The Role of Type A Behavior Pattern, Stress, and Traditional Risk Factors in Coronary Heart Disease in Women Over 40

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Introduction

Coronary heart disease is the term given to cardiovascular diseases that are characterized by an inadequate supply of oxygen to the heart. The major manifestations of coronary heart disease (CHD) are angina pectoris, or severe chest pain, and myocardial infarction, or heart attack. The narrowing of coronary arteries, medically known as coronary atherosclerosis, is considered a common underlying cause for the various forms of CHD (Houston and Synder, 1988). Despite considerable advances in technology and medicine over the past thirty years, cardiovascular disease remains the leading cause of death in the United States. Although other forms of cardiovascular disease are prominent in the population, as in hypertension and stroke, CHD accounts for the vast majority of deaths from cardiovascular disease (American Heart Association, 1987). In fact, approximately 45% of the CHD deaths that occur every year are considered premature, happening in individuals under the age of 65. Moreover, for 5 million people in the United States, CHD is a chronic disease that affects their lives on a daily basis.

Several factors that traditionally have been recognized as increasing risk for CHD are age, heredity, hypertension, diabetes, cigarette smoking, obesity (defined as being more than 20% over ideal body weight), high serum cholesterol levels (>260 mg/100 mls), and physical inactivity (American Heart Association, 1987). With the exceptions of heredity and aging, these factors are subject to intervention that could significantly lower the risk of CHD (Burkman, 1988). However, these risk factors cannot account for a large percentage of new cases of CHD (Jenkins, 1971). The roles of personality, behavior, and social environment must also be considered in the development of CHD. Prior to the 1950s, several researchers had observed just that: certain personality and behavioral characteristics, such as aggression and ambition, seemed to predict coronary problems in some individuals (Dunbar, 1943; Kemple, 1945). However, it was not until the concept of Type A behavior pattern (TABP) evolved in the mid-1950s that serious consideration was given to the role

personality played in CHD development. Friedman and Rosenman observed a specific action-emotion complex in middle-aged patients with CHD. The patients appeared to be in constant conflict with themselves and others, as well as their environments and their time schedules. Seven characteristics were proposed for the formulation of the TABP for males and females: (1) an intense and sustained set of high goals; (2) a strong desire for competition; (3) high ambition motives; (4) multiple involvements in diverse functions that make huge demands on time; (5) an habitual desire to speed up the rate of execution of mental and physical processes; (6) an aggressive drive; (7) and hostile feelings (Friedman and Rosenman, 1959).

The marked increase of CHD in most industrialized societies in the 20th century may have come about because the new way of life fostered the TABP by offering rewards to those who functioned more quickly and competitively (Rosenman and Chesney, 1982). The TABP is not solely a personality characteristic, but rather a group of specific behaviors that interact with the environment. It is the enhanced competitiveness of Type A persons that leads to an aggressive achievement orientation, increased mental and physical alertness, muscle tension, and explosive and rapid stylistics of speech. An associated chronic sense of urgency leads to restlessness, impatience, and the habitual acceleration of activities. This, in turn, may result in irritability and the potential for Type A hostility and anger.

The TABP is thus defined as an action-emotion complex consisting of behavioral dispositions (like competitiveness, impatience, aggressiveness), specific behaviors (like muscle tension, rapid speech, alertness), and emotional responses (like irritation, hostility, and anger). TABP is not synonymous with stress. The TABP is based on an underlying set of values and thought processes which are in turn manifested by gestures, respiratory patterns, and facial expressions. Because of this interactive process, an aggressive, hostile, and time-urgent style of living can emerge that is often associated with increased psychophysiological arousal. In part, the TABP can be viewed as a response to maintain control over events that threaten the person's sense of effectiveness (Glass, 1977, 1982).

The converse of TABP, Type B, is not merely the absence of Type A behavior. Instead, Type B appears to reflect a different coping style characterized by a lack of time urgency, impatience, and hostile responses (Rosenman and Chesney, 1982). Type B individuals are more relaxed, easygoing, and readily satisfied.

Several major prospective studies have shown that some link exists between TABP and CHD. The risk of a Type A person having CHD increases two-fold on the average over Type B people (Rosenman et al, 1975). Analyses of other data suggest that the association between Type A behavior and CHD is most marked when the levels of other CHD risk factors are elevated (e.g., diet, job stress, smoking, etc.). A 1976 paper suggests that the combined effect of risk factors is, in fact, synergistic. Mann found patients with one risk factor had a 4:1 chance of CHD, while in women with 3 or more factors, the chance climbed to 128:1 (Mann, 1976).

Because the rate of CHD morbidity in men is almost four times that of women, researchers have concentrated their efforts in studying the relationship between CHD and TABP in men. Nonetheless, CHD is still the leading cause of death among women over 40 in the United States; thus, it is very important to determine the psychological as well as the biological risk factors for CHD in this extremely under-studied section of the population (Houston and Synder, 1988). Also, it would be wrong to assume that since TABP is related to CHD in men, that this applies automatically to women. Preliminary reports from the Framingham Study do indicate a slight positive relationship among Type A women with CHD (Haynes, Feinleib, and Kannel, 1980). Thus, this claim gives an interesting beginning point for further investigation to take place.

First it is necessary to review risk factors for CHD as related to women. The lag in CHD incidence in women is about 10 years behind that of men. CHD is second only to cancer as the leading cause of death in young women; by the age of forty, CHD becomes the leading cause of death. In post-menopausal women, the occurrence of CHD quickly escalates, for unknown reasons. This increase is especially significant in women under 45

years of age who experience premature menopause due to surgery (Kannel, 1976). Women younger than 50 who have had a nonfatal myocardial infarction have smoking as the most powerful contributor to their CHD. In fact, smoking increases the risk of CHD five-fold, with the risk increasing proportionately for the number of cigarettes smoked (Mann, 1976). Several reports suggest that up to 65% of nonfatal myocardial infarctions among women younger than 50 might have been avoided if the women had not smoked (Wenger, 1985). Other traditional risk factors, like obesity, hypertension, diabetes, and hyperlipidema, retain their importance. However, after the age of 45, both hypertension and diabetes tend to be more prevalent among women than men (around 41% in women; 21% in men for both factors). In addition, there is extensive research showing that the use of oral contraceptives is associated with an increased risk of myocardial infarction in women older than 40, especially if they smoke, are hypertensive, or are hyperlipidemic. Even younger women who use oral contraceptives but do not smoke have higher blood pressures, a predisposition to thrombotic events, and an increase of vascular abnormalities (Kreuger, 1980; Sloane, 1981; Royal College, 1977; Vessey, 1977).

Equally important is the fact that women who already have been diagnosed with CHD have a less favorable outlook than men. Early mortality is increased, congestive heart failure occurs more frequently, and the recovery from coronary bypass surgery is less favorable (Wenger, 1985). One of the manifestations of CHD, angina pectoris, is far more common in women than in men, again for unknown reasons. When recovering from initial myocardial infarctions, women have a 75% greater mortality in the first month, with recurrence of infarction more than doubled as compared to men (45% versus 20%). A confounding feature of preventing the recurrence of myocardial infarctions is that women do not benefit from the platelet-influencing effects of some drugs as much as men do (Wenger, 1985); most likely, this is due to women's increased platelet count. It follows that disability and total withdrawal from the work force following an myocardial infarction is much greater for women.

Related to all of these considerations is a study Mann reported in 1976: the relative risk of developing myocardial infarction in women who have experienced psychiatric illness was estimated to be 4.7 to 1. Talbott (1981) also found this to be true, but she went further in trying to explain why this might happen. She theorizes that negative life situations may lead to promotion of pathophysiological disease, degenerative myocardial changes, or central nervous system discharges leading to cardiac arrhythmias.

