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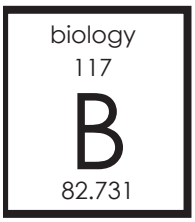

THE INFLUENCE OF PSYCHOLOGICAL FACTORS ON REDUCING RECOVERY TIME FROM TOTAL KNEE REPLACEMENT SURGERY

A RESEARCH PROPOSAL

by Melissa Geiger

Project Summary

Osteoarthritis is the most common cause of physical disability that Americans face, leading to destruction of the joints of the body. The primary joint affected is the knee, and the leading treatment is total knee replacement. The incidence of total knee replacement surgery is rising–and will continue to rise–as a treatment for knee pain resulting from osteoarthritis (Mizner et al., 2005). Various psychological factors have been proven to influence a person's well-being in general and, more specifically, with recovery from illness or surgery (Taylor, 2011). Pre-surgical psychological screenings are an important factor in determining how the patient will recover from surgery (Dooley, 2013).

This study will analyze four different psychological factors and their potential influences on the recovery time from total knee replacement surgery. The psychological factors include personality, dispositional optimism, coping methods, and social support. These factors were chosen because they play an important role in health and illness and are important factors in recovery from surgery (Taylor, 2011). Each of the four psychological factors will be measured prior to the patient's knee replacement surgery through the administration of psychological tests designed to quantify the patient for each psychological variable. A separate test will be given for each of the four factors. The participants will undergo the standard knee replacement surgery and then complete the customary physical therapy treatment for knee replacement. Physical therapy is essential after knee replacement to rehabilitate the patient and make their replaced knee functional. Physical therapists direct and assist the patients on their road to recovery to achieve certain standardized goals in range of motion, pain levels, swelling, and strength of the knee. Patients are discharged from physical therapy by the physical therapist when their knee reaches the aforementioned goals. Recovery time in the study is classified as the number of days from surgery to discharge from physical therapy, which will be analyzed based on the participant's psychological scores for each factor.

This study tests the hypothesis that participants with the positive aspects of each of the four psychological factors will have faster recovery rates from total knee replacement surgery. The main idea is that positive

psychological factors act as external and internal supporters in the recovery from the stressful surgery. On the opposite end of each of the factors, the negative aspects will deter a speedy and successful recovery due to lack of supporters and the presence of detrimental external or internal factors (Taylor, 2011). Significant results from this experiment that prove or disprove the hypothesis will greatly affect the view of psychology in relation to recovery from knee replacement surgery. Physical therapists can be trained to recognize various positive or negative psychological factors and incorporate their knowledge in the treatment of the patient. Physical therapy will become more personalized and specialized to each patient rather than a generalized treatment plan intended to rehabilitate all kinds of people.

Introduction

Background

Total knee replacement surgery, also known as total knee arthroplasty (TKA), is the most common joint replacement surgery. The main reason for needing TKA is osteoarthritis of the knee (Mizner et al., 2005). Osteoarthritis is a progressive disorder resulting from wear and tear on the joints during aging. It causes degradation of the cartilage between the bones, leading to bone-on-bone rubbing, and thus, pain and stiffness in the joint (Murray, 1985). This disorder mainly affects people over the age of 50, and the average age of patients undergoing TKA is 67 years old (Porucznik, 2015). According to the Agency for Healthcare Research and Quality, more than 600,000 people undergo TKA each year in the United States (Ruiz et al., 2013). A study found that the lifetime societal savings of TKA was $18,930 per patient. For 600,000 people, that is a total savings of $12 billion. The study found that 85% of the savings came from increased employment and earnings, and 15% came from fewer missed workdays and lower disability payments. These savings primarily benefitted patients and employers (Ruiz et al., 2013).

The knee pain and stiffness people suffer from often severely limits their daily activities. Many times, due to overcompensation on the other leg, the patient's other knee will also start to develop problems. TKA is recommended for a variety of reasons: when patients have pain and stiffness in the knee during physical activities such as walking or climbing stairs; when they experience pain while at rest; when the knee swelling cannot be maintained through other methods, such as rest and medications; when a deformity starts to develop in the knee, such as bowing out of the leg; or when the pain cannot be minimized through other treatments, such as cortisone shots or physical therapy (Mizner et al., 2005). TKA has been performed for many years and is now a common cure for joint degradation. The procedure (Figure 1) involves removing the ends of the tibia (shin bone) and femur (thigh bone) at the knee joint and replacing them with an artificial material made of metal and plastic. In some cases, the back of the patella is also removed or replaced with a plastic cap. Advances have been made in the procedure to make it less invasive, which resulted in a smaller incision site (Murray, 1985). The replaced knee gives people freedom and the ability to perform daily activities. Overall, it greatly improves their quality of life.

