cannot be discounted as a factor in the formation self-concept and self-esteem. If individuals are unhappy regarding their physical appearance and attractiveness to others, medical procedures can be obtained to alter and improve physical appearance.

Psychological Aspects of Elective Cosmetic Surgery

Questions about the psychological consequences of cosmetic surgery have increased in interest and importance as the incidence of surgically performed facial alterations has increased (Berscheid & Gangestad, 1982). In many surgical procedures, physicians often must convince patients of the need for surgery (Wright & Wright, 1975). However, Wright & Wright indicate that with cosmetic surgery, it is generally the patient who requests and even convinces the surgeon to perform the operation. Are there significant psychological differences between people who choose to have elective surgery and those who do not?

Wright & Wright (1975) selected patients electing to undergo cosmetic rhinoplasty (surgery of the nose) and assessed personality traits using the Minnesota Multiphasic Personality Inventory and a psychological interview. The 90 rhinoplasty patients who requested surgery from a private physician were evaluated using the above procedures. Of these, 25 were reevaluated 12 to 18 months following surgery to assess post surgical changes. The control group consisted of 25 patients who completed noncosmetic surgery. All groups consisted mostly of females varying in age from 16 to 60 with an average age in the early 30's.

Comparative analyses between the rhinoplasty and control groups showed less elevation of the clinical scales for the control group; this suggests that the control group was less restless, self-critical, and sensitive to the opinions of others than the rhinoplasty group (Wright & Wright, 1975). Personality pattern disturbances (referred to as the inadequate personality) represented the most frequent psychic disorder associated with cosmetic surgery. Preoperatively, rhinoplasty patients had a mean T-score of 61.43 on the

psychopathic deviant scale (scale 4) compared to a mean T-score of 56.55 for the control group; this was the only comparison which reached statistical significance at the .05 level.

The 25 rhinoplasty patients who were reevaluated 18 to 24 months after surgery showed no major personality change. However, the authors reported an improvement in self-concept for the rhinoplasty patients following surgery. The authors concluded that plastic surgery patients are not as disturbed as they are often depicted. However, they suggested individuals who seek facial plastic surgery may have underlying psychological considerations which need to be taken into account (Wright & Wright, 1975). Results of this study suggest people who elect to receive cosmetic surgery do so to improve personal appearance; this subsequently results in an improvement in how they feel about themselves.

A similar study by Robin, Copas, Jack, Kaeser & Thomas (1988) investigated the concurrent improvement in appearance and mental state after rhinoplasty. The first 31 consecutive patients accepted on direct referral for rhinoplasty by plastic surgeons were matched for age and sex with patients admitted for elective surgery (herniorrhaphies and menisectomies). Both groups were interviewed by a psychiatrist before surgery and six months post-operatively. In addition, a social worker interviewed a member of each patient's family or close friend to obtain independent information.

Patients completed a number of tests including a facial appearance sorting test, the General Health Questionnaire (GHQ; Goldberg, 1972), an updated version of the Selective Vocabulary Test (Slater, 1944), a Repertory Grid (Norris & Makhoul-Norris, 1976) and a scale assessing masculinity/femininity (Robin et al., 1988). As follow-up examination was not possible in one or both subjects of nine pairs (six control, seven

rhinoplasty patients), results were only reported for the remaining 22 pairs. Of the 22 pairs, 11 were male and 11 were female with ages ranging from 18 to 45 years (mean age of 25 ± 8 years for both groups).

Rhinoplasty and control patients perceived faces similarly and employed a similar system of aesthetic values. The correlations between the self-rank on the sorting test and self-rating and doctors' rating of appearances were both highly significant (self-rating, $r = .64$; doctors' rating, $r = .58$). On the seven point scale from *perfect* to *very markedly imperfect*, rhinoplasty patients rated themselves as significantly more impaired than controls did. At the six month follow-up examination, significant improvement occurred in the rhinoplasty group on the sorting test ranking (mean rank significantly decreased from 12.1 to 3.3). Mental state, as assessed by the GHQ, showed a significant correlation ($r = 0.60$) with the psychiatrists' overall rating and a non-significant preoperative trend for rhinoplasty applicants to score higher than controls (Robin et al., 1988).

Results of this study showed that the psychiatrists' overall rating of symptoms showed significantly higher initial scores for rhinoplasty patients when compared with controls, as well as a significant improvement in the patients' scores on follow-up examination. Specifically, rhinoplasty applicants scored significantly higher on the anxiety, obsessive/worrying, and paranoid sub-groups. Male patients showed more differences than female patients from their controls. Initially, on the Repertory Grid, the mean distance of the *actual self* to *ideal self* was significantly greater for rhinoplasty patients than controls. The average change in distance from preoperative to six months post-operative testing for rhinoplasty patients was -0.163 ± 0.177 whereas the distance from actual self to ideal self for the control group was -0.03 ± 0.115 ($p < .01$). The authors concluded a significantly

higher incidence of psychiatric symptoms existed in rhinoplasty patients compared to those in the control group, particularly in males. However, they found no correlation between the degree of psychiatric disturbance and the impairment of appearance. These findings suggest physical appearance impacts not only the physical but also the psychological views people hold of themselves (Robin et al., 1988). Accordingly, if cosmetic surgery to improve facial appearance results in patients feeling better about themselves, the question arises whether or not wearing visual aids (such as eyeglasses) has any psychological impact on those who wear them.

Psychological Aspects of Visual Assistive Devices

For individuals who have functional limitations in visual acuity, the use of visual aids has become a way of life (Day & Jutai, 1996). Until the 1970s, the only means to correct nearsightedness, farsightedness, or astigmatism was glasses and contacts (Arrowsmith, 2000). However, does reliance or dependence on visual aids have a psychological impact on those who must use them for daily functional activities?

Based on the premise that eyeglass wearers have a negative self-image, Terry, Berg, and Phillips (1983) sought to determine which has the greater negative effect on self-esteem, the age at which eyeglasses were first prescribed or the number of years they had been worn. They selected optometric patients in a waiting room of a private vision clinic. Only those who admitted to wearing eyeglasses and appeared old enough to comprehend the directions and to engage in valid, realistic retrospection (older than about 13 years of age) were asked to participate.

