THE DOCTOR, THE PATIENT, AND THE ILLNESS:
AN EXAMINATION OF THE PSYCHOLOGY OF HEART DISEASE.

Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy at the Department of Psychology UNIVERSITY OF STIRLING

by

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ABSTRACT.

The aims of the present study were threefold: firstly, to further the understanding of the psychological response to heart disease; secondly, to consider the differences in the ways in which doctors and patients perceive heart disease; and thirdly, to consider how the doctor, patient, and condition interact within the illness process over a period of time.

The nature of coronary heart disease (CHD) was considered, and the influence of psychological variables in CHD was discussed. Psychological factors in illness were examined, with particular emphasis on health beliefs, illness behaviour, compliance, and the doctor-patient relationship. Conclusions were drawn that to understand the illness process in heart disease, doctor, patient, and condition must be considered together, in an interactional framework.

Two pilot studies were performed. The first study found that heart patients' health beliefs differed from a normal population. The second pilot study, with raised cholesterol patients, suggested the existence of five major components of the illness process: illness perception, illness effect, health orientation, doctor-patient relationship, and compliance.

The main study considered groups of heart and cholesterol patients (experimental groups) and a group of general outpatients (control group), over a four-to-six month period. Patients were interviewed and given a questionnaire concerning their feelings regarding their condition. Doctors and judges also completed similar questionnaires.

Results indicate that cholesterol patients rate superior
coping to the other groups, and both experimental groups were higher than controls with regard to patient understanding, responsibility for health, and communication with doctor. Findings suggest alterations should be made in current conceptualization of illness behaviour, and that patient and doctor assessment of condition severity were found to be unrelated to illness behaviour. Doctor and patient perception of patient behaviour were found to be discrepant.

Modifications in the treatment of heart and cholesterol patients are suggested.
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And finally, thanks to Gail.
DEDICATION.

To my mother and father, with love.

And with thanks for their patience!
NOTE ON THE TEXT.

In the text, I have chosen to use "he" in cases where "he/she" was applicable, and "his" on occasions where "his/her" was applicable. I have done this simply to save time and space. It is unfortunate that the language doesn't have an aesthetic and efficient alternative to "he/she" or "his/her". Perhaps someone should invent one.

For all tables and graphs, the following abbreviations have been used:

M, x.: mean.
S, s.d.: standard deviation.
N: number of subjects.
ns: not significant.
m f: male female.
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CHAPTER ONE

INTRODUCTION.
1.1 Coronary Heart Disease.

1.1.1 Medical Condition.

There are many different types of heart disease. The most common, the cause of heart attacks, is Coronary Heart Disease (CHD). The heart is a blood-filled bag of muscle about the size of a fist. The muscle contracts about 70 times a minute, to pump blood around the body. The heart muscle needs a good supply of oxygen, and gets this from the bloodstream. Its supply is not taken from the blood which is being pumped through the heart but from separate small arteries, the coronary arteries. These arteries branch off from the main artery (the aorta) and then divide into smaller branches which fan out over the heart surface.

Over a period of many years, starting in early adult life, the walls of these arteries can gradually become furred up with a fatty deposit called atheroma. This process is known as atherosclerosis, the most common and important form of arteriosclerosis, a disease characterised by the thickening and loss of elasticity of arterial walls. If the atheroma gets too thick and the arteries too narrow, the blood supply to the heart muscle can be restricted or even blocked. This is CHD. It has two main forms: angina and heart attack.

If the narrowing of the coronary arteries is very gradual, then the first signs of trouble may only be noticed when the heart is having to work harder than usual. Because the blood flow through the arteries is restricted, anything which makes the heart work harder starves the heart of blood. When a person exerts himself, this can bring on a heavy cramp-like pain across
the chest. Sometimes the pain spreads to the neck, shoulder, arm or jaw. This kind of pain is known as angina. It is not the same as a heart attack because it is usually relieved by a short rest period or relaxation. Somebody who suffers from angina does have a higher than average risk of having a heart attack, but angina itself can be relieved or controlled by drugs and, in severe cases, surgery.

The heart attack (myocardial infarction (MI)) happens when there is a sudden and severe blockage in one of the coronary arteries, so that the blood supply to part of the heart muscle is cut off. The blockage is usually caused by a blood clot forming in an artery already damaged by fatty atheroma. This is called a coronary thrombosis, or simply a coronary. The part of the heart muscle affected is severely damaged causing the pain that is the most common symptom of a heart attack. The pain is usually, but not always, a crushing vice-like ache felt in the chest. It can spread to the neck, jaw or arm.

In some cases the effects of the blockage can be so severe that the heart stops beating altogether. This is called a cardiac arrest. Unless the heart starts beating within a few minutes the person will die. Unfortunately about 50% of all fatal heart attack victims die within half an hour, often before medical help arrives. (Health Education Council, 1982).

Some findings, however, question this view of the cause of MI. An MI may occur in the absence of occlusive coronary disease, and, indeed, in 15 to 20% of infarcts no occlusion can be found. A concept has emerged with myocardial necrosis as the primary event, followed in some patients by thrombosis of the
coronary trunks. The evidence from systematic histologic study of the major coronary arteries in consecutive patients suggests that thrombi are more likely to be the result of acute myocardial infarction, than the cause (Robbins, 1974).

As well as angina and MI, another endpoint of heart disease is sudden cardiac death. However, definitions of this phenomenon vary. It is generally considered to be death within a few minutes or hours of symptom onset (Steptoe, 1981).

There is no single theory of the pathogenesis of atherosclerosis. The evidence to date, however, suggests that atherosclerosis begins in childhood, its manifestations not becoming clinically apparent until middle and late adult life. Although there is great variation in the severity of the disorder, the severity tends to increase with age, with virtually 100% of both males and females in predisposed populations having at least some atherosclerosis at death (Robbins, 1974). Three different types of atherosclerotic lesion appear in people at different ages: the fatty streak, a small collection of smooth muscle cells surrounded by lipid, is present in the aorta of every child by age 10; a more advanced lesion, the fibrous plaque, consists of a larger accumulation of lipid-laden smooth muscle cells; the third type, the complicated lesion, is a fibrotic plaque complicated by haemorrhage, calcification, cell necrosis, or mural thrombosis (Purtilo, 1978). If the intima, the inner lining of the vessel walls, is injured, platelets immediately adhere to the intimal lining. This is followed by more platelet adherence and the proliferation of smooth muscle cells. Lipids from the plasma accumulate in macrophages, proliferating smooth muscle cells produce collagen, elastic
fibres, and mucopolysaccharides. The cells and lipids together form an atheromatous plaque, a fibrous cap forming over the atheroma with necrosis occurring in the centre of the plaque. Calcification begins, resulting in a narrowing of the lumen, which eventually becomes blocked. If a plaque should haemorrhage, a mural thrombosis can develop, causing a sudden blockage of one of the vessels (Gerner, 1980).

1.1.2 Incidence of Coronary Heart Disease.

CHD is the largest single killer in Britain today. It is estimated that four out of ten men will suffer from some form of heart disease by the time they are 65 years of age (FIGURE 1.1).

![Figure 1.1: Causes of Death in the U.K. (as a percentage of all deaths) (Health Education Council, 1982).](image-url)

By the end of the 1970s, cardiovascular diseases accounted for more than half of all deaths in the U.S.A (Purtilo, 1978). Clearly, atherosclerosis is the greatest killer in the western world (Robbins, 1974). Global in distribution, in economically developed societies it has steadily climbed in incidence to reach alarming epidemic proportions (Gerner, 1980). It would be a mistake to assume CHD was entirely a modern phenomenon. Signs of
arterial stenosis are found even in Egyptian Mummies. However, only in the 20th century have cardiovascular disorders become the commonest cause of death in industrialised nations (McGill, 1977).

Sex differences in incidence have been reported, data concerning the under 45 age group indicating atherosclerosis to be a predominantly male phenomenon in the proportion of approximately 8 to 1 (Mann, 1964, cited in Steptoe, 1981). Women in the stage of active reproduction are buffered from the disease, unless there is a predisposition to atherosclerosis by multiple risk factors (Robbins, 1974). Details for Scotland indicate that at the end of the 1970s, males were predisposed to CHD at a ratio of approximately 3 to 1 in comparison to females, below the age of 45; the proportions being virtually equal at 70-75 years, with more females than males dying of the disease at over 75 years (Reg. Gen. Ann. Report, 1977, cited in Gerner, 1980). These figures suggest a higher proportion of females having the disease than their American counterparts. In the last 20 years in Britain, there has been an increase of heart disease in younger women.

There are substantial cross-cultural differences in the incidence of heart disease, as can be seen from FIGURE 2.1. Notice how England, Wales, Scotland and N. Ireland are near the top of the league for deaths from heart disease. However, mortality rates are a crude index of the severity and prevalence of heart disease. A distinction can be made between latent atheroma and its clinical endpoints. Atherosclerotic lesions develop progressively with age in most peoples of the world, even though many will never manifest serious symptoms (McGill, 1968).
An extensive autopsy study of people dying from non-cardiovascular diseases was carried out in five European towns (Kagan et al., 1976). Fibrous atherosclerotic plaques were found in the coronary arteries of up to 90% of males aged 40, and in the same proportion of females by the age of 50. Complicated and calcified lesions appeared even in 20 year olds. Much coronary disease is thus undetected, coming to medical attention only with symptoms such as chest pain (Berner, 1980).

![Figure 1.2: Death Rates from CHD in Different Countries (age: 35-74 years) (Health Education Council, 1982).](image)

In the US, cardiovascular mortality has been falling over recent years (FIGURE 1.3). Between 1970 and 1976, the rate for ischaemic heart disease was reduced by 15.7% in the U.S.A. The decrease is proportionately greater than the change in non-cardiovascular death rates, and may reflect both improvements in
1.1.3 Risk Factors.

Researchers have studied entire populations to try to discover what it is in everyday life that increases the risk of heart attack and angina. Their results show that there is no single cause of heart disease. Instead, there seem to be several different factors which together affect the heart. Some people are more likely to suffer from heart disease than others: the tendency to die young can run in the family; the narrowing of the arteries which can lead to angina and MI tends to get worse as the person gets older; and men are more at risk from heart
disease than women (Health Education Council, 1982). Evidence has accumulated as to a substantial association between the acceleration and development of CHD and three major risk factors: cigarette smoking; hypertension; and hyperlipidemia.

1.1.3.1 Cigarette smoking.
The well known risks of cigarette smoking are lung cancer and chronic bronchitis, but more than half of the excess mortality in smokers is due to cardiovascular disease. A pioneering study of smoking habits in British physicians revealed 30% higher cardiac mortality amongst self-reported cigarette smokers. It has been estimated that if cigarette smoking was abolished, the mortality rate from coronary artery disease would fall by as much as 25% in men aged 35-64 years (Pitney, 1981). There is a reduction in the risk of developing coronary heart disease in those who stop smoking which is evident within the first year, although it may take 10 years or more for the death rate of ex-smokers to reach that of non-smokers (Ball and Turner, 1974). Indeed, more recent evidence suggests that past smokers still remain at higher risk (Pooling Project, 1978). The link between cigarette smoking and heart disease in women is less clear, although this may be due in part to the size of the cohorts that have been investigated. Smoking was not an important risk in women in the Framingham prospective project, either for heart disease or brain infarct (Kannel, 1976).

The precise effect of cigarette smoking is not completely understood. However, the nicotine in tobacco increases the pulse rate and raises the blood pressure. The carbon monoxide content of cigarette smoke cuts down the amount of oxygen in the blood.
The heart is therefore working harder but receiving less oxygen. There is also an acceleration effect on the furring up process of the coronary arteries (Gerner, 1980).

1.1.3.2 Hypertension.

The Pooling Project (1978) combined results from five longitudinal studies of middle-aged white U.S. males. More than 8300 subjects were incorporated into the project, and followed up for an average of 8.6 years. Over this period, some 650 originally disease-free men suffered either a fatal or non-fatal MI, or sudden cardiac death; Figure 4 summarises the risk associated with systolic blood pressure levels. Vulnerability increases progressively with rising pressure level, so that men with readings over 150mmHg are more than twice as likely to sustain severe clinical heart disease than those in the lowest quintile. A similar relationship has been recorded for diastolic
pressure. It is well known that treatment of hypertension decreases the risk of death from cerebral haemorrhage, left ventricular failure or renal failure. There is as yet little evidence to show that control of hypertension reduces the incidence of CHD. The exact cause of high blood pressure is not known, but several factors can be influential in causation. For example: being overweight; smoking; drinking; lack of regular exercise; eating too much salt; and stress (Steptoe, 1981).

Hypertension is implicated functionally in atherogenesis, and it is not simply a correlational risk. The endothelial surface is sensitive to blood flow shear, and may be damaged by the stress of high arterial pressures. This mechanical effect is reflected in the distribution of atheroma through the arterial network, since lesions are more common in regions exposed to high pressure (Mitchell and Schwartz, 1965). The endothelial damage promotes atheroma, since it increases the permeability of the vessel wall, facilitating the flux of lipoproteins. With extremes in arterial pressure, actual separation of endothelial cells can occur. Intimal damage also allows platelets to adhere on exposed basement membrane, initiating thrombus formation (Steptoe, 1981).

1.1.3.3 Hyperlipidaemia.

Since one of the populations under consideration in this study is a high-cholesterol group, particular attention will be paid to this risk factor. Population studies have shown a strong positive correlation between the mean level of plasma cholesterol in different communities and the incidence of CHD (Keys, 1970). The Framingham study (American Heart Association, 1973) showed a progressive increase in CHD risk with increasing cholesterol
values, even in the presumed normal range. Cholesterol is a fat-like substance which is indispensible for life. For example, it is a structural component of cell membranes and is also used to make a variety of hormones. Cholesterol does not exist in the plasma in the free state, but it is carried in lipoprotein fractions. The lipoproteins are of varying density and each lipoprotein fraction contributes to the total serum cholesterol. Studies have shown that a relatively large amount of cholesterol in the low density lipoprotein (LDL) fraction increases the risk of CHD, whereas a protective effect is observed if cholesterol is carried in the high density lipoprotein (HDL) fraction. It appears that the type of lipoprotein which is attached to cholesterol is just as important as the total plasma cholesterol value (Pitney, 1981).

Plasma triglyceride values also contribute to the risk of developing CHD, and the effect of the triglyceride concentration acts independently from that of cholesterol. An individual with increased plasma concentrations of both cholesterol and triglycerides runs a greater risk of CHD than one with an increase of either cholesterol or triglycerides (Blacket et al., 1973). However, a review by Hulley (1980) suggests that the link between triglycerides and CHD is still controversial, and for the most part unconvincing.

Individuals vary in their capacity to synthesise cholesterol and in the speed at which they break it down. Genetic differences may mean that although two people eat the same diet, the level of cholesterol in person A’s blood may be, say, 200mg/dl, while person B’s is 300mg/dl, giving person B more than
twice the risk of an MI (Wood, 1983). The great majority of serum cholesterol is produced endogenously, and as dietary cholesterol decreases, the body tends to make more in order to compensate (Steinberg, 1979).

There are six distinct forms of hyperlipidaemia (Kaplan, 1984) and they are usually classified as suggested by Fredrickson and Levy (1972, cited in Kaplan, 1984). Lorimer (1985) suggests that diagnosis should be made on a minimum of two and ideally three fasting (12-14 hours) plasma samples. A uniformly turbid plasma without chylomicrons is likely to represent Type IV or Type IIB hyperlipoproteinaemia. In the former the triglyceride level is elevated, but cholesterol is normal; in the latter the raised triglyceride is accompanied by a raised LDL cholesterol. Clear plasma accompanies normal lipids or Type IIA, where the basic LDL cholesterol increase is usually reflected by a total cholesterol increase. Type IIB may also present with clear plasma. When this is so the total triglyceride level is usually less than 400mg/dl. The levels above this value cause plasma turbidity.

Therapy of hyperlipoproteinaemia is aimed at maximal reduction of lipid levels balanced against life style and age of the patient. Rigorous attempts at reduction would be more important in the 30 year old than in the 60 year old. It is a goal to encourage reduction of serum cholesterol level to approximately 180 mg/dl for adults under the age of 30, and to approximately 200 mg/dl for individuals age 30 or over (Steinberg, 1985, cited in Lefebvre, 1986). The treatment of obesity is a basic factor of the therapeutic programme. There is no doubt that reduced weight improves patients symptomatically
and psychologically. In general terms, the aim is to reduce weight to as near possible that of the patient aged 21. The difference in weight usually impresses the patient with the need for action (Lorimer, 1985).

Type IV hyperlipoproteinaemia occurs in up to 15% of the apparently healthy population. It is often associated with obesity, and achieving satisfactory weight reduction may correct the lipid problem. Raised triglyceride levels are often also associated with excess alcohol intake (Lorimer, 1985). Mild Type IIA hyperlipoproteinaemia may occur in up to 10% of apparently healthy women and around 4% of apparently healthy men. Dietary management should be able to reduce cholesterol values by around 20%. Weight reduction by itself will do little for cholesterol levels. A low cholesterol diet should contain around 300mg of cholesterol daily. This is achieved by substituting vegetable oils for animal fats; by using skimmed milk; by avoiding eggs and fat meats such as pork and bacon. All fat should be trimmed from other meats, and shellfish, liver and kidney are not taken. Margarine replaces butter, and cheese is avoided (Lorimer, 1985).

More severe abnormalities require drug therapy to achieve a further 10-15% reduction in cholesterol values. The main therapeutic agent at present is the bile acid sequestrant cholestryamine. This interrupts the enterohepatic circulation of bile and increases faecal loss of cholesterol. It is taken as a suspension 30 minutes before meals (dosage 12-32g daily in sachets of 4g). Gastro-intestinal side effects include nausea, flatulence, constipation, and occasionally diarrhoea. A more recent bile sequestrant polide:ide, in a dosage of 3g sachets
three to five times a day seems promising. Clofibrate is not a
drug of first choice, since it is relatively weak at lowering
cholesterol values. It is, however, of value in Type II B, where
the raised cholesterol level is accompanied by a raised
triglyceride level. (Lorimer, 1985).

With regard to triglyceride levels, if control is not
obtained through overall calorie restriction, then dietary
modification of carbohydrate intake is required. Carbohydrate
should be reduced to 40% of calorie intake, with fat (40%) and
protein (20%) constituting the remainder. Drug therapy is likely
only to be required for severe abnormalities (Lorimer, 1985).

Familial Hypercholesterolaemia (FH) should be differentiated
from all other types of hyperlipidaemia because the risk of
cardiovascular disease is particularly high in FH. FH is a
common disorder affecting as many as 1 in 500 of the population.
The first case was described over 100 years ago as a skin
disorder appearing in four generations. The link between MI and
FH was established in the late 1930's. In the 1960's, the
genetic basis of the disease became established as due to a
single dominant abnormal gene, leading to marked
hypercholesterolaemia. This results from a decreased rate of
removal of LDL from plasma. The defect in catabolism is due to a
reduction in the cell surface LDL receptors. In the common
heterozygous form of the disease the receptor number is reduced
by about 50% and in the homozygous form in which an abnormal gene
is inherited from each parent, these high affinity receptors are
absent. Overproduction of LDL also occurs in some patients. In
heterozygous patients physical features do not usually occur
until adult life, and are not invariably present. The physical
features include: achilles tendon xanthomas; tendon xanthomas; xanthelasmas; and corneal arcus (FIGURE 1.5). Xanthomas in the

1. Achilles tendon xanthomas

2. Tendon xanthomas

3. Xanthelasmas

4. Corneal arcus

Figure 1.5: Physical Indications of FH (Simon Broome Heart Research Trust, 1984).

achilles tendon and in the extensor tendons at the back of the hand are highly suggestive of FH. Xanthelasmas and corneal arcus may be seen in people who do not have FH, but the presence of a corneal arcus before the age of 35 is highly suggestive of the diagnosis. By the age of 60, 85% of men with untreated FH will have had an MI, and about half of them are likely to have died. Women also fare badly, but their incidence of heart disease lags about 10 years behind that of men. This risk is much greater than that associated with other risk factors for heart disease.
and other forms of hyperlipidaemia. Other forms of vascular disease are also accelerated in FH, but the association is less striking than with CHD. Although the contribution of FH to the epidemic of CHD in western populations is small (in one study 3% of 193 survivors of MI), within affected families the effects can be devastating. Furthermore, a far greater proportion of young MI patients are likely to have FH. In homozygous FH, CHD is rapidly progressive, and patients rarely live beyond the age of 30 years (Simon Broome Heart Research Trust, 1984).

While the significance of serum cholesterol is generally accepted, the relevance of dietary habits and fat intake remains controversial (Sirtori et al, 1975). Keys and Anderson (1955, cited in Kaplan, 1984) showed that dietary cholesterol has little or no effect on serum cholesterol within the ranges of the ordinary human diet. They also noted that dietary cholesterol has little effect on the development of atherosclerosis. This is not surprising in view of the several risk factors that contribute to CHD, and if it is recognised that significant coronary atheroma is likely to be already present when hyperlipidaemia is diagnosed (Steptoe, 1981). However, experimental atheroma in animals has been observed to regress in response to measures which lower serum cholesterol. In man, the clearest evidence of regression stems from angiographic studies after surgical treatment of severe hyperlipoproteinaemia (Starzl et al, 1974, cited in Lorimer, 1985). Stallones (1983) reviewed six American epidemiologic studies and one British study on dietary characteristics and ischaemic heart disease mortality. Findings suggested no links between the development of ischaemic heart disease and the consumption of high levels of fat,
cholesterol, or calories. Kaplan (1984) notes that, of the eight prospective studies he had found, only four reported that dietary changes reduce the incidence of deaths due to heart disease. However, in each of these studies, there was an unexpected finding for total deaths: mortality averaged over all causes was not affected by the experimental dietary interventions. Reductions in deaths due to heart disease are associated with increases in deaths from other causes - in most cases cancer. Lefebvre (1986) criticises Kaplan for not considering the Oslo study, in which a significant effect on fatal and non-fatal CHD events was reported, mostly due to the lowering of serum cholesterol levels, but Kaplan (1986) claims that the Oslo study confounded dietary intervention with smoking cessation; also, although the Oslo study showed a strong effect on CHD mortality and morbidity, it did not demonstrate a significant effect on total deaths. Perhaps the most important study to emerge in recent years, is the Coronary Primary Prevention Trial (Lipid Research Clinics Program, 1984a; 1984b, cited in Kaplan, 1984). 3,806 men aged 35-59 with cholesterol levels greater than 265mg/dl were randomised to receive either a placebo or cholesteryamine. Cholesteryamine was successful at lowering cholesterol by an average of 8.5% in the experimental group. Those in the treatment group experienced 24% fewer heart disease deaths and 19% fewer heart attacks than the placebo group. One of the most important results was that within the treatment group there was a significant relationship between compliance with the advice to take the medication and the development of heart disease (Kaplan, 1984). Those who achieved a fall in serum
cholesterol of 25% cut their CHD risk by 50%.

Keys (1970) studied heart disease in seven countries and showed positive correlations between the proportion of calories derived from saturated fatty acids in different populations, and their mean serum cholesterol concentrations. Populations with a higher proportion of saturated fatty acids have greater serum lipid values. However, as Steptoe (1981) notes, it is doubtful that differences between populations may be taken as causal evidence; almost invariably, disparities can be found. For example, the Samburu tribe in Kenya eat a rich diet in saturated fats, but have low serum lipid and heart disease rates (Shaper, 1962). Furthermore, the correlations between serum cholesterol and diet of individuals within populations are generally low (Keys, 1970). Lefebvre (1986) argues that within-population studies of dietary patterns and total plasma cholesterol rarely show a strong correlation because the variability of food consumption within groups is typically restricted. But population studies that compare dietary habits and plasma cholesterol across groups with diverse eating habits uniformly produce strong associations.

The discrepancies between fat intake and serum lipid may be due to the processes of cholesterol metabolism. Only a small proportion of the total body cholesterol circulates in the serum, the distribution being affected by the amounts synthesised, equilibration between serum and tissues, and the rate of catabolysis (Oliver, 1976). The influence of variations in diet may thus be limited, and this is consistent with experiments on dietary manipulation. Vergroesen (1975) studied the effects of replacing saturated fats with the unsaturated linoleic acid.
Increasing the proportion of calories derived from unsaturated fats from 20% to 35% led to a significant reduction in serum cholesterol; but a further rise to 50% had no added effect. Connor and Connor (1977) measured lipid levels in 25 people on cholesterol free diets, and then when they were eating 1000mg per day of egg yolk cholesterol. Even this gross change raised average plasma concentrations from only 211 to 247 mg/dl. Considering this experimental diet was well above the population average for lipids (400 to 600 mg per day), the data suggest that serum levels are heavily buffered against variations in dietary intake (Steptoe, 1981).

The serum cholesterol concentration is directly involved in atherogenesis through its relationship with lipid insinuation. Smith and Slater (1973, cited in Steptoe, 1981) analysed blood samples taken during the week before death, and were able to demonstrate high positive correlations between intimal lipoprotein and serum cholesterol levels. Serum cholesterol has an additional role as an intimal irritant, promoting connective tissue responses and fibrous thickening in the plaque (Steptoe, 1981).

1.1.3.4. Multiple Risk.

People are more likely to suffer from some form of atherosclerotic disease when they are at risk on more than one of the above factors. Although the risk factors are independent of each other, they combine to produce much greater chances of illness (FIGURE 1.6). Prospective epidemiological studies indicate that it is quite rare for an individual who does not
score high on two or three factors to develop heart disease. However, heart disease is far from universal, even in the presence of risks. Oliver (1976) calculated that although people at risk on the three major factors sustain eight times more cardiac disease over a decade than those not displaying these characteristics, the incidence is still only 17%; thus, 83% of high risk subjects survive throughout that time. Similarly, the incidence of coronary disease across populations is not entirely explained when allowing for cholesterol, blood pressure and smoking (Gordon et al, 1974). There are two implications of this observation. Firstly, additional chronic influences may make independent contributions, combining with known risks to manifest the danger in certain individuals. Secondly, the elements that provoke or trigger clinical symptoms may be different from those
involved in atheroma. Since atherosclerosis is itself widespread in the population, it is possible that acute processes are superimposed on the long-term mechanisms in people who develop diagnosed heart disease (Steptoe, 1981).
1.2 Psychological Factors Contributing to CHD.

As observed in the previous section, the risk factors identified in epidemiological research do not account for all cases of heart disease. Many people at high risk remain free from CHD. By taking into account the effect of psychological factors on CHD, this apparent discrepancy may be resolved. Firstly, psychological factors may have indirect effects on CHD through the standard risk factors. For example, smoking is a behaviour, and psychological interventions may be appropriate for other risk factors (e.g., diet and compliance in regard to cholesterol).

Secondly, the psychosocial environment, behaviour, or personality, may influence the disease process directly. Such direct influence may be chronic, in terms of affecting the development of atherosclerosis, or acute, with regard to initiating clinical symptoms in CHD prone individuals (Steptoe, 1981).

1.2.1 Psychosocial Influences on CHD.

There are many broad psychosocial influences on heart disease. This is notable in the varied incidence of heart disease in countries throughout the world. Several studies have shown that the difference in prevalence of CHD between cultural groups persist even after controlling for the major risk factors (e.g., Marmot et al., 1975, cited in Steptoe, 1981). There is therefore strong evidence that the psychosocial milieu in which a person lives has an important effect on his cardiovascular health. Early investigations based on prevalence and mortality statistics in Britain tended to reveal greater rates of CHD in the higher social categories (e.g., Brown et al., 1957). More recent
studies, however, have indicated an opposite trend. Since 1961, the mortality rate for cardiovascular diseases in classes IV and V has exceeded that of classes I and II, and the trend is particularly strong in the younger age ranges (Marmot et al, 1978).