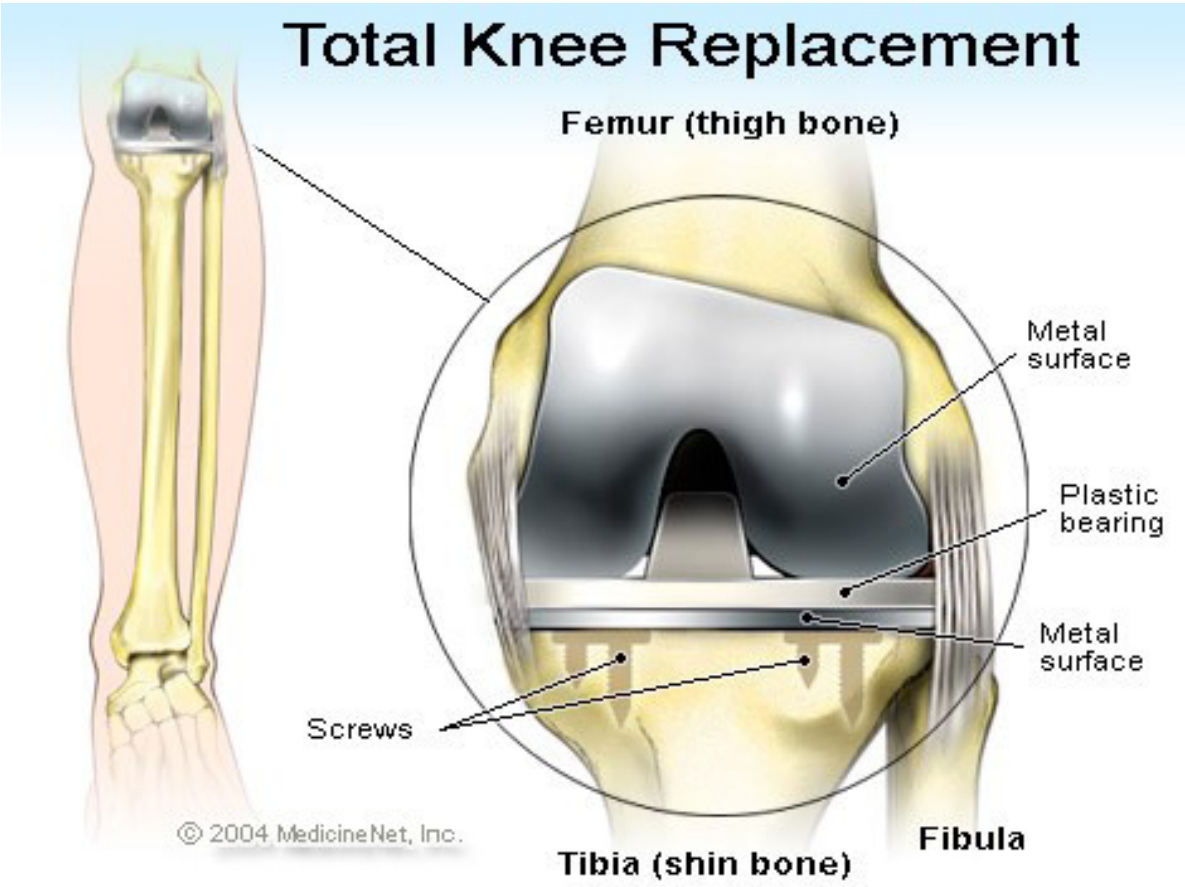

Figure 1. Illustration showing the anatomy of the knee after a total knee replacement, reproduced from MedicineNet, Inc.

Physical therapy recovery

Physical therapy is essential after TKA for full recovery of the knee—a patient will not regain proper function of their knee without it. The goal of physical therapy after TKA is to reduce swelling, obtain full range of motion (ROM) in the knee, body-awareness and balance training, muscle strengthening, and activity-specific training to return the person to daily life (Mizner et al., 2005). After TKA, a patient stays in the hospital and receives inpatient treatment from a physical therapist for about 3 to 5 days. During this time, the therapist works with the patient on minor muscle strengthening exercises, weight bearing with crutches or a walker, and increasing ROM. The patient is then discharged and receives about 2 to 3 weeks of at-home therapy, during which the therapist comes to the patient's home to work on furthering ROM and strength and walking with more weight bearing. After this time, the patient goes to outpatient therapy at a physical therapy clinic and receives treatment 2 to 3 times a week. Most patients are discharged about 13 weeks post-surgery once they have reached the specified goals of physical therapy (Mizner et al., 2005).