Participants were 26 males and 25 females, with a mean of 34.1 years of age. The mean age when they first wore glasses was 19.3 years (range 7-47). The mean number of

years that glasses had been worn was 14.8 years (range 1-45). Participants were asked to respond to an adjective checklist which consisted of 300 alphabetized adjectives, some of which were positive, some negative. Specifically, participants were asked to check those adjectives which they believed were self-descriptive. For the purposes of the study, self-esteem was operationally defined as the number of positive adjectives checked minus the number of negative adjectives checked. As a result, the higher the score, the more positive the self-esteem (Terry et al., 1983).

Two sets of analyses were performed. The first examined the relationship between self-esteem and age at which glasses were first obtained. Males and females were assigned to one of three groups depending on when they received their first glasses. The "childhood" group consisted of 9 males and 10 females who received their first glasses between the ages of 7-12 years. The "adolescence" group consisted of 9 males and 5 females who received their first glasses when they were 13-20 years old. The "adult" group was comprised of 8 males and 10 females who received their first glasses when they were 21 years or older (Terry et al., 1983).

A sex by age group analysis of variance (ANOVA) was performed on the self-esteem scores. Only the factor of age group was significant ($p < .05$). Patients who obtained their first glasses during childhood or adulthood had lower self-esteem scores ($M = 24.68$ and 35.22 , respectively) than patients who obtained their first glasses during adolescence ($M = 44.00$). The second analysis examined the relationship between self-esteem and the number of years eyeglasses had been worn. A sex by years ANOVA was performed on the self-esteem scores and neither of the factors nor the interaction was significant. Specifically, there was no significant relationship between self-esteem and the number of

years glasses had been worn. No significant relationship was found between the age at which glasses were first obtained and the number of years they had been worn ($r = .067, p > .05$). These results led to the conclusion that a person's self-esteem is not noticeably affected by how long he/she wears eyeglasses (Terry et al., 1983).

While the length of time a person wears eyeglasses was not significant, Terry et al. (1983) found that the age at which eyeglasses were first worn was significant. Specifically, participants who obtained their first eyeglasses during childhood had lower self-esteem scores than those who received their eyeglasses during adolescence. To account for this, the authors suggested that people who wear glasses are subject to social criticism, ridicule, and perhaps rejection. They further explained that the more malleable one's self-concept, the more likely social feedback will be internalized.

Childrens' self-concept is generally viewed to be less developed; therefore, they are likely more effected by social feedback (Terry et al., 1983). However, this explanation did not account for the low self-esteem scores of participants who first wore glasses in adulthood when their self-concepts had been firmly established. The authors suggested that participants who first begin wearing glasses during adulthood may see this as an indication of the aging process and the beginning of physical decline.

In a similar study, Terry & Zimmerman (1970) postulated that "the spectacle image tends to be a negative aspect of the total body image" (p. 257). They explained that wearing glasses for some people can lead to feelings of social humiliation, censure, and rejection. If such effects are strong enough and persist, a negative image of wearing eyeglasses would be generalized into a negative, total body image and ultimately into a negative self-concept. Terry & Zimmerman reasoned that wearing eyeglasses leads to a

negative spectacle image which is anxiety inducing, and that wearing contact lenses contributes to a reduction in anxiety. As a result, a person who wears contacts should experience greater anxiety when forced to wear eyeglasses again than a person who is provided with eyeglasses for the first time.

Terry & Zimmerman's study (1970) consisted of 40 college females, 18 to 21 years old. Half of the participants were known to wear contact lenses and the other half were known not to have any sort of visual corrective device. Participants were divided into four groups: The CL-FS group contained 10 persons who wore contact lenses and who were to perform a role wearing eyeglasses; the No CL-FS group contained 10 persons with no visual correctives who were to perform a role wearing eyeglasses; the CL-No FS group contained 10 persons who wear contact lenses and who were to perform a role without wearing eyeglasses; the No CL-No FS group contained 10 persons with no visual correctives who were to perform a role without wearing eyeglasses.

Participants were asked to role play situations for job interviews. Each participant was asked to respond to a job application form and a self-analysis questionnaire. The self-analysis questionnaire was actually Spielberger's State-Trait Anxiety Inventory (Spielberger, 1968) which measured situational or state anxiety. The main effect of contact lenses was highly significant, $F(1,36) = 16.579, p < .01$, indicating that the participants who wore contacts were more anxious than the participants who did not wear contacts. The main effect of eyeglasses was also highly significant, $F(1,36) = 15.863, p < .01$, indicating that the participants who wore eyeglasses were more anxious than those who did not wear eyeglasses. The interaction was also significant, $F(1,36) = 6.760, p < .025$ (Terry & Zimmerman, 1970).

The authors interpreted the higher score for the group with eyeglasses as compared to the other three groups to indicate high anxiety induced by the “reawakening” of a negative self-concept (spectacle image) in those contact wearers who were forced to wear eyeglasses again. Informal data gathered from the participants who wore contacts indicated that virtually all wore contacts instead of eyeglasses for cosmetic or esthetic reasons; this suggests that the spectacle image is related to esthetics rather than disability (Terry & Zimmerman, 1970).

While eyeglasses tend to alter one’s physical appearance, it is generally believed that they also tend to limit one’s ability to engage in certain sport activities (such as football, swimming) and other physically demanding activities (Knoll, 1978). Such alterations in physical appearance, coupled with restrictions in physically demanding activities, would likely impact one’s view of quality of life. Day & Jutai (1996) examined the psychosocial impact on the quality of life for those wearing eyeglasses and contact lenses. They developed a questionnaire, the Psychosocial Impact of Assistive Devices Scale (PIADS), to measure quality of life. The PIADS was developed in two separate studies over a two year period.