Turning to more specific causes of CHD, an association between extreme distress and sudden death can be traced from the earliest medical literature (Steptoe, 1981). The connection between bereavement and ill health has often been recorded (Rowland, 1977). When Parkes and associates (1969) followed up a large cohort of middle-aged widowers, the main cause of the 40% deviation in mortality was CHD and arteriosclerosis. Deaths as a result of these disorders accounted for 60% of the increased mortality.

A raised cardiovascular death rate may follow social disasters, as well as personal traumas. A major earthquake in Athens in 1981 was the background for a study by Trichopoulos et al (1983). The effects of psychological stress on death from atherosclerotic heart disease and cardiac events were assessed by comparing total and cause-specific mortality in the days immediately following the earthquake, with that in the two weeks before and after the earthquake, and in the corresponding periods of 1980 and 1982. Review of death certificates showed an excess of deaths from cardiac and traumatic causes in the days immediately following the earthquake; no excess of deaths from cancer; and little, if any, excess of deaths from other causes. The excess of deaths was more apparent when atherosclerotic heart disease was considered as the underlying cause than when cardiac
events in general were taken as the proximate cause. This study, however, tends to make assumptions about the nature of psychological stress. With no direct measure of stress taken at the time of the earthquake (understandably enough), it is impossible to prove or disprove that this was the major variable operating to induce the excess of cardiovascular deaths.

Such research is based on the grossest of traumas that occur in people's lives, and it is possible that the influence of acute emotional responses extends beyond such crises (Steptoe, 1981). Life Event methodology has been applied to investigate the effects of a broader range of experiences (Holmes and Rahe, 1967). Connolly (1976) used an amended form of earlier methodology by Holmes and Rahe, with 91 patients in a coronary care unit (CCU), comparing them with an equal number of healthy controls. Analysis was confined to the number of emotional events reported, rather than cumulative scores, as is the norm. Significantly more patients than controls confirmed that they had experienced disturbing life events in the 3 weeks prior to the cardiac crisis. When the patients were divided into angina and acute onset groups, the association with life events was only reliable in the latter. Thus, the fact that the patients were in a different environment from the controls could not account for the findings, since the angina group did not produce significant results. A recent study (Sarason et al, 1985) correlated positive and negative life events, and social support, with illness among Navy Submarine School students. Only negative life events in the recent past were related to reports of illness, but this relationship was stronger among subjects with low rather than high levels of social support. The results suggest the
importance of assessing both stressful life events and moderators of response to stress, such as social support, in investigating the role played by the psychosocial environment in illness.

The unpleasantness of the living or working environment has been implicated in heart disease. Of course, the unpleasantness may be defined by the occupants themselves, or by objective criteria. Russek and Russek (1976) sampled prevalence rates of ischaemic heart disease in different medical and legal specialities thought to vary in their stressfulness. GPs and anaesthetists, who are considered to work under substantial stress, reported higher levels of heart disease than the less pressurised dermatologists and pathologists. Reynolds (1974) found that men involved in controlling lunar missions had higher levels of ECG abnormalities than controls, a finding which could not be accounted for by differences in serum cholesterol levels or arterial pressure. It cannot be inferred that this taxing environment is conducive to heart disease, however, since people generally select their own occupations. Some underlying characteristic may not only lead certain people to choose stressful careers, but also put them at risk for CHD. Furthermore, it is clear that "stressful" elements of the work environment can be disturbing, but can also be perceived as challenging. Thus, the personal perception of the environment must be added to the measurement of external demands (Steptoe, 1981).

Adopting this theoretical viewpoint, Van Dijl (1974, cited in Steptoe, 1981) showed that Dutch cardiac patients rate themselves as more involved in their jobs, more responsible, and
active, than controls. Sales and House (1971) identified consistent negative correlations between job satisfaction and fatal ischaemic heart disease across occupational groups. Theorell and colleagues (1975) carried out a prospective study on workers in the construction industry in the Stockholm area. Strong relationships between cardiovascular risk factors and psychosocial variables were uncovered. The 51 men in the study who suffered infarction, out of the 6500 men participating, could be distinguished by ratings on a questionnaire "discord index". Further investigation of the same population showed that the main variable associated with heart disease was work problems (Theorell et al, 1977, cited in Steptoe, 1981).

A possible mediating variable between work conditions and illness is status inconsistency (Blalock, 1967). Individuals may have achieved high educational standards but have comparatively low income, or may have been brought up in circumstances which differ from those of adult life. Such experiences are thought to promote conflicting cultural expectations, disruption of interpersonal relationships, and confusion about social roles (Steptoe, 1981). Evidence suggests that such a variable may play a part in the relationship between environmental stress and CHD (e.g., Shekelle et al, 1969).

1.2.2 Hypertension.

Essential hypertension is a heterogeneous disorder. Several pathogenic mechanisms may bring about blood pressure elevation, and different physiological and behavioural mechanisms are implicated at various stages of the disorder (Kaplan, 1982). Psychological stimuli such as emotionally stressful events
correlate highly with the worsening of hypertensive episodes in patients with established hypertension (Weiner, 1979). Recent research on behavioural influences has focused increasingly on earlier rather than later stages of the disease. Despite many findings suggesting characteristics of suppressed hostility, anxiety, and social insecurity among patients with hypertension, the concept of a hypertensive personality has not received substantial support (Krantz et al, 1985).

A variety of conditions can produce elevation in blood pressure. Conditions of battle (Graham, 1945), industrial explosions (Ruskin et al, 1948), and gross traumas of a similar nature have been researched. Migration has also been implicated. Cruz-Coke (1960) compared two groups of trainee policemen from highland Peru. One group had lived in urban Lima for several years and their pressure was higher than the group of recruits newly arrived from the country. Scotch's (1963) studies of Zulus on rural reserves and in urban communities also suggested that rapid cultural change had a role to play in the aetiology of hypertension. Of course, migration often results in changes of diet and exercise, and these changes may mediate the effects of migration on hypertension (Steptoe, 1981). Thus, Ostfeld and D'Atri (1977, cited in Steptoe, 1981) have argued that blood pressure changes are largely due to increases in weight amongst migrants. A further problem is that migrants are never picked at random from their original populations, and the same factors may underlie both blood pressure changes and the tendency to migrate (Steptoe, 1981). Rao et al (1984) found that for 1073 urban women, and 961 rural women, systolic and diastolic
pressures were significantly greater in the urban sample, suggesting that it may not be migration per se, but the environment of residence that plays a principle role in hypertension. In some senses, it is immaterial whether the pressure modifications are mediated by diet, weight, exercise, or psychological distress, since all of these are elements of behaviour, and not organic pathologies (Steptoe, 1981).

Hypertension is also associated with unemployment. Kasl and Cobb (1970) studied a group of workers for a period commencing two months prior to loss of employment, and ending two years subsequent to that loss. A control group made up of consistently employed males was used for the same time period. For the latter group, as might be expected, there was no overall change in pressure levels. In the experimental subjects, however, elevated blood pressure was found both in anticipation of job loss, and after termination of employment. A sub-group of the experimental sample were quickly re-employed, and this group showed more rapid decreases in blood pressure.

Maintaining the theme of employment, House and colleagues (1979) investigated the relationship between perceived job satisfaction and hypertension. They found that the estimated prevalence of hypertension amongst men reporting the highest degrees of job satisfaction was 3.5%, compared with 14.4% in the group reporting lowest satisfaction. Levels in groups with the highest and lowest amount of role conflict at work were calculated to be 27.5% and 4.9% respectively. Cobb and Rose (1973) compared over 4000 air traffic controllers (ATCs) with almost 8000 second class airmen, and showed that essential hypertension was some 4 times more prevalent amongst the former.
The mean age of onset of hypertension was 41 in the former group, compared with 48 in the comparison group. Thus, more men in the demanding occupation tended to develop hypertension, and they did so at an earlier age. Additionally, on comparing those ATCs working at busy terminals with those working at terminals dealing with smaller loads, it was found that the age of onset of hypertension was lower in the first group. Thus, the environmental conditions within which one works and lives seem important with regard to the development of high blood pressure.

The treatment of hypertension takes many forms. A variety of nonpharmacologic approaches are considered to be effective adjuncts to drug therapy, or in the case of mild hypertension, a possible alternative to drug therapy (Krantz et al, 1985). The three major forms of such therapy include diet, physical exercise, and behaviour modification (Shapiro, 1983). Markedly decreasing salt intake in the diet can have a measurable effect on blood pressure (Parjis et al, 1973). In a study by Shibata and Hatano (1979, cited in Steptoe, 1981), hypertensive women who had received a 150 minute lecture on diet, blood pressure, and salt, and who had been instructed to lower salt usage, were found to have lower systolic and diastolic readings in comparison to a control group within a week. The level of modification was equal to that obtained through some drug treatments. Morgan et al (1978) found that the pressure modification following administration of detailed dietary instructions about salt restriction compared favourably with drug treatments, even at two year follow up.

As Steptoe (1981) notes, when it comes to drug intervention,
many problems occur. Poor compliance with medication is one Complaints about side effects are widespread amongst recipients of medication, although they do not appear to constitute a major cause of failure to take drugs. A large proportion of hypertensive patients have negative feelings concerning the use of drugs, and even when regimens are maintained, pressure control is not always adequate. This problem is compounded by the nature of the risk from hypertension. Serious consideration is being given to drug intervention at ever lower levels of arterial pressure, and yet only a minority of those with moderately elevated pressure progress to higher values, while still fewer actually succumb to cardiovascular disorders (Miall and Brennan, 1979, cited in Steptoe, 1981). Thus, growing numbers of people begin medication at an early age, continuing indefinitely, in an attempt to avoid an illness they may never develop even without drug intervention.

It is hardly surprising, therefore, that there has been increasing interest over recent years in the development of alternative management procedures based on voluntary control with biofeedback and relaxation. Unfortunately, hypertension is notoriously sensitive to placebos and therapeutic expectations (Goldring et al., 1956), and there are thus major difficulties in assessing the efficacy of biofeedback and relaxation procedures (Steptoe, 1978). However, Patel and North (1975) gave hypertensives individual therapy, teaching them to relax using instructions focusing progressively on different parts of the body, and providing the hypertensives with feedback of skin conductance or muscle tension as an aid to relaxation. Hypertensives received twelve 30 minute sessions, while the
control group received the same number of undirected relaxation sessions. The results indicated that pressure fell in both conditions, but reductions in systolic and diastolic pressure were significantly greater after the directed relaxation programme. Two months later, the controls were switched to directed therapy, and they too showed large falls in arterial pressure, while the former treatment group maintained their improvement.

In comparison to this study, the effects of training subjects with direct feedback of blood pressure have been disappointing. Although small decreases are regularly recorded within treatment sessions, they are often not translated into useful effects (Krantz et al, 1985). Some of the greatest changes were generated in a series of outpatients given intensive systolic pressure feedback training (Benson et al, 1971). Decreases of 30mmHg were observed in some cases, while others failed to respond. Other carefully designed comparisons of blood pressure feedback with alternative psychological techniques have yielded predominantly negative results (e.g., Blanchard et al, 1979). When treatments are compared with appropriate control conditions, the decreases produced with biofeedback do exceed those of instructed subjects (Steptoe, 1977), but the alterations are generally no greater than those produced with simple relaxation procedures (Fey and Lindholm, 1978). Perhaps one answer is to approach the problem of hypertension from various routes, by taking diet, medication, and relaxation into account. Also, as has been shown, there are many possible influences on blood pressure; perhaps the psychologist should be more aware of
hypertension in relation to its controlling factors, rather than treating it as an isolated physiological complaint.

1.2.3 Smoking.

Some idea of the habit-forming qualities of tobacco can be appreciated by considering how much people would sacrifice to maintain their supplies. In 16th century England, for example, tobacco was exchanged for silver ounce for ounce. During the 17th century the Sultan Murad IV of Turkey arranged public tortures and executions to try and dissuade his subjects from taking tobacco, but did not succeed (Davison and Neale, 1978).

The question of why people smoke has always puzzled non-smokers. Smoking can, perhaps, be seen as simply a pleasurable activity, but evidence suggests that intrinsic properties of smoking are not pleasurable (Zagona Ashton and Stepney, 1982). As Ashton and Stepney (1982) point out, the fact that tobacco smoke has been so generally preferred to other equally available, equally flavoursome, and probably equally irritant substances, suggests that it has uniquely valuable properties. It is highly likely that these properties are related to the fact that the smoke contains a drug with powerful physiological and psychological effects.

The development of smoking behaviour has come under substantial investigation. Much evidence suggests that starting to smoke is related to the influence of parents and peer groups, and to the anticipation of adulthood (Russel, 1971). Mausner and Platt (1971), in a study of 1500 adolescents, found that the median age of first experimentation with smoking was 12, clearly identifying the time around puberty as the critical point for
initiating the habit. The greatest influence in starting smoking appeared to come from friends of a similar age. 56% of smokers said that their friends also smoked, compared with only 14% in the case of non-smokers. The effect on childhood smoking of the behaviour of peers, parents, and siblings, is presumably mediated partly through increased exposure to cigarettes, and partly through the influences of imitation and example (Ashton and Stepney, 1982). However, constitutional and genetically determined factors are no doubt also relevant (e.g., Cherry and Kiernan, 1976). It has been proposed that biological factors that affect the quality of initial experience with smoking influence the likelihood of initiation. For example, if early experiences include intense nausea, one is less likely to begin smoking habitually (Silverstein et al, 1982).

As smoking continues, the effects of nicotine begin to overlap social factors in reinforcing the behaviour. The smoker learns quickly of the rewarding effects of nicotine as he develops tolerance to its unpleasant effects and becomes adept at manipulating the dosage. Pharmacological factors thus become of increasing importance relative to social factors in maintaining smoking behaviour. There are two main views of the way in which these pharmacological factors may operate. The first, the addiction model, holds that the smoker's brain and body become so adapted to the presence of nicotine that he cannot function properly without it. The second view, the psychological tool model, suggests that the dose-dependent, stimulant-depressant actions of nicotine allow the smoker to use it as a means of manipulating his psychological state under many environmental conditions.
conditions (Ashton and Stepney, 1982). The two views are not mutually exclusive, and both effects of nicotine may interact in varying degrees with each other, and with social influence and constitutional needs, to determine not only whether an individual smokes, but also the way in which he smokes. As Davison and Neal (1978) stress, there is often a failure in distinguishing among different kinds of smokers. Those smoking over 20 cigarettes a day may well be addicted to nicotine, whereas those who limit their smoking, for example, to social situations and consume less than a pack a day do indeed smoke from habit, but they may not be addicted.

As an example, in an experiment involving two conditions, Herman (1974) placed a pack of cigarettes either directly under the main source of light in a room (high salience condition), or in shadow (low salience), and observed smokers’ behaviour. Light smokers lit up in an average of five minutes when their attention was directed to the cigarettes in the high salience condition, but took fifteen minutes otherwise. Heavy smokers, motivated, as is argued, more by internal cues, lit up in six minutes in both conditions.

The way in which a psychologist might go about treating a smoker who wishes to stop would depend on how the psychologist viewed the behaviour. If the psychologist holds the view that the behaviour is learned through a combination of positive and negative reinforcement obtained from nicotine, and maintained through a mixture of partial and secondary reinforcement, and classical conditioning (Ashton and Stepney, 1982), then one treatment method the psychologist might employ is aversive conditioning. In this form of therapy, an unpleasant stimulus is
administered at the same time as the unwanted behaviour occurs. The reaction of anxiety or discomfort produced by the noxious stimulus then becomes a conditioned response to the presence of the unwanted behaviour itself, replacing the positive reinforcement which would normally accompany and maintain it. There are two main examples of aversive conditioning, one employing electric shock and the other rapid smoking as the noxious stimulus. However, the association between electric shock and smoking is entirely arbitrary, and the fact that learned non-smoking does not generalize to situations outside the laboratory may be partly because of this (Ashton and Stepney, 1982). With rapid smoking, the strategy is to use as punishment a stimulus - cigarette smoke - which will be present in the normal smoking environment, and which may aid the transfer of learning from the laboratory. Various attempts to use this technique have required subjects to smoke at a much faster rate than they would choose, or have exposed people smoking to a stream of warm, concentrated, smoky air directed at their faces. Although success rates are variable, evidence suggests that up to 60% of subjects treated in this way may be non-smokers when assessed six months after treatment (Lichtenstein et al, 1973). Whilst rapid smoking and warm, smoky air seemed equally effective, there was no evidence that combining the two forms of therapy enhanced the rate of success (Ashton and Stepney, 1982).

Other workers have employed operant conditioning in an attempt to stop smoking behaviour. Thus, Barton and Barton (1978) gradually shaped continuous non-smoking by reinforcing longer and longer periods spent without a cigarette. More
recently, Newman and Bloom (1981a) also found that by imposing increasing periods of delay between inhalation, smoking inhibition was significantly improved. In a follow-up study (Newman and Bloom, 1981b), it was found that improvement was greatest in conditions where smoking cues were most salient, and where external control was most reduced. This was attributed to the build up in coping responses and frustration extinction brought about by the increasing delays between inhalation. However, there was no follow up beyond the laboratory environment; and it should be noted that delay between inhalation does not necessarily alter the intake of nicotine. As the smokers in this study were all heavy smokers, it can be assumed that this was a group of people addicted to the nicotine in smoke. It has been frequently shown that smokers can regulate their intake of nicotine, even when control is imposed on the brand of cigarette they smoke, and the number of puffs taken (Ashton and Stepney, 1982). Several studies have recently suggested that more emphasis should be placed on self-change and self-control in smoking cessation, rather than artificial laboratory techniques. As Prochaska and DiClemente (1983) point out, of the 30 million Americans who stopped smoking in the last decade, between 70 and 80% stopped on their own, without attending a smoking clinic. Schacter (1982) suggests that those people who enroll in formal programmes of smoking cessation may be least capable of effecting changes on their own. By studying the cognitive processes underlying smoking cessation, a better understanding of how therapy might be tailored to the individual smoker could be achieved; those smokers who are ready for self control, and those who might benefit from further externally
controlled training, could more easily be distinguished.

The problem of relapse after smoking cessation is a serious one, and has been considered in some depth. Hunt et al (1971) collated data from 87 studies which had used a wide range of anti-smoking therapies. Taking all the results together, the following pattern emerges: as soon as treatment ends, there is a steep decline in the proportion of people who are still not smoking, such that after three months only 35% are still not smoking, and at six months 25%. The rate of relapse than slows, with roughly 20% not smoking at the end of one year. Hunt and colleagues, propose that this figure represents the true average success rate of conventional treatments. Considerable attention has been devoted to determining subject characteristics which are correlated with treatment outcome, but, as Danaher (1977) notes, no one factor consistently predicts success at smoking cessation.

Poole and Dunn (1981, cited in Poole and Dunn, 1982) have argued that there is a fault in the logic of previous reviewers, in that the baseline smoking rate defines the degree of success, with an assumption of continuity of this outcome measure from abstinence (0% of baseline rate) to infinity. This assumption implies that the causes of abstinence are the same as, but operate to a greater extent than, the causes of reduced smoking. Obviously this is not necessarily so. Poole et al (1982) found that when total abstainers were treated as a separate group from non-abstainers, the two groups could be differentiated on the basis of a combination of behavioural variables, such as sex, extraversion, and locus of control.

There is an important point which most researchers appear to
be missing when discussing smoking behaviour; it is that smoking is a behaviour, and as such exists as part of a network with other behaviours. In a recent review, Istvan and Matarazzo (1984) found that smoking was linked with alcohol consumption and caffeine consumption. Thus, smokers drank more alcohol than non-smokers, and heavier smokers drank more than light smokers. Similarly, at least for males, smokers drank more coffee than non-smokers. This has important repercussions for therapists. Firstly, if there is a possibility that these behaviours are linked in a manner more intimate than being elicited by the same situational factors, then therapists should examine alcohol and caffeine consumption patterns when attempting to treat smoking behaviour. Even if there is no underlying factor beyond a linked response to environmental and internal stimuli, this aspect alone suggests that the therapist should be more aware of the use of psychoactive substances apart from nicotine. Secondly, in as much as alcohol and caffeine have been linked with cardiac pathology, it would seem important to examine alcohol and caffeine consumption following smoking cessation, since increased consumption might follow in order to counteract the loss of nicotine, and thereby minimise the beneficial effect smoking cessation would have on the cardiovascular system.

1.2.4 Serum Cholesterol and Diet.
Since one of the patient populations considered in this study is a hyperlipidaemia population, particular attention will be paid to this matter.

The evidence that psychological factors can have direct effects upon serum cholesterol concentration is somewhat limited.
Most studies that indicate behavioural effects on serum cholesterol levels have methodological flaws (e.g., Wolf et al., 1962; Francis, 1979). Clark et al (1975, cited in Steptoe, 1981) followed US Air Force cadets over an 18 month period. At particularly stressful points during the course, increases in serum cholesterol concentration were recorded. For example, the beginning of the course, examination periods, and sessions of intense military training all produced changes in the concentration. However, few other studies that have examined more stressful conditions have produced significant findings (Steptoe, 1981). Cobb and Kasl's (1977) study of alterations in employment of factory workers found effects on serum cholesterol. The men who became unemployed on factory closure showed small but reliable increases in cholesterol, compared with falls in levels in those men going directly to new jobs. Also, the unemployed who subsequently found jobs produced larger decreases in levels between job termination and six month follow up, than the group who remained redundant. Of course, employment alteration leads to changes in lifestyle, and it is hard to say exactly what variables are operating in this situation.

In a recent study, Thomas and colleagues (1985) examined the relationship between social support, and stress-related changes in cholesterol levels in the elderly. In addition, uric acid level and immune function were also considered. The results indicated a statistically significant inverse relationship between degree of social support and the level of serum uric acid and cholesterol, and a significant positive relationship between social support and total lymphocyte count. When sex differences
were examined, it was found that the relationship between serum cholesterol and social support was the only relationship not to reach significance for females, whereas this was the only significant relationship for the males. The authors suggest that this may be due to closer relationships being forged by women in general, therefore maintaining low levels of serum cholesterol, and additionally buffering them against life stresses. Reviewing the current literature, Van Doornen and Orlebke (1984) state that there is enough evidence to suggest that psychological stressors significantly elevate serum cholesterol levels, and that psychological characteristics such as Type A coronary prone behaviour (TABP), and depression, are positively correlated with serum cholesterol levels. The authors further conclude that the relationship between TABP (see 1.2.5) and stress and CHD, may be partially explained by the mediating role of serum cholesterol.

There are two main treatments of serum cholesterol levels once they reach unacceptable proportions: medication and diet. In moderate cases, diet is often employed singly, but medication is necessary for more serious cases. As has been noted previously, however, the relationship between serum cholesterol, and dietary habits and fat intake, is still controversial (Kaplan, 1984). However, diet and weight modification are integral parts of the treatment of both hyperlipidaemia and hypertension, and obesity per se is linked with heart disease, so it would seem important to discuss such matters here. For a discussion of the problems of compliance with medication, see section 1.4.3.

Why people overeat has interested investigators over a number of years. Sinnett and associates (1983) conducted a study in which 32 college students in a weight-control programme were
observed for a period of a few months. One third of the students indicated that the primary reason they overate was pleasure, while another third claimed tension was the main reason. Ecological variables also appeared to be associated with excessive eating: 17 subjects reported that they most often ate excessively when alone, while 8 reported doing so when they visited their families. Overall, there was evidence that the deviations from dieting followed a temporal pattern found in previous studies of the abuse of street drugs and alcohol. The authors suggest a functional equivalence among drugs, alcohol, and food. It is interesting when reflecting on this study, that work by Margule and colleagues (1978) suggests a physiological link between abnormal eating habits and mechanisms of opiate addiction. Levels of the naturally occurring opiate beta-endorphine were found to be twice as high in the pituitary gland of genetically obese mice and rats, as in those of lean littermate controls. Small doses of the drug naloxone (which blocks opiate effects) selectively abolished overeating in the obese animals, whilst leaving the behaviour of the lean ones unaffected. Based on these findings, a parallel can be drawn between compulsive eating and opiate addiction, in so much as obese individuals show certain characteristics also shown in opiate dependence: excess consumption, dysphoria upon withdrawal, and relapse tendency (Ashton and Stepney, 1982).

Environmental and social factors such as cultural norms and attitudes towards figure also affect body weight (Krantz et al, 1985). Studies of eating behaviour have reported that overweight individuals are particularly sensitive to external cues, while
normal weight individuals are relatively more sensitive to internal cues (Schacter and Rodin, 1974). However, recent studies suggest that this bias in obese individuals may be more a function of dieting than of obesity per se (Rodin, 1981).

When reviewing the current status of treatment for obesity in adults, Stunkard (1983) suggests that moderate obesity, more than severe or mild, is best treated by diet or, especially, behaviour modification. Behavioural treatment is probably the safest and most effective way to lose weight. Components of behaviour modification programmes for weight reduction include describing the behaviour to be changed by record-keeping; identifying stimuli that precede eating; and modifying the consequences of eating to reward the performance of desired behaviours (Stunkard, 1979, cited in Krantz et al, 1985). However, some investigators have chosen other means of eliciting weight loss. Epstein and colleagues (1984) examined the effect of diet plus exercise on weight change in parents and children. The authors note that the effectiveness of dieting in producing weight loss greatly exceeds that of exercise. However, exercise and dieting produce additive effects on weight loss, so that weight loss should be quicker if diet is combined with exercise rather than used alone. Also, body composition changes should shift in the direction of greater fat change and less muscle loss when exercise is added to dieting. Third, exercise may have a direct effect on suppressing appetite in obese persons. Finally, exercise may prevent the marked decrease in metabolic rate that accompanies dieting, and which makes continued weight loss difficult. In the study, obese children and parents from 53 families were randomly assigned to three treatment groups: diet;
diet plus exercise; no treatment control. At six months, parents and children in both treatment groups had equal and significantly better weight change than members of the control group. At one year, however, parents given diet plus exercise showed better weight losses than parents given diet alone. With regard to Epstein’s fourth point above, Donahoe and colleagues (1984) investigated the metabolic consequences of dieting and exercise in the treatment of obesity. When monitoring the resting metabolic rate (RMR) of dieting individuals, it was found that dietary restrictions lowered RMR by an amount nearly double that expected on the basis of the resulting weight loss, possibly explaining why the rate of weight loss typically declines or ceases entirely in the later stages of diet only programmes. It was also found, however, that exercise caused the RMR to rise to a level appropriate to the dieters’ prevailing body weight, thus enabling substantial weight loss. The study only used 10 subjects, however, and further studies with larger samples are necessary. But there seems to be potential for a diet plus exercise approach to weight reduction.

Maintaining weight loss is, of course, a problem. As Krantz et al (1985) note, people can lose weight, but they cannot keep it off. Perri et al (1984) evaluated 2 strategies for enhancing maintenance of weight loss: relapse prevention training; and post-treatment client-therapist contact by post and telephone. 129 moderately obese individuals were randomly assigned to one of six experimental conditions in a 3 by 2 factorial design. Three treatment conditions (nonbehavioural therapy; behaviour therapy; behaviour therapy plus relapse prevention training) were crossed
with two post-treatment conditions (client-therapist contact by post and phone; no contact). All treatments produced substantial initial weight losses, but subjects tended to regain weight during the follow-up period. At the one year follow-up session, the only condition that maintained its mean post-treatment weight loss was the one that received behaviour therapy plus relapse prevention training and post-treatment contact. There is a problem with this study, in that attentional factors are not controlled, and thus the extra interventions may not produce beneficial results because of their unique properties, but simply because the effect of extra intervention of any sort is cumulative. However, it can be seen that, similar to behaviour therapy in smoking cessation, the traditional behavioural procedures are now being augmented with new techniques, in an endeavour to raise the success rate in maintaining weight loss.