Psychology models

In the measurement of a person's health, wellness, and recovery from injury or illness, the biomedical model was the traditional approach for diagnosis and treatment. This model states that the physiological (see Figure 2) aspects provide all the necessary information to properly diagnose a patient (Taylor, 2011). The model was widely accepted and used for many years, and only recently have psychologists proven

that it is not the best model to diagnose and treat a patient. Psychologists now emphasize the use of the biopsychosocial model instead (Figure 2). This model was developed in the 1980s and led to a more comprehensive, holistic approach for diagnosing and treating patients. It considers the physiological or biological aspects of the disorder, the psychological factors from which a patient may suffer, and the social or environmental influences acting on the patient (Sanchis-Alfonso, 2014). With this model, all aspects of the patient's life are taken into consideration, which allows for a more accurate diagnosis and a better treatment plan (Taylor, 2011 and Saraceni, 2014). In this study, four psychological factors will be studied in relation to recovery rate: personality type, dispositional optimism, coping strategies, and social support.

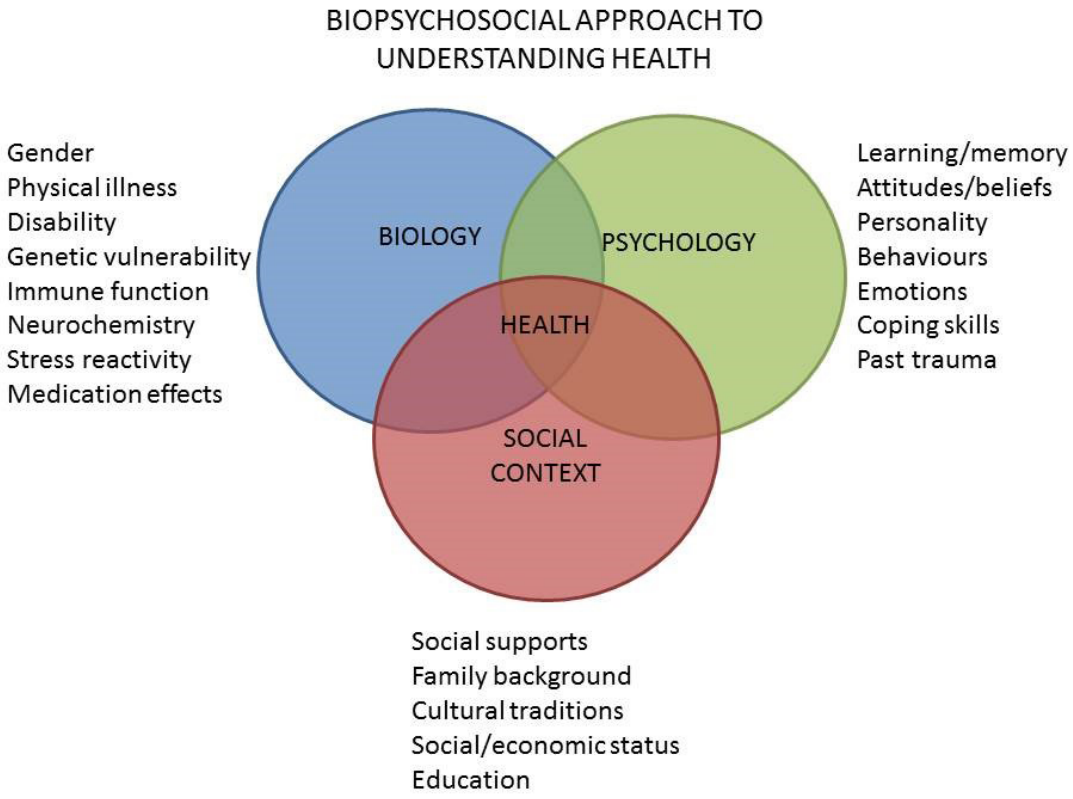

Figure 2. Chart illustrating the various aspects involved in the biopsychosocial model for unWderstanding health, reproduced from Taylor, 2011.

Personality

The personality traits people have influence how they handle stress. Some traits make the stressful situation worse and some help to improve it. Personality can be categorized on a scale from Type A to Type B. The typical person with a Type A personality is competitive, time urgent, controlling, aggressive, has difficulty relaxing, is concerned about status, and is generally more predisposed to stress (Taylor, 2011). The typical person with a Type B personality is patient, relaxed, easy-going, charismatic, lacks sense of urgency, and is generally not stressed easily (Taylor, 2011). The extremes of both personality types are not desirable for a person's health, but Type B people suffer from fewer stress-related illnesses.