The psychometric properties of the PIADS were examined by testing 157 eyeglass and/or contact wearers from four university undergraduate classes during the first study. Of the 157 participants, 83 (52.9%) reported wearing glasses, 57 (36.3%) reported wearing contact lenses, and 17 (10.8%) reported wearing both eyeglasses and contact lenses. Of the participants, 117 were females (75%) and 40 were males (25%). Ages ranged from 17 to 53 with a mean age of 22.1. The mean length of time using an assistive device was 7.83 years ($SD = 7.12$); the minimum amount of time reported was one year,

the longest time wearing an assistive device was 40 years, and the median time was six years (Day & Jutai, 1996).

The second study consisted of 150 individuals (yielding a combined sample of 307, 115 males, 38%, and 190 females, 62%). In the second sample, the mean age was 33 with the youngest respondent being 11 and the oldest being 79 years of age. Of these, 114 completed only the eyeglasses form of the PIADS, and 36 completed both the eyeglasses and contact lenses forms (Day & Jutai, 1996).

Eyeglasses were reported to be worn by 38 participants (36.6%) constantly, 52 participants (36.4%) occasionally, and 53 participants (37.1%) rarely. Of those who reported wearing contact lenses, 11 (30.6%) wore them constantly, 8 (22.2%) occasionally, and 17 (47.2%) rarely. The mean length of time people wore contacts was 8.9 years ($SD = 6.8$) and the mean length of time people wore glasses was 18.6 years ($SD = 13.5$).

During Day & Jutai's (1996) second study, the PIADS was divided into three major scales. The first was a general measure of competence and efficacy (Competency). The second described the positive attitude towards risk taking and trying new things, and also appeared to include perceived well-being (Adaptability). The third scale contained items which reflected general feelings of emotional health; self-esteem, happiness, sense of power and control (Self-esteem).

While the PIADS is similar to other instruments which measure self-efficacy expectations, it is worded to address the impact of an assistive device specifically. Therefore, it was suggested the PIADS would provide more accurate estimates of a device user's expectations than would trait measures (Day & Jutai, 1996).

With the combined data of both studies, the reliability coefficient for the PIADS was high (Cronbach's $\alpha = .95$). Over the two years, data was collected to compare the impact of eyeglasses with contact lenses. While both types of assistive devices had significant positive impact on all three scales, contact lenses wearers reported higher positive impact on Competence, Adaptability, and Self-esteem than did eyeglass wearers. When an analysis of all the 26 items of the PIADS was completed, the authors found 19 items were significantly different for people who wear contact lenses and people who wear eyeglasses. In every case the positive impact was greater for people who wear contact lenses. The Self-esteem scale depicts the largest difference in mean scores between people who wear eyeglasses and people who wear contact lenses (Day & Jutai, 1996). Results of this study suggest the use and type of visual aids does impact how people feel about themselves. If visual aids negatively impact how people see and feel about themselves, it is easy to understand why people may seek to alleviate dependence on visual aids via surgical means.

Psychological Aspects of Laser Surgery for Myopia

The use of excimer laser treatment has increased over the past ten years to treat myopia and astigmatism (McGhee et al., 1996). However, as it is still viewed as a relatively new concept in eye care, few studies have been carried out to assess the psychological reasons patients elect to undergo surgical correction of vision or evaluate the psychological impact following surgery.

McGhee et al. (1996) report that while numerous studies yield a high level of patient satisfaction postoperatively, such studies have traditionally been seen as a measure of the quality of that treatment. The authors assessed the main reasons patients opted for the

surgical procedure excimer laser photorefractive keratectomy (PRK). Of 90 patients who had undergone this surgical procedure, 85.6% wanted to improve unaided vision, 83.3% wanted to be free from spectacles, 72.7% disliked difficulties with contact lenses, 70.0% wanted improved unaided vision to participate in sports, and 59.2% wanted to improve cosmetic appearance. Of the 59.2% who indicated that cosmetic appearance was an important reason for undergoing surgical treatment, 33% were male and 67% were female. Postoperatively, 89% of all patients reported an improvement in their work, home or social life. These findings provide some useful information in beginning to understand why people choose to undergo surgical correction of vision.

Factors Impacting Successful Outcomes of Laser Eye Surgery

Postoperative complications may hinder the success of surgery to correct vision. Complications reported by patients receiving PRK include glare (an increased difficulty with night driving), halo effect, vision fluctuation/regression, hazy vision, and difficulty reading (Dutt, Steinert, Raizman & Puliafito, 1994; Halliday, 1995; Kwito, Gow, Bellavance & Wu, 1996). However, improvements in hazy vision were reported in some studies after six months or more postoperatively (Hefetz, Krakowski, Haviv, Eshkoly & Nemet, 1997; Ozdamar, Aras, Sener & Bahcecioglu, 1998). Patients who experience significant complications following surgery may be disappointed with the surgical outcome. Resulting complications may limit or restrict functional skills such as driving at night or reading. Therefore, such complications could adversely impact responses on a self-esteem questionnaire which indicates how people feel about themselves. Therefore, it is helpful to record postoperative complications experienced as a result of the surgery.

The Present Research

The previous research suggests that physical appearance, specifically facial attractiveness, has an important impact upon an individual's life and self-esteem. A person's physical capacities and cognitive view of abilities to master desired activities also have an important bearing on self-esteem. Surgical correction of refractive error has largely negated the dependence of people on assistive devices such as eyeglasses and contact lenses. While photorefractive keratectomy (PRK) was one of the first types of surgery used to restore visual acuity, Laser Assisted In-Situ Keratomileusis (LASIK) eye surgery is the new and improved surgical procedure of choice used today (Arrowsmith, 2000). This study is intended to examine the effects LASIK eye surgery has on self-esteem. Specifically, this study will examine patients' level of self-esteem pre- and postoperatively to ascertain any changes as a result of LASIK eye surgery. It is hypothesized that persons who regain visual acuity and are no longer dependent on visual assistive devices (e.g., eyeglasses or contact lenses) will have a higher score on the self-esteem rating scale postoperatively. Second, persons who predominantly wear eyeglasses will demonstrate a greater increase in self-esteem than those who predominantly wear contacts. The third hypotheses is that people who began wearing corrective lenses in childhood and adulthood will present with a greater increase in self-esteem ratings than those who began wearing them in adolescence.