Is it possible that women with the TABP have less success in coping with negative life situations, like marital difficulties, the death of a spouse, or job problems, and, as a result, have more cardiovascular diseases due to the stress placed on the body? According to the Framingham Study, approximately twice as many CHD events occur in Type A women 35-64 years old as in Type B women of the same age (Burkman, 1988). The Review Panel on Coronary-Prone Behavior and Heart Disease says the TABP is as much of a risk as hyperlipidema, high blood pressure, and smoking, but the Review Panel also indicated that more research needs to be done in this area (Burkman, 1988). Another possibility is that a Type A woman's coping behaviors are exactly what produces the health risks: smoking, hypertension, obesity, and the like. For example, a recent study by Cooper (1988) shows that women with high pressure and high status jobs have increased smoking rates, increased high blood pressure, and increased reports of fatigue. This is especially true for women who feel they have little or no control over their environment, whether at home or on the job (La Rosa, 1988). Women's health also seems to be much more affected by work satisfaction than men's (Verbrugge, 1982).

Additionally, a psychosocial variable associated with the TABP -- namely hostility -- is also receiving much attention in the field of health psychology. When looking at the TABP, it is revealed that the anger/hostility dimension is the dominant characteristic among coronary-prone Type A men (Haynes, Feinleib, and Kannel, 1980). Hostility is considered to be an attitudinal set which encompasses the traits of cynicism, mistrust, and aggression towards others (Barefoot et al., 1989). The Cook-Medley hostility scale is a measure that

has been used in previous studies concerned with health consequences of hostility (Williams et al., 1980; Shekelle et al., 1983). In fact, Barefoot et al (1983) found that men with Cook-Medley hostility scores above the median had six times the mortality rate of those men with scores below the median.

While hostility is a personality trait, anger is an emotional state that can run the gamut from minor irritation to great rage. While anger and hostility are slightly different concepts, they are clearly interrelated, and it is reasonable to assume a hostile person will experience anger much more frequently, and with greater intensity, than a non-hostile person (Williams, Barefoot, and Shekelle, 1985). In fact, an association between self-reported ineffective management of anger and hypertension has been reported (Diamond, 1982; Harrell, 1980). Furthermore, studies have shown that hypertensive subjects have unexpressed hostility; when anger is expressed it is correlated with prolonged cardiovascular responses compared to non-hostile subjects (Williams, Barefoot, and Shekelle, 1985). Albeit stereotypical thinking, there are still, even today, prevalent learned behaviors of women that encourage their suppression of hostility and anger. In a laboratory setting, in women who are "permitted" to vent this anger, cardiovascular responses are shorter than in those women forced to suppress their feelings (Hokanson, Burgess, and Cohen, 1963). The area of anger and hostility management may prove to be an appropriate intervention in the treatment of hypertension and CHD in women.

Method

The purpose of this project is to evaluate the relationship of psychosocial risk factors to manifestations of coronary heart disease in women. There are four psychosocial risk factors that have been theorized as affecting the incidence of CHD in males: (1) Type A behavior pattern, (2) hostility, (3) desire for control, and (4) psychosocial stress factors, that is job/family stressors. It is important to study these factors in women.

Subjects

Forty women, aged 43-83, were interviewed. This age span was chosen to include the increased number of women who have CHD after the age of 50. The subjects were divided into two groups: women who have had cardiovascular problems, including myocardial infarctions, angina, bypasses, strokes, and valve replacements, and women who have had no history of cardiovascular problems.

Subjects were solicited from two cardiac rehabilitation programs in Knoxville, the Mended Hearts Group, Baptist Hospital's Cardiac Rehabilitation Out-Patient Program, as well as senior citizens centers around the county. In addition, a mailing of a letter explaining the research was sent to 100 retired female employees of the University of Tennessee.

Because previous research has shown that black women have a higher incidence of cardiovascular problems, blacks (as well as other minority groups) were excluded from this study (DHHS, 1984). Women choosing to volunteer filled out their name, address, and telephone number on the available postcard and placed it in the mail. Women phoning the researchers were asked for this information. They were then contacted to arrange an appointment time.

Procedure

Subjects came to the laboratory during a time that was convenient for them. When travel to the lab was not possible, the researcher met the subject at the hospital, her home, or her church. After the research project was explained, an informed consent was obtained. Following this, each woman was given the Type A Structured Interview, which consists of 23 questions asking about daily habits and events (see Appendix A). The Structured

Interview has been shown to accurately categorize women into Type A versus Type B personalities. The interview questions were slightly altered for those subjects who were retired or unemployed. At the end of the interview, one open-ended question was asked about perceived sources of stress regarding work versus family life. Then the subjects were given a packet of 5 questionnaires:

1. Framingham Type A scale. This is a 10 item questionnaire with a yes/no response format. It is the only Type A measure that has been used in a prospective study of heart disease in women.

2. Cook-Medley hostility survey. This is a 50 item questionnaire with a true/false format. It has been shown to predict subsequent coronary heart disease in male subjects.

3. Desire for Control survey. This is a 20 item survey with a Likert 1-7 format. It has been related to increased cardiovascular reactivity in women. It is hypothesized to be higher in the patient groups than in the control group.

4. Stress inventory: The Psychiatric Epidemiology Research Interview Life Events Scale. This is a revision of the Holmes & Rahe Life Events Scale. Improvements have been made in item specificity, as well as ascertaining the desirability and controllability of events, in addition to their presence or absence. There are 102 items, grouped into 11 categories: school, work, love and marriage, having children, family, residence, crime and legal matters, finances, social activities, miscellaneous, and health.

5. Demographic information. Information was requested regarding age, current medications, past health history, height, weight, job description, family size, husband's occupation, ages of children, and cardiovascular risk factor status: cholesterol levels, resting blood pressure, family history, exercise habits, smoking history, diabetes history, oral contraceptive use, replacement estrogen use, and menopausal status.

Quantification

The Type A interview was scored on Type A, X (uncertain), or B. Component analysis was also applied to each interview to produce correlational scores between the two researchers' groupings.

Each questionnaire yielded a single number reflecting Framingham Type A score, Cook-Medley hostility score, Desire for Control survey score, or PERI Stress inventory score. Smoking history, family cardiovascular disease history, menopausal status, estrogen replacement therapy status, number of children and job status were extracted from the demographic information sheets.

Some of these variables have been selected because the literature derived from male subjects has supported the association of these measures with CHD status. Other variables regarding menopausal status and number of children are special concerns for women and need to be considered in addition to the traditional risk factors usually associated with cardiovascular disease.

The analysis of the measures was designed to determine whether these factors are possible correlates of heart disease in women.

Results

Demographic Information

The mean age of the 18 Heart subjects was 67.3 years, with the range of ages being 48 to 83; the mean age of the 22 Control subjects was 65.9 years, with the range being 43 to 83. There was no statistical difference in the ages of the two groups ($t = -0.45$, $df = 38$). Of the 18 subjects in the Heart group, 10 had at least one myocardial infarction, 3 had preventative by-pass surgeries, 2 had strokes, 2 had valve replacements, and one had a torn aorta (Table 1).

Table 1

Type of cardiovascular disease in patient

Heart subjects

Type	# of Cases
Myocardial Infarction	10
By-pass	3
Stroke	2
Valve Replacement	2
Other	1

Eight of the 18 Heart subjects were smokers before their illness, while 1 Heart patient still smoked, and 9 were non-smokers. In the Control group, 21 of the 22 subjects were non-smokers, with the other subject being a former smoker. In Table 2, the data reports that a significantly greater number of women with cardiovascular disease were current or former smokers as compared to women with no cardiovascular disease history.

Table 2

Smoking status of Heart and Control subjects

	Heart		Control	
Status	No.	%	No.	%
Current smoker	1	5.2	0	0
Former smoker	8	44.4	1	4.5
Non-smoker	9	47.4	21	95.5

$t = -3.51$, $p < 0.002$, $df = 21.76$

Each woman was asked about her parents' general history of cardiovascular disease - did either parent have a heart attack, stroke, or hypertension? The numbers for the Heart versus the Control group were virtually the same in each category (see Table 3).