1.2.5 Coronary Prone Behaviour.

The constellation of behavioural characteristics designated as "Type A" or "coronary-prone" was first described in cardiac patients by Friedman and Rosenman (1959). They identified a group of attributes including sustained aggression, ambition, and competitiveness. The contrasting, more relaxed people who did not display these features were labelled Type B. The assessment of behaviours was made from global impressions of patients' performance in a structured interview designed to evoke Type A behaviours (Steptoe, 1981). There is evidence linking the Type A behaviour pattern (TABP) with CHD. The most substantial results have emerged from a prospective study, which traced 3000 male, middle-aged Americans for over eight years (Rosenman et al,
1964). Half of the population were classified as Type A on interview assessment, and the remainder as Type B. During initial screening, of the 113 cases of ischaemic heart disease identified, approximately 70% were from the Type A group. 257 individuals developed CHD during the prospective period, and 50 died during the study. The rate of CHD in Type As was twice that of Type Bs (Rosenman et al, 1975). Even after stratification on the standard risk factors, the link between TABP and CHD persisted (Rosenman et al, 1976, cited in Steptoe, 1981). A number of studies indicate that coronary prone behaviour may be associated not only with manifest ischaemic heart disease, but also with the degree of coronary stenosis. Zyzanski and colleagues (1976) examined 90 men suffering from a variety of cardiac complaints. All completed the Jenkins Activity Survey before surgery, and their coronary angiograms were rated blind for degree of obstruction. Patients with greater levels of stenosis scored significantly higher on the Type A scale. Similarly, a study by Frank et al (1978) found that the mean number of coronary arteries with 50% or more occlusion increased with increasing coronary prone behaviour. To balance this picture, negative results have also been reported (e.g., Krantz et al, 1979).

Amongst the methods used to distinguish TABP, the interview technique devised by Friedman and Rosenman (1959) predicts ischaemic heart disease most accurately. The interview is a semi-structured conversation of varying length, in which equal weight is placed on the patient’s verbal responses and manner of delivery. This procedure now identifies sub-divisions of Type A and B behaviour, the most common categories in use being A1 A2,
B, and an intermediate category, X (Steptoe, 1981). The precise criteria of categorisation are not explicitly described in the literature, since global impressions are of principle importance. However, because of this vagueness in criteria, the reported incidence of TABP in clinical populations is disputed (e.g., Russek and Russek, 1977). When interviewers have received training on the identification of TABP, a reliability of 70-80% in categorising people as Type A or B is common, but when the sub-divisions are employed, agreement drops to under 60% (Jenkins et al., 1968, cited in Steptoe, 1981). In view of the shortcomings of the vague interviewing criteria, standard tests or questionnaires would appear to have advantages. However, questionnaires lack the intimidating aspect of the interview which is so crucial in provoking the reactive characteristics of behaviour necessary for a comprehensive diagnosis of Type A (Steptoe, 1981). In addition, self-report measures rely on people having insight into their own behaviours, and yet Type A individuals are reputedly poor at self-appraisal (Rosenman, 1978). Thus, assessment procedures remain amongst the weakest components of TABP research. The interview has the greatest predictive power but is the most subjective, while the systematically sound questionnaires are predictively weaker (Steptoe, 1981).

More recent studies have questioned the links between TABP and CHD. Independent of the TABP, measures of "anger-in" (unwillingness to express frustration) successfully predicted the incidence of CHD for both men and women in a study by Haynes and colleagues (1980), and in a study by Dembroski et al (1985), this
element and "potential for hostility" were the only elements of the global behaviour pattern associated with Type A to be significantly positively associated with cardiac disease severity. Global Type A behaviour per se had no association with extent of disease. Further analysis revealed that potential for hostility and anger-in were interactive in their association, such that hostility was associated with disease endpoints only for patients who were high on the anger-in dimension. This study supported previous research (e.g., Matthews et al, 1977) in suggesting that anger and hostility may be the critical aspects of the TASP in predisposing individuals to risk of coronary atherosclerosis.

One way of understanding coronary prone behaviour is as a fixed trait or attribute, developing under the influence of constitutional factors or early environment. This Type A characterisation is similar to other descriptions of personality, and correlates with ratings of dominance, impulsiveness, and sociability (Glass, 1977). Attempts have been made to examine the underlying properties through factor analysis of questionnaire measures, but the significance of the uncovered clusters is obscure, and none of the clusters have been associated with clinical endpoints (Jenkins et al, 1976). A recent study (Byrne et al, 1985), examining the consistency and variation among instruments purporting to measure TASP, found that self-report measures portray one of two contrasting elements within the behaviour pattern. One has to do with time and pressure and the speed at which activity is seen to be undertaken; the other is more concerned with attitudes, objectives, and inclinations pertinent to the individual’s work.
situation. The robustness of this finding remains to be seen, but it is interesting that these factors seem to bear little relation to the elements in the TABP stressed by Dembroski and colleagues (1985). Rhodewalt (1984) notes that various conceptualizations of TABP have at their core the idea that Type As and Type Bs differ in the ways in which they evaluate themselves. In particular, Type As appear guilty of self-attributing in situations where control for events is externally located (Rhodewalt and Nahavandi, 1982, cited in Rhodewalt, 1984), increasing perceived loss of control (Glass, 1977).

Alternatively, it may be useful to consider coronary prone behaviour as a response style, and not a reflection of fixed traits (Steptoe, 1981). The incidence of TABP differs between populations, suggesting that not all environments and cultures elicit the response pattern. Even if some people display the behaviours on assessment, they may not habitually respond in such a fashion. The behaviour pattern was first described in middle aged men in California, the majority of whom belonged to middle income groups. The pattern may therefore be closely linked to the individual occupational ambitions of Western urban culture (Steptoe, 1981). Byrne et al (1985) found differences between urban and rural samples when employing the interview methodology, with higher prevalence of TABP in the urban sample, but all further differences in terms of occupation, education, and so forth, were limited to the self-report measures. Interestingly, the urban-rural distinction has also been uncovered in school children (Butensky et al, 1976). Thus, the behaviour pattern seems to be embedded within the social context of competitive
occupational careers in Western cultures. However, substantial proportions of populations, even in Western cities, do not display TABP, and only a fraction sustain ischaemic heart disease (Steptoe, 1981). Conversely, some unusual environments also have an element of TABP in their populations, for example, monasteries (Caffrey, 1969).

The physiological mechanisms which underly the link between TABP and CHD have been considered. Friedman et al (1964) suggested that Type A individuals have relatively high catecholamine excretion, serum cholesterol, rate of blood clotting, and fasting triglyceride levels. Van Doornen and Orlebeke (1984), as reported above, also claim that serum cholesterol mediates between TABP and CHD. Friedman and colleagues (1975) matched 15 Type As and Type Bs, and set them to work against each other at solving puzzles, with the reward for the winner being a bottle of wine. The puzzles were, in fact, insoluble, and results indicated that during the experiment, Type As evidenced significantly greater increases in noradrenaline than their matched Type Bs. This pattern suggests a heightened sympathetic nervous system response amongst Type As, when confronted with actively challenging conditions. Type As were more involved behaviourally with the task also, concentrating more intensely, and appearing agitated and restless. This finding is supported by other research, suggesting heightened self-involvement in Type As (Scherwitz, Berton, and Leventhal, 1978).

Researchers are examining the feasibility of modifying the TABP, but unfortunately this area is not well developed, partly because the TABP refers to a heterogeneous set of behavioural
characteristics that are difficult to target clinically, and partly because these behaviours are of instrumental and social value in our society (Krantz et al., 1985). Indeed, since Type A behaviours have been formulated so vaguely, it is not clear that all behaviours associated with the pattern would have to be altered to reduce cardiac risk (Friedman, 1979). Further, once patients realise which elements are considered undesirable, they may conceal such behaviours during evaluation. Both interview and questionnaire measures can be defrauded, leading to trivial changes in behaviour. Steptoe (1981) suggests the development of assessment techniques which could be employed by colleagues and relatives to determine behaviour change beyond the domain of the laboratory. Before this can occur, however, the vagueness of the description of Type A behaviours will have to be altered, so that specific elements can be identified.

Initial attempts at altering Type A behaviour were based on the concept that stress mediated the link between TABP and CHD (Suinn and Bloom, 1978). When techniques such as Anxiety Management Training were employed, anxiety did fall in subject samples, but no effect on TABP was reported. In recent years, a variety of techniques have been employed to modify TABP, including relaxation training, cognitive restructuring, aerobic physical exercise, and psychodynamic and behavioural group therapies. Overall, results of these studies suggest that brief psychological interventions promote changes in certain Type A behaviours at post-testing (Suinn, 1982). The most ambitious Type A intervention study to date is the Recurrent Coronary Prevention Project. Its main aim is to discover whether Type A
behaviour can be modified in cardiac patients by using cognitive restructuring, relaxation training, and guided practice; and whether such modifications will lower subsequent recurrence rates of coronary crises. Results of this study reported to date seem encouraging (Thoresen et al, 1982, cited in Krantz et al, 1985).

It is certain that many efforts will be made to change TABP in the future. Such efforts will be aided by a more precise identification of those behaviours considered dangerous, so that specific proposals about management can be put forward. Bids to change global features of personality or behaviour are rarely successful, and may result in unnecessary upset. The environmental conditions that promote Type A behaviours must also be explored, since the pattern does not exist in a vacuum. Unless the social context in which the individual exists is brought into consideration, lasting changes in behaviour are unlikely to appear (Steptoe, 1981).

1.2.6 Multiple Risk Factor Intervention.

The value of preventive techniques would be greatly enhanced if a single procedure led to changes in several of the risk factors. Mass media and community programmes of counselling and education about heart disease are progressing in several centres. For example, the Belgian Heart Disease Prevention Project has had some success (Kornitzer et al, 1980). 1500 high risk blue collar workers were allocated to an intervention group, and given individual counselling every six months. They were advised about fat intake, smoking, and encouraged to consult their physician about high blood pressure. Control subjects were also screened, but given no counselling. At two year follow-up, serum
cholesterol had fallen by 3.9% in the intervention group, compared with a rise of 0.4% in the controls; systolic pressure decreased by 7.8%, compared with 3.4%; and the intervention group had a greater decrease than controls with regard to daily cigarette consumption. The authors estimated that there was a 20% reduction in the risk of heart disease in the intervention group, compared with an increase in risk of 12.5% in the controls.

The relaxation and biofeedback techniques applied to essential hypertension (see section 2.2) may also be valuable in this wider context. Patel (1976) found that the patients participating in her treatment programme also showed decreases in cholesterol. The mean pre-trial concentration fell an average of 24.5 mg/dl after six weekly treatment sessions. In an extension of this study (Patel et al, cited in Steptoe, 1981), 240 middle aged industrial employees, selected on the basis of high risk criteria, were allocated to two groups, matched on age, sex, and risk factors. Treatment subjects attended 8 group sessions of one hour, in which they learned biofeedback and meditation procedures. They also had access to health education material, while controls had only a short counselling session with health literature available. Amongst those individuals with high blood pressure, significant decreases were measured in both groups, but the effects of active treatment were greater. Serum cholesterol also fell, with treatment subjects producing larger changes post-treatment, but not on follow up. Nearly 70% of smokers in the treatment condition by the end of the study had restricted their usage, whereas this was true for only 39% of controls.
Reductions of noradrenaline, plasma renin activity, and aldosterone were also recorded in the active treatment subjects, suggesting some of the mechanisms by which the treatment might operate. Patel and her colleagues estimate that these adjustments would lessen the likelihood of fatal CHD by some 20%.

No discussion of cardiovascular risk reduction studies is complete without consideration of the Multiple Risk Factor Intervention Trial (MRFIT, 1982). This project involved the selection of nearly 13,000 high-risk individuals, 50% of whom were randomly assigned to a clinic-based Special Intervention (SI) to reduce cholesterol, smoking, and blood pressure. Techniques included health education, behaviour modification group support approaches, and a programme to prevent recidivism. The remainder of the subjects received the Usual Care (UC) accorded them by their health care providers. Results of the MRFIT project—known as Mr. Fit in some quarters (Wood, 1983)—have initiated controversy and confusion among health professionals. The SI group showed a decrease in cardiovascular risk factors, but so did the UC group. As Krantz and colleagues (1985) point out, this change in risk factors in the UC group was consistent with general risk factor reductions in the US population in the last decade, but such a trend was not anticipated at the time the study was designed. Additionally, drug treatment of hypertension in certain subsets of patients was linked to higher than expected mortality. As results of other preventive trials are available, further light will be shed on the various explanations offered for the findings of the Mr. Fit project.
1.3 Psychological Research After MI

From a medical perspective (Wilhelmsen et al., 1982), prognosis after an MI is dependent on a number of factors, but most clearly on the size of the infarction. The prognosis is not better for females than for males, and the importance of lipid disturbances is not of great importance subsequent to a first event. Wilhelmsen and colleagues note that the risk factors with the strongest predictive capacity for hospital outcome have been age and various signs and symptoms indicating extensive myocardial damage, such as left heart failure, hypotension, and shock during the acute phase, arrhythmias including heart block, and previous history of CHD. Mortality has been about three times higher among those with a first time MI. The suggestion from this medical picture is that owing to the very strong predictive importance of the various coronary and myocardial factors, the environmental, metabolic, and psychological factors that effect outcome after MI are of little significance.

Undaunted by this, over the past 20 years psychologists, psychiatrists, doctors and cardiologists have produced a large body of research in post-infarction psychology. The research has three main aims. Firstly, to define precisely the psychological trauma brought about by MI; secondly, to discover the psychological factors that affect prognosis after MI; and thirdly, to adjust post-infarction treatment on the basis of this knowledge, so as to improve prognosis.

1.3.1 Psychological Characteristics Subsequent to MI.

Anxiety and depression have been most closely associated with the
psychological reaction to MI. Hackett, Cassem, and Wishnie (1968) interviewed 50 patients in a CCU. Forty were judged anxious; eight were agitated, and eleven expressed anger at fate or circumstances. Twenty-nine admitted being depressed or exhibited behaviour consistent with depression. However, in no case was the depressive reaction incapacitating; none of the patients required psychiatric treatment after discharge during the six month observation period.

Cay (1982) describes the trends in the rise and fall of anxiety and depression over the post-infarction period. Anxiety is at its peak within the first few days, while depression becomes manifest a little later, particularly in those patients who have suffered a second infarct. While manifest anxiety does occur, symptoms are frequently disguised, making recognition difficult. Anxiety can present with rise in pulse rate or blood pressure, for which there is no clear cardiological explanation, or can emerge as aggression, or over dependency. Similarly, the patient may be manifestly depressed, expressing hopelessness about the future; but he may appear merely overconcerned with his symptoms.

The way in which the individual reacts to the infarct is independent of its physical severity: the most severely ill are not always those who react badly. In the majority of patients, the acute physical symptoms subside, and cardiac state is stable within 5 days. By this time, fear and anxiety are related to the environmental problems that the individual might face on discharge. Thus, 80% of cardiac patients with social problems were anxious or depressed, compared to 51% anxious or depressed patients without social problems (Cay, 1982).
There is little doubt that anxiety and depression are logically reasonable reactions to MI. Although the literature virtually universally supports the presence of such psychology subsequent to MI, there are important methodological problems in the research. Firstly, there is an alarming lack of standardization in researchers' approach to the measurement of anxiety and depression. It is hard to believe that all the instruments employed to measure anxiety and depression measure the same aspect of behaviour, and yet no mention is made by the majority of researchers as to the aspect of anxiety and depression being considered. Secondly, before one can measure anything, it has to be precisely defined. The concept of anxiety as one- or two-dimensional has come under attack in recent years, with the suggestion that up to four different aspects of anxiety may exist, each independent of the other (Koksal, 1987). It is no longer sufficient to say that patients suffer from "anxiety" and "depression". The terms are too ambiguous and broad in meaning, and yet the specific component of those behaviours under examination is not stated.

Anxiety and depression are not the only psychological reactions to MI. Cassem and Hackett (1971) implicate the defense mechanism of denial in the decrease of anxiety following the initial awareness of MI. These authors conceptualise denial as an unconscious mental defense, but other researchers (e.g., Greene, Moss, and Goldstein, 1974) emphasise the fact that patients may use denial as a conscious instrumental cognitive coping strategy, and argue that defense mechanisms among heart patients are developed in order to counter the threat of
helplessness that accompanies serious illness.

The concept of denial, like anxiety and depression, suffers from ambiguity. Christman’s (1981) review of the literature indicated three main issues: variation in the reported prevalence of denial; variability in the operational definition of denial; and lack of common consensus as to whether denial is effective in decreasing negative mood states, and promoting recovery.

A further common reaction to MI, termed cardiac invalidism, is characterised by excessive dependency, helplessness, and restriction of activity. This reaction of physical inactivity may actually contribute toward worsening of medical status due to physiological effects of deconditioning (Krantz, 1980). Certainly the functional state of the cardiovascular system of such patients is not commensurate with their invalidism. Klein and colleagues (1965) found excessive fear of death, fear of activity, and excessive attendance to the significance of bodily symptoms, in those patients who too readily accept the sick role.

Hackett, Cassem, and Wishnie’s (1968) study of the psychological hazards of a CCU indicated clearly that a major factor in the patients’ response to MI was environmental variables, such as the presence of the cardiac monitor, whether or not a cardiac arrest was witnessed, and so forth. Shine (1984) suggests an additional variable, when stressing the importance of the interaction between the anxiety of the physician and staff, with the patients’ anxiety.

Of course, the psychological reaction to MI does not end when the individual leaves the hospital. Homecoming does not take place without some problems. During the first month of convalescence, depression is manifested by subjective feelings of
fatigue, reluctance to engage in any form of activity, and expressions of inadequacy. There may be sleep disturbances, irritability, and oversensitivity. Depression is often more severe when the patient finds himself in a position of overt inferiority within his family circle. This is a picture of "homecoming depression" (Wishnie, Hackett, and Cassem, 1971). The severity of depression is often related to the patient's socioeconomic status, his job satisfaction, and to his desire to return to his former activities. The patient may experience problems relating to his role within the family, sexual activities, changes in lifestyle, and conflicts between ward physician advice and attitudes of the family physician (Degre-Country and Grevisse, 1982).

1.3.2 Psychology and Outcome Following MI.

There has been concentrated research in an attempt to discover psychological predictors of outcome, subsequent to an MI. However, a problem arises when one considers how to define "outcome". Although survival after MI is clearly necessary in order to have a satisfactory outcome, it is important that one is not severely incapacitated by the MI to such an extent that the quality of life falls; in such circumstances, despite survival, outcome is not satisfactory (Philip et al, 1981). Research to be reported below differ in the measure of outcome employed, and particular attention should be paid when attempting to compare studies and claims for successful outcome.

Anxiety is a major psychological component of trauma subsequent to MI, and several studies have investigated anxiety
as a determining variable in outcome. The general consensus is that high anxiety hinders successful rehabilitation (Dellipiani et al, 1976). Anxiety was measured at defined intervals after the onset of cardiac symptoms in two cohorts of men, one from Edinburgh, and the other from Teeside. In the Edinburgh group, patients who had reacted badly at the beginning of their illness were less likely to be working within 4 months, or be back to their previous level of activity. However, anxiety and outcome were not related in the Teeside sample. Nevertheless, Cay (1982) asserts the importance of psychological factors in return to work. While physical factors contribute to the patient’s ability to earn his living since angina and breathlessness prolong convalescence, by the end of one year Cay found no difference in the severity of infarct or of residual angina when comparing those who were working with those who were not. However, of those who were still noticeably upset at four months after infarct, 64% were working after an average convalescence period of 71 days, while 77% of others had returned to work after 58 days. Efficiency at work also dropped with increasing severity of upset. Hinohara (1970) argues that the speed of return to work is influenced more by psychological variables than the act of returning to work.

Cay (1982) states that it is possible to predict within the first week of illness those who will have a poor outcome as a result of continuing maladjustment. Alternatively, Mayou (1984a) claims that while some aspects of early and late outcome can be predicted with modest accuracy by multiple regression analysis of information gained during the acute hospital admission phase, more accurate, and therefore more clinically useful prediction of
late outcome is possible in early convalescence.

As noted earlier, denial is an important defense mechanism for patients subsequent to MI, and has been suggested as the main cause of the fall in the initially high anxiety levels exhibited by survivors of MI. Cassem and Hackett (1971) have developed a model for the time course of emotional reactions of people who suffer MI, and denial is implicated as the focal mechanism. They propose that a patient feels heightened anxiety when first admitted to a CCU. However, denial occurs rapidly, and the patient finds it difficult to believe that he has really had a heart attack. Anxiety therefore declines for a period, the patient often protests detention in the CCU, and becomes difficult to manage. However, after several days the patient becomes more aware of the limitations of his true condition, and depression sets in. This model implies that deniers will experience less anxiety than non-deniers, and because of the presumed stress-reducing effects of this defense mechanism, will show facilitated recovery. However, long-term follow up studies examining the relationship between denial and satisfactory outcome have been inconclusive; and additionally, use of denial has been related to long-term resistance to compliance with medical regimens, as deniers indicate less willingness to follow medical instructions (Krantz, 1980). Denial has a direct effect on the amount of information a patient might gain in hospital in regard to his condition, and such a factor can have a bearing on future rehabilitation (Shaw et al, 1985). Other studies have shown that deniers, in comparison to non-deniers, have a higher rate of return to work, and less physical disability (Degre-
Coutry and Grevisse, 1982). In sum, use of denial may make for better coping with the early stress of illness in the CCU. But overall, there is the possibility that patients may endanger their chances of recovery by ignoring medical recommendations which are important for satisfactory rehabilitation (Krantz, 1980).

Research indicates other factors that might have a bearing on recovery from MI. Stewart and Gregor (1984), for example, suggest that early mobilization and discharge from hospital have economic, social, and psychological advantages for patients and hospitals. Ruberman and colleagues (1984) conducted psychosocial interviews with male survivors of acute MI within six months of infarct, in an investigation of psychosocial influences on survivors' mortality after MI. Results indicated that two variables - life stress and social isolation - were strongly associated with an increased three year mortality risk. Subjects classified as being socially isolated and having a high degree of life stress had more than four times the risk of death than subjects with low levels of stress and isolation. Mulcahy (1976) indicates that the commonest cause of poor rehabilitation amongst coronary patients is inadequate communication between the attending physician and the patient, his family, and general practitioner. Ell, de Guzman, and Haywood (1983) examined pre-onset stress, and found a relationship between life change events and subsequent recovery from MI.

The psychological and social variables most commonly used in rehabilitation studies, such as anxiety, depression, denial, and social support, frequently correlate with each other as well as with outcome. These correlations, while statistically
significant, are sometimes quite small in absolute terms, and are therefore of limited practical value. It is possible to use these individual correlations as the basis for a multiple regression analysis (see Mayou, 1984a, above) which yields the relationship between an outcome measure and a combination of predictor variables. Philip and colleagues (1981) used the technique with the aim of measuring the degree to which characteristics assessed in the ward, considered in combination, can predict physical and psychosocial state one year after acute infarction. The study found that no significant prediction of a patient's physical state at follow-up is made by the selected assessments carried out in the ward. However, prediction of other measures of outcome, including various physical, work, and financial difficulties, the presence of psychiatric symptoms at follow up, and changes in psychiatric symptoms since assessment in the ward, was possible. The results are modest, and this may be due to the fact that only measures of psychological state, primarily aimed at detecting anxiety, were employed.

A major problem with research on the recovery process has been the lack of standardized instruments for measuring outcome variables and their predictors. Much research in this area has been descriptive and correlational, and there has been a notable lack of prospective investigation. These facts have made it difficult to establish firm cause and effect relationships between psychological variables subsequent to MI, and outcome (Krantz, 1980).
1.3.3 Post Infarction Treatment.

In the previous sections, the psychological response to MI, and the importance of this response in terms of eventual outcome and recovery, has been discussed. The forms of psychological treatment that have been suggested as means by which outcome following MI can be improved will now be considered.

Follow-up studies of patients suffering MI have described persistent and substantial psychological and social disability not closely linked to cardiac status. Although interest has been largely confined to anxiety, depression, denial, and return to work, all areas of social adjustment are affected. Mayou (1979) argues that multidimensional measures should additionally be used to explore mental state, work, leisure, family life, sex, and effect on relatives. Mayou also notes that a greater number of patients fail to make the medically recommended adjustments in lifestyle following MI, including increased fitness, smoking cessation, and weight loss. There is, therefore, a need for two kinds of cardiac rehabilitation: firstly, early intervention, in terms of prevention of unnecessary emotional distress and social handicaps, by encouraging active convalescence; and secondly, late intervention, with the promotion of changes in lifestyle.

Many programmes of cardiac rehabilitation exist. The most popular has been exercise training, but various forms of psychological treatment (counselling and group therapy) have also been advocated. Mayou (1981) allocated 129 cardiac patients to three groups (normal treatment; exercise; extra advice), the patients being interviewed at the time of admission for acute infarct, and three months after infarction. Cardiological evaluation was by echo-cardiography and by submaximal exercise
test at 6 weeks after infarct, and again at three months. Despite the patients' and therapists' enthusiasm for exercise, and despite these patients' greater confidence in exercise testing, there were no psychological benefits and only modest differences in leisure and physical activity. The normal treatment group had a far better rate of progress than previous groups Mayou had come across, and he suggests that this may be one reason the extra treatment conditions achieved no significant results. Even though the exercise group was very pleased with the treatments, performed better on formal testing, and enjoyed their hospital visits, they did not as a result alter their everyday behaviour. The advice group, although not so pleased with their treatment, benefited as much as their exercising colleagues. Lack of enthusiasm for attending special counselling sessions seemed to be an important limiting factor to the effectiveness of treatment. In both treatment groups, non-attenders had poor psychological and social outcomes, even though they were not more cardiologically disabled. Carmody and colleagues (1982) examined drop-out rates from exercise rehabilitation programmes, and found that the drop-out rate represented a downward-sloping, negatively-accelerating curve. The first 3 months were a critical period during which a substantial number of the participants left the programme. Those who remained in the programme generally achieved benefits. The suggestion here is that motivation to complete the programme is an important variable and may make a substantial contribution to outcome.

Positive support for an exercise-based rehabilitation
programme does exist. While there is little evidence that an exercise programme following MI will significantly increase life expectancy, Rigotti, Thomas, and Leaf (1983) carried out a study which indicated that exercise subsequent to MI will significantly increase functional capacity, lessen angina pectoris, and improve self-image in patients. Roviaro and colleagues (1984) assigned 28 of a total of 48 male cardiac patients who had either experienced MI, or undergone coronary bypass surgery, to a treatment condition in which they participated in a 3 month exercise based rehabilitation programme. Cardiovascular, psychological, and psychosocial functioning were assessed before treatment or routine care, after three months, and four months later. Results indicated that subjects in the treatment condition evidenced reliably more efficient cardiovascular functioning, better understanding of heart disease, better understanding of, and compliance with, treatment recommendations, more positive self-perceptions, and better psychosocial functioning. Chronic subjects benefited as much from the treatment as did acute subjects, and the beneficial effects were evident not only just after rehabilitation, but also four months later.

However, Van Dixhoorn and associates (1983) argued that exercise training has little beneficial effect. They assessed the usefulness of relaxation training (RT) in cardiac rehabilitation, comparing psychological and physical state before and after RT. In addition, the effects of exercise training were studied. Results indicated a substantial and positive effect on well-being and on feelings of invalidity, in subjects undergoing RT. Psychological improvement, as a result of exercise only, was
not found. In some subjects (28%), anxiety increased during rehabilitation, regardless of RT. Thus, relaxation may lead to an increase in functional complaints in a minority of people, possibly due to sensitization to bodily experiences. Similarly, Krampen and Ohm (1984) evaluated the effects of short-term RT in 105 male patients participating in a 4-6 week rehabilitation programme following MI. The 48 subjects who participated in autogenic and progressive RT, compared to non-RT controls, showed more physician-rated positive changes in health, and improvements in ergometric performance and arrhythmia, had a higher rehabilitation orientation, were more optimistic about the future, and rated their health and well-being higher at the end of treatment.