Dispositional optimism

Dispositional optimism is the extent to which people have positive, confident expectations about their own future outcomes

(Scheier et al., 1989). Optimists believe that good things will happen in their future and emphasize the positive aspects of stressful situations, whereas pessimists have negative views about the future. Optimism has been shown to promote more active and persistent coping efforts, which are beneficial for psychological adjustment and health (Segerstrom & Sephton, 2010).

Coping strategies

Coping strategies are the techniques that people use to deal with the internal and external demands of stressful situations. There are four main types of coping strategies, as seen in Table 1. The first is avoidant (minimizing) coping, in which people cope by withdrawing or avoiding the issue. Studies have shown that avoidant coping is effective in the short-term but not with long-term stress (Taylor, 2011). The second strategy is approach coping, in which people deal with stressful events by tackling them directly and attempting to come up with solutions. Studies have shown that approach coping is very effective and linked to better mental and physical health outcomes (Taylor, 2011). The third strategy is problem-focused coping, in which people attempt to do something constructive about stressful conditions that harm, threaten, or challenge them. The fourth strategy is emotion-approach coping, which involves clarifying, focusing on, and working through emotions experienced from the stressor. Emotion-approach coping has been shown to be beneficial (Taylor, 2011). Coping strategies have been shown to predict recovery rate from surgery, in addition to the clinical variables (Kopp et al., 2003).

Advantageous Strategies	Disadvantageous Strategies
Approach coping	Avoidant (minimizing) coping
Problem-focused coping	
Emotion-approach coping	

Table 1. Table characterizing the four coping strategies into advantageous or disadvantageous.

Social support

Social support is the most protective of the psychosocial aspects against the effects of stress. It is defined as the information a person receives from others that he or she is loved, valued, cared for, and part of a social network. People with high levels of social support experience less stress when they face a stressful situation and cope with it more successfully (Taylor, 2010). Social support decreases the likelihood of illness and speeds the recovery from illness (Krohne & Slangen, 2005).

Significance

This study will use the biopsychosocial model in the evaluation of recovery rate from TKA. All current physical therapy treatments in the recovery from the surgery are focused on the objective measurements of the knee: range of motion, pain, balance, and other factors. However, the results of this study will demonstrate whether certain psychological and social factors influence the rate of recovery from knee replacement surgery. TKA is undoubtedly disruptive in the patient's life; it takes away freedom and mobility for 2 to 3 months, which makes maintaining a normal family life, job, or leisurely activities difficult. People undergoing the surgery want a functional knee that allows them to return to daily life as soon as possible—they want a quick recovery time. In this case, the biopsychosocial model states that recovery may be influenced by factors other than the status of the knee, such as psychological states and social influences. The results of this study may be very important in the future training of

physical therapists in the psychological aspects of the recovery and in the creation of an individualized treatment plan based on the physical and psychological needs of the patient.

Objectives

- Psychological factors will be tested as confounding factors in the recovery rate from total knee replacement surgery.
- Four psychological factors will be tested to determine their roles in the recovery rate: personality, dispositional optimism, coping strategies, and social support.

Hypothesis

People that have a Type B personality, higher levels of dispositional optimism, more advantageous coping strategies, and more social support will have a faster rate of recovery after TKA than people who lack these traits. These people have positive psychological factors that aide in dealing with the stress of surgery recovery, as well as the care and rehabilitation provided by physical therapy.

Prediction

People with Type B personality, higher levels of optimism, positive coping strategies, and more social support—as assessed by questionnaires evaluating their mental health and objective measures of their recovery rate as assessed by a physical therapist at various time points—will have a faster recovery rate and return to normal functioning sooner than those with Type A personality, lower levels of optimism, negative coping strategies, and less social support.

Methods

Participant recruitment

The study will involve 40 TKA patients with about equal proportions of gender recruited from multiple orthopedic surgeons' offices. The surgeons will be contacted and asked to participate in the study by referring patients who will undergo TKA to us. Patients who accept the offer to participate will receive $20 Target gift cards upon completion of the study. The participants will sign an informed consent form stating that they can back out of the study at any time and that all of their personal identifiers will be disassociated from their medical data (each patient will be assigned a number so that his or her name is detached from the data). Any participant who refuses consent will be removed from the study. A general health survey will be given to the participants to obtain their medical history and will include

questions regarding age, marital status, weight, height, smoking habits, prior heart disease, diabetes history, existence of osteoporosis, exercise regimen, typical alcohol consumption, drug use, and any previous psychological disorders (e.g. depression). To be considered for participation in the study, the patients will be limited to those who are undergoing TKA for the first time, those who have not had previous surgeries that required physical therapy, and those who are not having an emergency-based surgery.