Table 3

Parental history of cardiovascular disease for all subjects

Type	Heart	Control
Heart attack*	7	11
Hypertension**	11	11
Stroke***	8	8

* $t = 0.55$ $df = 37.59$
** $t = -0.91$ $df = 31.20$
*** $t = -0.39$ $df = 32.92$

Blood pressure levels were self-reported. Some subjects did not know their precise readings, but they did know whether their blood pressure was "normal" or "medicated." When exact numbers were not given, the blood pressure levels were encoded into the computer as 1=normal, 2=medicated, and 3=high. As shown in Table 4, even though the blood pressures are unevenly distributed between normal, medicated and high levels, there was no statistical difference between the groups' blood pressures.

Table 4

Self-reported blood pressure levels of Heart and Control groups

Blood Pressure Level	Heart	Control
Normal	7	14
Medicated	7	2
High	4	6
t = -1.72	df = 31.68	

Cholesterol levels were also self-reported. Even though many subjects did know their cholesterol readings, several only knew if their readings were "high," "normal," or "medicated." Again, no statistical difference was found between the two groups' cholesterol readings (see Table 5).

Table 5

Self-reported cholesterol levels of Heart and Control groups

Cholesterol level	Heart	Control
Normal	11	15
Medicated	1	1
High	6	6
t = -0.13	df = 35.75	

Table 6 shows the number of children the women gave birth to. The numbers were equally distributed between the Heart and Control groups. Two women in each group were still menstruating; the other subjects' menstrual cycles had ceased naturally or due to surgery (see Table 7). As also seen in Table 7, equal numbers of women were on estrogen replacement therapy in each group.

Table 6

Number of children for Heart versus Control groups

No. of children	Heart	Control
0	5	4
1	0	2
2	4	4
3	7	8
4	1	4
>4	1	0

t = -0.19 df = 26.48

Table 7

Menstrual status and estrogen-replacement therapy status for Heart versus Control groups

Menstrual status*	Heart	Control
still menstruating	2	2
natural menopause	12	14
surgical menopause	4	6
Estrogen Replacement Therapy**		
Yes	4	6
No	14	16

* t = 0.38 df = 36.58
**t = 0.36 df = 37.24

Each subject was also asked her employment status. The majority of the subjects were retired; however, several were employed full-time or part-time, and a few had never been employed outside of the home. There was no statistical difference between the Heart and Control groups in employment status (see Table 8).

Table 8

Employment status for Heart versus Control groups

Employment Status	Heart	Control
Full-time	2	3
Part-time	1	3
Retired	10	10
Homemaker	5	6
Total	18	22

t = 0.39 df = 37.43

Type A Scores

The Structured Interviews were component scored. Each tape was scored from 1-5 on each of 8 variables:

These are listed in Table 9, along with the scores for each subject. The column labeled "Total" is the component score for the entire interview (variable 8, Quality of Interview, was not included in the Total). In the last column is the Type A classification, based on a subjective evaluation of each recording. The correlation between summed component scores and the subjective classification was $r = +0.48$, $p < 0.006$.

Table 9

Type A stylistics coding by subject

S. No.	Loud	Explosive	Rapid	Latency	Hostility	Anger-In	Control	Quality	Total	Type
Heart										
5	4	3	3	2	4	3	3	3	22	A
7	2	2	3	3	1	2	1	4	14	B
8	3	3	3	4	2	2	3	3	20	A
12	4	3	5	5	4	3	4	4	28	A
17	inaudible	-	-	-	-	-	-	-	-	X
21	3	3	3	3	4	3	4	3	23	B
23	2	2	3	3	2	2	1	1	15	B
27	no inter.	-	-	-	-	-	-	-	-	X
28	4	4	4	5	4	3	4	5	28	A
29	4	4	4	4	4	3	4	5	27	B
32	4	4	5	5	2	2	3	4	25	A
33	3	4	4	4	3	3	4	3	25	A
34	3	4	4	4	3	3	3	4	24	A
35	4	4	4	5	3	4	4	5	28	A
36	3	4	3	4	2	3	3	5	22	A
37	no inter.	-	-	-	-	-	-	-	-	X
38	3	2	2	4	2	2	1	4	16	A
40	4	3	4	4	2	3	3	3	23	B
Control										
1	2	2	4	2	3	2	2	3	17	A
2	3	4	4	3	3	4	4	4	25	A
3	2	2	2	2	3	2	1	3	14	B
4	3	3	3	4	2	3	2	3	21	A
6	4	4	4	3	5	1	4	3	25	A
9	4	3	3	4	1	3	2	4	20	B
10	3	3	3	4	3	2	3	3	21	B
11	2	2	1	2	1	2	1	3	11	B
13	3	4	4	4	3	2	4	4	24	A
14	inaudible	-	-	-	-	-	-	-	-	X
15	inaudible	-	-	-	-	-	-	-	-	X
16	inaudible	-	-	-	-	-	-	-	-	X
18	inaudible	-	-	-	-	-	-	-	-	X
19	inaudible	-	-	-	-	-	-	-	-	X
20	3	3	3	2	2	3	2	4	18	A
22	3	2	2	2	3	3	2	4	17	B
24	2	2	2	2	3	3	3	4	17	B
25	no inter.	-	-	-	-	-	-	-	-	X
26	4	3	3	5	4	2	4	4	25	B
30	3	3	3	4	1	3	2	4	19	B
31	4	4	4	5	4	3	5	5	29	A
39	3	3	2	4	2	3	2	4	17	B

The number of women scoring Type A or B was computed for each group and the results are shown in Table 10. The Control group is equally divided between As and Bs while the Heart group has twice as many Type As as Bs. A chi-square statistic was computed for these data ($X^2 = 2.5$, df = 3), but was nonsignificant. It should be noted that due to tape inaudibility or equipment failure, taped Structured Interviews were obtained for 15 of the 18 Heart subjects, and 17 of the 22 Control subjects.

Table 10

Type A and Type B distribution in Heart versus Control groups

	Control	Heart
Type A	7	11
Type B	9	5

$X^2 = 2.5$, df = 3

Total component scores were compared between the Heart and Control groups. For the Heart group, the mean score was 22.7 points with the range of scores being 14 to 28. The mean score of the Control group was 20.0 points, with the range of the scores being 11 to 29. A t-test statistic computed for these data was nonsignificant (t = -0.10, df = 37.96).

The Framingham Type A score was also calculated for these two groups. In both groups the range was 0.00 to 0.80 with a mean of 0.41. Thus, the Heart group and Control group scored similarly on this self-report measure.

Remaining Questionnaires: Hostility, Control, and Stress

The Cook-Medley hostility inventory scores showed a slight numerical difference between the Heart and Control groups (see Table 11). The range of scores for the Heart

group was 5 to 35, with the mean being 19.5 points. In the Control group, the range was 6 to 31, with the mean being 15.7. However, a t-test (t = -1.43, df = 38) determined that this difference was nonsignificant.

Table 11

Means, ranges, and t-tests for the Cook-Medley hostility survey, Framingham Type A score,Desire for Control, and PERI life events scores

		Heart N=18	Control N=22		
FTAS	mean	0.41	0.41	t	= 0.08
	standard deviation	0.24	0.22	df	= 38
	range	0-0.8	0-0.8	p	= 0.9367
CM	mean	19.50	15.70	t	= -1.43
	standard deviation	9.29	7.58	df	= 38
	range	5-35	6-31	p	= 0.1604
DC	mean	93.10	98.50	t	= 1.19
	standard deviation	17.81	10.48	df	= 38
	range	57-125	81-114	p	= 0.2401
PERI	mean	4.20	3.70	t	= -0.52
	standard deviation	2.64	3.15	df	= 38
	range	0-9	0-11	p	= 0.6062

The desire for control scale also showed a slight difference between the groups as shown in Table 11. The mean for the Heart group was 93.1 points, with the range being 57 to 125. The mean for the Control group was 98.5, with the range being 81 to 114. However, this difference was also nonsignificant.