Brown and Munford (1983-84) describe a behaviourally based treatment approach to rehabilitation, consisting of a combination of deep muscle relaxation, imagery based desensitization, social reinforcement, stress management, activity scheduling, and shaping techniques. This approach was applied in a pilot study, to nine post-infarction patients. The treatment was shown to be effective in increasing adaptive function, decreasing depressive symptomatology, and facilitating return to acceptable premorbid levels of anxiety. Other studies, employing somewhat differing methodology, have enjoyed similar success (e.g., autogenic training, indicating decreased psychopathological symptomatology: Polackova, Bockova, and Sedivec, 1982).

What emerges from this sequence of studies are two main trends. First, it seems that different therapies benefit different people. Thus, in Mayou's (1981) study, the majority of
the patients had a sufficiently positive prognosis, that the effects of exercise were minimal; yet a minority of patients, with a greater residual disability, did gain from the treatment. Similarly, in the Van Dixhoorn et al (1983) study, just over a quarter of the subjects experienced heightened anxiety because of RT. Obviously applying treatments comprehensively to all patients, without first assessing those patients, can in some cases prove harmful. The most successful way to go about treatment, therefore, would be to tailor the treatment to the patient. In a study by Altmann-Herz and colleagues (1983), data were obtained from 38 male MI patients on the basis of physiological measures, sociodemographic and medical histories, and personality tests. On the basis off this information, subjects could be divided into three groups, and appropriate therapies determined: athletic group therapy for impulsive subjects; individual and group therapy for subjects with regressive tendencies; and combined group therapy and autogenic training for sociable subjects.

Once again, however, there is a considerable problem in the rehabilitation area, in that there is little standardization of instruments across studies. This leads to the second trend in the rehabilitation research, which is that there is little indication as to what therapists are actually trying to achieve. If the therapies are aimed at making the patients feel better (e.g., "more positive self-perceptions", "optimistic about the future"), then virtually all therapies seem to achieve this aim; but then so would presenting each patient with a cheque for a substantial sum of money. If, however, the therapies are designed to improve those aspects of psychological and physical functioning that have
been shown to influence outcome endpoints (such as recurrent MI, return to work, etc.), then some studies indicate possible beneficial effects; but no study appears to follow-up subjects for a sufficiently long time subsequent to treatment, to detect whether any real change has occurred. More co-ordination is required in this area of research, so that standardised instruments indicate those factors that are important for positive outcome; and long-term therapeutic intervention indicates whether particular treatments can further improve prognosis for outcome.
1.4 The Psychology of Illness.

This chapter will attempt to place the illness process within the context of social psychology, and examine the concept of illness with particular reference to health beliefs; illness behaviour; compliance; and doctor-patient communication.

1.4.1 Attributional Processes and Health Beliefs.

In 1973, Herzlich undertook a study of people's attributional perceptions of health and illness. Her subjects were given semi-structured interviews which explored their beliefs on disease, medicine, and other aspects of the illness process. Herzlich then content-analysed her transcribed interviews. Heider's (1958) theoretical work on the nature of attributional processes was the framework on which Herzlich's empirical study was based. Heider identified a tendency for unfavourable outcomes to be attributed to the environment, and for favourable outcomes to be attributed to the self. Herzlich's work can be interpreted as providing convincing evidence that a similar tendency is also present in people's conceptions of health and illness. Herzlich found that the urban way of life was equated with illness and disease, such that the influence of urban culture was perceived as highly negative with regard to health. Thus, the way of life facilitates susceptibility to disease and illness. Cancer, heart disease, and mental disorder, are all seen as typical of the urban lifestyle.

With regard to health, the determining factors are seen as constitution, heredity, and temperament. Thus, health is seen as an internally generated condition, whereas illness is essentially imposed upon one by the environment. Herzlich
claimed that health status was perceived as the consequence of a struggle between the self and the environment, where the self contains the focus of health, and the environment seeks to generate illness. The way of life, the determining factor in illness, is experienced by the individual as something external to him - illness depends on both the individual and the way of life, each playing a part. The case of health is simpler: it is entirely contained within the individual, and never lies outside him. Health has no genesis, whereas illness has.

Herzlich's study has been criticised on the grounds that the experimental findings were inherent in the method of investigation adopted. Farr (1977) suggested that the potential for attributional artefacts is present when an investigator invites laymen to discuss issues which have favourable and unfavourable outcomes, and then accepts their accounts at face value. Thus, it could have been predicted that illness, being unfavourable, would be seen as "external" to the individual.

Frequently, attributional frameworks are adopted in an attempt to uncover differences between illness groups and normal populations. Wright and Obitz (1984) examined alcoholics' and non-alcoholics' attributions of control of future life events. 83 male alcoholics and 75 male non-alcoholics rated the degree of control that they and others possess over future life events. Alcoholics attributed less personal control over events to themselves than to others, whereas non-alcoholics attributed more control to themselves than to others. Alcoholics who attributed less control to themselves than to others more frequently failed to complete treatment than did alcoholics who attributed more
control to themselves.

With respect to an earlier section on coronary prone behaviour (section 1.2.5), one approach to the study of TABP has been an attempt to explain why Type As behave as they do. Rhodewalt (1984) examined the idea that Type As and Type Bs differ in the ways in which they evaluate themselves. Such an idea is connected to Glass's (1977) conclusion that the TABP represents a reaction to a perceived loss of control in stressful situations on account of the Type A's unique set of reactions to uncontrollability. Furthermore, a second proposition holds that the crucial psychological component in the TABP is the Type A's high self-involvement (Scherwitz, Burton, and Leventhal, 1978).

In Rhodewalt's study, the relationship between self-references in speech indicative of self-involvement and self-attributional biases was considered. Results indicated that for positive events, both Type As and Type Bs attributed causality to themselves. However, for negative events, Type As made self-attributions, and Type Bs made situational attributions. Thus, perceived personal control of events is greater for the Type A individual.

Controlling factors of any illness condition are important; if an attributional framework can isolate controlling factors in alcoholism, or coronary prone behaviour, then therapy can be improved accordingly. However, the above studies are concerned with only one aspect of their respective disorders, and as such their implications for therapy are limited.

Ashworth (1979) notes that several authors contend that, in considering their own actions, people often show a consistent bias towards the view that they are responsible for their
behaviour and its outcomes, or that they are in the hands of external forces. These constitute two alternative "loci of control". Rotter (1966) argued that people either held the view that the cause of perceived events was due to "internal" factors, or they believed the cause of events to be "external" to themselves. Whatever the view expressed by the individual, such a view would be expressed regularly throughout a number of differing situations where attribution of causality occurred. These two views, the internal and the external, constituted the extremes of a dimension of perceived causality. Rotter developed an "Internality - Externality" (I-E) scale, a questionnaire assessing attributional tendency, to uncover where an individual's "locus of control" resided on this dimension.

Such a division in attributional beliefs is reflected in Herzlich's (1973) findings on health and illness reported above. With some exceptions, the bulk of research utilizing generalised locus of control expectancies has supported the assumption that individuals who hold internal as opposed to external expectancies are more likely to engage in health promoting behaviour (Strickland, 1978). However, the amount of variance for which the internal-external expectancy accounts has been quite small in most situations. In an effort to better predict health-related behaviours, Wallston, Wallston, and Devellis (1978) developed the Multidimensional Health Locus of Control (MHLC) scales, based on Levenson's (1975) revision of Rotter's one-dimensional conceptualisation. However, not all results have been positive. Using the MHLC scales, Winefield (1982) examined the relations between subscale scores and reported health habits in a sample of
healthy young adults, and found little evidence of locus of control expectancies being related to daily health practices. The Wallstons have suggested that measuring the importance placed on health in conjunction with locus of control orientation would predict more of the variance in individual health behaviours (Wallston and Wallston, 1981). Phillips (1965), for example, has shown that attitudes of self-reliance and health value both affect the willingness of people to report that they would seek help when ill. A study by Wurtele, Britcher, and Saslawsky (1985) examined the relationship between locus of control expectancies, rated health value, and reported participation in preventive health behaviours among a healthy sample of undergraduate women. The prediction that participation in preventive health behaviours would be a joint function of an internal health-related locus of control belief and holding health in high value was not supported. The results suggest that, especially for behaviours performed in the absence of a health threat, the value an individual attaches to a healthy life may be more important in predicting behaviour than his/her beliefs about locus of control. Thus, health locus of control per se may have a limited application with regard to certain populations.

Much of the early work on attributional processes in the health sector can be seen as leading to Becker’s (1974) development of the Health Belief model (HBM). The various elements of the model take into account the person's subjective perceptions of the health environment, as opposed to some more objective or scientific determination. Becker justifies this stance by observing that there is considerable evidence from a
wide range of studies that no (or even negative) association generally exists between medical evaluations of the severity of a patient’s problems, and such important aspects as outcome of, and compliance with, treatment (Becker and Maiman, 1975). The HBM contains the following main elements: firstly, health motivation, regarding an individual’s degree of interest in, and concern about, health matters; secondly, susceptibility, in terms of the individual’s perceived vulnerability to a particular condition; thirdly, severity, meaning the perception of the consequence of a condition, in both physical and social dimensions; fourthly, benefits and costs, concerning the balancing in the patient's mind of the pluses (e.g., reduction of symptomatology) and minuses (e.g., financial expense, side effects of medication) of the relevant health behaviours; and finally, cue to action, the trigger for the perceptions and initiated health behaviours.

As an example, one of the model's elements is the individual’s perception of susceptibility, and Becker (1979) suggests that there are a considerable number of studies that demonstrate positive correlations between an individual's subjective estimate of personal vulnerability, and compliance with therapeutic recommendations. Similarly, many studies of preventive health behaviour have obtained correlations between relatively higher degrees of belief that incurring a condition would be serious, and compliance. Leventhal, Singer, and Jones (1965) found that once a person has reached some subjective threshold of fearfulness, it is unlikely that any increase in perceived severity will lead to further acceptance of medical advice. Caplan (1979) notes that people may adapt to steady
states of symptomatic discomfort. Under such conditions, a change in the nature and intensity of symptoms is likely to be the standard by which patients decide whether their need for improved health is increasing or decreasing. When a patient has an asymptomatic disease, such as hypertension, the effect of symptoms on perceived need to improve health will be negligible. This will be the case even though an objective definition of that need might indicate that a health improvement is advisable. On the other hand, the presence of physical symptoms produces a "realistic" effect on the patient’s perception of severity, motivating the patient to follow the physician’s instructions as long as indications of illness persist (Becker, 1979). Other studies of preventive health behaviours have yielded positive correlations between perceived efficacy and subsequent compliance with therapeutic recommendations. Certain perceptions of characteristics of the regimen are fairly consistent predictors of adherence for prescribed therapies. Cost and side effects are usually negatively associated with compliance, and the greater the duration of therapy, the more compliance decreases over time (Becker, 1979).

The attributional approach to health and illness, and especially the HBM, has been a growing area of research since the late sixties. At times it has been heralded and treated as a resolution for all the health-related problem behaviours - at last they will be explained and dispensed with. Particularly in the field of compliance behaviours (see section 1.4.3 below), the health belief framework has been very influential. But it has become increasingly apparent that while health belief research may elaborate our understanding and aid therapeutic outcome, the
complexities of health-related behaviours still remain unsolved; and by itself the health-belief approach may not have the precision necessary to further augment our understanding of the illness process. Other frameworks, closely allied to health belief theory, have been employed by researchers seeking to understand the psychological response to illness. One such framework is illness behaviour.

1.4.2 Illness Behaviour and the Sick Role.

The HBM can be seen as a conceptual development of two other contributions to the psychology of illness: Talcott Parson’s (1951) “sick role” concept; and David Mechanic’s (1962) “illness behaviour” model.

According to Mayou (1984b), Parson’s concept of the “sick role” was an attempt at a social definition of illness. In the formulation, the patient and physician have clear-cut roles and expectations of each other, defined by the patient’s illness. Mayou notes the four main expectations of the patient role. First, the patient is exempt from normal social role responsibilities. Second, by defining the patient as ill, it is held that he is unable, by a simple act of will, to get well. Third, the illness is seen as an unfavourable state, and so there is an obligation on the patient’s part to attempt to improve his health. This is linked to the fourth expectation, that commensurate with the severity of the condition, the patient will seek technical aid to speed his return to good health. Mayou stresses that the sick role is a theoretical concept of an ideal role, and therefore it does not allow us to explain the wide
variations in individual behaviour related to illness. The use of the term "sick role" is limited to certain conditions. For example, the term does not apply to insignificant illnesses in which medical care is not sought, and cannot easily be extended to chronic illnesses.

According to Hall and Beresford (1983), the acute illness patient is relieved of social responsibilities so that he may do what the physician asks of him. The patient is expected to remove himself from work and family responsibilities, and become attentive and compliant to the physician's recommendations. The physician is expected to take charge of the patient's medical condition and environment, to provide explicit instructions, to report on the patient's progress, and to communicate with the family. The patient is expected to seek help in restoring his full energies and to cooperate in the treatment process. Chronic illnesses impose a different series of roles and expectations. The chronically ill patient is expected to master his condition to the best of his abilities, and maintain his family and social functions. In many respects, the patient is responsible for the everyday management of his condition, unlike the dependent, acute patient. The physician's role is that of periodic intervention and monitoring, with the expectation that new developments relevant to the patient's condition be brought to his attention; and to act as counsellor, in aiding the patient to come to terms with the interaction of condition and lifestyle (Hall and Beresford, 1983).

People may be motivated to adopt the sick role to obtain release from various kinds of responsibilities; but there are also others who fear the dependence of the sick role or who are
suspicious of physicians and avoid seeking medical advice even when serious symptoms appear. Such considerations led Mechanic (1962) to propose a concept of "illness behaviour". The term is taken to refer to the ways in which given symptoms may be differentially perceived, evaluated, and acted upon by different kinds of people. Thus, some people will make light of symptoms, shrug them off, and avoid seeking medical care; others will respond to the slightest twinges of pain or discomfort by quickly seeking such medical care as is available. The study of illness behaviour therefore involves the study of attentiveness to pain and symptomatology, the examination of processes affecting how pain and symptoms are defined, accorded significance, and socially labelled, and the consideration of the extent to which help is sought, change in life regimen affected, and claims on others made.

According to Mechanic (1966), patterns of illness behaviour can be viewed from at least three general perspectives. First, such patterns of behaviour may be seen as a product of cultural and social conditioning, since they may be experienced and enacted naturally in the social contexts within which they appear relevant. For example, Zborowski’s (1952) classic study of reactions to pain showed that Jewish, Italian, Irish, and "Old American" patients responded differently. While Jews and Italians responded emotionally, tending to exaggerate their pain experience, Irish and Old Americans, in contrast, were more stoical. Such studies suggest considerable consistency in ethnic variations in illness behaviour. The trends are clear, but the variation within groups is much greater than it is between
groups. Although it is fairly obvious that culturally learned differences in illness behaviour are important to some extent, such differences explain only a small proportion of the total variation in behaviour (Mechanic, 1966). Other findings support the idea that age and sex-role learning are important in illness behaviour and attitudes towards health risks. In this respect, it is interesting that a recent review of the literature by Gove (1984) suggests that women experience more psychological distress than men, and that this is largely due to aspects of their social role. In addition, the cumulative evidence indicates that women have higher rates of morbidity than men, and that this is probably also largely a consequence of their social role. Gove suggests that research indicates that the social roles of men tend to be more structured or fixed than the roles of women, while women are more likely to occupy nurturant roles than men. Gove argues that highly structured roles tend to be causally related to good mental health and low rates of morbidity. In contrast, nurturant roles are linked to poor mental health, and higher rates of morbidity. Though Gove's conclusions are not necessarily accepted in some quarters (e.g., Marcus, Seeman, and Telesky, 1984), they are an interesting expansion of the concept of illness behaviour and culturally defined sick roles.

Secondly, Mechanic suggests that illness behaviour may be seen as part of a coping repertoire - as an attempt to make an unstable, challenging situation more manageable for the person who is encountering difficulty. Beecher (1959) noted how soldiers injured in battle could experience higher levels of pain than civilian patients undergoing major surgery, without requesting pain medications. This, Beecher thought, was because
the soldiers perceived their pain as an escape from the battlefield. More recently, Taylor (1983) called attention to the importance of what she referred to as the "maintenance of illusions" among victims of breast cancer. Drawing from interviews with 78 women who had breast cancer, she found that those who were coping well seemed to put their situations in the best possible light. The effective individual in the face of such a threat as mastectomy, claims Taylor, is the one who permits the development of illusions, fosters these illusions, and is finally "restored" by the illusions.

Thirdly, Mechanic notes that illness behaviour may be analysed in terms of its advantages for the patient in seeking and obtaining attention, sympathy, and material gain. Mechanic is more practically interested in understanding individual reactions through empirical research than providing a theoretical basis for sociological analysis (Mayou, 1984b). In proposing a working model, Mechanic (1966) described some of the contingencies relevant to illness behaviour. Seven groups of variables appear to be particularly important, including the number and persistence of symptoms; the perceived seriousness of symptoms; available information and medical knowledge; and the extent to which symptoms disrupt family, work, and other social activities. There is an interesting degree of overlap between these variables, and Becker's five elements of the HBM (see section 1.4.1).

Noting that patterns of illness behaviour are somewhat dependent on the nature of the illness, Byrne and Whyte (1978) undertook to describe patterns of illness behaviour in survivors.
of MI. 120 MI survivors admitted to a CCU were presented with the Illness Behaviour Questionnaire (IBQ) on discharge from the unit, between ten and fourteen days after admission. The IBQ was subjected to factorial analysis, and 8 factors, accounting for 61.5% of the variance in the data, were found in the patients' responses. These factors were labelled by the authors: somatic concern; psychosocial precipitants; affective disruption; affective inhibition; illness recognition; subjective tension; sick role acceptance; and trust in the doctor. In a later study, Byrne and Whyte (1979) hypothesised that the patient's perceived severity of illness, arising from a variety of elements including the condition's mode of onset, inherent physical discomfort, and information given on diagnosis, acts to modulate psychological responses to that illness. On examining the results, only the one factor of illness behaviour labelled illness recognition upheld the hypothesis: patients aware of an unequivocal diagnosis of MI obtained a score reflecting a greater recognition of the presence of serious illness, than did those patients who left coronary care with the reassurance that they had not sustained an MI. It would seem, therefore, that despite differences in the actual severity of the illness, and also in the extent to which the two groups of patients recognised the severity of their respective conditions, they have responded in a remarkably similar way.

Byrne and Whyte followed up their study which produced eight dimensions of illness behaviour, by attempting to link these dimensions to measures of outcome. In the first study (Byrne, Whyte, and Butler, 1981), they found that two factors - somatic concern and psychosocial precipitents - distinguished between
those patients who, eight months following interview, had no recurrence of MI, and those who had had another MI and/or had died. Persons who experienced a recurrence of MI, fatal or otherwise, manifested a greater recognition of areas of serious life stress when interviewed soon after MI, than did persons with an uneventful cardiological outcome. Moreover, there was a trend that those with recurrence had expressed an elevated concern with somatic functioning. After including in the sample people who reported frequent visits to their GP for reasons of recurrent cardiovascular discomfort, the distinction between persons with favourable and unfavourable cardiological outcomes was strengthened, on the basis of the above illness behaviour dimensions. When a return to work outcome was considered, three dimensions - affective inhibition; subjective tension; and sick role acceptance - were found to be sensitive: persons not returning to work within eight months of MI were characterised shortly after the original illness by expressions indicating a readiness to accept the sick role. There was a trend for these persons to feel symptoms of tension, but to be reluctant to communicate their feelings to doctors and relatives. The authors note a trend for older patients not to return to work, but claim this effect to be of marginal importance. However, the statistical strength of the finding is as strong as, and in some cases stronger, than the findings that the authors put so much emphasis on. In a long-term follow-up (Byrne, 1982), patients most satisfied with progress at two years after MI were characterised immediately after the original event by a less pronounced affective response to illness, a less apparent tendency to recognise the presence of illness and to adopt the
sick role, and a greater acceptance of medical opinion, than those less satisfied with progress.

Illness behaviour analysis is not confined to heart disease, of course. Fava, Zielezny, and Pilowsky (1984) examined patterns of depression in general hospital patients. Using the illness behaviour questionnaire, the researchers uncovered two major factors. One, reflecting general severity of the condition, was characterised by depressed affect. A second factor suggested that, in contrast to the younger subjects, older subjects had a tendency to focus on somatic problems rather than psychological determinants, were likely to attribute all difficulties to physical illness, and lacked readiness to report interpersonal problems. So Mechanic's (1966) notion that age plays an important part in illness behaviour seems supported.

The theoretical basis of illness behaviour has been modified several times since Mechanic first proposed the notion in the sixties. Mechanic, for example, saw the physical nature of the illness as very much a part of the illness behaviour phenomenon. Recent theoreticians, such as Blackwell (1981), suggest that illness behaviour should be seen as a continuum that ranges from gross displays of distress, to denial of illness; and that this continuum is independent of the continuum of health and illness. Recent evidence appears to support Blackwell's theoretical viewpoint (e.g., Benjamin et al., 1984), although significance levels have so far been quite modest.

1.4.3 Compliance.

Although specific definitions and measures of patient compliance
vary greatly across investigations, reviewers agree that at least a third of the patients in most studies fail to follow physician advice. Compliance can be reduced still further, for example, if treatment is preventative as opposed to curative, or if the condition is asymptomatic, or if the treatment is long-term. Interestingly, noncompliant patients do not seem to possess any set of manifest characteristics that would enable practitioners to distinguish them easily from more adherent patients. Several studies have dramatically illustrated physicians’ inability to predict patient noncompliance (Becker, 1979).

At first, it would seem most reasonable to speculate that an explanation for poor compliance would rest upon the patient’s inadequate understanding of, or knowledge about, various aspects of the regimen. Svarstad (1974, cited in Becker, 1979) found that although 73% of those who correctly identified their physician’s instructions were keeping to their regimen, only 16% of patients who made one or more mistakes in reporting facts about the regimen ultimately complied. But, as Podell (1975) notes, for every dozen studies that show a positive association between patient knowledge and compliance, there are two dozen studies which show no such relationship. The important factor, as Tagliacozzo and Ima (1970) note, is motivation. For individuals who are motivated to comply but who are ignorant of the correct procedures, the provision of information should be beneficial; however, for already knowledgable but insufficiently motivated patients, additional information about the regimen is unlikely to enhance compliance. In any case, data indicate that a good starting point for increasing compliance is to ensure that all patients are instructed very carefully in those aspects of
the treatment plan that are necessary for fulfilling the physician's expectations (Becker, 1979).

The role of the family in compliance has also been considered. For example, in studies of weight control, Stuart and Davis (1972) reported that, for those participants acknowledging receipt of cuing or reinforcement of proper eating behaviour from another family member, far more people lost weight and maintained that reduction than did those not receiving such assistance. Sherwood (1983) found that families characterised as understanding, supportive, organised, and neither overtly involved nor disengaged, were frequently associated with higher levels of patient compliance. Survey research, however, has indicated that social support is unlikely to lead to adherence unless the person sees himself as being in control of his condition (Lewis, Morisky, and Flynn, 1978). Indeed, Flowers (1977, cited in Caplan, 1979) has suggested that the social support that a patient receives may be as much a product of the patient's health as a determinant of that health.

Becker's (1974) HBM has been proposed to account for patient compliance with therapeutic regimens. Fincham and Wertheimer (1985) found the model a useful device for predicting noncompliance. In their study, patients who would default in drug therapy were correctly classified at a level of 68.7%. However, Calnan and Moss (1984) examined the empirical value of the HBM for explaining both attendance at a class in breast self-examination, and subsequent compliance with the education given at the class. Results indicated that some dimensions of health beliefs were among the best predictors of attendance; however, a
large amount of the variance in both sets of analyses remained unexplained, suggesting that the HBM has limited value for explaining compliance with a class for breast self-examination. Pederson, Wanklin, and Baskerville (1984) evaluated the model with regard to its utility in accounting for compliance with physician advice to cease smoking among 308 patients with pulmonary disease. The model's effectiveness was only partial. The researchers concluded that health beliefs should be considered when patients are advised to stop smoking; however, these attitudes do not function in isolation in determining health-related behaviours. Physicians may have to tailor their smoking recommendations to the type of smoker treated (Davison and Neale, 1978). In a similar manner, DeVon and Powers (1984) examined health beliefs influencing compliance and psychosocial adjustment to illness in two groups of hypertensive patients. Based on the clinical judgements of physicians, 15 controlled and 15 uncontrolled hypertensives made up the study group. Of the two variables, it was the psychosocial adjustment to illness which revealed a relationship with compliance. There was no significant difference between groups in health beliefs affecting compliance.

The health belief approach to compliance is ubiquitous in the research literature. But in attempting to cover all aspects of patient perception, and all areas of illness, does the model lose some specificity with regard to predicting noncompliance in particular patient groups and illness populations? While the HBM could be seen as the extreme of a phenomenological approach to understanding patient behaviour, Conrad (1985) seems to be of the opinion that the level of inquiry is not extreme enough. Conrad
presents a patient-centred approach to managing medications, based on data from interviews with 80 epileptics. The approach focuses on the meanings of medication in people’s everyday lives, and examines reasons for why people do or do not take their medication. Conrad argues that, from a patient’s perspective, the issue is one of self-regulation rather than compliance. Conrad concludes that what appears to be noncompliance from a medical perspective may actually be an aspect of the patient’s attempt to assert control over his disorder.

One of the many problems with compliance research is the measurement of compliance. For example, the easiest method of finding out whether a patient is complying or not, is to ask him. However, as Dunbar (1979) notes, although there does not appear to be any evidence to suggest that patients deliberately misrepresent their behaviour during interview, the correspondence with other measures of compliance is relatively low. Firstly, patients tend to under-report poor compliance. Only 50% of noncompliers admit defaulting on interview. Apparently even when individuals know they are low compliers, they will underestimate how low that rate actually is. Conversely, patients tend to over-report good adherence, so there is some inflating of performance even at the higher end of the compliance scale. It is unlikely that patients are deliberately lying about their behaviour, although one does have to be cautious about the demand characteristics of the interview situation. More likely variability in the patient’s daily behaviour accounts for the reporting error. Dunbar reports her work at the Lipid Research Clinic at the University of Iowa. In an investigation with
outpatients on cholestyramine, it was found that over-reporting of compliance was related to the degree of daily variability in medication consumption. Presumably patients tend to remember the days they did well, and forget the number of times they did poorly. The error is probably an honest one, in that the patients forget information that is not particularly important to them. Generally these reporting errors tend to be greater as patients deviate less from their prescribed regimen, with gross deviations being more accurately reported. It would seem then that patients who reported poor performance could most likely be believed and most likely would be quite deviant from their prescription.

Dunbar observes the particular problems faced by the patients on long term dietary and medicinal regimens, such as lipid patients. Dunbar’s study uncovered a weekend compliance problem: a patient who does very well with the regimen Monday to Friday may become noncompliant as a result of the changes in routine that accompany the weekend. It was also found that there was an evening dose problem, in that the patient who returns home late for some reason may forget the medication, or simply decide not to take it.

Dunbar’s preliminary results indicate substantial discrepancies in reported compliance as a function of the question asked. An example of the variation in response shown by one patient to four compliance-related enquiries follows. The period of treatment under investigation was the four weeks preceding the interview:

Question A: How many days of the week would you estimate you are able to follow your diet?
Answer: Four.