CHAPTER II

METHODS

Participants & Design

Participants were individuals 18 years of age and older who presented to an eye clinic in middle Tennessee for diagnostic evaluation of surgery to correct myopia (nearsightedness), hyperopia (farsightedness) and/or astigmatism. Of the 98 packets distributed to volunteers, 28 packets were returned. Four participants did not follow correct procedures (i.e., filled out the forms immediately following the surgery) and three participants did not return the postoperative forms; these seven were dropped from the study. A total of 21 participants correctly completed required forms and were included in this study. Of the 21 participants, 16 were females (76%) and 5 were males (24%).

Participants were classified according to age groups with 2 participants falling within the 21 to 30 age range, 10 participants falling within the 31 to 40 age range, 7 participants falling within the 41 to 50 age range, and 2 participants falling within the 51 to 60 age range. All 21 participants were Caucasian.

Additional information was obtained regarding the type of corrective lenses first worn, type of lenses currently used, and reasons for electing to have surgery to correct refractive error. All participants (100%) reported first wearing eyeglasses. Currently, 71% reported wearing contact lenses and 29% reported wearing glasses. When asked to check all reasons they elected to have LASIK eye surgery, 86% indicated they wanted unaided vision in performing daily activities (e.g., wanted to be able to see the alarm clock), 43% reported they wanted to improve physical appearance to improve the way they look (e.g., physical attractiveness), 52% endorsed participation in sports activities (e.g., swimming,

football), and 91% checked convenience (e.g., no longer have to clean, search for eyeglasses or put in contacts). The mean age corrective lenses (eyeglasses or contacts) were first worn was 14 years ($SD = 9.80$).

The study involved a pretest - posttest within subjects design in which participants were asked to complete a self-esteem questionnaire during the preoperative evaluation and again approximately three months following LASIK eye surgery. The independent variable was the time (pre- and postoperative) and the dependent variable was the self-esteem scores.

Measures

Demographics. The demographics questionnaire (see Appendix A) included biographical information of age, gender, race, income, types of visual aids used, reasons for having LASIK surgery, and current vision difficulties, if any.

Self-Esteem Scale. The 40-item Self-Esteem Rating Scale (SERS; Appendix B) was developed by Nugent and Thomas to provide a clinical measure of self-esteem (Corcoran & Fischer, 2000). The items on the questionnaire tap into a range of areas of self-evaluation which include overall self-worth, social competence, problem-solving ability, intellectual ability, self-competence, and worth relative to other people. It is an instrument used for measuring both positive and negative aspects of self-esteem. Items were assessed on a 7-point Likert-type scale (1 = *never*, 4 = *some of the time*, and 7 = *always*). Items on the SERS were scored as either positive (+) or negative (-). Items which identify negative aspects of self-esteem were reverse scored. The items were then summed to produce a total score ranging from -120 to +120. Positive scores indicated more positive self-esteem and negative scores indicated more negative self-esteem. The SERS has an excellent

internal consistency, with an Cronbach's alpha of .97 (Corcoran & Fischer, 2000). The standard error of measurement is 5.67. This instrument was reported as having good content and factorial validity as well as good construct validity, with significant correlations (Corcoran & Fischer, 2000) with the Index of Self-Esteem (Hudson, 1982) and the Generalized Contentment Scale (Hudson, 1982).

Surgical Procedure

The Laser Assisted In-Situ Keratomileusis (LASIK) procedure uses an approved laser instrument, the VISX Star 52-53 laser. It is an outpatient procedure in which anesthetic eye drops are placed in the eye immediately prior to surgery in order to minimize pain. In some cases, a mild sedative is given to reduce apprehension prior to surgery. During the LASIK procedure, the surface cells on the cornea are left generally intact. The first step after cleansing the eyelid involves creating the corneal flap. To do this accurately, the pressure inside the eye is raised to approximately 3-7 times the normal level. This is accomplished by using a ring placed on the white of the eye. This suction ring is then activated, the pressure inside the eye is confirmed to be sufficiently elevated, and the microkeratome is used to cut a partial thickness (generally less than 1/3 of total corneal thickness) section of corneal tissue. After the flap is created, it is retracted exposing the underlying stroma. With the underlying corneal tissue exposed, the laser application is initiated. This generally takes 30-60 seconds, depending on the amount of refractive error that is being treated. The exact number of pulses fired by the laser is calculated by the laser's computer. After the laser treatment, the flap is put back into position without sutures. Antibiotic and anti-inflammatory eye drops are placed in the treated eye. Patients are prohibited from driving home and must have a driver present at the clinic. Patients are

instructed to continue using prescribed eye drops. In addition, patients are directed to wear protective eye shields when they go to sleep for the first few weeks after surgery (Arrowsmith, 2000).

Procedure. All participants at the clinic who volunteered to participate were briefed on the nature of the study and asked to sign a consent form during the preoperative evaluation, acknowledging that they were aware and informed of their rights as participants and also consented for the clinic to release information regarding visual acuity pre- and postoperatively. The demographics questionnaire (see Appendix A) was completed after the signing of the informed consent. Participants were then asked to complete the SERS (see Appendix B). Patients were asked to provide their home address and telephone number for subsequent follow-up (see Appendix C). Only those patients who elected to complete the LASIK eye surgery were included in the study. Patients who decided not to receive the LASIK eye surgery were not asked to participate in the study. Approximately three months postoperatively, each patient was contacted by the researcher by written correspondence. Patients were asked to complete the SERS again as well as answer postoperative follow up questions (see Appendix D). Each participant was asked to complete the forms and return in a self-addressed, stamped envelope.