Pre-surgery psychological test administration

On the final doctor's appointment before surgery, the general health survey and the four psychological tests will be administered (Table 2). The Life Orientation Test (LOT) assesses an individual's dispositional optimism by detecting their generalized expectations of positive outcomes (Scheier et al., 1994). The Type A–Type B Personality Test evaluates an individual's personality traits on a scale from Type A to Type B (Goldberg, 1979). The Interpersonal Support Evaluation List measures an individual's level of emotional and practical support to determine a measurement of social support (Cohen et al., 1985). Finally, the Ways of Coping (revised WOC) scale asks subjects the ways in which they respond to stressful situations to identify their coping strategies (King et al., 1998).[1] The four tests will be administered in succession; because the total time will be less than one hour, the results of each test will not be affected by taking them one after another (Taylor, 2011). However, the four tests will be administered in varying orders for each participant to negate any relationship that may occur from administering them in the same order for each participant.

Psychological Test	Measurement	Length of Test
Life Orientation Test	Dispositional optimism	< 5 minutes
Type A-Type B Personality Test	Personality traits on the Type A/ B scale	< 10 minutes
Interpersonal Support Evaluation List	Social support	< 5 minutes
Ways of Coping	Coping strategies	10-20 minutes

Table 2. Table showing the four psychological tests to be administered and their respective measurements and time lengths.

Post-surgery recovery

After the surgery, the patients will undergo the typical physical therapy for a knee replacement: inpatient hospital care, outpatient home care, and outpatient care in a therapy office. The physical therapists will work with the patient to achieve the goals of physical therapy, which include reducing swelling, obtaining full ROM in the knee, body-awareness and balance training, muscle strengthening, and activity-specific training to return the patient to daily life. The physical therapists will record objective measures of knee progress, such as range of motion, pain levels, swelling, and strength every week for the first 7 weeks, and at every visit for the remainder of the treatment to track the patient's progress. Patient recovery rate (in days) will be determined from the day of the surgery to the day the physical therapist discharges the patient. The physical therapist will contact this study when individual patients complete their therapy so we can obtain their recovery rate time.

Data analysis

After all of the participants have been discharged from physical therapy—representing that their knees have fully recovered—the results from their psychological tests will be compiled with their recovery times (Table 3). Each psychological test is measured on a continuous number scale; therefore, each test will be analyzed individually with the recovery rate using a simple regression analysis. An R^2 as well as a p-value ($\alpha < .05$ is significant) will be determined and used to denote the significance of each psychological variable on recovery rate. The statistical program JMP will run the regression analysis. This program is accessible for download from the Cal Poly Portal.

Additionally, a multiple regression analysis will be run through JMP to analyze the four psychological factors from one model to determine the main effects model in order to see which psychological variable is significant while taking all the other psychological variables into account. This analysis will give an R^2 adjusted and an overall p-value, as well as a p-value for each psychological test. The psychological test p-value is the most important result in showing whether the psychological factors have significance when the other factors are also included in the model. The results from the health survey for each participant will be incorporated as random effects in the regression model in JMP.

The data will determine whether the four psychological factors influence the rate of recovery from TKA. If positive psychological factors are found to increase recovery rate, the data can be an integral factor for future therapy techniques. In the future, incorporation of psychological understanding and training for physical therapists could enhance recovery from surgery, and negative psychology can be addressed in the recovery as a limiting factor of normal recovery time.

Patient #	Optimism score	Personality score	Coping score	Social support score	Recovery Time (days)
#	0-24	20-140	0-198	12-48	Average= 91

Table 3. Layout of the results that will be given from the psychological tests and recovery time for each participant. Each psychological test has a different overall scale, but for all, a higher score indicates the subject has more of the trait being measured. The exception is that a lower score on the personality test is Type B, a higher score is Type A. Less days of recovery time indicates a faster recovery rate.

Feasibility

Connections have been established with two physical therapy offices that have connections with knee surgeons, which will allow access to the patients and the ability to track their progress. Support has been obtained from the owners of the physical therapy offices for this study, and the four psychology tests are currently accessible (see appendix). I have a standard level of expertise because I have worked at a physical therapy office for four years, I have a minor in psychology, and I have access to the Health Psychology professor in the Psychology Department at Cal Poly.

Timeline

Research Aspect	Length of Time
Participant recruitment	4 months
Individuals' pre-op time	3 weeks
Individuals' recovery time (post-op)	13 weeks
Total data collection	~9 months
Data analysis	1 week
Total	**14 months**

Table 4. Timeline for the research project.