Question B: How many meals a day would you estimate you are able to follow your diet?

Answer: Two.

Question C: Over the past four weeks, to what extent have you followed your diet?

Answer: Most of the time.

Question D: What percent of the time have you followed your diet?

Answer: 50-60%.

If the answers to questions A and B are combined, reported compliance of two meals a day for four days a week suggest a percentage compliance of 38%. However, 50-60% was the response to question D, and the answer "most of the time" to question C also suggests a different level of compliance. Although attempting to "trap" the patient in this manner is highly artificial, it does demonstrate that the structure of the question influences the response.

Research has revealed that doctors play an important role in patient compliance. Physicians hold the patient's personality to be the primary reason for lack of patient cooperation (Davis, 1966), despite research failing to support this conception. Indeed, a study recently reported by Lorenc (1986) indicates that GPs and consultants have a low understanding of the compliance research literature. Out of eight questions concerning compliance, GPs on average correctly answered 3.02, while consultants correctly answered 2.28. This indicates that GPs are significantly more aware of compliance issues than
consultants, although they still have only a poor awareness of the compliance field. Interestingly, GPs tended to base their answers more on personal experience than consultants.

Turning to doctor-patient interaction, Svarstad (1974, cited in Becker, 1979) rated doctor-patient encounters for clarity of verbal or written instructions concerning a treatment regimen. Of those patients receiving high quality instruction, 62% understood and 54% complied; of patients who received relatively poor quality instruction, 40% understood and only 29% complied. However, it is not only quality of information but quantity that is important for compliance. Anderson (1986) in his study of patient compliance in Hong Kong, found a negative correlation between the amount of information given, and the amount correctly recalled. Interestingly, for units of information mentioned only once by the doctor, the recall rate was 25%. For units repeated, recall was 71%. There was also a correlation between satisfaction and the amount of information recalled. Clearly, doctors' lack of attention to the manner of conveying information may well be a factor in the apparently irrational behaviour of patients at risk from illness (Jones, Howard, and Haley, 1984).

Noncompliance may be seen as a personal failure by the patient, and attributional literature suggests that the causation of such failure may be perceived as external to the individual. In this case, the patient may see the doctor's treatment regimen as the component responsible for his failure. Therefore, the patient may attribute to the health-care provider a reputation for producing failure and even harm to the patient (Caplan, 1979). In addition, the failure of the patient to improve following treatment may reduce the objective psychological
support given by the health-care provider: the patients who need the most encouragement and psychological support are often those least likely to receive it (Caplan, 1979).

A major question remains at the heart of patient noncompliance. Is it the health beliefs of patients that determine compliance with prescribed regimens; or is it compliance with prescribed regimens that determines health beliefs (Sackett, 1978)? Instead of asking what attribute of the patient makes him compliant, one can ask what about the medical environment makes the patient compliant. When one considers aspects of the medical environment that play a role in patient compliance, it may well be that the physician-patient relationship is the most crucial variable in determining compliance with treatment plans. In the daily work of the busy practitioner, failure to take the time for truly adequate communication is probably the most common and damaging deficiency of modern medicine (Harvey et al, 1980). This understanding of failure does not locate the problem in a defective or unruly personality of the patient. It blames the physician for not structuring relationships properly and for not insuring that information flows properly from person to person. (Arney and Bergen, 1984).

1.4.4 Doctor - Patient Relationship.

It has been suggested that the doctor-patient relationship may play an important role in determining the course of patient compliance. The doctor-patient relationship is at the centre of the psychology of illness, for it is through this relationship
that the vast knowledge of the medical institutions filters into and permeates the physical disfunctions which exist within society and the individual. It is a relationship where the doctor has considerable influence in affecting the patient's feeling state and behaviour. The doctor's attitude toward the patient and his illness are important forces which can be used to support coping efforts, or they can encourage an elaboration of the disability (Mechanic, 1966).

Experiments by Garfinkel (e.g., 1967) suggest that there are two levels on which the definition or interpretation of social interaction occur. The first level is the set of unspoken assumptions that must exist for symbolic interaction to be possible. The second level consists of all the particular, continually negotiated instructions and rules that govern the specific social situation. At this second level, the participants in the situation have an input, consisting of their attitudes and behaviours, resulting in a communally based output, the social definition of the situation. The definition arrived at is determined by the individual's perception of the situation. The term "negotiation" implies that the participants in the interaction have equal rights in defining the situation; their positions are balanced as far as social power is concerned. Such a negotiation, however, does not always occur. The class structure of a society pre-defines certain relationships so that there is little choice for the participants but to define the situation "asymmetrically": the standpoint of the participants who are prejudged more socially powerful will have more effect on the negotiation, and their definition will tend to frame the interaction (Ashworth, 1979). Gallagher (1977, cited in
Ashworth, 1979) presents evidence that some asymmetry is essential to the doctor-patient interaction, but not all the asymmetry observed in the interaction is of this essential kind. Most studies would agree that the doctor is the dominant figure in the relationship (e.g., Fisher, 1984). However, the "doctor" and "patient" roles can sometimes be influenced by other social labels, for example "male" and "female". A study by West (1984) found empirical support for an asymmetrical view of the physician-patient relationship - physicians interrupt patients disproportionately - except when the doctor is female. Then patients interrupt as much or more than physicians, and their interruptions tend to subvert physician authority.

Communication between two people who know each other well can still be problematical, so communication of illness between two essential strangers can be even more of a problem. An initial problem may arise with the appointment. Frequently patients are unable to gain access to their doctor at a time which is suitable to them (Pendleton, 1983). Interestingly, Weyrauch (1984) found that the patient and the physician agreed about the reason for the decision to see the physician only 40% of the time. Correlation between the patients' and physicians' opinion as to the reason for the visit was stronger for visits for health maintenance, and weaker when patients were told to come, had psychosocial reasons, or experienced an event triggering their decision.

Pendleton (1983) makes several recommendations for improving doctor-patient communication. Firstly it is important that the patient feels comfortable. The environment should be as open as
possible - the doctor should avoid placing a desk between himself and the patient, as this creates a physical and mental barrier. The presence of such a barrier implies territory, and even without the barrier of a desk, it is often the case that the room consists of a chair for the doctor and a chair for the patient; frequently the doctor's chair is padded and comfortable, whereas the patient's is hard plastic. This again implies an inferior/superior relationship, which can weigh on the patient's mind, and prevent him from being as forthcoming as he might otherwise have been. Usually the patient will have rehearsed in advance what he will say in the surgery, but seeing the doctor can be classified as an exam-type situation: once confronted with the doctor in reality, the prepared speech may go out of the patient's head completely.

In the overwhelming number of cases, the doctor and patient share a common desire - to make the patient better. However, the patient and doctor may emphasise different aspects of this desire. The situation may be considered as two lists or agendas which address the same aims, but might list the elements in a different order. Medical students are taught to be dominant with their own enquiries, and to side-step issues the patient might raise which are not necessarily relevant to the way the doctor sees the problem. However, it should be realised that the doctor's concerns are not the only ones, and that the patient has often broad needs, and not just the narrow issues the doctor chooses to see. The conversation can be seen as a layer of hints on the part of the patient, and the doctor needs the patience to listen attentively, and probe occasionally, until the true reason for the patient's visit becomes clear (Pendleton, 1983).
The patient often seems passive in the doctor's surgery. This may be a result of the unfamiliar surroundings of the surgery. This unfamiliarity, together with the proximity of medical instruments, may be disturbing. The prevalence of medical paraphenalia, medical instruments, and medical terminology, may be seen by the patient as a symbol of the doctor's authority. As a result, the patient may seem to absorb what the doctor says without answering back, appearing to seek an instant cure without necessarily an explanation of the problems involved. But once the patient is informed of the nature of the condition, the discussion can proceed on an equal basis, with the patient and the doctor deciding together as to the best form of treatment to follow. When such a joint decision occurs, it has been found that the patient adheres to the treatment regimen with greater consistency (Pendleton, 1983).

Many studies point to the influence doctors have over patient behaviour. The quality of physician advice seems to have a direct bearing on patient recall of information and subsequent compliance (Schraa and Dirks, 1982), and many aspects of the doctor's attitude to the patient influence health beliefs and subsequent health-promoting activities undertaken by the patient (Heszen-Klemens and Lapinska, 1984). Similarly, whether a doctor emphasises the positive aspects of a situation when conveying diagnoses or prognoses to a patient seems to have an influence on patients' expectation of outcome (Jones, Howard, and Haley, 1984).

Obviously the way in which a doctor approaches the patient and the diagnostic situation will be influenced by his or her
perceptions of the situation. It was shown that middle class physicians consistently underrated the anxiety level of lower socioeconomic class patients as compared to individuals of their own social background (Schwab, McGinnis, and Warheit, 1970); and that white physicians, as a group, failed to diagnose depression in black patients (Schwab et al., 1967, cited in Hall and Beresford, 1983). Streit-Forest and Laplante (1983) examined the views of 200 French Canadian medical students with regard to patients and psychiatrists, as compared to their perceptions of themselves, physicians, and other specialists. Patients, it was discovered, were perceived in comparison to themselves as significantly more ignorant, weak, slow, rugged, cold, dependent, and ineffective; and psychiatrists were viewed as being significantly more strange, slow, passive, sick, and ineffective. Although this study examines only one culture, it indicates that there are certain perceptual stereotypes operating in the doctor-patient relationship.

Although the doctor's influence over the patient is considerable, it is often how the doctor perceives the patient that determines the interaction. Martin (1980) notes the kinds of problems physicians encounter because of patients' emotional reactions to their illnesses. Often patients react badly to being placed in a passive role when ill, with the accompanying threat to the self-concept. How a patient copes with this situation can determine the medical staff's perceptions of him and his illness, as well as their mode of interacting with him. There is evidence that doctors engage in shorter periods of interaction with patients they perceive as being seriously ill. Ruggiere and Chiapperinini (1983) suggest several unconscious
defense mechanisms that might be the cause of such a response. Contrary to this finding, however, is the study by Greenberg, Eisenthal, and Stoeckle (1984), which suggests that physicians were more comfortable talking to sicker patients who had significant medical problems. Also, when physicians are uncomfortable with patients, due to problems deemed less medically significant or more equivocal, or due to patients' personalities, they are more likely to expect that the patients will not take treatment. A recent study by Gerbert (1984) examined the psychological and personality characteristics that physicians attribute to their patients to determine whether these attributions affect treatment decisions. Patients were rated on two dimensions: likeable (L) - unlikable (U); and competent (C) - incompetent (I). The LC patients would be encouraged significantly more often to telephone the doctor and to return more frequently for follow up than would the LI patients or the UC patients. The staff would educate the L patients significantly more often than they would the U patients, and the doctors would offer significantly more patient education to I patients than to C ones. The U patients would receive significantly more interviewing regarding the psychological aspects of care than would the L patients. The LC patients would receive augmented medication more frequently than either the UC patient or the LI patient. There were no differences in the use of physical examination, referral to staff, frequency of return, or hospitalization, based on the personal characteristics of the patient, although some of these variables were significantly affected by the attributed disease. There were no interactions
between patient characteristics and disease as determinants of management.

The difference between the patients view of his condition, and the doctor’s view, is another area of recent research. When the patient’s condition is particularly serious, a discrepancy in viewpoints might be highlighted. A recent study by Moore (1983-84) examined the perceptions of terminal illness by family physicians and relatives. 302 physicians who cared for patients in the home environment completed questionnaires concerning dying patients, and the same questions were asked of relatives of the patients six weeks after death. Results indicated the following differences: physicians rated patient suffering severe in 19.2% of cases, relatives in 33.3%; physicians reported direct communication about the outcome with 19% of cases, relatives with 30.7%; physicians believed about 60% of patients were completely aware of the situation, relatives believed it was 73.7%. Moore interpreted the findings as indicating that dying patients more accurately communicate their feelings and their awareness to those who care for them in a personal sense. However, what the findings clearly show is the discrepant perceptions of the same situation held by the physician and the relative. Without commentary by the patients themselves, it is impossible to say whether it is the relative or the physician who has most accurately assessed the patients’ feelings. Should the physician be the one who is most out of touch with the patient’s perceptions and feelings, it indicates a lack of understanding which may be a hinderance to effective treatment.

Studies have found that there is no correlation between the physician’s perception of patient satisfaction, and the level of
satisfaction expressed by the patient (e.g., Merkel, 1984). A recent study by Kindelan and Kent (in press) tried to see if increasing the correspondence between the kind of information required by the patient, and that presented by the doctor during consultation, would lead to greater patient satisfaction. Results indicated that, although there was no "typical" patient, in terms of the kind of information required during a consultation, patients as a group do prefer certain types of information, especially information relating to diagnosis and prognosis. Doctors, on the other hand, felt that patients were looking for information about treatment, and the social effects of their condition, especially at follow-up consultations. Thus, there was virtually no concordance between the patients' preference for information, and the doctors' perception of patient preference. However, in situations where greater concordance did occur, Kindelan and Kent found no evidence of higher patient satisfaction. Although there appears to be considerable perceptual discrepancy between patient and doctor, and such discrepancy is most likely harmful to the doctor-patient relationship, still patient satisfaction is not one of the variables affected.

The doctor-patient relationship is symbolic of the interaction between the institution of medicine and public health. Just as the role of the patient in the doctor's surgery has changed over the past century, so too has the role of medicine in our lives. Medicine in its early form was a pure science. It was believed that disease worked only at the physical level, and in this
sense, there could be sickness without a sick person. Because the
patient could not comprehend the information available through
his body concerning the truth about disease, the patient’s view
was originally irrelevant to the doctor, no matter how articulate
the patient might be in speaking about symptoms and sensations
(Arney and Bergen, 1984).

The change in medical perspective began around 1950 (Arney
and Bergen, 1984). In the U.S., "Harrison’s Principles of
Internal Medicine", an influential text, ushered in a new era by
opening with the statement that medicine is not confined to
organic pathology, but also includes the domain of mind and
behaviour (Harrison et al, 1950). The management of the
subjective aspects of illness, including the patient’s
personality, and the patient’s perception of his needs, was seen
as complementary to the management and treatment of the
traditional, objective aspects of disease, such as organic
pathology (Arney and Bergen, 1984).

The development of the new medical perspective went through
three roughly cumulative stages. First, patient psychology was
accorded separate attention but was fitted into the context of
total medical care. Patient psychology did not become a separate
distinct speciality but a complementary aspect of all other
specialities’ care. Second, the patient, as a body and mind, was
placed in an ecology, and the medical profession extended its
boundaries to encompass the ecology as well as the patient. The
body, as the patient experiences it, with all of the
relationships a person has in the social world, comes into
existence as a part of the medical world view. Third, the
profession embraced a logic that was pertinent to the
investigation of an ecology, by turning to the logic of systems theory. Medical understanding was no longer comprehended in terms of reducing the complex to the simple; understanding now involved locating the simple in relation to the complex (Arney and Bergen, 1984).

Dubos (1968) noted that psychology complemented traditional medical practice: whatever its precipitating cause and its manifestations, almost every disease involves both the body and the mind, and these two aspects are so interrelated that they cannot be separated from one another. Secondly, he claimed that the understanding and control of disease require that the mind-body complex be studied in relation to external environment. Most immediate medical problems have their origin in the response of the human organism to present environmental forces. Thus, disease can be seen at three separate levels. Diseases or defects in the body are "impairments" which manifest themselves at the personal-behavioural level as "disabilities" which, in a social context of specific performance expectations, become "handicaps" (Pless and Pinkerton, 1975).

In practice, this new medical view requires an incorporative, integrated structure in order to detect disease where it is located, within society. The majority of individuals afflicted with chronic illness reach a state of equilibrium, in which they live an adjusted existence for many years, in spite of their disability. These people when examined by a physician usually exhibit a number of pathological findings, but their symptoms and complaints are negligible (Ruesch, 1946). To discover such chronic diseases, medicine has had to constitute
itself into an integrated structure that penetrates into the society outside the hospital. Medicine has organised itself around the concept of prevention. (Arney and Bergen, 1984).

By humanising the patient-physician encounter, there is an expectation that the experienced physician can come to know aspects of the patient's life, take facts derived from the history, physical examination, and laboratory tests, and locate them in the social world in which the patient lives. Data are in this way converted into information pertinent to the concept of prevention. (Arney and Bergen, 1984). The information gained may prompt the physician to take certain actions, ultimately directed toward the solution of the patient's problem (Harvey et al, 1980). The patient with a problem has displaced the disease as the object of medical attention (Arney and Bergen, 1984).

The concept of patient management is frequently found in the literature. Treating disease is subsumed under management, and patient management involves far more than treatment. Treatment implies the application of one or several therapeutic measures, while management is directed toward designing and implementing the most effective programme of care for the particular patient's overall problem (Harvey et al, 1980). The physician must take the total situation of the patient into consideration so as to return the patient's life to normal (Arney and Bergen, 1984).

By broadening the medical encounter, the physician might be seen as relinquishing some of his authority, thus causing problems for him in terms of role expectations and security. For example, a young physician may feel inadequate in dealing with the patient's problem; a sense of insecurity might seem inevitable. However, Isselbacher et al (1980) argue that
humanising the medical encounter does not reduce the authority of
the physician; nor, however, does it merely complement the old
image of the authoritarian physician. The technical skills of the
physician, controlled through training in medical school and
practice in the clinic, are to be complemented with interpersonal
skills controlled through sensitivity, and a sense of purpose.
The physician should attempt to ascertain the intellectual,
emotional, and social capacities of the patient, and pitch the
content of the conversation accordingly. It is important to
avoid a patronizing air, whatever the patient's intellectual
level (Harvey et al., 1980). Empathy is a critical tool in the
interview. The physician attempts to place himself in the
patient's position; if a physician is successful at this, the
patient will feel understood and the physician will have a better
idea of how to be helpful in psychologically supporting the
patient (Swartz and Kaufman, 1978). Eventually the physician
must discriminate among the features of a patient’s problem and
decide which merit primary attention, but Kahn (1979) argues that
the first goal of the physician is to provide support. However,
for medicine to be effective from this viewpoint, there can be no
silence between physician and patient. Once diseases were known
as entities in the body that presented their own truth to the
informed gaze of the physician: speech only intruded into the
search for knowledge under such a structure. Diseases, however,
that are disruptions in a complex order do not make themselves
immediately known to the medical practitioner. The nature of the
complex system must be assessed by discovering its parameters and
making them available for analysis. Since speech is the only way
to assess those parameters, only through a patient's words is the body as the patient lives it made available; speech must be encouraged, or provoked. (Arney and Bergen, 1984).

Thus, the claim is being made by various writers that medicine now attempts to ascertain the patient's views and needs. Is this entirely true, or is the medical world intent on deluding itself in regard to the degree of change it perceives within the structure? Armstrong (1984) argues that the "patient's view" is really nothing of the sort, since attempts to establish the authentic version of what the patient sees are mistaken because such investigation can only reveal what is perceived by the physician rather than what is actually said by the patient. Armstrong claims that recent interest in the validity of the patient's view is no more than an artefact of the evolutionary changes of the physician's perspective.

Certainly there was a change in the medical encounter in recent years, whereby physicians in the US began to tell their patients more openly when they were suffering from an illness that would almost certainly kill them (Cassileth et al, 1980). However, Todd and Still (1984) found that three out of four physicians that were interviewed still preferred not to give explicit information, or to talk about the outcome, even when they knew that the patient realised that he or she was dying. This behaviour was interpreted by the authors as an attempt to remain within the framework of rules and expectations provided by the traditional roles of doctor and patient, a framework that would be threatened by the doctor's acknowledgement of helplessness. However, given the certainty of pain and eventual death, it is not a doctor's expert medical knowledge that many
patients require. Chad Calland (1973), a physician suffering from end stage renal disease who later committed suicide, claimed that the "truth" of his pain and suffering existed not as an entity in itself, but rather in relation to the emotional and social connections outside of his body that medicine regarded as irrelevant. According to Peters (1979, cited in Arney and Bergen, 1984), whatever else is involved in the pain and suffering imposed by disease, what is critical for the patient is the loss of control over his life. Given these perceptions, the doctor, even when his medical knowledge is exhausted, still has a social, humanitarian role to play.

A decade ago, William Ryan coined the phrase "blaming the victim" (1976). He believed that there existed within people a tendency to see the victim as the ultimate cause of his own downfall. As Ryan describes it, blaming the victim shifts its emphasis to the environmental causation of problems and away from genetic or other causes inherent in the victim, but the blame for falling prey to problems still rests with the victim. The stigma that marks the victim and accounts for his victimization is an acquired stigma, a stigma of social rather than genetic origin, but the fault is still located within the victim. Once a problem is located in this way, the path toward change is clear: prescriptions for cure are invariably conceived to restore the victim, never to change the surrounding circumstances. The change is to the victim's attitudes, his values, the character defects, and so on (Arney and Bergen, 1984).

Why should "blaming the victim" occur in medicine? The first step one has to take in order to blame the victim - noting
environmental causes of social and individual ills - allows one to appear to adopt an ecological perspective on a problem: the cause of disease is not something inherent in the afflicted individual and therefore unalterable; instead, causal forces are located outside the individual and, therefore, are changeable in principle. But changing an environment and thereby changing the underlying cause of all ills is difficult. At best, it is a very long term project. In the short term other avenues for remedy are possible, and to the physician they are immediately accessible. An alternative is to stress what makes an individual patient susceptible to the environmental forces of illness: in this way treatment can still be directed at the individual patient. Failure to construct management schemes aimed primarily at the environment can be easily rationalised. Victim-blaming allows medicine tentatively to embrace some of the implications of a new ecological perspective without having to follow the obligations of such a perspective to their furthest point (Arney and Bergen, 1984).

Victim blaming appears in many corners of medical discourse. For example, researchers recognised early that environmental factors - the number of pills a person had to take, the physical characteristics of the pills, their cost and side effects, degree of behavioural change required, prescribed actions as opposed to proscribed behaviours (Becker, 1979) - influence compliance significantly. Still, research was directed at the patient, his personality and beliefs about an illness or about health; and toward education designed to overcome any barriers to compliance that might be found in the patient. The hypothesis was that personality characteristics mediated beliefs about a disease, and
it was towards those causally prior "health beliefs" that education programmes were directed to alter the patient and improve compliance. In effect, the patient who insisted on acting healthy by not taking his medication had to be changed and made to believe that he was not healthy (Arney and Bergen, 1984).

Victim blaming is also evident on larger scales. At the level of analysis of whole health care systems, victim blaming becomes a political strategy for directing attention away from the social causes of social problems and toward the individual causes of social problems. Thus, lifestyle is seen as the real problem, not the dangers of the workplace, the pollutants pumped into the environment, or the additives put into food. If lifestyle is the problem, then the individual can be called to account for his own difficulties, while others, those who created dangerous environments in the first place, are allowed to pass through unnoticed (Arney and Bergen, 1984). With regard to heart disease, despite the clear implication that CHD would be reduced by 25% if factors including cholesterol level, smoking, and blood pressure were controlled (Renaud, 1975), research still focuses on correlations of personality traits with heart disease. Heart attack victims are brought into laboratories, their Type A personality scores are assessed, they are encouraged to discuss their lifestyle problems in therapeutic groups, and taught exercises for changing behaviours and attitudes. Then these same people are sent out of the laboratory, back into the environment which encourages and rewards a high achievement orientation, competitiveness, aggressiveness, and a strong commitment to work, and later, if they have another heart attack, they are blamed for
not following doctor's orders (Brody, 1980, cited in Arney and Bergen, 1984). The environment, the economic system, the workplace, the day-to-day pressures of modern life go relatively unconsidered and absolutely untouched (Arney and Bergen, 1984).

The idea that medicine is now based on the equality of doctor and patient, and that the patient's view is the focus of the doctor-patient relationship, would therefore seem to be something of an idealistic vision. Certainly medicine has advanced dramatically in the way it has incorporated psychology into the domain of "hard" physical science. But as anyone who has attended an outpatient clinic, or stayed in a public hospital ward will know, the element of time still structures the medical consultation. Doctor-patient relationships, for all their sincerity and warmth, are subject to the necessities of routine, and the doctor has only so much time to obtain the information he or she needs to act. The patient, in most cases, still has the plastic chair, and faces the doctor across a desk. The patient in a hospital ward still has to make enquiries of the doctor during a busy ward round, when the pressure is on the patient not to hinder the doctor's progress from one patient to another. For all the efforts of the medical theorists, the doctor-patient relationship still has to proceed under a number of time and routine-linked pressures, which cannot but add tension and uncertainty to the situation. Of course, the domain of public medicine is different from that of private medicine, and the British world of medicine therefore different from the American. But there is every possibility that while time is a force which acts on the public health domain, money is just as prominent a force in the private sphere.
It may be asked whether we are demanding too much of the beleaguered doctor? Not only does the doctor have to be a master of the physical realm, now he must also be able to converse elegantly with psychologists and psychiatrists and social workers. Yet the doctor still receives the same amount of basic training. Perhaps we are trying to force the doctor back into the ancient role of faith-healer: the wise man who understands both the body and the mind, and with a simple phrase and laying on of hands, can banish the ills of the spirit and the flesh.

According to Hall and Beresford (1983), it must be remembered that specific medical knowledge may do much to define disease, but it is compassion and affection for the patient which allows medicine to engage him in a treatment process. They suggest that as new scientific developments emerge, the time available in medical school curricula for the "soft sciences" is increasingly eroded. There is a danger that medics will be "seduced" by the science and forget the art of medicine. If this were to happen, it is argued, physicians will become ineffective, for it is the art of medicine that permits its science to be of use. Hall and Beresford claim that to protect themselves from the psychological and social factors that initiate unpleasant behaviours in many patients, many physicians dichotomize illness into functional and organic categories. They then define their role as dealing with the somatic components of their patient's illness and protect themselves from the emotional problems by compartmentalizing them. This compartmentalization of mind and body is a maladaptive defense for physicians, since up to half of the patients seen by GPs suffer from some form of emotional
stress or mental disorder.

Stewart (1984) carried out a study to assess whether patient centred interviews were related to positive outcomes. It was found that interviews in which physicians demonstrated a high frequency of patient-centred behaviour were related to significantly higher reported compliance, and to better pill counts and satisfaction. When the patient and physician scores were considered in combination, there was evidence that the physician's behaviour, such as an explicit request for the patient's opinion, had more impact upon outcome than did patient behaviour.

So there is a demand for the doctor to expand his awareness, to place the patient's needs as an individual at the centre of the consultation, and involve him as a "partner" in the diagnostic process. But this plan is not without its problems. Bensing and Sluijs (1984) evaluated experimental training in doctor-patient communication for general practitioners that was based on Rogerian theory and adapted to the specific situations of the general practitioner. It was hypothesised the physicians would change their communication behaviour, and that physicians' patients would talk more openly about their psychosocial problems after the training. Results indicated a change in the expected direction with regard to the physicians' communication behaviour; however, the outcome of the consultations did not change. The physicians listened empathically but patients did not talk more about their problems.

It would appear that the "partner" does not necessarily want to make use of the offer of equality. Of course, this is only one study, which may have happened across a particularly
recalcitrant group of patients. But the findings are suggestive. The doctor may modify his behaviour; but the institutional forces and restraints within which the doctor-patient relationship proceeds change at a much slower pace. Before we ask the doctor to become expert in several fields, it is necessary to acknowledge and understand the context within which he operates. Victim-blaming, on the evidence cited above, would appear patient-centred. But isn't it true that the same faulty perception is in action with regard to doctors? If it is claimed that it is really all down to the doctor, who must change his behaviour in order to facilitate change in the patient, are we not simply indulging in victim-blaming by ignoring the enormous demands placed upon the doctor, and the environmental conditions and forces which exert their undeniable influence?