CHAPTER III

RESULTS

Paired *t*-tests were performed on the pre-operative and postoperative ratings on the SERS to determine if there were any changes in self-esteem associated with the LASIK eye surgery. To assess whether there was any difference in postoperative self-esteem ratings between those who predominately wear eyeglasses and those who wear contact lenses, an analysis of variance (ANOVA) was performed. Postoperative complications, a potential covariate, were compiled and analyzed to examine the impact, if any, on self-esteem scores. A 3 (childhood, adolescence, adulthood) by 2 (pretest, posttest) ANOVA was conducted to determine if time of onset for wearing corrective lenses yielded any differences in self-esteem before versus after surgery. For this analysis, the independent variable was the onset (age group) of wearing corrective lenses and the dependent variable was the self-esteem measure.

Self-esteem rating pre- and postoperatively

Pre and postoperative scores. The total SERS scores both pre- and postoperatively were computed. In the preoperative condition, there was a mean SERS of 72.19 ($SD = 23.98$) and in the postoperative condition there was a SERS of 73.86 ($SD = 19.69$). The difference was not significant ($t(20) = -0.92, p = .37$). Given the small number of participants, the effect size was examined to determine if a meaningful difference existed and $d = .36$ was obtained.

Self-esteem and type of corrective lenses used. Of the 21 participants, 29% primarily wore glasses and 71% wore contact lenses. For participants wearing glasses, the mean postoperative SERS was 78.17 ($SD = 20.41$) and for participants wearing contacts the

mean was 72.13 ($SD = 19.85$). The difference in postoperative self-esteem scores between participants who wore glasses and those who wore contacts was not statistically significant, $F(1,19) = .39, p = .54$. However, a moderate difference in postoperative self-esteem scores between participants who wore glasses and those who wore contacts was found when effect size was taken into consideration, $d = .30$.

Pre- and postoperative complications (side effects). In the preoperative condition, the mean number of visual problems reported prior to surgery was .86 ($SD = .85$) and in the postoperative condition the mean number of visual problems reported was .70 ($SD = 1.03$). The difference was not statistically significant, ($t(19) = .68, p = .507$). No significant differences in postoperative complications were found between participants who wore glasses and those who wore contacts, $t(18) = -.244, p = .81$. Since there were no differences, this variable was not used as a covariate in subsequent analyses.

Examining differences in self-esteem ratings and first age of wearing corrective lenses. Based on the study conducted by Terry et al. (1983), participants were divided into three age groups with Group 1 consisting of participants who were first prescribed corrective lenses when they were 12 years of age and younger (childhood). Group 2 consisted of participants who were first prescribed corrective lenses between the ages of 13 and 20 (adolescence). Group 3 consisted of participants who were first prescribed corrective lenses at or above 21 years of age (adulthood). Overall, the mean age at which corrective lenses was first prescribed was 14.53 ($SD = 9.80$).

A univariate repeated measures ANOVA was performed relating the onset of prescriptive lenses by group (childhood, adolescence, adulthood) to the rating of self-esteem by time (pre- and postoperatively). The interaction effect between group and time

was found to approach significance, $F(2, 18) = 2.623, p = .100$. The strength of the relationship, as indexed by η^2 , was .22. Given the small sample sizes of each group, effect sizes were computed and notable differences were found (see Table 1). A moderate increase between pre- and post test scores was found for the childhood group when effect size was taken into consideration. A large decrease between pre- and posttest scores was found for the adolescent group when effect size was considered. Likewise, a large increase between the pre- and posttest scores was found for the adulthood group when effect size was considered. A main effect for age group approached significance, $F(2, 18) = 2.116, p = .149$. The strength of the relationship, as indexed by η^2 , was .19. A main effect for time was not significant, $F(1, 18) = .021, p = .886$.

Table 1

Means and Standard Deviations for pre- and post operative scores and Effect Size by Age Group

Age Group	Pre- M	Pre- SD	Post M	Post SD	d
12 and younger	74.00	25.35	76.08	21.42	.43
13 - 20	91.67	18.01	84.67	16.92	1.67
21+	55.80	12.38	61.60	11.28	1.69

CHAPTER IV

DISCUSSION

The main purpose of this current study was to examine the changes in self-esteem for persons receiving LASIK eye surgery. The first hypothesis under study predicted that participants who regain visual acuity and are no longer dependent on visual assistive devices (e.g., eyeglasses or contact lenses) would have a higher score on the self-esteem rating scale postoperatively as compared to pre-operatively. The results of the present study did not support this hypothesis although a moderate meaningful difference was found when effect size was taken into consideration. The second hypothesis under study predicted that participants who predominately wear eyeglasses would demonstrate a greater increase in self-esteem than those who predominately wear contacts. Statistical support for this hypothesis was not found although a moderate meaningful difference was found when effect size was considered. The third hypothesis predicted that people who began wearing corrective lenses in childhood and adulthood would present with a greater increase in self-esteem than those who began wearing them during adolescence. While statistical results did not support this hypothesis, a comparison of pre- and postoperative self-esteem scores for the three age groups yielded some notable changes in self-esteem scores when effect size was taken into consideration.

As previous research has demonstrated the significant effects physical appearance (Wright & Wright, 1975) and unrestricted physical capacities (Knoll, 1978) play in shaping how we feel about ourselves, it was hypothesized that surgical correction of refractive error to eliminate, or at least minimize, the need for visual aids, particularly eyeglasses or spectacles, should serve to enhance self-esteem. Whereas McGhee et al.

(1996) found that 59.2% of participants endorsed improving cosmetic appearance as a reason for having laser eye surgery, in the present study, only 42.9% of participants indicated improving cosmetic appearance played a role in electing to surgically correct refractive error. However, it should be noted that in the present study, 71% of the participants were wearing contact lenses prior to surgery. One possible explanation is that a significant number of participants had already improved their physical appearance by wearing contacts rather than glasses prior to the surgery.