Participant recruitment will take an estimated 4 months because each physical therapy office receives about 5 new TKA patients per month; therefore, reaching 40 TKA subjects between the two physical therapy offices will take about 4 months. Participant recruitment will occur in the knee surgeon's office, and the typical amount of time between the final doctor appointment and the knee surgery is 3 weeks. Each patient's recovery time after the surgery is about 13 weeks; therefore, to account for participants starting their surgeries at different times, the total time for recovery of all patients will be around 9 months. Data analysis will include compiling the results from the psychology tests and the patients' recovery times, and running statistical tests to find data significance. If significant results are found, a paper will be written to demonstrate the results and their importance within the broader community.

Budget

Item	Cost
Target gift cards (participant incentive)	$1,000
Printing psych tests	$25
Travel expenses	$100
Total	**$1,125**

Table 5. Budget for the research project.

The total budget for this project will be $1,125 (Table 5). The gift cards will be used as an incentive to recruit participants; furthermore, Target was chosen because it has a diverse supply of products, so it will appeal to the general population of this study. Printer paper and ink will be purchased to print the psychology tests. Travel expenses include the gas used in traveling to the surgeon's office and the physical therapy offices.

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Appendix

*Note: The scoring method for the tests will not appear on the questionnaires administered to the participants.

Life Orientation Test (LOT)

Revised Life Orientation Test (LOT-R)

Instructions:
Please answer the following questions about yourself by indicating the extent of your agreement using the following scale:

[0] = strongly disagree
[1] = disagree
[2] = neutral
[3] = agree
[4] = strongly agree

Be as honest as you can throughout, and try not to let your responses to one question influence your response to other questions. There are no right or wrong answers.

_____ 1. In uncertain times, I usually expect the best.
_____ 2. It's easy for me to relax.
_____ 3. If something can go wrong for me, it will.
_____ 4. I'm always optimistic about my future.
_____ 5. I enjoy my friends a lot.
_____ 6. It's important for me to keep busy.
_____ 7. I hardly ever expect things to go my way.
_____ 8. I don't get upset too easily.
_____ 9. I rarely count on good things happening to me.
_____ 10. Overall, I expect more good things to happen to me than bad.

Scoring:
1. Reverse code items 3, 7, and 9 prior to scoring (0=4) (1=3) (2=2) (3=1) (4=0).
2. Sum items 1, 3, 4, 7, 9, and 10 to obtain an overall score.

Note Items 2, 5, 6, and 8 are filler items only. They are not scored as part of the revised scale.

The revised scale was constructed in order to eliminate two items from the original scale, which dealt more with coping style than with positive expectations for future outcomes. The correlation between the revised scale and the original scale is .95.

Reference:
Scheier, M.F., Carver C.S., and Bridges, M.W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A re-evaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, **67**, 1063-1078.

Reference: Scheier et al. 1994

Type A- Type B Personality

Below are two columns of contrasting behaviors. Most people belong somewhere on a continuum from Type A to Type B, so put a cWheck under the number where you think you belong between the two extremes.

	1	2	3	4	5	6	7	
1. Doesn't mind leaving things temporarily unfinished								Must get things finished once started
2. Calm and unhurried about appointments								Never late for appointments
3. Not competitive								Highly competitive
4. Listens well; lets others finish speaking								Anticipates others In conversation (nods, interrupts, finishes sentence for others)
5. Never in a hurry, even when pressured								Always in a hurry
6. Able to wait calmly								Uneasy when waiting
7. Easygoing								Always going full speed ahead
8. Takes one thing at a time								Tries to do more than one thing at a time; thinks about what to do next
9. Slow and deliberate in speech								Vigorous and forceful in speech (uses a lot of gestures)
10. Concerned with satisfying him/herself, not others								Wants recognition by others for a job well done
11. Slow doing things								Fast doing things (eating, walking, etc.)
12. Serene								Hard Driving
13. Expresses feelings openly								Holds feelings in
14. Has a large number of interests								Few interests outside work
15. Satisfied with job								Ambitious; wants quick advancement at job
16. Never sets own deadlines								Often sets own deadlines
17. Feels limited responsibility								Always feels responsible
18. Never judges things in terms of numbers								Often judges performance in terms of numbers (how much, how many)
19. Casual about work								Takes work very seriously (works weekends, brings home work)
20. Not very precise								Very precise (careful about detail)
Total of Columns								
Add the number of all the points and enter the TOTAL								

If you scored over **110** you are a **Type A1**	If you are in this category and especially if you are over 40 and smoke, you have a high risk of developing cardiac illness and other stress-related illnesses.
If you scored **80 – 109** you are a **Type A2**	You are also a cardiac-prone personality but your risk of heart disease is not quite as high as a Type A1

Type A personalities generally have "A STRESS PROBLEM" although most do not recognise this until extreme symptoms or serious illnesses develop. Type A behaviour is a learned personality complex which is well-rewarded in our culture. It is a desired trait in most institutions, especially at a managerial level.