Before we recommend alternative perceptions of patients, and before we recommend that our doctors should embrace new fields of knowledge and adopt new methods of behaviour, we must understand more of what occurs between doctor and patient, and understand more of the context within which the relationship occurs. It is not enough to say that the doctor must respond to the patient as a person, and that the patient must speak openly. To engineer a change from one state to another state, we must initially comprehend the first state before our prescriptions for a new state can be anything more than empty words.
1.5 Summary, Conclusions, and Aims of the Present Study.

The past four chapters have discussed: the medical definition of heart disease; psychological factors mediating the biological risk factors in the aetiology of CHD; the influence of psychology in the post-infarction phase; and the ways in which psychology and illness interact, with the emphasis on the perception of the individual involved in the illness process. In this chapter, some general conclusions will be drawn concerning the trends in the discussed research, and the aims of the current study will be presented.

1.5.1 Summary.

The major risk factors of hypertension, cigarette smoking, and hyperlipidaemia were discussed (1.1.3), and the proposition was put forward that not all the variance in the incidence of heart disease could be accounted for by these risk factors. The importance of psychological factors was argued. Firstly, the main risk factors were either behaviours in their own right, or were susceptible to influence by behavioural variables. Secondly, psychological factors could influence the progression of atherosclerosis, or act as a trigger for the manifestation of clinical symptoms of CHD. The influence of psychological variables in heart disease was discussed (1.2) and there was found to be considerable evidence linking psychology and CHD. However, psychological research in the field was found to be deficient in the particular respect that the main risk factors were often considered as unitary phenomena, discussed in isolation from their controlling and eliciting elements. The concept of coronary prone behaviour was introduced (1.2.5), a
behavev iour pattern thought to contribute significantly and independently to the development of CHD. The concept is problematic, however. The behavioural criteria of the pattern are only vaguely defined and therefore difficult to target clinically for modification; and there is general confusion as to which elements of the behaviour pattern contribute to CHD.

The medical view of prognosis after an MI does not pay much attention to psychological factors (1.3). Nevertheless, the role of psychology subsequent to MI was explored, and anxiety, depression, denial, and invalidism, were found to be components of the psychological response to a heart attack (1.3.1). However, such labels as "anxiety" and "denial" were thought to be too broad in meaning to say much about the specific response to MI, although such variables were implicated in the nature of the outcome following MI (1.3.2). An argument was presented that outcome after a heart attack was not simply the result of global psychological variables such as anxiety and depression, but the result of the influence of a large number of factors. Outcome itself was not a simple matter of survival, but rather incorporated a number of related areas of psychosocial functioning. Psychological therapies designed to improve outcome were found to be largely deficient because of a lack of specificity as to what the therapies were designed to achieve. There appeared no "ideal" therapy for the improvement of outcome prognosis, since different individuals benefited from different treatments.

The importance of psychology in the illness process itself was discussed (1.4) from an attributional viewpoint,
incorporating the work of Herzlich, Wallston and Wallston, and Becker. Such research emphasises how the way in which a condition is perceived by an individual comes to influence the process of health and illness itself. Although such a framework has been employed in research designed to understand such aspects of patient behaviour as invalidism and compliance, the observation was made that the findings of such research are contradictory in the extent to which the framework — whether it be a Health Locus of Control framework, or the Health Belief model — has been found to be useful as a predictive tool. Other frameworks adopted in the health field include the sick role concept and the illness behavior model. The sick role concept is theoretical, and as such cannot explain the wide variations in individual behaviour related to illness. The theoretical basis of illness behaviour has been modified in recent years, and current theorists suggest that illness behaviour as a continuum ranges from gross displays of upset to denial, and is independent of a continuum of health and illness.

Compliance (1.4.3) is one of the major problem behaviours in the health field, and the psychological frameworks discussed in previous sections are used frequently in compliance research. Various aspects of the patient and environment have been considered in connection with compliance, and the role of the doctor in patient compliance has been found to be substantial. In particular, the way in which the doctor passes on information to the patient has been shown to be of great importance. However, the doctor's influence extends to areas beyond patient compliance. Because of the authority given to the doctor, great care has to be taken to ensure that the patient is able to inform
the doctor of the nature of his problem. Often the doctor's idea of what the patient requires, and the patient's idea of the same matter, are different. Perceived characteristics of the patient can affect the doctor's approach to the patient's problem, and often there is considerable perceptual discrepancy between doctor and patient. The nature of the doctor-patient relationship has changed in recent years, as has the role of medicine in everyday life. Whereas the patient's views were considered as unimportant in the diagnostic process at the turn of the century, now the patient's views are held to be of considerably greater value. This is partly because medicine is now geared toward prevention, and therefore needs to understand the relationship between the disease, the individual, and the social environment. However, the idea that the patient-doctor relationship is characterised by equality was shown to be faulty. Although medicine purports to be investigating the ills of the social environment, still social causes of disorder are being neglected in preference to taking the short-term solution of identifying characteristics of the individual which makes him susceptible to illness. There is an argument that while the psychology of illness is now considered part of the medical domain, still the physician sees illness as a product of either mental or physical disorder, rather than a combination of both, and sees his role as resolving the organic problem, and not the emotional. Although there is criticism of the doctor's failure to change his perception and action, there is evidence that the patient will not necessarily respond to alterations in the nature of the doctor-patient relationship. The problem is that the doctor-patient relationship is subject to
institutionalised expectations which act in complex ways. Changing one aspect of the medical consultation will not necessarily revolutionise the relationship. Before changes can be recommended, we have to first better understand the nature of the doctor-patient relationship within the illness process.

1.5.2 Conclusions.
The medical approach to heart disease has, for a long time, played down the role of psychology. The major risk factors in CHD are seen to work on a physiological level, and there is little scope for psychological factors in outcome following MI (1.3). Psychologists have attempted to emphasise the relevance of psychology to the main risk factors (1.2.1., 1.2.2., 1.2.3., 1.2.4.), and in outcome following MI (1.3). In many ways, the logical development of the psychological approach to heart disease was the advancement of the Type A coronary prone behaviour pattern, which purports to be a purely psychological risk factor for heart disease (1.2.5).

There would therefore seem to be a trend for psychologists and doctors to be talking from different viewpoints. The psychologists, while acting within the health field, are arguing for the importance of psychological factors in the causation and outcome of CHD. Doctors, while acknowledging a minor role for psychological factors in CHD, maintain that the organic variables explain the vast majority of the illness process. While considerable criticism has been levelled at doctors for ignoring the importance of psychology in the illness process, a similar, if opposite, criticism could be aimed at psychologists: namely, that the psychologists are forgetting that they are dealing with
illness, and are simply discussing variables such as compliance and anxiety as if they are unconnected to organic pathology. Thus, for example, the relevance of the severity of an MI is played down. When such frameworks as the Health Belief and Illness Behaviour models are proposed, they are generated as macro-theories intended to explain the vast majority of the variance in individuals' responses to illness. Yet it is clear from the research evidence that these models only partially explain patient behaviour in relation to some illnesses.

Ultimately, the psychological research undertaken in the health field is not specific enough with regard to the variables being measured. Thus, we all know that patients can be depressed after a heart attack, and anxious after a heart attack. But what kind of anxiety, what kind of depression are we talking about, and does this influence return to work and recurrent MI (1.3.1., 1.3.2)? Is the anxiety and depression experienced any different from other acute illness conditions, or not? There is a woeful shortage of longitudinal prospective studies undertaken by psychologists in the health field. There is a tendency to ignore the changing nature of illness, and assume that all variables that operate during an illness operate all the time, in the same way. Furthermore, health beliefs may affect compliance in hypertensives, but do they affect compliance in lipid patients, and do the same aspects of the framework apply for both illness populations, throughout the duration of the condition?

There is a twofold problem. Firstly, we do not really know how heart populations, whether they be pre- or post-infarction, differ from other illness populations. Secondly, when we attempt
to uncover their psychology, we employ predictive frameworks that are so general that they finally tell us very little about the specific population being considered. Because the frameworks are developed to apply to all illness populations, they can ultimately tell us very little about the specific illness, and the differences between illness populations.

When we turn to research on the doctor-patient interaction, we find a similar problem, in that very little research has been concerned with how the interaction is mediated by the illness condition. Thus, there has been some illuminating work carried out with doctor-patient interaction in terminal illness cases. But little work attempts to incorporate these findings into the body of other interaction research. Is such interaction different in kind, or degree, from other doctor-patient situations? We see studies designed to uncover how the patient influences the doctor through personality characteristics and behaviour. We see studies designed to see how doctors influence the patient through information quality and quantity. And we see studies involving the influence of the illness on the patient (1.4.1). But so few studies attempt to see how they all work together, as they must do in the reality of the illness process. It is almost as if the doctor, the patient, and the illness, are seen as separate factors which coordinate in some unspecified, and relatively unimportant way. If a greater understanding of the illness process is to be developed, more research must be geared toward considering how each of the factors work with and against each other toward generating the final outcome.

There has been some inspiring work carried out in the field of health psychology. Researchers such as Becker, Mechanic, and
Cay have produced work of the highest calibre, and generated further research through their example. But there is still much within the area of heart disease specifically, and doctor-patient interaction and perception generally, that is still to be understood and explained.

1.5.3. Aims of the Present Study
The current study has three main aims. Firstly, the study is designed to further the understanding of the psychological response to heart disease. Much research has been concentrated on psychological response after MI. Yet this is only one aspect of heart disease, and in many ways represents the endpoint of the illness process. Prior to the infarction, in high risk populations, there exists an awareness that an MI is a possible future event. Such patients have to live their lives as normally as possible, while contending with the knowledge that they have heart disease, together with the restrictions that such awareness might impose on lifestyle. In one way, pre- and post-infarction groups are similar: they both share the knowledge that they are at high risk of infarction. Yet in many ways, such patients face very different conditions. There is different symptomatology, different treatment regimens, and also different extents of awareness of the nature of an infarction event. By looking at both a high-risk population, and at a post-infarction population, the nature of the illness process and its accompanying psychology will be better understood than if isolated aspects of the process are examined separately. A hyperlipidaemia population will be selected as the high risk group, since such a population
represent a biological risk group, without necessarily any psychological risk attached; although serum cholesterol and Type A behaviour have been linked (1.2.5).

A second aim of the current study will be to consider the differences in the ways in which doctors and patients perceive heart disease. That there are discrepancies in perception has been shown (1.4.4). Yet the nature of these discrepancies is as yet little understood. An attempt will be made to further understand how patient and doctor view the illness process in heart disease. If discrepancies occur, it will be important to see if they exist across illness groups, and persist over the duration of the illness process. Furthermore, why such discrepancies arise, and whether they affect the process of the patient's condition, are interesting issues to be covered.

Thirdly, the study will be a prospective, longitudinal analysis of heart disease. As noted above, much research in the health field fails to take note of the fact that illness is rarely a stable entity. Certain conditions have very static symptomatology (chronic conditions), while others have fluctuating symptomatology (acute conditions). What differences occur in patient psychology as a result of the difference in nature of the condition symptomatology will be questioned. By following the illness process over a number of months, the interaction of illness and patient psychology might be better comprehended, and also how the doctor's role changes with the progress of the illness.

The thought behind this study passed through several changes as a result of two pilot studies. These studies will now be presented so that the reader might gain an insight into how the
design of the main study was finally reached.
CHAPTER TWO

PILOT STUDY (I)

...
2. PILOT STUDY (1).

2.1 Introduction.

Since the recognition that the physical reaction to an illness may be influenced by a patient's perception of his illness (Mechanic, 1966), a considerable amount of research has focused on the importance of the patient's attributional tendency (Heider, 1958) for recovery and rehabilitation. There is evidence that a patient who attributes to himself some control over his health, and thus feels to a degree responsible for his illness, stands a better chance for a more complete recovery than one who feels he has no control (Wallston et al, 1976).

Koslowsky et al (1978) argued that if the individual sees the cause of his illness as beyond personal control, he may adopt a more limited approach to recovery than someone who perceives the cause of illness as lying within himself. In their study of cardiac patients, it was found that patients cited stress and tension most often as the causes of their illness.

Research by Cay and her associates (Cay et al, 1973; Cay, 1982), has indicated that measures of patients' psychological state, in terms of anxiety and depression, are good predictors of eventual rate of recovery as early as 5-8 days after infarction. Depression has often been associated with helplessness and passivity (Abramson et al, 1978; Seligman, 1975). If both the external attributional tendency and depression-passivity are related to a limited recovery it seems reasonable to ask whether there is any relationship between the patients' activity-passivity on the one hand, and their attributional tendency on the other. If there is such a relationship, it might be...
possible, by changing the attributional tendency of the patient, also to stabilise his emotional state as Cay (1982) proposes, and thus to affect the process of his recovery while the patient is still in hospital.

The problem, however, is how best to assess attributional tendency in a hospital setting, and so soon after such an emotionally upsetting experience as MI. Attributional tendency has been measured by both questionnaire (Rotter, 1966; Levenson, 1974, 1975) and interview (Koslowsky et al, 1978). Wallston et al (1978) developed the Multidimensional Health Locus of Control (MHLC) scales specifically to measure attributional tendency with respect to health beliefs. The aim of the present study was to establish by questionnaire and interview which measures of attributional tendency, if any, were related to the patients' attitudes to the future following MI.

2.2 Method.

2.2.1 Participants in the study.

The experimental group consisted of 32 patients from Ward 3 of Glasgow Royal Infirmary. 26 had suffered an MI and 6 had suffered myocardial ischaemia, for the first time. The patients were males from working class backgrounds, aged between 35 and 84. They were seen during the second week after their attack and were selected by ward staff on the day of the interview, from those available who were in a comfortable, stable condition and agreed to cooperate. The second group of participants, the comparison group, was selected from porters and wardens of a
similar social background to the experimental group, at Stirling University. The group consisted of 20 males aged between 33 and 60. None of the porters and wardens had previously suffered from any cardiovascular disorder. Ethical committee permission was obtained for this study.

2.2.2 Instruments.
The Multidimensional Health Locus of Control (MHLC) Scales (see Wallston et al, 1978 for more details) and an interview were used to obtain measures of attributional tendency.

The MHLC Scales resolves into three dimensions, measuring: belief in one's own control of health (internal, I scale); belief that powerful others control health, for example, doctors (powerful others, P scale); and belief that health is a matter of fate (chance, C scale). The subject is required to rate his agreement with each of 18 statements, on a 6-point scale, from strongly disagree (1) to strongly agree (6). From these ratings, the subject receives a cumulative score for each scale.

The interview (see appendix 1) gives 2 measures of attributional tendency: 12 questions were devised to assess the patient's general attributional bias (e.g., "How much control do you feel you have over the events that most directly effect you?" "If you are successful at something, is it usually a matter of hard work, or just good luck?"); 2 questions ascertained the perceived cause of the patient's illness. Additionally, 8 questions in the interview dealt with the patient's active-passive attitude to recovery (e.g., "To what extent do you think your own actions will determine how well you will recover from your heart attack?" "Who, apart from yourself, will play a part
in your recovery, if anybody?).

2.2.3 Procedure.
For all individuals in the experimental group, the interviewer introduced himself to each of the selected patients, and explained that he was carrying out research into patients' feelings and reactions following a heart attack. The interview took place on the ward, with curtains drawn around the patient's bed for privacy. When the questionnaire had been carefully explained to the patient, he was left alone for 15 minutes to fill it in. The interview then took place and was recorded by means of a portable cassette recorder, interviews lasting approximately fifteen minutes. The members of the comparison group were left for fifteen minutes with the questionnaire in the same manner, but were not interviewed.

2.2.4 Data Analysis.
The ratings given by each patient on the questionnaire were totalled, each patient receiving three scores corresponding to the three scales of the questionnaire. The interviews were transcribed in their entirety, and each section of the interview was rated separately. For the general attribution questions a 5-point scale was used, ranging from "very internal reply" (1) to "very external reply" (5). The 2 questions on perceived cause were categorised either as "personal" or "environmental", and a score was given to each patient: "1" if a personal cause was cited; "2" if an environmental cause was cited. The active-passive section of the interview was also rated on a 5-point scale, ranging from "active reply" (1) to "passive reply" (5).
scale, ranging from "very active reply" (1) to "very passive reply" (5). On combining the scores for all patients on this latter variable, the median score was obtained and the variable was split into two. All patients who scored less than or equalled the median value were categorised as "actives"; those rated above the median value were categorised as "passives". Two judges were employed, one the experimental interviewer, the other a psychology undergraduate in her final year. The inter-judge reliability for the attributional tendency variable was 75%. For the active-passive variable, 81%. All disagreements were resolved by averaging the judges' ratings.

2.3 Results.

2.3.1 Aim of Analysis.

Two questions were important. First, whether the MHLC scores of myocardial patients differed in any respect from those of the standardised group of Wallston et al (1978), and the group of porters and wardens (comparison group). Secondly, whether any of the measures of attributional tendency (three MHLC scales and two interview sections) were related to the active passive measure.

2.3.2 MHLC Scales.

The intercorrelations for the three scales within each group (standardization, comparison, experimental) were examined by means of a Pearson correlation test. In the standardization group, Wallston et al (1978) demonstrated that internal and chance scales (r = .189) and powerful other and chance scales (r = .259) were correlated significantly (p < .05, p < .01 respectively). In
the present study, in both the experimental and comparison groups, the powerful other and chance scales were significantly correlated (.430 and .558 respectively, p<.01).

Differences between the standardization, experimental, and comparison groups for all scales were examined by t-tests for independent samples, and the results can be seen in TABLE 2.1.

<table>
<thead>
<tr>
<th>Scale</th>
<th>M</th>
<th>S</th>
<th>N</th>
<th>M</th>
<th>S</th>
<th>N</th>
<th>M</th>
<th>S</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>25.3</td>
<td>4.6</td>
<td>115</td>
<td>29.4</td>
<td>4.0</td>
<td>32</td>
<td>24.2</td>
<td>6.3</td>
<td>20</td>
</tr>
<tr>
<td>P</td>
<td>20.9</td>
<td>5.5</td>
<td>115</td>
<td>28.2</td>
<td>5.8</td>
<td>32</td>
<td>21.8</td>
<td>6.1</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>15.5</td>
<td>5.2</td>
<td>115</td>
<td>20.6</td>
<td>6.7</td>
<td>32</td>
<td>19.0</td>
<td>5.5</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 2.1: Descriptive data on three populations.

All scales indicated significant differences between standardization and experimental groups (Internal: t=4.87; Powerful Other: t=6.29; Chance: t=4.01; p<.01), whereas there were no differences on any scale between the standardization and comparison groups. For experimental and comparison groups, the internal and powerful other scales showed significant differences (Internal: t=3.22; Powerful Other: t=3.70; p<.01). On examining the experimental group itself for homogeneity using t-test, it was found that there was no significant difference between the six patients with myocardial ischaemia and those who had suffered
2.3.3 The relationship between attributional tendency and active-passive attitudes.

A stepwise discriminant analysis was carried out to determine whether the patients' scores on the measures of attributional tendency (the I, P, and C Scale scores; the general attributional tendency score, and the cause of illness classification) were related to their scores on the active-passive measure. Only the general attributional tendency measure gave a significant F-ratio (13.43, \( p < .01 \)), indicating that only this measure predicted which patient was "active" and which patient was "passive". As can be seen (TABLE 2.2) out of the 16 patients who were categorised as

<table>
<thead>
<tr>
<th>Actual Attributional Tendency Classification</th>
<th>Total</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>PASSIVE</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 2.2: Classification matrix. Active or Passive categorization on the basis of general attribution rating.

"actives" on the basis of their score on the active-passive measure, 12 were also correctly assigned to the "active" group by their general attributional tendency rating. Overall, correct classification was 71.9%.
2.4 Discussion.

Patients after MI and myocardial ischaemia differed significantly from the standardization population on all 3 MHLC Scales. Since the comparison group did not differ from the standardization group, it does not seem that the difference can be put down to the cultural differences between Wallston et al’s (1978) American sample and the present Scottish sample. It could be suggested that heart patients, as a distinct population, are represented by a unique pattern of health beliefs. Alternatively, the pattern of health beliefs may be a result of psychological change as a consequence of the trauma of becoming acutely ill. Although the present study does not provide evidence to choose between these two alternatives, Pleszewski (1978) found that personality changes can follow MI.

It is interesting that all three MHLC scales were rated more extremely by the heart patients than by the standardization or comparison groups. Thus, the heart patients attributed control of their health more strongly to internal and external factors. Since high rating on a scale means high agreement with the statements of the questionnaire, it is indicated that the patients were, perhaps, complying more than the standardization and comparison groups with the demand characteristics of the questionnaire. An explanation for this may be found in terms of the hospital environment. Patients might come to hold a more internal perspective on their health because they are encouraged to do so by medical staff, who try to make patients more interested in their own recovery. At the same time, a patient has to accept a passive role in hospital and will therefore see much of the responsibility for his health as lying with the
medical specialists. Thus, the patients will also see control of their health as residing in these powerful others such as ward doctors. Since no other illness group was used for comparison purposes, it cannot be said whether this pattern of findings is unique to heart patients, or whether it is true of acute illness groups in general.

The results show that only one of the five measures taken, general attributional tendency, predicted the patients' active-passive rating. Those patients who received an "internal" rating for attributional tendency were likely to receive "active" ratings: those who received "external" ratings tended to receive "passive" ratings. As for the perceived cause of illness measure, the numbers of patients in the "personal" and "environmental" categories were highly unequal, and thus the statistical test of predictive ability was of little use.

The question arises as to why the measure of general attributional tendency should predict active-passive rating, whereas the MHLC Scales do not. The questions contained in the interview and the questions in the MHLC were similar, all concerned with social and personal attributions. In contrast to the interview, however, all questions in the MHLC questionnaire were directly concerned with health and illness. It might, therefore, be suggested that a patient's active-passive approach to the future is related more to his general attributional tendency than his specific attributional bias in terms of health beliefs. There is, after all, no a priori reason why an internally oriented person should feel he has control over his own health. It should be noted that the statements in the
questionnaire did not refer to specific illnesses. Since these patients were experiencing MI for the first time, their beliefs concerning cardiac illness could have been at an unstable stage. Thus, their health beliefs with respect to heart disease might differ from their health beliefs in general. Thus, two alternative explanations for the results in this study might be suggested. First, a person’s health beliefs might not be as influential in determining his attitudes to recovery as his general attributional tendency. On the other hand, a person’s health beliefs may be important in influencing his attitudes to recovery, but the questionnaire is failing to detect these beliefs, as the immediate illness environment is leading to a distortion in patient response. If the latter alternative is the correct explanation for the findings of this study, the following general suggestion can be made. Standard questionnaire devices used in hospitals may only be scratching the surface of patients’ attitudes and emotions. The hospital environment is a very influential one, and tests which employ “yes-no”, or other short answers, may merely be recording a set of environmentally induced responses which is not typical of the patient’s true beliefs. Although it may be impractical to have routine psychological interviews with patients after an infarction, anyone who is attempting psychological assessment in order to monitor the patient’s recovery and rehabilitation should be aware that in using a questionnaire, one might actually be assessing the patient’s compliance and reaction to the hospital environment.

Secondly, if the former alternative is correct, then the evidence from this study suggests that health beliefs, and health
locus of control, may be of limited value in the area of post-infarction psychology. Certainly, psychological factors have a role to play, but it would appear that an individual's general attributional bias is of greater importance than his health locus of control.

2.4.1 Conclusions for study development.

One of the main limitations of this study has been the lack of inclusion of a comparison illness group. Thus, it is difficult to say with certainty whether the findings in regard to the heart population are unique to that population, or simply due to the presence of an acute illness episode. However, it would seem from the results that questionnaire measures of health locus of control have little to offer in relation to a heart population. The value of an attributional framework as represented by the significant results of the interview, on the other hand, does seem supported by the study's findings. Furthermore, the study suggests that questionnaire devices are more susceptible to environmental influences than interview techniques, and thus employing interviews rather than questionnaires would seem the desirable course to take.

The next study should therefore extend the use of interview, to cover a greater range of material concerning the illness process, while still maintaining an attributional basis. However, the purpose of the study should be exploratory, so that there are no restrictions on the kind of information gained. In the next study, a comparison illness group should be employed, in order to better understand the precise characteristics of the
experimental population. The present study examined a post-infarction population, and therefore it would be of value to examine a pre-infarction, or high-risk population in the second study, so that the value of adopting an attributional, interview approach across all heart populations could be examined.
CHAPTER THREE

PILOT STUDY (II)
3. PILOT STUDY (2).

3.1 Experimental Aims.

The aim of this study will be twofold: first, to find out the psychological characteristics of a sample of patients with high serum cholesterol levels from a lipoprotein outpatient clinic; second, to discover the differences between such a sample, and a group of general outpatients, with regard to illness behaviour.

3.2 Method.

3.2.1 Participants in the study.

Two groups of outpatients participated in this study. The experimental group consisted of 8 patients from the Glasgow Royal Infirmary Lipoprotein clinic. Three were male, and 5 were female. The age range was from 21 to 68, with a mean age of 53, and the sample came from a mixed class background. The patients were seen at various stages during the course of their condition, and were selected by clinic staff on the day of their attendance from those available who were agreeable to being interviewed.

The second group of patients, the comparison group, consisted of 8 patients from the Glasgow Royal Infirmary outpatient clinic. Two patients were male, 6 were female. The age range was from 34 to 75, with a mean age of 49, and the sample came from a mixed class background. The patients were seen at their initial appointment at the clinic, and suffered from a variety of mild illness complaints. The patients were selected by clinic staff on the day of their attendance from those available who were
agreeable to being interviewed. Ethical committee permission was obtained for this study.

3.2.2 Instruments.

An interview (see appendix 2) was devised on the basis of the previous experiment, consisting of 41 questions in 6 sections. Section 1, Knowledge of Condition, consisted of 9 questions (e.g., "Did you know much about this sort of condition beforehand?" "How serious or mild do you think your condition is?"). Section 2, Effect of Clinic and Medical Supervision, consisted of 9 questions (e.g., "Do you feel you can talk quite easily to the doctor?" "Do you find it difficult keeping to what the doctor tells you to do?"). Section 3, Health Values, consisted of 5 questions (e.g., "How important to you is your health?"). Section 4, Attribution, consisted of 5 questions (e.g., "Do you hold yourself responsible for your health?"). Section 5, Personal Influence, consisted of 6 questions (e.g., "Do you ever become depressed because of your condition?"). Section 6, Social Influence, consisted of 7 questions (e.g., "What aspect of your condition, if any, causes the most problems for your family?"). The interview was structured so that the questions were asked in a regulated sequence, but the interviewer was free to respond to the patients enquiries and remarks in whatever matter he felt appropriate, so that the interview's form was more of a dialogue.

3.2.3 Procedure.

For all individuals in both groups, the interviewer introduced himself to each of the selected patients and explained that he
was carrying out research into patients' feelings and reactions to illness. The patients were interviewed following their treatment by the doctor, in a room adjoining the clinic (although the outpatient and lipoprotein clinics were held on different days, the location was the same). The interviews were recorded, and lasted from 20 to 90 minutes.

3.2.4 Data Analysis.
Each interview was transcribed in its entirety, and subjected to content analysis, so that the information contained in the dialogue between patient and interviewer could be organised into meaningful categories. At the first stage of analysis, all responses were allocated to the respective question which prompted the response. If any question produced little or no response, the question was removed from the analysis, and the responses that had been allocated were reclassified with a different, though similar, question. The full range of response to each question was then categorised on the basis of the actual verbal response made by the patients. Any response at this stage that seemed out of place with respect to the question it had been allocated to, was reallocated to another question; if this resulted in a repetition of response, the reallocated response was removed from the analysis. Each question was then carefully considered, to see if any responses appeared to share characteristics. For example, if two replies were worded differently, but held the same meaning, then such responses were combined under one heading. The final result was for all responses to be classified under a particular "reply heading"
with respect to a particular question. The number of responses in each reply heading was then counted.