While the first hypothesis predicted that participants would demonstrate a higher level of self-esteem postoperatively than pre-operatively, no significant difference was found. Again, the significant number of participants wearing contact lenses prior to surgery may have negatively skewed outcomes if a large majority had already improved their physical appearance by wearing contacts. Subsequently, a relatively small percentage of participants (42.9%) indicated appearance was a major factor in electing to surgically correct refractive error. Lapsley and Power (1988) found that while a low score in one domain may serve to lower an individual's overall view of self, the importance an individual ascribes to a domain had greater impact on the individual's global score. According to this concept, individuals would need to ascribe significant importance to physical appearance, and feel uncomfortable with their appearance, before an increase in self-esteem would result. In the present study, the majority of participants reported physical appearance was not an important factor in electing to have the surgery and no significant differences were found.

Results of the present study provided marginal support for outcomes found by Day & Jutai (1996) that contact wearers showed a greater increase in mean scores for self-esteem

than eyeglass wearers. In the present study, the difference in postoperative self-esteem scores between participants who wore glasses and those who wore contacts was not statistically significant, $F(1,19) = .39, p = .54$. However, a moderate difference in postoperative self-esteem scores between participants who wore glasses and those who wore contacts was found when effect size was taken into consideration, $d = .30$.

An analysis of self-esteem scores between the age groups yielded rather unexpected results. Based on Terry, Berg and Phillips' study (1983), it was hypothesized that the onset of wearing corrective lenses for the childhood group (age 12 and younger) and adult group (21 and older) would demonstrate the highest increase in self-esteem scores, compared to the adolescent group (ages 13 - 20). The results of the present study indicated that participants who first began wearing corrective lenses in adulthood had the lowest level of self-esteem pre-operatively and showing the greatest increase in mean self-esteem scores postoperatively. Terry et al. (1983) accounted for low self-esteem scores in the adult group by postulating that participants who first began wearing glasses during adulthood may see the onset of having to wear corrective lenses as an indication of the aging process and the beginning of physical decline. However, in the present study, perhaps the greatest increase in mean self-esteem scores for the adult onset group may be attributable, in part, to a postponement of the effects of aging process and physical decline as a result of the surgery. It should be noted, however, that this was beyond the scope of the present study.

The adolescent onset group had a higher self-esteem score than the childhood and adulthood onset groups pre- and postoperatively. Terry et al. (1983) suggested that individuals who wear glasses are subjected to social criticism and ridicule. They also

indicated that young children in particular may be more affected by social ridicule, which may explain the children's lower mean score pre-operatively. However, another unexpected outcome in the present study was that participants who began wearing corrective lenses (glasses) during adolescence showed a large decrease in the mean self-esteem score postoperatively. One possible explanation may be that the expectations of those in the adolescent onset group were higher than those in the childhood and adulthood onset groups. If the adolescent onset group had unrealistically high expectations in how the surgical correction of refractive error would effect their lives, they may have experienced disappointment (i.e., although the surgery was successful, it may not have improved the quality of their lives as much as expected). Again, this was beyond the scope of the present study.

A major limitation of the present study was the small sample size of 21 participants. Although statistical significance was not obtained to support the hypotheses, meaningful differences were obtained in several areas when effect size was taken into consideration. This suggests that a larger sample size may have yielded statistically significant results. Likewise, the predominately greater number of participants wearing contacts (71%) verses glasses (29%) prior to surgery may have skewed test results. Replication of this study with a significantly greater number of participants would be needed to draw more definitive conclusions.

Several other limitations of this study should be taken into consideration when interpreting the results. First, the sample consisted of people from middle class families who may already have a relatively high level of self-esteem based on socioeconomic advantages associated with income. In this study, the mean range of income was \$71,000

to \$80,000. As patients generally pay for the surgical procedure from their personal finances, it is likely that financial stability may have resulted in participants already possessing a relatively high degree of self-worth and self-esteem. Similarly, middle income families may have higher educational and vocational accomplishments which served to increase feelings of self-worth.

The average age of participants may have also had an impact on the outcomes of this study. While participants must be at least 18 years of age to receive the surgical procedure, the average age range was 31 - 40 years of age. The overall maturity level and aforementioned characteristics of the sample population may have negated significant changes in self-esteem.

It would also be helpful to assess the success of the surgical outcome. One of the main reasons people elect to undergo laser eye surgery is to improve vision (Kahle, Seiler & Wollensak, 1992; McGhee et al., 1996). Accordingly, one factor which may impact a person's satisfaction with the outcome is the extent to which vision correction is achieved. Numerous studies have shown that PRK has been successful in correcting vision. However, some studies have shown that one possible outcome of surgery is overcorrection or undercorrection of vision (Kremer, Gabbay, Blumenthal, 1996).

Another factor which may impact the level of success is the degree of myopia patients have prior to surgery. Kwitko, Gow, Bellavance & Wu (1996) found that PRK was relatively accurate in correcting low myopia (1.00 to 6.00 Diopters) and moderate myopia (6.00 to 10.00 Diopters) whereas patients with high myopia (10.00 Diopters and above) generally achieved poorer vision correction one year postoperatively. Dutt, Steinert, Raizman & Puliafito (1994) reported similar results with patients having low and moderate

myopia achieving better results in vision correction than patients with high myopia. Thus, the degree of surgical success in correcting vision will likely impact patients' satisfaction with the outcomes. If patients do not receive expected results in terms of corrected vision (such that they are still dependent on eyeglasses or contact lenses), a change in self-esteem may not occur postoperatively. Changes in vision were not assessed in this study.

Another possible limitation of this study is the limited amount of time between the surgery and post surgical follow-up. The healing time for this surgical procedure is estimated to be a minimum of 60 to 90 days (Arrowsmith, 2000). While the present study did not indicate any significant differences in pre- and postoperative side effects/ complications, if participants were not fully recovered from the surgery at the time of follow-up, any pain or discomfort still being experienced may have adversely effected participants' responses. The brief time between surgery and follow-up may not have allowed ample time for participants to fully realize the impact restoration of uncorrected visual acuity has on their lives. In future studies, it would be beneficial to compare participants' responses approximately six months and one year postoperatively to assess the impact visual restoration has on their lives on a longer term basis.