The PERI life events scale also measured no significant difference between the groups (see Table 11). The mean for the Heart group was 4.2; the range was 0 to 9. The mean for the Control group was 3.7; this range was 0 to 11. A sub-measure of the PERI scale was marital status. In Table 12 it can be seen that married versus single or widowed women are

unevenly distributed between the groups. A chi-square statistic was computed for these data also ($X^2 = 4.84$, df = 3), but was not statistically significant.

Table 12

Marital status of Heart versus Control group

	Heart	Control
Single/Widowed	9	6
Married	9	16

$X^2 = 4.84$, df = 3

Thus, group comparisons on each variable individually did not reveal any mean difference between Heart and Control groups.

Correlational analysis

Secondly, we entered all numerical data for all the subjects into a correlational matrix: Group status (1=Control, 2=Heart), age, Cook-Medley hostility score, Framingham Type A score, Desire for Control score, smoking status (0=non-smoker, 1=former, 2=current), PERI life events stress score, blood pressure, and cholesterol levels. These data are shown in Table 13.

Table 13

Correlational matrix of demographic and psychological variables, N = 40

	Group	Age	CM	FTAS	DC	Smoke	PERI	BP	Chole
Group	1.00	0.07	0.23	-0.01	-0.19	0.52†	0.08	0.27	0.02
Age	0.07	1.00	-0.57	-0.25	-0.79	-0.08	-0.36	0.06	-0.13
CM	0.23††	-0.57	1.00	0.47†††	0.20	0.11	0.03	0.13	-0.09
FTAS	-0.01	-0.25	0.47	1.00	0.40*	0.00	0.03	0.05	-0.08
DC	-0.19	-0.08	0.20	0.40	1.00	0.04	-0.09	-0.17	-0.12
Smoke	0.52	-0.08	0.11	0.00	0.04	1.00	-0.08	0.30**	0.32***
PERI	0.08	-0.36°	0.03	0.03	-0.09	-0.08	1.00	-0.12	-0.26
BP	0.27°°	0.06	0.13	0.05	-0.17	0.30	-0.12	1.00	0.39°°°
Chole	0.02	-0.13	-0.09	-0.08	-0.12	0.32	-0.26	0.39	1.00

† $p < 0.0006$ * $p < 0.01$ ° $p < 0.02$ df = 38

†† $p < 0.16$ ** $p < 0.06$ °° $p < 0.09$

††† $p < 0.002$ *** $p < 0.04$ °°° $p < 0.01$

Our data shows that smoking is highly correlated with women being in the cardiovascular disease group ($r = +0.52$, $p < 0.0006$). This supports previous studies concerning women smokers' increased risk of cardiovascular disease. The Framingham Type A scale correlated with both the Cook-Medley hostility ($r = +0.47$, $p < 0.002$) and the Desire for Control scales ($r = +0.40$, $p < 0.01$).

These correlations mean that women who tend to have type A characteristics, as measured by the Framingham Type A scale will also be more likely to have higher hostility scores and a higher level of desire for control. The correlation between Group status and Cook-Medley hostility scores was not significant; however, the Heart group did have an overall higher hostility score than the Control group.

Blood pressure levels were correlated with several other variables. The strongest correlation was with cholesterol levels, with $r = +0.39$, $p < 0.01$. Blood pressure also correlated with smoking status and Group variable, with $r = +0.30$, $p < 0.06$ and $r = +0.27$, $p < 0.09$, respectively. These statistics confirm what we expected, that women who had higher cholesterol levels and smoked tended to have higher blood pressure levels.

Along these lines, cholesterol levels and smoking status strongly correlated ($r = +0.32$, $p < 0.04$).

One correlation we had not predicted was that of age and the PERI stress events scale. As the ages of the subjects increased, the stress factors in their lives decreased, with $r = -0.36$, $p < 0.02$. These data make sense, as many of our subjects stated they enjoyed retirement and doing exactly what they wanted, with no job or children to worry about. On the other hand, the PERI is aimed at a younger group of people still in the work force, and many of the situations may no longer be applicable to the subjects' lifestyles.

A second correlation matrix for the same variables included only those subjects with Structured Interview scores in order to include Type A classification (Heart = 15, Control = 17). As seen in Table 14, the composite scoring and the subjective scorings of the interviews were correlated ($r = +0.48$, $p < 0.006$) as stated previously. There is also a correlational trend between Framingham and Type scoring ($r = 0.29$, $p < 0.12$). Except for these two correlations, the data are nonsignificant when analyzed in this way.

Table 14

Correlations between demographic, psychological, and Type A variables, N = 33

	Total	Type	Group	Age	CM	FTAS	DC	Smoke	PERI
Total	1.00	0.48*	0.28	0.07	0.19	0.09	0.09	0.25	0.02
Type	0.48	1.00	0.23	0.45	0.17	0.29**	0.02	0.29	0.01

* $p < 0.006$ df = 29
** $p < 0.12$

Regression analysis

It is possible that while no one variable successfully differentiated the Heart from Control groups, some combination of variables might. Thus, a stepwise regression analysis was computed. The dependent variable was Group status (Heart or Control). The predictor variables were age, Framingham score, Desire for Control, Cook-Medley, and

PERI stress scores. By leaving out the Structured Interview Classification, we were able to include all 40 subjects. One model showed a trend toward significance ($R^2 = 0.11$, $p < 0.12$). The variables included in this model were Cook-Medley and desire for control and the beta weights were positive for Cook-Medley (ß = 0.27471) and negative for desire for control (ß = -0.24453). Thus, subjects in the Heart group tended to be those with high hostility and low desire for control (see Table 15).

Table 15

Regression analysis of Group data for total N and reduced N

Total N=40

Variable	Beta	R^2	p-value
CM	0.2471	0.11	0.12
DC	-0.24453		

Reduced N=33

Variable	Beta	R^2	p-value
Total	0.26387		
Age	0.243	0.24	0.10
DC	-0.26513		
CM	0.17270		

A regression analysis was also conducted on the reduced sample of 33 subjects in order to include Type A classification, as shown in Table 15. The dependent variable was again Group status. The prediction variables were Total component score, Type, age, Framingham score, Desire for Control, Cook-Medley, and PERI stress scores. This analysis also showed one model that showed a trend towards significance ($R^2 = 0.21$, $p < 0.10$). Age, Total, Desire for Control, and Cook-Medley scores were variables included in

this model, with the beta weights being positive for age (ß = 0.24983), Type (ß = 0.20032), and Cook-Medley (ß = 0.18672), and negative for Desire for Control (ß = -0.24087). Thus, those subjects in the Heart group tended to be older, Type A, and with high hostility but low desire for control.

Discussion

The purpose of this study was to look at possible factors that might predict cardiovascular disease in women. To carry out that goal, two groups of women were compared on the following variables:

age
Framingham Type A scores
Type A Structured Interview Classification
smoking status
cholesterol levels
marital status
menstrual status
employment status
Cook-Medley hostility levels
Desire for Control scores
PERI life stress events scale
blood pressure
family history of cardiovascular disease
number of children
estrogen-replacement therapy status

Group differences were found only for smoking with one half of the Heart subjects being smokers or former smokers; conversely, 21 of the 22 Control subjects were non-smokers. Other factors shown to be risk factors for women, such as menstrual status, estrogen-replacement therapy, and family history of cardiovascular disease, were nonsignificant in this study. This might be due to the small sample number; doubling the total number of subjects might very well show these as potential risk factors.