If you are a Type A1 or Type A2, you would be wise to learn how to effectively manage stress in your body by neutralising the stress hormones. This may be done by activating "the relaxation response," the scientifically-defined and measurable anti-stress mechanism in your body. It will add years to your life.

If your score is **60 - 79**, you are a **Type AB**	You are a mixture of Type A and Type B patterns. This is a healthier pattern than either A1 or A2, but you have the potential for slipping into Type A behaviour and you should recognise this.
If your score is **under 59**, you are a **Type B** 30 - 50: **Type B2** 0 – 29: **Type B1**	This personality complex is characterised by general relaxation and coping adequately with stress. You express few of the reactions associated with cardiac disease.

Scoring:

Personality Type A/B is determined by the total score of the 20 questions.

Subjects who score 80 points and over are labeled as having Type A personality, those who score 60-79 are Type A/B, and those who score 59 and under are Type B.

Reference: Goldberg 1979

Interpersonal Support Evaluation List

Instructions: This scale is made up of a list of statements each of which may or may not be true about you. For each statement circle "definitely true" if you are sure it is true about you and "probably true" if you think it is true but are not absolutely certain. Similarly, you should circle "definitely false" if you are sure the statement is false and "probably false" if you think it is false but are not absolutely certain.

1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me.
   1. definitely false 2. probably false 3. probably true 4. definitely true

2. I feel that there is no one I can share my most private worries and fears with.
   1. definitely false 2. probably false 3. probably true 4. definitely true

3. If I were sick, I could easily find someone to help me with my daily chores.
   1. definitely false 2. probably false 3. probably true 4. definitely true

4. There is someone I can turn to for advice about handling problems with my family.
   1. definitely false 2. probably false 3. probably true 4. definitely true

5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.
   1. definitely false 2. probably false 3. probably true 4. definitely true

6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.
   1. definitely false 2. probably false 3. probably true 4. definitely true

7. I don't often get invited to do things with others.
   1. definitely false 2. probably false 3. probably true 4. definitely true

8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).
   1. definitely false 2. probably false 3. probably true 4. definitely true

9. If I wanted to have lunch with someone, I could easily find someone to join me.
   1. definitely false 2. probably false 3. probably true 4. definitely true

10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.
   1. definitely false 2. probably false 3. probably true 4. definitely true

11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.
   1. definitely false 2. probably false 3. probably true 4. definitely true

12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

1. definitely false 2. probably false 3. probably true 4. definitely true

Scoring:
Items 1, 2, 7, 8, 11, 12 are reverse scored. Add up the results for all the questions.
All scores are kept continuous.

Reference: Cohen et al. 1985

Ways of Coping

Please read each item below and indicate, by using the following rating scale, to what extent you use it in the situation described.

Not Used (0) Used Somewhat (1) Used Quite A Bit (2) Used A great deal (3)

_____ 1. Just concentrated on what I had to do next – the next step.
_____ 2. I tried to analyze the problem in order to understand it better.
_____ 3. Turned to work or substitute activity to take my mind off things.
_____ 4. I felt that time would make a difference – the only thing to do was to wait.
_____ 5. Bargained or compromised to get something positive from the situation.
_____ 6. I did something which I didn't think would work, but at least I was doing something.
_____ 7. Tried to get the person responsible to change his or her mind.
_____ 8. Talked to someone to find out more about the situation.
_____ 9. Criticized or lectured myself.
_____ 10. Tried not to burn my bridges, but leave things open somewhat.
_____ 11. Hoped a miracle would happen.
_____ 12. Went along with fate; sometimes I just have bad luck.
_____ 13. Went on as if nothing had happened.
_____ 14. I tried to keep my feelings to myself.
_____ 15. Looked for the silver lining, so to speak; tried to look on the bright side of things.
_____ 16. Slept more than usual.
_____ 17. I expressed anger to the person(s) who caused the problem.
_____ 18. Accepted sympathy and understanding from someone.
_____ 19. I told myself things that helped me to feel better.
_____ 20. I was inspired to do something creative.
_____ 21. Tried to forget the whole thing.
_____ 22. I got professional help.
_____ 23. Changed or grew as a person in a good way.
_____ 24. I waited to see what would happen before doing anything.
_____ 25. I apologized or did something to make up.
_____ 26. I made a plan of action and followed it.
_____ 27. I accepted the next best thing to what I wanted.
_____ 28. I let my feelings out somehow.
_____ 29. Realized I brought the problem on myself.
_____ 30. I came out of the experience better than when I went in.
_____ 31. Talked to someone who could do something concrete about the problem.
_____ 32. Got away from it for a while; tried to rest or take a vacation.
_____ 33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.
_____ 34. Took a big chance or did something very risky.