The lack of support for the hypotheses may be interpreted to mean that LASIK eye surgery did not have any significant effect on self-esteem. This might suggest that people are not as concerned about their appearance as previously believed. In addition, people who wear visual aids may have grown so accustomed to their use that the visual aids did not pose substantial limitations in their daily lives. Nonetheless, all participants (100%) indicated that they were very satisfied with their surgical outcome and would highly recommend it to family and friends.

Finally, it is possible that self-esteem may be the wrong variable to examine in assessing the impact surgical correction of refractive error has on peoples' lives. Whereas only 43% of the participants indicated appearance played a role in electing to have the surgery, 86% indicated achieving unaided vision was a major reason for them. Therefore, self-efficacy, which takes competency into account, may be a better dependent variable in future studies.

In summary, support for the hypothesis that persons who regain visual acuity and are no longer dependent on visual assistive devices will have a higher score on the self-esteem rating postoperatively was not found. However, when effect size was taken into consideration, a moderate meaningful difference was found. The second hypothesis under study predicted that participants who predominately wear eyeglasses would demonstrate a greater increase in self-esteem than those who predominately wear contacts. Support for this hypothesis was marginal when effect size was considered. An interaction effect between group (childhood, adolescence, adulthood) and time (pre- and postoperatively) approached significance. The strength of the relationship was moderate as indexed by η^2 , .22. Specifically, a moderate increase between pre- and post test scores was found for the childhood group when effect size was taken into consideration. A large decrease between pre- and posttest scores was found for the adolescent group when effect size was considered. Likewise, a large increase between the pre- and posttest scores was found for the adulthood group when effect size was considered. Results of this study suggest further research would be helpful in assessing the effects LASIK eye surgery has on how people feel about themselves.

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APPENDICES

APPENDIX A

Demographics

Please answer the following:

Age:

☐ 18 to 20 ☐ 21 to 30 ☐ 31 to 40
☐ 41 to 50 ☐ 51 to 60 ☐ 61 to 70
☐ 71+

Gender:

☐ Male ☐ Female

Race:

☐ Caucasian ☐ Hispanic ☐ African American
☐ Asian ☐ Other: (specify) _____

Family Income:

☐ \$10,000 - \$20,000 ☐ \$20,001 - \$30,000 ☐ \$30,001 - 40,000
☐ \$40,001 - \$50,000 ☐ \$50,001 - \$60,000 ☐ \$60,001 - \$70,000
☐ \$70,001 - \$80,000 ☐ \$80,001 - \$90,000 ☐ \$90,001 - \$100,000
☐ \$100,001 +

Type of visual aid currently used:

☐ eyeglasses most of the time ☐ contact lenses most of the time
☐ eyeglasses /contact lenses equal amount of time

Age corrective lenses first worn: _____ Circle type first worn: eyeglasses contacts

Please check all reasons for deciding to have LASIK eye surgery:

☐ unaided vision in performing daily activities (e.g., see alarm clock)
☐ physical appearance to improve the way I look (e.g., increase attractiveness)
☐ participation in sports activities (e.g., swimming, football)
☐ convenience (e.g., no longer have to clean, search for eyeglasses or put in contacts)

Current vision difficulties, if any, prior to surgery:

☐ none ☐ dry eyes ☐ sensitivity to light
☐ halo effect ☐ night vision difficulty ☐ vision fluctuation
☐ other (specify: _____)

Thank you!

APPENDIX B

This questionnaire is designed to measure how you feel about yourself. It is not a test, so there are no right or wrong answers. Please answer each item as carefully and accurately as you can by placing a number by each one as follows.

- 1 = Never
- 2 = Rarely
- 3 = A little of the time
- 4 = Some of the time
- 5 = A good part of the time
- 6 = Most of the time
- 7 = Always

- _____ 1. I feel that people would NOT like me if they really knew me well.
- _____ 2. I feel that others do things much better than I do.
- _____ 3. I feel that I am an attractive person.
- _____ 4. I feel confident in my ability to deal with other people.
- _____ 5. I feel that I am likely to fail at things I do.
- _____ 6. I feel that people really like to talk to me.
- _____ 7. I feel that I am a very competent person.
- _____ 8. When I am with other people I feel that they are glad I am with them.
- _____ 9. I feel that I make a good impression on others.
- _____ 10. I feel confident that I can begin new relationships if I want to.
- _____ 11. I feel that I am ugly.
- _____ 12. I feel that I am a boring person.
- _____ 13. I feel very nervous when I am with strangers.
- _____ 14. I feel confident in my ability to learn new things.
- _____ 15. I feel good about myself.
- _____ 16. I feel ashamed about myself.
- _____ 17. I feel inferior to other people.
- _____ 18. I feel that my friends find me interesting.
- _____ 19. I feel that I have a good sense of humor.
- _____ 20. I get angry at myself over the way I am.
- _____ 21. I feel relaxed meeting new people.
- _____ 22. I feel that other people are smarter than I am.
- _____ 23. I do NOT like myself.
- _____ 24. I feel confident in my ability to cope with difficult situations.
- _____ 25. I feel that I am NOT very likable.
- _____ 26. My friends value me a lot.
- _____ 27. I am afraid I will appear stupid to others.
- _____ 28. I feel that I am an OK person.
- _____ 29. I feel that I can count on myself to manage things well.

- 1 = Never
- 2 = Rarely
- 3 = A little of the time
- 4 = Some of the time
- 5 = A good part of the time
- 6 = Most of the time
- 7 = Always

- _____ 30. I wish I could just disappear when I am around other people.
- _____ 31. I feel embarrassed to let others hear my ideas.
- _____ 32. I feel that I am a nice person.
- _____ 33. I feel that if I could be more like other people then I would feel better about myself.
- _____ 34. I feel that I get pushed around more than others.
- _____ 35. I feel that people like me.
- _____ 36. I feel that people have a good time when they are with me.
- _____ 37. I feel confident that I can do well in whatever I do.
- _____ 38. I trust the competence of others more than I trust my own abilities.
- _____ 39. I feel that I mess things up.
- _____ 40. I wish that I were someone else.