Correlations found were: smoking status with Group, and the Framingham Type A scale with both the Cook-Medley hostility and Desire for Control. To the extent the Framingham Type A scale continues to predict CHD status in women, Cook-Medley and Desire for Control differences may be important. Other correlations found were blood pressure levels with Group status, smoking status, and cholesterol levels; cholesterol levels and smoking status also correlated. A correlation not expected was that of the PERI stress scale negatively correlating with age. This may mean the PERI does not accurately cover

stressful events relevant to the age-group studied, or the correlation may show that this age group is past the stressful years of life.

Regression analyses were performed to try to predict case-control status. The important predictive variables in our study were Cook-Medley hostility scores, Desire for Control levels, and Type A stylistics. The Desire for Control had a negative beta value, meaning Heart subjects had a lower desire for control. This is possibly due to their decrease in activities because of their illnesses; many of the subjects had to give up employment, hobbies, and some day-to-day activities to protect their health. Perhaps these subjects had learned to lessen their desire for control.

To look at these findings further and improve the integrity of this study, not only does the total sample size need to be increased, but the homogeneity of the Heart group needs to be increased as well. This could be accomplished by securing the doctor's diagnosis for each subject, and analyzing subgroups of cardiovascular disease. The amount of time that has passed since the CHD event has occurred is also a variable to consider.

Another question that arose is that of a cross-generational transition concerning women in the work force. The Type A behavior pattern was first studied in working men. While many of the women interviewed were either previously or currently employed, their jobs were not for economic survival, but rather for self-fulfillment. As an ever-increasing number of women today have to work for financial reasons, they are exposed to increasing stressors that previously only applied to men. Employment stress might very well be the extra risk factor for this new generation of women. It is these women who will be experiencing cardiovascular disease 20 years from now, possibly in greater numbers than is currently predicted. Future studies will need to examine the predictive validity of the factors considered here, so as to understand their causal importance for women with cardiovascular disease.

Another analysis that may suggest some interesting avenues to pursue is that of looking at subscores of the Cook-Medley questionnaire and the Structured Interview. Do women have different ways of expressing anger? Is anger internalized more in women than in men? And does internalizing this anger alter women's health risks in any way?

This pilot study was successful in identifying areas of differences between healthy women and those with heart ailments. Smoking, blood pressure, cholesterol levels, marital status, and personality traits were shown to be possible interacting factors for women with cardiovascular diseases.

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Appendix A

Quantitative Scoring Key for Type A Interviews:

(From T.M Dembrowski and J.M. MacDougall. 1983. In Biobehavioral Bases of Coronary Heart Disease. Eds. Dembrowski, Schmidt, and Blumchen (Karger: New York), 127-130)

Each of the seven *stylistic* dimensions is scored on a 1-5 point scale, anchored as indicated below.

1. *Loud Voice.* Subject's voice is scored for loudness, independently of the other voice stylistics below. There is often, but not always, a melodic quality associated with the soft voice.

1 Consistently soft voice.
2 Less than average loudness.
3 Average loudness.
4 Greater than average loudness.
5 Consistently loud voice.

2. *Explosive Speech.* Subjects with this attribute usually, but by no means always, have a louder than average voice. The key stylistic here is vigorous emphasis or explosiveness on some words or sentences, particularly simple declarative statements ('Never!' or 'Right!-Right!') or emphatic adjectives ('I'm *always* on time!'). It is the explosiveness of the subject's words with or without other stylistics that is scored. It is often the interviewer's challenges that will trigger marked increases in explosiveness. This is a key point to remember. Look for explosiveness in strings of words *and* during abrupt, single-word answers.

1 Consistently without particular emphasis on key words.
2 Sometimes, but rarely, increases emphasis on words or abrupt declarations.
3 Occasionally show explosiveness.
4 Frequent explosiveness.
5 Consistently explosive declarations, often consisting of single words.

3. *Rapid and Accelerated Speech.* The stylistic consists of rapid word production, most often with an acceleration of speech at then end of a long sentence. In the extreme, this may be accompanied by 'word clipping' (failure to pronounce the ending sounds of words or tripping over words, e.g. saying 'immedialy' instead of 'immediately'), word repetition ('yes, yes'), or word omission ('No!' I 'Never do that!'). Accelerated speech is often observed during attempts at self-justification in response to interview challenges.

1 Consistently slow, measured word production, often accompanied by pauses, 'ahs', or breaks at the end of sentences.
2 Less than average production rate. Generally slow production rate, but with one or two instances of rapid and accelerated speech.
3 About average production rate with instances of both slow, deliberate speech, and rapid and accelerated speech.
4 Faster than average production rate, with few instances of slow, measured speech.
5 Extreme tendency toward high rate of speech, accelerated endings, word clipping, word repetition, and omission.

4. *Response Latency.* Response are given with very short latencies and in the extreme occur prior to completion of the question. Also included is 'hurrying' in which the subject attempts to speed up the question by saying 'yes, yes' or 'mm, mm' or some other verbal device.

1 Consistently long latencies (one or more seconds) between the end of the question and the beginning of the answer.
2 Generally long latencies, but a few short latency answers and an absence of 'hurryings'.
3 Occasional short latency responses, but usually an average number with *few* interrupting answers and no more than one or two 'hurryings'.
4 The majority of responses are of a short latency, with a few 'hurryings'.
5 Consistently short latencies with several interruptions and 'hurryings'.

5. *Potential for Hostility.* This is a difficult dimension to score. Here, it is primarily a clinical judgment. Pay attention to both stylistics and content. Responses are argumentative ('Nobody always does anything'), repeatedly and unnecessarily qualified ('It depends'), pointlessly challenging of the interview ('What do you mean by *that*?'). The voice characteristics suggest boredom, condescension, or surliness. Subject's answers to specific

questions suggest impatience, anger, or irritability when faced with obstacles ('...Car going too slowly...' '...wait in lines...') and the tendency to make harsh generalizations ('The people here are all narrow-minded'). Extreme levels of hostility may be accompanied by *obscenity* or use of emotion-laden words ('I *hate* it here!').

1 No statements with possible hostile content or structure, and no hostile voice stylistics.
2 Some (one or two statements) hostile content, but no hostility in voice stylistics.
3 Two to three potentially hostile statements and perhaps some suggestion of hostility in voice stylistics.
4 Three or more content admissions of hostility or anger and some evidence of hostility in attitude or voice stylistics.
5 Frequent hostility expressed in attitude or voice stylistics.

6. *Anger-In.* This is a rather straightforward dimension to score. Throughout the interview there are several questions regarding the subject's willingness to express anger, to say something to someone in a frustrating circumstance, to sound the horn at a slow driver, etc. Note that one key question simply asks the respondent whether he/she outwardly expresses anger. If the subject answers in the negative to this question, he/she automatically receives a score of 3. However, if subsequently the subject makes two or more statements indicating a willingness to express anger, the score is reduced to 2 in the absence of additional evidence to the contrary. Note that a higher score indicates a tendency to hold anger in.

1 Frequent examples of expressing irritation or anger openly, often in a vociferous manner.
2 Generally admits to outward expressions of anger.
3 Expresses some reluctance to show irritation or anger openly, although will do so in appropriate circumstances and/or admits that anger is sometimes held in.
4 No more than one admission of expressing anger openly and more than one admission of unwillingness to show anger openly.
5 No statements of expressing irritation or anger openly and several statements reflecting an unwillingness to show anger outwardly.

7. *Competition for Control of Interview.* Subject attempts to gain control of the interview by interrupting interviewer with lengthy responses, engaging in verbal duets, asking for unnecessary qualifications, or offering extraneous (and sometimes hostile) comments or questions which divert the direction of the interview. Distinguish simple hostility (negativism) from hostility directed toward intimidating the interviewer and thus gaining control. The latter, of course, is also scored as potential for hostility. Excessive qualifications without hostile or competitive intent occurs occasionally. Frequently, subjects who are anxious or type B will show such behavior. A very good index of verbal competitiveness is the tactic of raising the voice to subdue the interviewer when he/she interrupts the respondent.