_____ 35. I tried not to act too hastily or follow my first hunch.
_____ 36. Found new faith.
_____ 37. Maintained my pride and kept a stiff upper lip.
_____ 38. Rediscovered what is important in life.
_____ 39. Changed something so things would turn out all right.
_____ 40. Avoided being with people in general.
_____ 41. Didn't let it get to me; refused to think too much about it.
_____ 42. I asked a relative or friend I respected for advice.
_____ 43. Kept others from knowing how bad things were.
_____ 44. Made light of the situation; refused to get too serious about it.
_____ 45. Talked to someone about how I was feeling.
_____ 46. Stood my ground and fought for what I wanted.
_____ 47. Took it out on other people.
_____ 48. Drew on my past experiences; I was in a similar situation before.
_____ 49. I knew what had to be done, so I doubled my efforts to make things work.
_____ 50. Refused to believe that it had happened.
_____ 51. I made a promise to myself that things would be different next time.
_____ 52. Came up with a couple of different solutions to the problem.
_____ 53. Accepted it, since nothing could be done.
_____ 54. I tried to keep my feelings from interfering with other things too much.
_____ 55. Wished that I could change what had happened or how I felt.
_____ 56. I changed something about myself.
_____ 57. I daydreamed or imagined a better time or place than the one I was in.
_____ 58. Wished that the situation would go away or somehow be over with.
_____ 59. Had fantasies or wishes about how things might turn out.
_____ 60. I prayed.
_____ 61. I prepared myself for the worst.
_____ 62. I went over in my mind what I would say or do.
_____ 63. I thought about how a person I admire would handle this situation and used that as a model.
_____ 64. I tried to see things from the other person's point of view.
_____ 65. I reminded myself how much worse things could be.
_____ 66. I jogged or exercised.

Scoring:
To score the scales, sum the ratings for each question. Subtract the total score from scale 1 and from the total scores from scales 2, 3, and 4 for overall coping score.

Scale 1: Avoidant
44. Made light of the situation; refused to get too serious about it.
13. Went on as if nothing had happened.

41. Didn't let it get to me; refused to think too much about it.
21. Tried to forget the whole thing.
15. Looked for the silver lining, so to speak; tried to look on the bright side of things.
12. Went along with fate; sometimes I just have bad luck.
58. Wished that the situation would go away or somehow be over with.
11. Hoped a miracle would happen.
59. Had fantasies or wishes about how things might turn out.
33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.
40. Avoided being with people in general.
50. Refused to believe that it had happened.
47. Took it out on other people.
16. Slept more than usual

Scale 2: Approach
46. Stood my ground and fought for what I wanted.
7. Tried to get the person responsible to change his or her mind.
17. I expressed anger to the person(s) who caused the problem
28. I let my feelings out somehow.
34. Took a big chance or did something very risky.
6. I did something which I didn't think would work, but at least I was doing something
8. Talked to someone to find out more about the situation.
31. Talked to someone who could do something concrete about the problem.
42. I asked a relative or friend I respected for advice
45. Talked to someone about how I was feeling
18. Accepted sympathy and understanding from someone.
22. I got professional help.

Scale 3: Emotion-approach
14. I tried to keep my feelings to myself.
43. Kept others from knowing how bad things were.
10. Tried not to burn my bridges, but leave things open somewhat.
35. I tried not to act too hastily or follow my first hunch.
54. I tried to keep my feelings from interfering with other things too much.
63. I thought about how a person I admire would handle this situation and used that as a model.
64. I tried to see things from the other person's point of view.
9. Criticized or lectured myself
29. Realized I brought the problem on myself.
51. I made a promise to myself that things would be different next time.
25. I apologized or did something to make up
23. Changed or grew as a person in a good way.
30. I came out of the experience better than when I went in.

36. Found new faith
38. Rediscovered what is important in life
60. I prayed.
56. I changed something about myself.
20. I was inspired to do something creative

Scale 4: Problem-focused
49. I knew what had to be done, so I doubled my efforts to make things work
26. I made a plan of action and followed it.
1. Just concentrated on what I had to do next – the next step
39. Changed something so things would turn out all right.
48. Drew on my past experiences; I was in a similar situation before.
52. Came up with a couple of different solutions to the problem

Reference: King et al. 1998