Appendix C

Follow Up Information Form

In order to follow up with how you are doing and determine the impact surgery has had on your life, I would like to reach you by telephone or mail to ask a few questions. It will only take about 10 to 15 minutes of your time. Again, all information will be held in strictest confidence and will only be used for this study. Please provide the following information:

Name: _____ Date of surgery: _____

Address: _____

Telephone #: (____) _____ Best time of day to call: _____

APPENDIX D

Postoperative Follow up

Current vision difficulties following surgery, if any:

☐ none ☐ dry eyes ☐ sensitivity to light
☐ halo effect ☐ night vision difficulty ☐ vision fluctuation
☐ other (specify: _____)

Overall satisfaction with surgical outcome:

☐ Very satisfied - would highly recommend it to family / friends
☐ Somewhat satisfied - might recommend it to family / friends
☐ Not satisfied - would strongly discourage family / friends from having surgery

Other Comments:

Thank You!

APPENDIX E

Consent to Participate in a Research Study Austin Peay State University

You are being asked to participate in a research study. Please read the following material carefully. It contains the purpose of the investigation, the procedures to be used, risks/side effects and benefits of your participation in the study, and what will happen to the information collected as part of the research project in which you are participating.

1. TITLE OF RESEARCH STUDY

LASIK Eye Surgery and Self-Esteem

2. PRINCIPLE INVESTIGATOR

Brenda L. Musgrave - Graduate Student, Psychology Department

Home: (931) 362-4391

E-mail: MusBat@aol.com

Dr. Frederick G. Grieve - Faculty Advisor, Psychology Department

Office: (931) 221-7235

E-mail: Griever@apsu.edu

3. THE PURPOSE OF THE RESEARCH

Many people with visual deficiencies are dependent on visual aids such as eyeglasses or contact lenses for daily activities. With today's technology more people are opting to undergo corrective eye surgery to restore vision. The purpose of this investigation is to examine the effect corrective eye surgery has on peoples' lives.

The data and results obtained in this study may be published or presented.

4. PROCEDURES FOR THIS RESEARCH

Patients electing to receive the LASIK eye surgery will be asked to voluntarily participate in this study.

Each participant will be assigned a participant number which will be on the demographics form, self-rating form and postoperative follow up form.

All participants will be asked to complete the demographics form, self-rating form, and follow up information form during the preoperative evaluation. Only those

persons electing to receive the corrective eye surgery will be included in the study. Persons electing not to receive the surgery will be dropped from the study. Approximately 90 days following surgery, the researcher will contact participants by telephone. If unable to reach by telephone, participants will be sent the self-rating scale and postoperative follow up form in the mail along with a self-addressed, stamped envelope. On the self-rating scale, respondents are asked to indicate how much each item sounds like them using a 7-point scale ranging from 1 = Never to 7 = Always. Completion of the forms is expected to take approximately 15 minutes.

Participants are also asked to give permission for the clinic to release only information pertaining to their level of vision (e.g., 20/60) pre- and postoperatively. No other medical or personal information will be requested from the surgical clinic. Clinic personnel will not be informed of specific participant information or individual scores.

Data will be kept confidential to the extent provided by law. The principle investigator will not reveal your participation in this study. Participants will only be known by their participant number. Individual responses will be stored without identifying information other than the participant numbers. Data will be stored on a computer disk in a locked file in the faculty advisor's office. Data specific to an individual participant will not be given out to any individuals not directly involved in the research (including clinic personnel).

Any reference of the participants in a paper, conference presentation, or in a journal article will be done as group averages, which will make it impossible to identify individual participants.

5. POTENTIAL RISKS OR BENEFITS TO YOU

As all information is kept confidential, no one will know your identity or visual acuity. Completion of the self-rating scale may help you better understand how you feel about yourself. There is minimal risk that the information on the questionnaire may bring about psychological stress. However, if you wish at any point to terminate your participation, you may do so.

As a participant in the study, you will be contributing to science and helping researchers gain insight about how people feel about themselves before and after elective surgery.

You may withdraw from this research project at any time without penalty. Any data obtained from your participation will be pulled from your file and destroyed.

Participation in this study will have no effect on the quality of care you receive from the eye clinic.

6. INFORMED CONSENT STATEMENT

I have read the above information regarding what the study is about, why it is being done, and any benefits or risks involved. I am aware that I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights. I voluntarily agree to participate in this study and understand by agreeing to participate I have not given up any of my human rights. I have been informed that I have the right to withdraw my consent and stop participating at any time during the study and all data collected from me will be destroyed. If I choose to withdraw, that choice will be respected and I will not be penalized or coerced to continue. Even if I choose to participate, I do not have to answer any question that I do not want to answer. I understand that I will receive a copy of this form.

I have been informed that if I have any questions about this study I may call Brenda L. Musgrave (graduate student, Psychology Department) at 931-362-4391 or Dr. Frederick Grieve (faculty advisor, Psychology Department) at 931-221-7235.

Signature of Research Participant

Date

Signature of Researcher

Date

VITA

Brenda Lynn Musgrave was born in Olney, Illinois on June 21, 1962. She attended elementary school in Geff, Illinois and upon graduation received awards as the class valedictorian and recipient of the Ruritan Club for best attendance, American Legion Award for citizenship, and Student Council Award for leadership. She graduated from Fairfield Community High School in 1980 with honors receiving an award for Most Athletic. Upon receiving a Foundation Merit Scholarship, she attended Wabash Valley Junior College graduating in 1982. She then attended Southern Illinois University in Edwardsville, Illinois where she double majored in Psychology and Human Services, graduated with honors, and received the Robert Gilliland Memorial Award for scholastic achievement in 1984. In August 1996, she enrolled at Austin Peay State University. She is scheduled to earn a MA degree in Clinical Psychology in the Spring of 2002. She is a student affiliate member of the American Psychological Association.

She has been employed in the human services field primarily working with persons with disabilities for the past 18 years. Many of those years have been in a supervisory capacity. She is currently employed by the State of Tennessee working full time as the manager and supervisor of vocational rehabilitation services while completing course work for her MA degree.