1 No tendency to compete; subject passively responds to questions.
2 Possibility of some competitiveness, but no really clear examples.
3 Occasional attempts to compete.
4 Three or more clear examples of verbal competitiveness.
5 Repeated attempts to gain control. Score a 5 only if you perceive an ongoing struggle for control of the interview.

8. *Quality of Interview.* For a variety of reasons, occasionally an interviewer will not conduct the interview properly or in a standardized manner. For example, interviewers might not be challenging enough or there might be too much extraneous noise while the interview is being conducted. Therefore, it is important to rate the quality of the interview according to current standards.

1 Extremely poor.
2 Marginally acceptable.
3 Adequate.
4 Above average administration.
5 Excellent.

Type A stylistics coding by subject

S. No.	Loud	Explosive	Rapid	Latency	Hostility	Anger-In	Control	Quality	Total	Type
Heart										
5	4	3	3	2	4	3	3	3	22	A
7	2	2	3	3	1	2	1	4	14	B
8	3	3	3	4	2	2	3	3	20	A
12	4	3	5	5	4	3	4	4	28	A
17	inaudible	-	-	-	-	-	-	-	-	X
21	3	3	3	3	4	3	4	3	23	B
23	2	2	3	3	2	2	1	1	15	B
27	no inter.	-	-	-	-	-	-	-	-	X
28	4	4	4	5	4	3	4	5	28	A
29	4	4	4	4	4	3	4	5	27	B
32	4	4	5	5	2	2	3	4	25	A
33	3	4	4	4	3	3	4	3	25	A
34	3	4	4	4	3	3	3	4	24	A
35	4	4	4	5	3	4	4	5	28	A
36	3	4	3	4	2	3	3	5	22	A
37	no inter.	-	-	-	-	-	-	-	-	X
38	3	2	2	4	2	2	1	4	16	A
40	4	3	4	4	2	3	3	3	23	B
Control										
1	2	2	4	2	3	2	2	3	17	A
2	3	4	4	3	3	4	4	4	25	A
3	2	2	2	2	3	2	1	3	14	B
4	3	3	3	4	2	3	2	3	21	A
6	4	4	4	3	5	1	4	3	25	A
9	4	3	3	4	1	3	2	4	20	B
10	3	3	3	4	3	2	3	3	21	B
11	2	2	1	2	1	2	1	3	11	B
13	3	4	4	4	3	2	4	4	24	A
14	inaudible	-	-	-	-	-	-	-	-	X
15	inaudible	-	-	-	-	-	-	-	-	X
16	inaudible	-	-	-	-	-	-	-	-	X
18	inaudible	-	-	-	-	-	-	-	-	X
19	inaudible	-	-	-	-	-	-	-	-	X
20	3	3	3	2	2	3	2	4	18	A
22	3	2	2	2	3	3	2	4	17	B
24	2	2	2	2	3	3	3	4	17	B
25	no inter.	-	-	-	-	-	-	-	-	X
26	4	3	3	5	4	2	4	4	25	B
30	3	3	3	4	1	3	2	4	19	B
31	4	4	4	5	4	3	5	5	29	A
39	3	3	2	4	2	3	2	4	17	B

The Structured Interview

Introduction: "I would appreciate it if you would answer the following questions to the best of your ability. Your answers will be kept in the strictest confidence. Most of the questions are concerned with your superficial habits, and none of them will embarrass you." (Begin taping now; emphasize italicized words.)

You code number is _____. (Name?)

1. May I ask your age *please*?
2. What is your occupation or job?
3. Are you *satisfied* with your life and what you do right now? (Why or why not?)
4. Does your life carry *heavy* responsibility?
   a. Is there any time when you feel particularly *rushed* or under *pressure*?
   b. When you are under *pressure* does it bother you?
5. Would you describe yourself as a *hard-driving*, *ambitious* type of *man/woman* in accomplishing the things you want, getting things done as *quickly* as possible, *or* would you describe yourself as a relatively *relaxed* and *easy-going* person?
   a. How would a spouse/close friend describe you-as *hard-driving* and *ambitious* or as relaxed and easy-going?
   b. Has he/she ever asked you to slow down in your work? never? How would he/she put it-in his/her own words?
6. When you get *angry* or *upset*, do people around you know about it? How do you show it?
7. Do you think you drive *harder* to *accomplish* things than most of your associates?
8. Do you work outside the home? How often?
9. Do you have any children? When they were around the ages of six and eight, did you ever play competitive games with them, like cards, checkers, Monopoly?

a. Did you *always* allow them to *win* on *purpose*?

b. *Why* (or *why not*)?

10. When you play games with people your own age, do you play for the fun of it, or are you really in there to *win*?

11. Is there any *competition* in your life? Do you enjoy *competition*?

a. Are you competitive in sports or hobbies?

12. When you are in your automobile, and there is a car in your lane going *far too slowly for you*, what do you do about it? Would you *mutter and complain* to yourself? Would anyone riding with you know that you were *annoyed*? Would the person in front of you know that you were *annoyed*? Would you honk your horn?

13. Most people who work have to get up fairly early in the morning-in your particular case, uh-what-time-uh-do-you-uh, ordinarily uh-uh-to-uh-uh-get-up?

14. If you make a *date* with someone for , oh, two o'clock in the afternoon, for example, would you be *there* on *time*?

a. Would you be *early*? How *early*?

b. If you are kept waiting, do you *resent* it?

c. Would you *say* anything about it?

15. If you see someone doing a job rather *slowly* and you *know* that you could do it faster and better yourself, does it make you *restless* to watch him?

a. Would you be tempted to *step in and do it* yourself?

16. What *irritates* you most about the people you are around?

17. Do you *eat rapidly*? Do you *walk* rapidly? After you've *finished* eating, do you like to sit around the table and chat, or do you like to *get up and get going*?

18. When you go out in the evening to a restaurant and you find eight or ten people *waiting ahead of you* for a table, will you wait? What will you do while you are waiting?

19. How do you feel about waiting in lines: *Bank* lines, or *Supermarket* lines? *Post Office* lines?

20. Do you *always* feel anxious to *get going* and *finish* whatever you have to do?

21. Do you have the feeling that *time* is passing too *rapidly* for you to *accomplish* all the things you'd like to *get done* in one day?

    a. Do you *often* feel a sense of *time urgency*? *Time pressure*?

22. Do you *hurry* in doing most things?

23. Do you think you would have answered *most* of these questions the *same* if you were still working?

    a. Have you *changed* dramatically since your *retirement* or *illness*? (Ask this if person is retired).

    a. Do you feel more stressed at work or at home. Are there any differences in the kind of stressors? (Ask this if person is employed).

    All right, that completes the interview. Thank you very much.

Interviewers: State: "This completes the interview of Subject (give code numbers)."