3.3 Results.
The results of the content analysis are presented below. Each general heading presents the focus of the question asked, with the figure beside the heading referring to the section the question was presented in, and the number of the question in that section. The smaller headings index the responses given, and the accompanying figures indicate the proportion of each illness group responding in that manner. The LIPO symbol applies to the lipoprotein group, and the GEN symbol to the general outpatient group.

A2: FIRST AWARENESS OF CONDITION DUE TO:

<table>
<thead>
<tr>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angina attack 25%</td>
<td>Attack 43%</td>
</tr>
<tr>
<td>Heart Attack 25%</td>
<td>Breakdown 14%</td>
</tr>
<tr>
<td>Examination 25%</td>
<td>Gradual Build-up 28%</td>
</tr>
<tr>
<td>Family History 25%</td>
<td>Uncertain Diagnosis 15%</td>
</tr>
</tbody>
</table>

A3: KNOWLEDGE OF CONDITION PREVIOUSLY:

<table>
<thead>
<tr>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extensive 12%</td>
<td>0%</td>
</tr>
<tr>
<td>Moderate 25%</td>
<td>0%</td>
</tr>
<tr>
<td>None/Little 63%</td>
<td>100%</td>
</tr>
</tbody>
</table>

A4: INITIAL REACTION TO DIAGNOSIS

<table>
<thead>
<tr>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety 0%</td>
<td>14%</td>
</tr>
<tr>
<td>Surprise 37%</td>
<td>28%</td>
</tr>
<tr>
<td>Acceptance 63%</td>
<td>0%</td>
</tr>
<tr>
<td>Relief 0%</td>
<td>43%</td>
</tr>
<tr>
<td>No Reaction 0%</td>
<td>14%</td>
</tr>
</tbody>
</table>

A5: COMPREHENSION OF CONDITION

<table>
<thead>
<tr>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extensive 26%</td>
<td>0%</td>
</tr>
<tr>
<td>Moderate 37%</td>
<td>28%</td>
</tr>
<tr>
<td>None/Little 37%</td>
<td>72%</td>
</tr>
</tbody>
</table>
A6: PERCEPTION OF SEVERITY:

<table>
<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Mild</td>
<td>63%</td>
<td>28%</td>
</tr>
<tr>
<td>Non-committal</td>
<td>37%</td>
<td>72%</td>
</tr>
</tbody>
</table>

A7: PERCEPTION OF CAUSE:

<table>
<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
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</thead>
<tbody>
<tr>
<td>LIPO</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Accumulation of environ factors 10%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Hereditary 60%</td>
<td>Nerves 28%</td>
<td></td>
</tr>
<tr>
<td>Lifestyle 30%</td>
<td>Drink 14%</td>
<td>Psychological 28%</td>
</tr>
<tr>
<td></td>
<td>Somatic 14%</td>
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A9: PERCEPTION OF OWN COMPREHENSION:

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<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Comprehension</td>
<td>26%</td>
<td>43%</td>
</tr>
<tr>
<td>Poor</td>
<td>37%</td>
<td>14%</td>
</tr>
<tr>
<td>Non-committal</td>
<td>37%</td>
<td>43%</td>
</tr>
</tbody>
</table>

B1/2: EXPERIENCE OF CLINIC:

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<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
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</thead>
<tbody>
<tr>
<td>Helpful/Reassuring</td>
<td>50%</td>
<td>86%</td>
</tr>
<tr>
<td>Not Helpful</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>Disagreeable</td>
<td>12%</td>
<td>0%</td>
</tr>
</tbody>
</table>

B3/4: COMMUNICATION WITH DOCTOR: QUALITY

<table>
<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory</td>
<td>25%</td>
<td>71%</td>
</tr>
<tr>
<td>Occasionally Unsatisfactory</td>
<td>50%</td>
<td>14%</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>25%</td>
<td>14%</td>
</tr>
</tbody>
</table>

B3/4: COMMUNICATION WITH DOCTOR: INFORMATION CONTENT

<table>
<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory</td>
<td>37%</td>
<td>28%</td>
</tr>
<tr>
<td>Occasionally Unsatisfactory</td>
<td>26%</td>
<td>44%</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>37%</td>
<td>28%</td>
</tr>
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B5: RECOMMENDATIONS FOR TREATMENT:

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<tr>
<th></th>
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<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>100%</td>
<td>28%</td>
</tr>
<tr>
<td>Medication</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Relaxation</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>Abstinence</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>No Possible Treatment</td>
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B6/7: COMPLIANCE:

<table>
<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
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<tbody>
<tr>
<td>Great Problem</td>
<td>37%</td>
<td>28%</td>
</tr>
<tr>
<td>Small Problem</td>
<td>37%</td>
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<tr>
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<td>44%</td>
</tr>
<tr>
<td>B6/7: CAUSE OF PROBLEM:</td>
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<tr>
<td>---------------------------------</td>
<td>------</td>
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</tr>
<tr>
<td>Conflict Treatment/Lifestyle</td>
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</tr>
<tr>
<td>Maintaining Diet</td>
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</tr>
<tr>
<td>Maintaining Abstinence</td>
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<td>0%</td>
</tr>
<tr>
<td>Against Drugs</td>
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<td>25%</td>
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<tr>
<td>Drug Reliance</td>
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<td>14%</td>
</tr>
<tr>
<td>Contingent Admittance</td>
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<td>72%</td>
</tr>
<tr>
<td>No Admittance</td>
<td>12%</td>
<td>14%</td>
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<table>
<thead>
<tr>
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<td>14%</td>
</tr>
<tr>
<td>Moderate</td>
<td>38%</td>
<td>28%</td>
</tr>
<tr>
<td>Poor</td>
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<td>58%</td>
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<tbody>
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<td>57%</td>
</tr>
<tr>
<td>Moderate</td>
<td>37%</td>
<td>28%</td>
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<tr>
<td>Poor</td>
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<td>29%</td>
</tr>
<tr>
<td>Moderate</td>
<td>25%</td>
<td>57%</td>
</tr>
<tr>
<td>Poor</td>
<td>12%</td>
<td>14%</td>
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<table>
<thead>
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<tr>
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<tr>
<td>Primarily Self</td>
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<td>29%</td>
</tr>
<tr>
<td>Primarily Doctors</td>
<td>50%</td>
<td>13%</td>
</tr>
<tr>
<td>Doctors</td>
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<td>29%</td>
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<table>
<thead>
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<tr>
<td>Frustration</td>
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<tr>
<td>Anxiety</td>
<td>25%</td>
<td>72%</td>
</tr>
<tr>
<td>Depression</td>
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<td>43%</td>
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<tr>
<td>Disruption</td>
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<table>
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<td>38%</td>
<td>57%</td>
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### F1: AFFECT ON FAMILY:

<table>
<thead>
<tr>
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<th>GEN</th>
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</thead>
<tbody>
<tr>
<td>Serious</td>
<td>0%</td>
<td>29%</td>
</tr>
<tr>
<td>Minor</td>
<td>38%</td>
<td>57%</td>
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<td>14%</td>
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### F4: SUPPORT FROM FAMILY:

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<thead>
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<tr>
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<td>63%</td>
<td>57%</td>
</tr>
<tr>
<td>No</td>
<td>37%</td>
<td>34%</td>
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### F3: RELATIVE/FRIEND WITH SIMILAR COMPLAINT:

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</thead>
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<td>Yes</td>
<td>75%</td>
<td>29%</td>
</tr>
<tr>
<td>No</td>
<td>25%</td>
<td>71%</td>
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### F6: DISRUPTION OF SOCIAL LIFE:

<table>
<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great</td>
<td>0%</td>
<td>71%</td>
</tr>
<tr>
<td>Moderate</td>
<td>37%</td>
<td>0%</td>
</tr>
<tr>
<td>Small</td>
<td>63%</td>
<td>29%</td>
</tr>
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### F7: DISRUPTION OF WORKING LIFE:

<table>
<thead>
<tr>
<th></th>
<th>LIPO</th>
<th>GEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>Moderate</td>
<td>25%</td>
<td>14%</td>
</tr>
<tr>
<td>Small</td>
<td>50%</td>
<td>57%</td>
</tr>
</tbody>
</table>

### 3.4 Post-Analysis.

A content analysis was carried out on the results, in a similar manner to the analysis performed on the raw data. The first stage was to remove from the data all those sections which produced little or no difference in the response of the two groups. Thus, there is only a minor difference in the distribution of responses for the two illness groups with regard to Health Orientation. This section was therefore removed from the analysis. Each section was carefully considered, to see if any two sections shared characteristics. The two characteristics considered were the subject matter of the section and the distribution of responses in the section. In this way, sections which were similar in subject matter and in the manner in which the two illness groups responded to the section question, were...
gradually arranged together in clusters. Finally, the clusters were examined once all result sections had been allocated, and each cluster was labelled by the author so as to match the meaning of the results sections contained within the clusters, in a manner similar to that employed in factor analysis. In all, five clusters were identified and these clusters, together with the pertinent results sections, are as follows.

3.4.1 Illness Perception.

Within this large area are contained such factors as the patients' knowledge and perception of his/her condition, in terms of severity and cause, and reasons for becoming aware of the condition, together with pre- and post-diagnosis reaction. Reviewing the differences between the two groups, it can be seen that: 100% of the comparison group had no or little idea concerning a condition such as their own prior to diagnosis, whereas the Lipo group had some knowledge of cholesterol in 37% of their group. The Lipo group gave a moderate response on diagnosis, with all reacting with slight surprise or acceptance.

The comparison group gave more extreme reactions, 42% reacting with surprise or anxiety, and 58% experiencing relief, or no reaction at all. The Lipo group appear to be more knowledgable in terms of their condition, with 63% being extensively or moderately aware of the mechanics of their condition, whereas only 28% of the comparison group claimed even moderate understanding. No patient in either group was willing to diagnose their own condition as severe, but the lipo group tended to see their condition as less severe, 63% claiming a mild
condition compared to 28% of the comparison group. The majority of the Lipo group saw hereditary factors as the primary cause of their disorder (60%), with the comparison group indicating a variety of causes (naturally enough, since this group comprised a variety of disorders). Comparing the two groups overall, the Lipo group appears to have greater awareness and understanding of their condition, reacting more calmly to their condition, and perceiving it as a mild disorder. The Lipo group also saw the root cause as more outwith their control than the comparison group.

3.4.2 Illness effect
This cluster includes findings on the individual's emotional reaction to his/her condition, the effect on family and relatives, and the disruption of social life. A comparison of the two groups reveals: the Lipo group experienced a small emotional effect, with 37% feeling frustration or anxiety. The comparison group experienced higher levels of anxiety (72%), with 72% feeling either depressed or experiencing actual disruption of their personal life. 38% of the Lipo group felt there had been a minor effect on their family, compared to 29% of the outpatient group seeing a severe effect, and 57% a minor effect. 63% of the Lipo group experienced minor disturbance of their social life, with 71% of the comparison group claiming major disruption.

Overall, there is agreement between the two groups in respect to restrictions on lifestyle and disruption of working life. However, large differences occur in regard to emotional upset, effect on family and relatives, and disruption of social life, with the Lipo group experiencing considerably less disturbance.
3.4.3 Health Orientation.

This section comprises such factors as perception of personal control over general health and specific condition suffered, and responsibility taken for health. Comparison of the two groups revealed the following: personal control of condition suggests a discrepancy between the two groups, with 63% of the Lipo group, as opposed to 29% of the comparison group, perceiving good control of their specific condition. However, only 37% of the Lipo group see responsibility for their health as lying primarily with themselves, compared to 58% of the outpatient group. So, although the Lipo group perceive themselves as having greater control of the condition itself, they also see responsibility as lying more with doctors, when compared to the outpatient group.

3.4.4 Doctor-Patient Relations.

Communication between doctor and patient appears to be an important category. Although the difference between groups does not particularly highlight this importance, the fact that so many of the patients had such a large amount to say on this area does indicate its relevance to the patient. It can be seen that there is a difference in the groups’ appraisal of the clinic. Whereas 86% of the comparison group found the outpatient clinic helpful, only 50% of the Lipo group said this. Seventy-one percent of the comparison group were satisfied with their relationship with the doctor, but only 25% of the Lipo group felt the same. The Lipo group were less satisfied with the form of doctor-patient relations, and the clinic situation, than the
of the Lipo group satisfied, and 28% of the outpatient group.

3.4.5 Compliance.

For this study only a small section of the interview was devoted to compliance, but the results indicate large discrepancies between the two groups. It is not easy to compare compliance across groups, since the treatment regimen the groups were undergoing were different. 100% of the Lipo group were on a diet, and 50% on medication. 28% of the comparison group were on a diet, and 100% on medication. This should be remembered when considering the following comparisons: seventy-four percent of the Lipo group found compliance a problem of some kind, in contrast to 56% of the comparison group. The cause of the problem varied within and across groups, but 50% of the Lipo group found the greatest difficulty in the clash of treatment restrictions and lifestyle. With regard to whether or not noncompliance would be reported to the doctor, 63% of the Lipo group claimed they would inform the doctor, with only 14% of the comparison group saying the same. Rather, 72% of the latter group claimed contingent admittance; by this, it is meant that admittance was actually dependent on the doctors. Thus, the modal response of this category would be "Oh, yes, well, they would know anyway, they have ways of finding out." The patient is essentially saying that there is no need for him to admit noncompliance. However, although they are not verbally admitting
noncompliance unless directly asked about it, these patients are also denying that they are in any way lying about their compliance. Thus, although greatest noncompliance was experienced by the Lipo group, greatest admittance of failure to comply is also an aspect of this group.

3.5 Discussion.

There is a suggestion from the second pilot study that five main areas seem to exist within the illness process. When carefully considering the five areas, it can be seen that they can be fitted into a logical sequence, indicating the nature of the illness process, from the initial perception of the illness itself, to the ultimate effect of the illness. The way in which an individual perceives an illness, and his general health orientation, are states which logically exist prior to the start of an illness episode. The patient then proceeds through the medical environment, mediated by the doctor-patient relationship, to attain a health status which is a composite of his compliance with medication and doctor advice, and the effect of the illness in physical and emotional terms. However, a sequential model such as this is no doubt a gross simplification of the great number of influences operating between all areas of the illness process.

Thus, the purpose of the main study would be to examine in detail the relationships between the patient’s attitude to: general health, and his specific condition; the doctor and the medical environment; and the resultant effect on his emotional response to the disorder, and compliance. Because of the vast number of hypotheses that could be generated from this model, a
logical plan would be to simply explore the complex pattern of relationships without any a priori beliefs as to the direction and form of these relationships. To impose a "world view" at this stage might result in important data being misinterpreted or going completely unobserved.

The present pilot study examined two groups: a lipoprotein group and a general outpatient group. The results indicate distinct trends in the two groups, and differences between them. However, the study is limited in its implications for heart disease in general because of two factors. Firstly, the lipoprotein group is a pre-infarction group, and therefore the characteristics of such a group might not apply to a post-infarction group. For the purposes of the main study, therefore, a post-infarction group should be included. Secondly, a raised cholesterol condition is a chronic illness complaint. The comparison group, on the other hand, was comprised to a large extent of acute conditions. This could have been very influential in terms of the differences that emerged between the two groups. By including a third illness group, an acute, post-infarction group, the findings of the main study could be more readily generalized with regard to their implications for the illness process in heart disease.

In addition, the doctor's perception of the patient/clinic situation should be sought. Since the doctor-patient relationship has been shown by the present pilot study to be an area of considerable importance to the patient, the opinion is held that not only the patients', but also the doctors' views of the patients' conditions and attitudes to the clinic and
treatment are crucial: when attempting to understand the illness process any discrepancies or similarities in doctor and patient views would be important information with regard to gaining greater understanding of the nature of the doctor-patient relationship; and also help in the interpretation of the role of the doctor as a mediating factor in the illness process in heart disease.

Finally, the present pilot study has examined only one point in the illness process. This is a major limitation, since an illness is rarely stable. Thus, the main study should assess patient views over a longer time period, in an attempt to determine the trends over time that occur in the illness process.
CHAPTER FOUR

METHOD

Participants in the study

These groups of patients participated in this study, an experimental, and one control group. The control group consisted of 29 patients from the Glasgow Royal Infirmary Outpatients clinic, suffering from a variety of conditions. The patients consisted of 15 female and 14 male, aged between 15 and 65, with a mean age of 40 years.

The sample distribution was split into two groups (Group A, 22 non-smokers; Group B, 32 smokers). On admission, each group was divided into higher group (16) and lower group (13) in the lower grouping. The patients were then assessed for initial contact with the clinic, and were selected by clinic staff from those available who were willing to participate on the day of their attendance. Experimental group and the control group consisted of 20 patients from Glasgow Royal Infirmary (outpatient sample) suffering from hypertension and diabetes. The patients consisted of 11 males and 9 females, aged between 17 and 62, with a mean of 40 years. The clinic distribution was made up of 5 patients in the higher patients, 9 of the lower group, and 6 of the control. The patients were then divided into the groups of patients and were selected by clinic staff. Those available who were willing to participate on the day of their attendance at the clinic. No patients were excluded and had previously entered an (1). The control experimental group (Group B) consisted of 17 patients who were divided into non-smokers and smokers. The patients consisted of 16 males and 1 female, aged between 17 and 65, with a mean of 50 years. The clin...
4. METHOD.

4.1 Participants in the study.

Three groups of patients participated in this study, two experimental, and one control group. The control group (outpatient group) consisted of 20 patients from the Glasgow Royal Infirmary Outpatients' clinic, suffering from a variety of mild illness complaints. The patients consisted of 13 males and 7 females, aged between 15 and 69, with a mean age of 48 years. The class distribution, when split into two groups (Class I, II, III non-manual; III manual, IV, V), was made up of 2 patients in the higher grouping and 18 in the lower grouping. The patients were seen at their initial contact with the clinic, and were selected by clinic staff from those available who were willing to cooperate, on the day of their attendance. Experimental group one (cholesterol group) consisted of 20 patients from Glasgow Royal Infirmary Lipoprotein clinic, suffering from Type IIA hyperlipoproteinaemia. The patients consisted of 11 males and 9 females, aged between 17 and 62, with a mean of 46 years. The class distribution was made up by 6 patients in the higher class grouping and 14 in the lower. The patients were seen at various stages in the progress of their condition, and were selected by clinic staff from those available who were willing to cooperate, on the day of their attendance at the clinic. No lipoprotein patients were included who had previously suffered an MI. The second experimental group (heart group) consisted of 19 patients from Ward 3 of Glasgow Royal Infirmary, suffering from a first time MI. The patients consisted of 18 males and 1 female, aged between 37 and 74, with a mean of 59 years. The class
distribution was made up of 1 patient in the higher class grouping and 18 patients in the lower. The patients were seen between 4 and 10 days subsequent to the MI event, and were selected by ward staff from those available who would cooperate, and who were in a comfortable, stable condition. Three patients who were approached to participate in the study declined, two out patients and one heart patient. Their major concern was lack of time, though the heart patient thought participating might prevent an early release from hospital. Of the outpatients, four failed to return for a second interview. Of the cholesterol patients, one suffered a fatal MI, and another patient failed to return for a second interview. Of the heart patients, two patients subsequently suffered a second, fatal MI, and five failed to return for the second interview. Ethical committee permission was obtained for this study.

4.2 Instruments.
Patients were interviewed twice during the course of the study. The content of the interviews was based on the findings of the previous study, and consisted of five sections drawn from the five areas of the pilot study, plus an additional section devised to obtain details of attendance. For the first interview (see appendix 3), there were 36 items in total. Section One (Details of Attendance) consisted of 6 items (e.g., duration of awareness of condition). Section Two (Illness Perception) consisted of 6 questions (e.g., awareness previous to diagnosis). Section Three (Illness Effect) consisted of 8 items (e.g., initial reaction; effect on family). Section Four (Health Orientation) consisted
of 6 items (e.g., perception of control over condition). Section Five (Doctor-Patient Relations) consisted of 6 items (e.g., perception of doctor's assessment). Section Six (Compliance) consisted of 4 items (e.g., problems with compliance). On the basis of the experience drawn from the previous two pilot studies, a decision was taken not to present questions for the interviewer to read out, but rather to list a schedule of items which the interviewer would proceed through in an order dictated by the progress of the interview. This was thought to enable the interviewer to respond in a more natural manner to the patients' responses. However, the interviewer maintained a strict structure to the wording of his questions, so as to avoid possible bias from one interview to the next.

The second interview (see appendix 4) was similarly designed to the first interview, although the emphasis was on detecting the degree of change, if any, in the patients' views since the previous interview. The second interview consisted of twenty items, presented in five sections, corresponding to the last five sections of the previous interview. Thus, five items dealt with illness perception; four items dealt with illness effect; health orientation consisted of three items; doctor-patient relations, four items; and lastly four items were concerned with compliance.

A questionnaire (see appendix 5) was designed on the basis of the previous pilot study, in order to "tap" the five factors of interest. The questionnaire consisted of 8 scales each presented as a line of 10cms. in length dividing two extremes of opinion, said opinion being a response to a question concerned with health matters. Thus, the first question asked the patient: "How would you evaluate your understanding of your condition?"
The patient is then required to make a mark somewhere across the line, corresponding to his opinion, between the extremes of "good understanding" and "poor understanding". The questionnaire was presented to patients, doctors, and independent judges (see 4.3 and 4.4). When presented to doctors and judges, the wording of some of the scales was altered so that the focus of the scale was the same, regardless of the person scoring (see appendices 6 and 7). Thus, scales 1-5 and 7 concerned the behaviour of the patient. Scale 6 was concerned with doctor-patient communication, and Scale 8 was concerned with the doctor's behaviour. The first two scales of the questionnaire dealt with illness perception. The third scale addressed illness effect. Scale 4 considered health orientation. Scales 5 and 6 tapped doctor-patient relations. Scale 7 was concerned with compliance.

The questionnaire was administered to all three groups, at both interview sessions.

A second questionnaire was administered at the second interview session for all groups. This was the Bortner Scale (Short Form) for assessing Type A Coronary Prone Behaviour Pattern (Bortner, 1969). This questionnaire consists of 7 scales of overt behaviour, with two extremes of behaviour separated by a 1.5 inch line, on which the patient must mark his opinion of his own degree of behaviour. Thus, the questionnaire begins: "Would you describe yourself as"; and proceeds to the first set of alternatives "never late" or "casual about appointments". Each scale is weighted by the degree to which it is predictive of clinical TABP, and the scores on each scale are added together to give a cumulative score.
The period between interviews was analysed for longitudinal tendencies in compliance and illness effect. There are good reasons for the monitoring of subjects for up to six months between interviews. Chronic illness patients attend clinics on average once every six months, although attendance can be of longer or shorter intervals; and acute illness patients are frequently asked to return for follow-up after a period of six months. At attendance, doctor and patient discuss the patient's condition for up to 30 minutes, rarely longer. In this thirty minute period, the doctor has to assess the nature and extent of the condition, and determine the degree of change since the previous consultation. The doctor has to determine, with the aid of the patient, possible causes of change in the nature or extent of the condition that have occurred over the last six months. This is a difficult task, since the patient may be unsure of the reasons why change has occurred, being forgetful particularly of events at the beginning of the six month interval. Also, the patient may deliberately conceal events known to be of importance, due to embarrassment (for example, failure to take prescribed drugs). Finally, the patient may simply fail to recognise the importance of certain events, and not report them to the doctor.

Fortnightly self report inventories (see appendix 8) were used to assess the trends in patient feelings over the six month interval. A fortnightly period was chosen, since it was thought a shorter reporting period might be seen by the patient as an unwanted burden or restriction; and a longer period could produce forgetfulness in the patient. However, this was not tested for. The structured inventory was chosen, since it is important that
the patient reports on the areas of relevance to his condition, and is given some guidance as to what areas and factors to be aware of. There were spaces provided in the inventory, so that the patient could also express what he felt to be of relevance to the condition. The inventory consisted of 9 questions. Three were of the same design as the scales of the questionnaire, and assessed patient upset, compliance, and coping. Six other questions provided yes/no answers, with areas for the patient to elaborate on his response, should this be desired. These six questions assessed attendance, illness perception, compliance, and general activity related to the condition.

4.3 Procedure.

For all individuals in the three groups, the interviewer introduced himself to the selected patient, and explained that he was carrying out research into patients’ feelings and reactions to illness. For half of the patients in each group, the questionnaire rating proceeded the interview; for the other half, the reverse was true. In all cases, the questionnaire was carefully explained to the patient, who was left for fifteen minutes to complete it. The interview was recorded, and lasted on average 25 minutes. For outpatients and cholesterol patients, the first interview occurred in a small room adjoining the clinic; for heart patients, the interview took place directly after the patient had received treatment from the doctor. For heart patients, the interview took place directly
following the doctors' morning ward round, and prior to the
patient's lunch. Once the interview session was over, 50% of
each group were asked if they would mind completing a fortnightly
inventory before returning for a second interview. For
outpatients, 10 out of the first 14 asked replied positively.

For cholesterol patients, the first 10 of those asked agreed to
cooperate. For heart patients, only 5 out of the nineteen
patients asked agreed to participate. Reasons given for not
participating in this aspect of the study were, for outpatients,
largely to do with being too forgetful, or not having the time.

For heart patients, most patients felt that they did not wish to
take on something they might not be able to do once they had
returned home from hospital. All agreed at this stage to return
for the next interview. This was arranged, with the doctors'
consent, at a six-month period for outpatients and cholesterol
patients, and at a four month period for heart patients. Because
of time constraints, it was necessary to adopt a shorter interval
for heart patients. Those patients who had agreed to participate
in the fortnightly monitoring were then given the first copy of
the inventory, and instructed to return it in a fortnight’s time.

It was explained that a new inventory would be forwarded by
return of post, with fresh instructions concerning the day on
which it should be completed and returned.

On completing the interview session, the doctor responsible
for the patient’s care was then given a questionnaire to
fill in and left for fifteen minutes to carry out the rating.

For the six/four month interval, the interviewer received
and sent out the fortnightly inventories on the basis of the
arranged schedule. Many patients sent the inventories back in a
haphazard manner, and it was the interviewer's task to keep as close to the original schedule as possible. This involved writing and phoning patients who got behind in their scheduling. Some patients only completed a part of the six month/four month interval successfully. This was because, for the most part, they were so haphazard with returning their inventories, that only a part of the full number were completed; or because problems with their condition, or other factors such as holidays or moving house, prevented them from keeping to schedule.

For the second interview session, the procedure was virtually the same. In addition, the Bortner Scale (see 4.2) was presented to the patients. This was presented randomly before and after the interview, and before and after the questionnaire. All patients were interviewed in the room adjoining the outpatient clinic. All interviews were recorded, and lasted on average fifteen minutes.

Of all those patients interviewed, only one patient was partially interviewed. This heart patient completed the questionnaire, but refused permission for his interview to be recorded. This patient was subsequently removed from the sample. TABLE 4.1 presents a summary of the design of this study.