Appendix B

Demographic data by subject

			Family History								
Subj.	Age	Smoke	Heart	B.P.	Stroke	B.P.	Chol	Chldrn	MS	Est.	Job
Heart											
5	66	1	0	0	1	1	1	2	1	1	0
7	79	0	0	0	0	1	1	3	1	2	0
8	66	0	0	0	0	1	2	0	1	1	0
12	67	0	1	1	0	1	1	0	1	1	0
17	70	0	1	1	0	1	1	3	2	2	0
21	79	0	0	0	1	1	1	3	1	1	0
23	68	0	0	1	0	2	2	10	1	1	0
27	71	1	0	2	1	3	2	2	1	1	1
28	54	1	1	0	0	1	1	3	0	2	0
29	83	1	0	0	2	2	1	4	1	1	0
32	66	1	1	1	0	3	2	2	2	1	0
33	61	1	0	0	0	2	1	3	1	1	0
34	63	0	2	1	1	3	1	0	2	1	0
35	58	1	0	0	0	3	3	2	2	2	0
36	74	0	1	2	0	2	1	0	1	1	0
37	48	0	0	0	0	1	1	0	0	1	2
38	74	1	0	2	2	3	2	3	1	1	0
40	65	2	0	0	0	2	1	3	1	1	0
Control											
1	49	0	1	1	0	2	1	4	0	1	0
2	54	0	0	0	0	1	1	3	1	1	1
3	43	0	0	1	1	2	1	1	2	2	0
4	66	0	0	0	1	1	1	3	1	1	0
6	78	0	2	0	0	1	1	0	1	1	0
9	67	0	1	0	0	1	2	1	1	1	0
10	67	0	0	0	1	2	2	2	1	1	0
11	69	0	1	1	0	1	1	0	2	2	0
13	77	0	0	0	0	1	1	3	1	1	0
14	83	0	0	0	0	1	1	2	1	1	1
15	68	0	1	1	1	3	3	4	1	1	0
16	75	0	0	0	0	3	1	0	2	2	0
18	74	0	0	1	1	1	1	3	1	1	0
19	61	0	0	1	0	1	2	2	2	2	0
20	76	0	0	0	0	2	1	0	1	1	0
22	76	0	1	0	0	1	1	3	1	1	0
24	52	1	1	0	0	1	2	4	1	1	2
25	78	0	0	0	0	2	1	4	1	1	0
26	49	0	0	0	0	1	1	2	0	1	2
30	65	0	0	0	2	1	1	3	1	1	0
31	73	0	1	1	0	1	2	3	2	2	0
39	49	0	2	2	1	1	2	3	2	2	2

Participant Information Sheet

1. Birthdate _____

2. Height _____ Weight _____

3. Marital status: single married divorced separated widowed

4. If you are currently married, what is your husband's occupation?
_____

5. Do you have any children? _____

If yes, please list their sex and age:

_____

_____

_____

_____

_____

6. Are you currently using oral contraceptives? _____

7. What is your menstrual status?

a. still menstruating
b. menses have stopped naturally
c. menses have stopped due to surgery

If b or c, how many years ago did menopause begin? _____

8. Are you using estrogen replacement therapy? _____

9. Do you smoke cigarettes? _____

If yes, how many per day? _____

10. Has either your father or mother had the following:

	mother	father
heart attack	_____	_____
high blood pressure	_____	_____
stroke	_____	_____

11. Are you employed outside the home? _____

If yes, what is your occupation? _____

_____

12. Have you had any serious health problems in your life?

_____

_____

_____

_____

13. Are you on any medications at the present time? _____

If yes, what are they?

_____

_____

_____

_____

_____

Appendix C

Questionnaire packet scores

Subject No.	CM	FTAS	DC	PERI
Heart group				
5	21	0.40	73	3
7	5	0.10	96	6
8	11	0.50	108	3
12	12	0.70	91	1
17	12	0.00	88	2
21	34	0.30	91	0
23	18	0.40	62	8
27	16	0.30	84	2
28	23	0.30	99	8
29	25	0.40	100	5
32	9	0.20	103	5
33	35	0.60	119	3
34	19	0.70	92	5
35	15	0.10	57	5
36	28	0.30	89	5
37	32	0.80	100	9
38	28	0.80	125	0
40	8	0.40	103	5
Control group				
1	18	0.70	81	9
2	11	0.10	99	5
3	26	0.65	101	6
4	9	0.50	101	11
6	23	0.50	104	6
9	12	0.10	83	5
10	25	0.50	110	4
11	13	0.30	91	3
13	31	0.70	109	4
14	7	0.30	85	2
15	23	0.30	96	0
16	9	0.40	93	0
18	18	0.30	92	0
19	27	0.80	112	0
20	15	0.30	83	1
22	7	0.30	102	3
24	7	0.50	102	1
25	16	0.30	86	3
26	20	0.70	114	7
30	14	0.00	111	8
31	8	0.60	111	2
39	6	0.20	100	1

Cook-Medley Inventory

Please read each statement and decide whether it is true as applied to you or false as applied to you.

T or F

_____ 1. When I take a new job, I like to be tipped off on who should be gotten next to.

_____ 2. When someone does me wrong I feel I should pay him back if I can, just for the principle of the thing.

_____ 3. I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.

_____ 4. I have often had to take orders from someone who did not know as much as I did.

_____ 5. I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.

_____ 6. It takes a lot of argument to convince most people of the truth.

_____ 7. I think most people would lie to get ahead.

_____ 8. Someone has it in for me.

_____ 9. Most people are honest chiefly through fear of being caught.

_____ 10. Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it.

_____ 11. I commonly wonder what hidden reason another person may have for doing something for me.

_____ 12. It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.

_____ 13. I feel that I have often been punished without cause.

_____ 14. I am against giving money to beggars.

_____ 15. Some of my family have habits that bother and annoy me very much.

_____ 16. My relatives are nearly all in sympathy with me.

_____ 17. My way of doing things is apt to be misunderstood by others.

_____ 18. I don't blame anyone for trying to grab everything he can get in this world.

_____ 19. No one cares much what happens to you.

T or F

20. I can be friendly with people who do things which I consider wrong.

_____ 21. It is safer to trust nobody.

_____ 22. I do not blame a person for taking advantage of someone who lays himself open to it.

_____ 23. I have often felt that strangers were looking at me critically.

_____ 24. Most people make friends because friends are likely to be useful to them

_____ 25. I am sure I am being talked about.

_____ 26. I am likely not to speak to people until they speak to me.

_____ 27. Most people inwardly dislike putting themselves out to help other people.

_____ 28. I tend to be on my guard with people who are somewhat more friendly than I had expected.

_____ 29. At periods my mind seems to work more slowly than usual.

_____ 30. I enjoy the excitement of a crowd.

_____ 31. I find it hard to set aside a task that I have undertaken, even for a short time.

_____ 32. I like to let people know where I stand on things.

_____ 33. I am apt to pass up something I want to do when others feel that it isn't worth doing.

_____ 34. I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards.

_____ 35. I would certainly enjoy beating a crook at his own game.

_____ 36. Religion gives me no worry.

_____ 37. I have at times had to be rough with people who were rude or annoying.

_____ 38. I feel sure that there is only one true religion.

_____ 39. There are certain people whom I dislike so much that I am inwardly pleased when they are catching it for something they have done.

T or F

_____ 40. I am often inclined to go out of my way to win a point with someone who has opposed me.

_____ 41. I am often said to be hotheaded.

_____ 42. The man who had most to do with me when I was a child (such as my father, stepfather, etc.) was very strict with me.

_____ 43. Lightning is one of my fears.

_____ 44. When a man is with a woman he is usually thinking about things related to her sex.

_____ 45. I do not try to cover up my poor opinion or pity of a person so that he won't know how I feel.

_____ 46. I have frequently worked under people who seem to have things arranged so that they get credit for good work but are able to pass off mistakes on to those under them.

_____ 47. I strongly defend my own opinions as a rule.

_____ 48. People can pretty easily change me even though I thought that my mind was already made up on the subject.

_____ 49. Sometimes I am sure that other people can tell what I am thinking.

_____ 50. A larger number of people are guilty of bad sexual conduct.

Would the following traits and qualities describe you?

	Yes	No
Being hard-driving and competitive	___	___
Usually pressed for time	___	___
Being bossy or dominating	___	___
Having a strong need to excel in most things	___	___
Eating too quickly	___	___

Do you feel like the following at the end of an average day?

Often feel very pressed for time	___	___
Work/activities/responsibilities stay with you so you are thinking about it after hours	___	___
Responsibilities/work often stretches you to the very limits of your energy and capacity	___	___
Often feel uncertain, uncomfortable, or dissatisfied with how well you are doing	___	___

Do you get upset when you have to wait for anything?	___	___

DC Scale

Below you wil find a series of statements. Please read each statement carefully and respond to it by expressing the extent to which you believe the statement applies to you. For all items a response from 1 to 7 is required. Use the number that best reflects your belief when the scale is defined as follows:

1. The statement doesn't apply to me at all.
2. The statement usually doesn't apply to me.
3. Most often, the statement does not apply.
4. I am unsure about whether or not the statement applies to me, or it applies to me about half the time.
5. The statement applies more often than not.
6. The statement usually applies to me.
7. The statemnt always applies to me.

It is important that you respond to all items.

		1	2	3	4	5	6	7
1.	I prefer a job where I have a lot of control over what I do and when I do it.	___	___	___	___	___	___	___
2.	I enjoy political participation because I what to have as much of a say in running government as much as possible.	___	___	___	___	___	___	___
3.	I try to avoid situations where someone else tells me what to do.	___	___	___	___	___	___	___
4.	I would prefere to be a leader than a follower.	___	___	___	___	___	___	___
5.	I enjoy being able to influence the actions of others.	___	___	___	___	___	___	___
6.	I am careful to check everything on an automobile before I leave for a long trip.	___	___	___	___	___	___	___
7.	Others usually know what is best for me.	___	___	___	___	___	___	___
8.	I enjoy making my own decisions	___	___	___	___	___	___	___

9. I enjoy having control over my own destiny

1 2 3 4 5 6 7

10. I would rather someone else take over the leadership role when I'm involved in a group project

1 2 3 4 5 6 7

11. I consider myself to be generally more capable of handling situations than others are

1 2 3 4 5 6 7

12. I'd rather run my own business and make my own misakes than listen to someone else'e orders.

1 2 3 4 5 6 7

13. I like to get a good idea of what a job is all about before I begin.

1 2 3 4 5 6 7

14. When I see a problem, I prefer to do something about it rather than sit by and let it continue.

1 2 3 4 5 6 7

15. When it comes to orders, I would rather give them than receive them.

1 2 3 4 5 6 7

16. I wish I could push many of life's daily decisions off to someone else.

1 2 3 4 5 6 7

17. When driving, I try to avoid putting myself in a situation where I could be hurt by someone else's mistake.

1 2 3 4 5 6 7

DC Scale

1. Doesn't apply to me at all.
2. Usually doesn't apply.
3. Most often does not apply.
4. Unsure, or applies half the time.
5. Applies more often than not.
6. Usually applies.
7. Always applies

---

18. I prefer to avoid situations where someone else has to tell me what it is I should be doing.

1 2 3 4 5 6 7

19. There are many situations in which I would prefer only one choice rather than having to make a decision.

1 2 3 4 5 6 7

20. I like to wait and see if someone else is going to solve a problem so that I don't have to be bothered with it.

1 2 3 4 5 6 7

PERI LIFE EVENTS SCALE

Instructions

For each item listed below, check off any that have happened to you in the past 6 months.

✓ SCHOOL

_____ 1. Started school or a training program after not going to school for a long time

_____ 2. Changed schools or training programs

_____ 3. Graduated from school or training program

_____ 4. Had problems in school or in training program

_____ 5. Failed school, training program

_____ 6. Did not graduate from school or training program

✓ WORK

_____ 7. Started work for the first time

_____ 8. Returned to work after not working for a long time

_____ 9. Changed jobs for a better one

_____ 10. Changed jobs for a worse one

_____ 11. Changed jobs for one that was no better and no worse than the last one

_____ 12. Had trouble with a boss

_____ 13. Demoted at work

_____ 14. Found out that was <u>not</u> going to be promoted at work

_____ 15. Conditions at work got worse, other than demotion or trouble with the boss

_____ 16. Promoted

_____ 17. Had significant success at work

_____ 18. Conditions at work improved, <u>not</u> counting promotion or other personal successes

_____ 19. Laid off

_____ 20. Fired

_____ 21. Started a business or profession

_____ 22. Expanded business or professional practice

_____ 23. Took on a greatly increased work load

_____ 24. Suffered a business loss or failure

_____ 25. Sharply reduced work load

_____ 26. Retired

_____ 27. Stopped working, <u>not</u> retirement, for an extended period

√ LOVE AND MARRIAGE

_____ 28. Became engaged

_____ 29. Engagement was broken

_____ 30. Married

_____ 31. Started a love affair

_____ 32. Relations with spouse changed for the worse, without separation or divorce

_____ 33. Married couple separated

_____ 34. Divorce

_____ 35. Relations with spouse changed for the better

_____ 36. Married couple got together again after separation

_____ 37. Marital infidelity

_____ 38. Trouble with in-laws

_____ 39. Spouse died

√ HAVING CHILDREN

_____ 40. Became pregnant

_____ 41. Birth of a first child

_____ 42. Birth of a second or later child

_____ 43. Abortion

_____ 44. Miscarriage or stillbirth

_____ 45. Found out that cannot have children

_____ 46. Child died

_____ 47. Adopted a child

_____ 48. Started menopause

✓ STARTED MENOPAUSE

_____ 49. New person moved into the household

_____ 50. Person moved out of the household

_____ 51. Someone stayed on in the household after he was expected to leave

_____ 52. Serious family argument other than with spouse

_____ 53. A change in the frequency of family get-togethers

_____ 54. Family member other than spouse or child dies

✓ RESIDENCE

_____ 55. Moved to a better residence or neighborhood

_____ 56. Moved to a worse residence or neighborhood

_____ 57. Moved to a residence or neighborhood no better or no worse than the last one

_____ 58. Unable to move after expecting to be able to move

_____ 59. Built a home or had one built

_____ 60. Remodeled a home

_____ 61. Lost a home through fire, flood or disaster

✓ CRIME AND LEGAL MATTERS

_____ 62. Assaulted

_____ 63. Robbed

_____ 64. Accident in which there were no injuries

_____ 65. Involved in a law suit

_____ 66. Accused of something for which a person could be sent to jail

_____ 67. Lost drivers license

_____ 68. Arrested

_____ 69. Went to jail

_____ 70. Got involved in a court case

_____ 71. Convicted of a crime

_____ 72. Acquitted of a crime

_____ 73. Released from jail

_____ 74. Didn't get out of jail with expected

✓ FINANCES

_____ 75. Took out a mortgage

_____ 76. Started buying a car, furniture or other large purchase on the installment plan

_____ 77. Foreclosure of a mortgage or loan

_____ 78. Repossession of a car, furniture or other items bought on the installment plan

_____ 79. Took a cut in wag or salary without a demotion

_____ 80. Suffered a financial loss or loss or property not related to work

_____ 81. Went on welfare

_____ 82. Went off welfare

_____ 83. Got a substantial increase in wage or salary without a promotion

_____ 84. Did not get an <u>expected</u> wage or salary increase

_____ 85. Had financial improvement not related to work

✓ SOCIAL ACTIVITIES

_____ 86. Increased church or synagogue, club, neighborhood, or other organizational activities

_____ 87. Took a vacation

_____ 88. Was not able to take a planned vacation

_____ 89. Took up a new hobby, sport, craft or recreational activity

_____ 90. Dropped a hobby, sport, craft or recreational activity

_____ 91. Acquired a pet

_____ 92. Pet died

_____ 93. Made new friends

_____ 94. Broke up with a friend

_____ 95. Close friend died

✓ MISCELLANEOUS

_____ 96. Entered the Armed Services

_____ 97. Left the Armed Services

_____ 98. Took a trip other than a vacation

✓ HEALTH

_____ 99. Physical health improved

_____ 100. Physical illness

_____ 101. Injury

_____ 102. Unable to get treatment for an illness or injury