4.4 Data Analysis.

All interviews were transcribed in their entirety. The interviews were then passed on, in an anonymous form, to independent judges. In all, 6 independent judges were used. Five were postgraduate students at Stirling University; one was a relative of another judge. Four were on a Social Work course;
SUBJECTS | INTERVIEW VIEW | QUESTION NAIRE | INTERVAL 4-6 MTHS | INTERVIEW VIEW | QUESTION NAIRE | BORTNER SCALE
--- | --- | --- | --- | --- | --- | ---
OUT PATIENT | N=20 | N=20 | N=10 | N=16 | N=16 | N=16
CHOLEST EROL | N=20 | N=20 | N=10 | N=18 | N=18 | N=18
HEART | N=19 | N=19 | N=5 | N=12 | N=12 | N=12
DOCTOR | N=12 | N=12 | | | |
JUDGES | N=6 | N=6 | | | |

TABLE 4.1: Design of Main Study.

one was a psychology M.Sc. student; and one was a history student. Each read ten first interviews (save one judge, who received nine), and then completed the questionnaire (see appendix 7) basing their rating on the interview read. Additionally, the judges completed a "fact file" (see appendix 9) for each patient, which allowed them space to write a paragraph summarising their feelings concerning the patient's views, with the file divided into six sections, corresponding to the six sections of the interview. The same procedure occurred for the second interview, with the patients allocated to the same judge who had read their first interview transcription. Additionally, the interviewer himself read and rated all the interviews on the questionnaire form. Thus, at this stage in the analysis, four rated questionnaires existed for each patient per interview: the patient's rating; the doctor's rating; the two judges' ratings. The questionnaires were scored for each scale from left to right, giving a value out of ten. For the judge's rating, the scores of the two judges on the eight scales were averaged, giving eight
composite scores. For inter-judge reliability, a Pearson correlation was carried out, giving a coefficient confidence interval of \(0.58 < \rho < 0.69\). A test-retest reliability coefficient was also calculated, by re-presenting to the judges the first interviews of those patients who did not return for the second interview, and asking the judges to re-score them. The confidence intervals for the correlation are \(0.57 < \rho < 0.78\).

With regard to the Bortner Scale, the method of scoring was briefly mentioned earlier, and further details can be found in Bortner's own article (Bortner, 1969). Essentially, the distance between the left edge of the line and the mark made by the patient is measured in 16ths of an inch. The score is then multiplied by the weighting of the item. After this has been performed for each item, the resultant scores are added, to give a cumulative score, to be compared with the standardization data gathered by Bortner.

For the fortnightly inventory, the three scales were scored in the same manner as the questionnaire. For comparison with other individuals in the same group, and across groups, a format was devised whereby the patient's rating on the three scales was recorded in terms of the duration since the initial interview. Thus, if a patient returned an inventory five weeks after first interview, these data were recorded and entered in the third fortnight interval; a patient who returned an inventory after ten weeks had the data recorded in the fifth fortnight interval. In this manner, all patients could be mapped onto the same standard schedule. If a patient returned two inventories in a single fortnight interval (as would be the case if a patient was behind
in his scheduling, and was attempting to catch up), his scores on
the three scales were averaged across the two inventories, giving
three composite scores, which were then entered into the general
schedule. To obtain the group data, all those patients who had
data recorded for the first fortnight interval were taken
together, and their scores for the three scales were averaged, to
give three group values for that respective interval. This was
the same procedure for all fortnight intervals. For the
outpatient group, there were fourteen such intervals; for the
cholesterol group, thirteen; and for the heart group, 9.

A qualitative analysis of the judges' fact files for the
first interview was carried out along the same guidelines as the
content analysis of Pilot Study 2 (see 3.2.4). It was hoped a
similar analysis would be carried out for the second interview,
but time limitations prevented this.
CHAPTER FIVE

RESULTS
5. RESULTS.

5.1 Aims of the Analysis.

The aims of the analysis of the data were: firstly, to find out how the ratings of each of the questionnaire scales were related to each other, by means of correlational and factorial analysis; secondly, to analyse the scale rating for differences due to the effect of the illness group, the person rating, and the interview stage, by means of a repeated measures analysis of variance; thirdly, to examine the fortnightly report data to see how the three measures of patient response taken correlated with each other within and between illness groups; and fourthly, to examine the Bortner scale data for illness group differences in Type A rating.

5.2 Condition groups.

For purposes of reference, a table (TABLE 5.1) is presented summarising the constitution of the illness groups which feature in this study, on the basis of such variables as sex, age, and class.

5.3 Scales.

The questionnaires used in the study can be seen in the appendices. For the construction of the questionnaire scales, it was thought important to vary the direction of the scales, so as to avoid the influence of demand characteristics on rating. Thus, on considering the scales, it is noticable that each scale has a positive, or "desirable" extreme, and a negative, "undesirable" extreme. The first four scales have the desirable
Table 5.1: Descriptive data on three illness groups.

<table>
<thead>
<tr>
<th></th>
<th>OUTPATIENT</th>
<th>CHOLESTEROL</th>
<th>HEART</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>20</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>AGE</td>
<td>15-69</td>
<td>17-62</td>
<td>37-74</td>
</tr>
<tr>
<td>x AGE</td>
<td>48</td>
<td>46</td>
<td>59</td>
</tr>
<tr>
<td>SEX</td>
<td>m:f</td>
<td>13:7</td>
<td>11:19</td>
</tr>
<tr>
<td>CLASS</td>
<td>I,II,IIIm/</td>
<td>2/18</td>
<td>6/14</td>
</tr>
<tr>
<td></td>
<td>IIIm,IV,V</td>
<td>1/18</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.1: Descriptive data on three illness groups.

extreme on the left, and the undesirable on the right. For the last four scales, this pattern is reversed. Such a design was employed to prevent raters from consistently marking one extreme of the scale, the left or right, which they may have perceived as socially desirable. By switching the direction of the scales with scale 5, it was hoped that the rater would stop and think about the mark he or she was making, if indeed their response had become "automatic" at that stage.

However, for the purposes of analysis, such a design could possibly create confusion in the mind of the reader. For example, a high score on scale 6 (satisfaction) means that the rater is highly satisfied. However, a high score on scale 1 (understanding) means that the rater has low understanding of his/her condition. Thus, to make the analyses, and the comprehension of results, more simple, all scale scores were arranged in such a way that a high score on any scale (e.g., 90) indicates the strong presence of the factor the scale is measuring, and a low score (e.g., 10) indicates the substantial lack of the factor the scale is measuring. A table is presented.
below (TABLE 5.2) summarising the scales employed, and also the direction of the scales.

<table>
<thead>
<tr>
<th>SCALE</th>
<th>LOW SCORE</th>
<th>DIRECTION</th>
<th>HIGH SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 UNDERSTANDING</td>
<td>poor</td>
<td>&gt;</td>
<td>good</td>
</tr>
<tr>
<td>2 PATIENT SEVERITY</td>
<td>mild</td>
<td>&gt;</td>
<td>severe</td>
</tr>
<tr>
<td>3 COPING</td>
<td>poor</td>
<td>&gt;</td>
<td>good</td>
</tr>
<tr>
<td>4 RESPONSIBILITY</td>
<td>doctors’</td>
<td>&gt;</td>
<td>patients’</td>
</tr>
<tr>
<td>5 COMMUNICATION</td>
<td>poor</td>
<td>&gt;</td>
<td>good</td>
</tr>
<tr>
<td>6 SATISFACTION</td>
<td>low</td>
<td>&gt;</td>
<td>high</td>
</tr>
<tr>
<td>7 COMPLIANCE</td>
<td>poor</td>
<td>&gt;</td>
<td>good</td>
</tr>
<tr>
<td>8 DOCTOR SEVERITY</td>
<td>mild</td>
<td>&gt;</td>
<td>severe</td>
</tr>
</tbody>
</table>

TABLE 5.2: Questionnaire scales. Direction of scoring.

5.4 Confounding Variables.

When considering TABLE 5.1, it can be seen that the groups, although quite balanced in some aspects, are unequal in other aspects. Because of this, an analysis of the effects of possible confounding variables on scale rating was undertaken. The targeted variables were sex, age, class, and effect of monitoring (see section 4.2) A total of 120 analyses were carried out to ascertain whether any of these variables influenced the rating of any scale, and only three analyses produced significant results. These were: sex on coping (scale 3) for the cholesterol patients at first interview, with males indicating significantly higher coping than females ($M=90.0$, $F=64.6$, $t=2.44$, df 18, $p<.05$); sex on satisfaction (scale 6) for the cholesterol patients at second
interview, with males indicating higher satisfaction than females (M=90.9, F=81.9, t=3.11, df 16, p<.005); and age on satisfaction for cholesterol patients at second interview, with those in the oldest age group indicating least satisfaction, and those in the middle age group indicating highest satisfaction (15-35=80.9, 36-55=89.3, 56-75=76.0, F=5.88, df 2,15, p<.05). Although it is interesting that all three of the significant findings should occur in relation to the cholesterol patients, and that scale 6 in the second interview should be the source of two out of the three findings, it was thought that three significant findings out of 120 tests was indicative of very low influence of confounding variables overall, and that therefore it would not be worthwhile pursuing such variables as covariants in the main analyses.

5.5 Scale Analysis.

5.5.1 Correlation Matrix.

To understand the relationship among the scales, as rated by patients, doctors, and judges, across two interviews, a correlational analysis was performed. However, prior to the main analysis, two preliminary manipulations were performed. Firstly, since the same individual rated each scale twice (once at each interview), the average of each individual’s rating on each scale across both interviews was calculated. Secondly, although the patients, doctors, and judges, were independent raters, the issue they were being asked to rate was the same (e.g., the patient’s understanding of his condition for scale 1, the patient’s
assessment of severity for scale 2, and so on). So, the average rating of each scale was taken of each patient, doctor, and judge, as this would give the best representation of rating. For the final correlational analysis, therefore, 472 data points were used, consisting of 20 averaged ratings for the outpatient group, 20 averaged ratings for the cholesterol group, and 19 averaged ratings for the heart group, for all 8 scales. The resultant correlation matrix is presented in TABLE 5.3.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Und.</td>
<td></td>
<td>-0.15</td>
<td>0.56xx</td>
<td>0.51xx</td>
<td>0.65xx</td>
<td>0.27x</td>
<td>0.22x</td>
<td>0.13</td>
</tr>
<tr>
<td>P.S.</td>
<td>-0.43xx</td>
<td></td>
<td>-0.28x</td>
<td>-0.12</td>
<td>-0.25x</td>
<td>-0.03</td>
<td></td>
<td>0.03</td>
</tr>
<tr>
<td>Cop.</td>
<td>0.57xx</td>
<td>0.62xx</td>
<td></td>
<td>0.48xx</td>
<td>0.52xx</td>
<td></td>
<td></td>
<td>0.07</td>
</tr>
<tr>
<td>Res.</td>
<td>0.46xx</td>
<td>0.21</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.10</td>
</tr>
<tr>
<td>Com.</td>
<td>0.46xx</td>
<td>0.28</td>
<td>-0.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sat.</td>
<td>0.40xx</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.07</td>
</tr>
</tbody>
</table>

On looking at the matrix, it can be seen that the scale which is correlated most significantly with other scales is scale 3, coping. Coping is correlated with all of the other scales, except for scale 8, doctor severity. Other scales which are highly correlated are: scale 1, understanding, which is
significantly correlated with coping, responsibility, and communication; scale 4, responsibility, which is correlated with understanding, coping, and communication; scale 5, communication, which is correlated with understanding, coping, responsibility, and satisfaction; and scale 6, satisfaction, which is correlated with coping, communication, and compliance. This block of correlations seems to draw together the elements of coping, understanding, responsibility, and communication; to a lesser extent involving satisfaction and compliance. Compliance (scale 7), as well as being linked to satisfaction, is correlated with coping. Interestingly, the scales involving severity (scales 2 and 8) show little correlation with the other scales. Patient severity (scale 2) is negatively correlated with coping, but doctor severity (scale 8) is not correlated with any other scale.

5.5.2 Factor Analysis.

Subsequent to the correlational analysis, the data were subjected to a principle components factor analysis. As a result of this analysis, three factors with Eigenvalues greater than 1 emerged, accounting for 68.8% of the variance. These factors are presented in TABLE 5.4.

The first factor to emerge, with Eigenvalue=3.28, accounting for 41.1% of the variance, was a factor dominated by the scales noted in the previous section as comprising a highly correlated block. Thus, coping, communication, understanding, and responsibility loaded strongly on this factor. Satisfaction also loaded highly, and to a weaker extent, so did compliance and patient severity. This factor seems best characterised as an
### Table 5.4: Overall Factor Analysis of questionnaire scales.

"illness coping" factor, since its elements are those associated with the gaining of information, the attribution of responsibility, and most importantly the adaptation to an illness complaint. The second factor, with Eigenvalue=1.20, accounting for 15.0% of the total variance, has compliance as the most strongly loading scale. Also loading, although in a negative direction, is doctor severity, and responsibility. To a smaller extent, satisfaction also loads on this factor. Since compliance and satisfaction are correlated (see previous section), it is perhaps best to merge these scales when attempting to interpret the factor. The factor seems best characterised as "illness compliance", since it would appear to link doctor assessment of severity with compliance, mediated perhaps by the attribution of responsibility. More exactly, low compliance is linked with high doctor severity and high responsibility, with high compliance linked to low doctor severity and low responsibility.
The final factor, with Eigenvalue=1.02; accounting for 12.8% of the variance, seems best characterised as a "severity" factor, since only two scales load on this factor: patient severity, and doctor severity.

After further rotation to simple structure (varimax) after Kaiser normalisation, it was found that the three factors altered little, and that characterising the factors in terms of "illness coping", "illness compliance", and "severity" was still suitable. However, on careful consideration of the initial statistics after the principle components analysis, it was felt that a fourth valid factor might exist in the data, since there was no large decrease in the degree of variance explained by the third factor (12.8%) in comparison with the fourth factor (12.2%) (see TABLE 5.5).

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>EIGENVALUE</th>
<th>% VAR</th>
<th>CUM % VAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDERSTANDING</td>
<td>3.28481</td>
<td>41.1</td>
<td>41.1</td>
</tr>
<tr>
<td>PATIENT SEVERITY</td>
<td>1.20137</td>
<td>15.0</td>
<td>56.1</td>
</tr>
<tr>
<td>COPING</td>
<td>1.02065</td>
<td>12.8</td>
<td>68.8</td>
</tr>
<tr>
<td>RESPONSIBILITY</td>
<td>.97520</td>
<td>12.2</td>
<td>81.0</td>
</tr>
<tr>
<td>COMMUNICATION</td>
<td>.61120</td>
<td>7.6</td>
<td>88.7</td>
</tr>
<tr>
<td>SATISFACTION</td>
<td>.46211</td>
<td>5.8</td>
<td>94.4</td>
</tr>
<tr>
<td>COMPLIANCE</td>
<td>.28842</td>
<td>3.6</td>
<td>98.0</td>
</tr>
<tr>
<td>DOCTOR SEVERITY</td>
<td>.15624</td>
<td>2.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

TABLE 5.5: Percentage of variance explained, suggesting presence of fourth factor

Thus, the analysis was repeated, with the additional step that four factors were extracted. The results are in TABLE 5.6.
The fourth factor seemed characterised by a strong severity component, together with three correlated scales, understanding, communication, and satisfaction. However, doctor severity and satisfaction loaded negatively. This factor therefore appears best described in terms of "severity discord", since high doctor severity is linked with low patient severity, and also linked to low satisfaction, and high understanding and communication. When rotated to simple structure (varimax) after Kaiser normalization, the four resultant factors (TABLE 5.7) could be clearly labelled as "illness coping", "illness compliance", "patient severity", and "doctor severity".

To assess the consistency of these findings, the scale data was then split into three elements: patient rating, doctor rating, and judge rating. Each element was then factor analysed as above. The resultant factors (see appendix 10) were, for the most part, in correspondence with the factors which had emerged from the overall analysis. Patient rating produced only two
FACTORS 1 2 3 4
SCALE
UNDERSTANDING .85640
COMMUNICATION .90076 .35288
RESPONSIBILITY .77748 .33936
COPING .62109 .54465 .37568
COMPLIANCE .88262
SATISFACTION .72454
PATIENT SEVERITY .95291
DOCTOR SEVERITY .98916

TABLE 5.7: Four factors after rotation (varimax).

factors, however, which could be labelled "illness coping" and "illness compliance" in broad agreement with the first two factors of the overall analysis. Doctor rating emerged with three factors, labelled "illness coping", "patient severity", and "doctor severity". Judge rating emerged with three factors which could be characterised by the same three labels.

In summary, this first stage of the analysis of the questionnaire data has suggested the presence of three to four main components of rating. Firstly, there is a block of correlated rating which seems characterised by communication, comprehension, and coping, together with the attribution of responsibility for the condition. A second factor involves compliance rating, which is correlated with satisfaction, and linked to doctor severity. Finally, severity itself appears as an independent factor, but the analyses suggest that doctor severity and patient severity are two contrasting scales, which
either load on separate factors, or can load on the same factor, in opposite directions. With these apparent elements in mind, let us proceed to the next stage of the analysis.

5.6 Repeated measures analysis of variance.

The next stage of the analysis was to consider whether there was any effect of illness condition (outpatient control, cholesterol, and heart); person rating (patient, doctor, judge); and interview stage (first or second), on the scale rating. Subsequent to the correlational and factor analysis, some concept as to how scales varied together had been obtained, and thus the analysis of the scales in this section will be in an order suggested by the findings above. The coping scale will be considered first, with the severity scales considered last.

5.6.1 Coping

TABLE 5.8 presents the means and standard deviations for the ratings on the coping scale (for further data concerning the analysis of variance see appendix 11). For this scale, there is a significant effect for condition ($F=8.39$, $df=2,43$, $p<.0005$), and for person rating ($F=11.85$, $df=2,86$, $p<.0001$). On examining the means in TABLE 5.8, it can be seen that the cholesterol group produce the highest coping rating (76.68), and the outpatient group the lowest (54.32). On testing for difference between the means, it was found that there was a significant difference between the cholesterol and control groups ($F=16.45$, $df=1,43$, $p<.01$). However, there was no significant difference between the heart group and the control group ($F=2.01$, $df=1,43$, ns). On considering the means for the person rating, it is clear that the
doctors rated coping lowest, and patients rated coping highest
(Doctors=57.68, 58.29; Patients=69.68, 77.09), with the judges
rating between the two. Thus, the overall pattern for the coping
scale is for the cholesterol group to perceive coping as better

<table>
<thead>
<tr>
<th>GROUP RATING</th>
<th>INTER PERSON VIEW RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATING mean, (s.d.)</td>
<td></td>
</tr>
<tr>
<td>OUTPATIENT</td>
<td>CHOLESTEROL</td>
</tr>
<tr>
<td>P</td>
<td>59.82 (35.26)</td>
</tr>
<tr>
<td>1 D</td>
<td>43.00 (36.33)</td>
</tr>
<tr>
<td>J</td>
<td>55.57 (22.49)</td>
</tr>
<tr>
<td>P</td>
<td>67.82 (33.39)</td>
</tr>
<tr>
<td>2 D</td>
<td>41.07 (33.18)</td>
</tr>
<tr>
<td>J</td>
<td>58.63 (22.82)</td>
</tr>
<tr>
<td>OVERALL MEAN</td>
<td>54.32</td>
</tr>
</tbody>
</table>

Key: P=Patients; D=Doctors; J=Judge.

TABLE 5.8: Means and standard deviations for Coping Scale.

than control, and for patients to perceive their coping as better
than doctors perceive patient coping.
5.6.2 Communication.

TABLE 5.9 presents the means and standard deviations for this scale. As with coping, there is a significant effect of condition (F=5.23, df 2,43, p<.05) and person rating (F=17.38, df 2,86, p<.01). When one considers the condition means, one can see that once more the cholesterol group give the highest rating on the scale, with the outpatient group the lowest. On testing

<table>
<thead>
<tr>
<th>GROUP</th>
<th>OUTPATIENT</th>
<th>CHOLESTEROL</th>
<th>HEART</th>
<th>OVERALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATING mean, (s.d.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTER PERSON VIEW RATING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>71.81 (29.71)</td>
<td>83.61 (23.24)</td>
<td>81.66 (24.84)</td>
<td>79.00</td>
</tr>
<tr>
<td>J</td>
<td>62.75 (22.67)</td>
<td>72.55 (14.97)</td>
<td>74.08 (16.67)</td>
<td>69.54</td>
</tr>
<tr>
<td>P</td>
<td>75.18 (26.79)</td>
<td>85.38 (12.56)</td>
<td>89.33 (8.90)</td>
<td>82.86</td>
</tr>
<tr>
<td>2 D</td>
<td>49.62 (28.72)</td>
<td>76.88 (17.90)</td>
<td>53.91 (21.16)</td>
<td>61.41</td>
</tr>
<tr>
<td>J</td>
<td>57.12 (17.70)</td>
<td>72.00 (20.59)</td>
<td>69.91 (9.80)</td>
<td>66.28</td>
</tr>
<tr>
<td>OVERALL</td>
<td>63.70 (28.72)</td>
<td>75.37 (17.90)</td>
<td>72.41 (9.80)</td>
<td></td>
</tr>
</tbody>
</table>
for differences between means, it was found that both the cholesterol group (F=9.96, df 1,43, p<.01) and the heart group (F=4.50, df 1,43, p<.05) rated significantly better communication than the control outpatients. With regard to person rating, once more the patients rated communication with the doctor as better than did the doctors themselves (Patients=79.00, 82.86; Doctors=64.15, 61.41). Overall, the pattern for this scale is the same as that for the previous scale, in that the cholesterol group rated best communication, and patients rated better communication than doctors. Additionally, the heart group also rated better communication than controls, and judge rating indicated a closer correspondence with doctors (average discrepancy=5.13) than patients (13.02).

5.6.3 Understanding.

TABLE 5.10 presents the means for the understanding scale. Overall, the pattern of results is very similar to that for coping and communication. There is an effect for condition (F=9.01, df 2,43, p<.001) and for person (F=23.92, df 2,86, p<.0001). Additionally, however, there is also a small interaction effect for interview, person, and condition (F=2.91, df 4,86, p<.05). On consideration of the means, it is clear that once again, the two experimental groups rate higher on understanding than does the control group. On testing for differences between the means, it was found that there was a significant difference between the control group, and the cholesterol (F=17.99, df 1,43, p<.01) and heart (F=4.65, df 1,43, p<.05) groups. With regard to the person effect, it can be seen
<table>
<thead>
<tr>
<th>GROUP</th>
<th>OUTPATIENT</th>
<th>CHOLESTEROL</th>
<th>HEART</th>
<th>OVERALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATING</td>
<td>mean</td>
<td>(s.d.)</td>
<td></td>
<td>MEAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTER</td>
<td>PERSON</td>
<td>VIEW</td>
<td>RATING</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>58.38</td>
<td>82.28</td>
<td>81.67</td>
<td>73.81</td>
</tr>
<tr>
<td></td>
<td>(32.71)</td>
<td>(21.34)</td>
<td>(15.37)</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>50.82</td>
<td>63.45</td>
<td>48.25</td>
<td>55.09</td>
</tr>
<tr>
<td></td>
<td>(38.13)</td>
<td>(22.48)</td>
<td>(20.24)</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>40.25</td>
<td>66.62</td>
<td>47.34</td>
<td>52.42</td>
</tr>
<tr>
<td></td>
<td>(19.98)</td>
<td>(26.34)</td>
<td>(21.03)</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>65.57</td>
<td>87.17</td>
<td>86.75</td>
<td>79.55</td>
</tr>
<tr>
<td></td>
<td>(36.06)</td>
<td>(18.83)</td>
<td>(15.50)</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>38.00</td>
<td>71.17</td>
<td>61.67</td>
<td>57.16</td>
</tr>
<tr>
<td></td>
<td>(24.84)</td>
<td>(22.90)</td>
<td>(19.73)</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>52.69</td>
<td>68.17</td>
<td>55.25</td>
<td>59.42</td>
</tr>
<tr>
<td></td>
<td>(27.16)</td>
<td>(17.63)</td>
<td>(19.29)</td>
<td></td>
</tr>
<tr>
<td>OVERALL</td>
<td>50.95</td>
<td>73.14</td>
<td>63.49</td>
<td></td>
</tr>
<tr>
<td>MEAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: P=Patients; D=Doctors; J=Judge.

TABLE 5.10: Means and standard deviations for Understanding scale.

In this study, patients rated understanding higher (73.81, 79.55) than either doctors or judges, who were very close in their assessment of patient understanding. An explanation of the interaction effect can be found in considering the doctor ratings. For the outpatient doctors, there is a decrease in their assessment of patient understanding across interviews, whereas all other ratings increase across interviews. As well as this, the pattern for all raters for both interviews, is highest understanding in...
the cholesterol condition, next in the heart condition, and lowest in the control condition. However, for doctors at the first interview stage, understanding is rated lowest in the heart group. In summary, the two experimental groups again rate higher than the control group, and patients assess their understanding as better than when their understanding is assessed by doctor or judge. Additionally, doctors in the outpatient control group assess patient understanding as lower at the second interview stage, whereas an increase is perceived by all other raters in all conditions.

5.6.4 Responsibility.

TABLE 5.11 presents the means and standard deviations for this scale. There is an effect of condition (F=11.09, df 2,43, $p<.0005$) and person (F=31.91, df 2,86, $p<.0001$) once again on this scale. Once more the cholesterol and heart groups rate significantly higher responsibility than the control group (cholesterol:F=22.12, df 1,43, $p<.01$; heart:F=5.25, df 1,43, $p<.05$), and the patient indicates higher responsibility (76.72, 77.50) than the judges indicate by their rating, or the doctors by theirs (50.79, 50.05). In accounting for an additional person-condition interaction effect (F=2.98, df 4,86, $p<.05$), on consideration of the means table it appears that there is a pattern for the patient to rate highest, the judge second, and the doctor lowest in all cases except the second interview stage of the cholesterol group, in which the judge rates lowest of all (patient=84.21; doctor=67.45; judge=58.67). In summary, the findings for this scale are very much in keeping with those for
<table>
<thead>
<tr>
<th>GROUP</th>
<th>OUTPATIENT RATING mean, (s.d.)</th>
<th>CHOLESTEROL RATING mean, (s.d.)</th>
<th>HEART RATING mean, (s.d.)</th>
<th>OVERALL RATING MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>68.88 (25.43)</td>
<td>85.06 (16.92)</td>
<td>74.67 (25.79)</td>
<td>76.72</td>
</tr>
<tr>
<td>1 D</td>
<td>37.44 (31.23)</td>
<td>63.84 (24.34)</td>
<td>49.00 (27.21)</td>
<td>50.79</td>
</tr>
<tr>
<td>J</td>
<td>63.07 (27.37)</td>
<td>73.45 (16.05)</td>
<td>68.75 (15.35)</td>
<td>68.61</td>
</tr>
<tr>
<td>P</td>
<td>70.13 (23.25)</td>
<td>84.28 (13.58)</td>
<td>77.17 (19.53)</td>
<td>77.50</td>
</tr>
<tr>
<td>2 D</td>
<td>30.82 (26.24)</td>
<td>67.45 (22.57)</td>
<td>49.59 (15.33)</td>
<td>50.05</td>
</tr>
<tr>
<td>J</td>
<td>56.32 (17.11)</td>
<td>58.67 (19.53)</td>
<td>68.42 (7.11)</td>
<td>60.40</td>
</tr>
<tr>
<td>OVERALL MEAN</td>
<td>54.44</td>
<td>72.13</td>
<td>64.60</td>
<td></td>
</tr>
</tbody>
</table>

Key: P=Patients; D=Doctors; J=Judge.

TABLE 5.11: Means and standard deviations for Responsibility scale.

coping, communication, and understanding, in that the two experimental groups rate higher than the control group, and the patient rates higher than the doctor and judge.

5.6.5 Satisfaction.

TABLE 5.12 contains the means and standard deviations for this scale. This scale presents a very different pattern from that of the previous four. There is no condition effect, but there
### TABLE 5.12: Means and standard deviations for Satisfaction scale.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>OUTPATIENT</th>
<th>CHOLESTEROL</th>
<th>HEART</th>
<th>OVERALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATING</td>
<td>mean, (s.d.)</td>
<td>mean, (s.d.)</td>
<td>mean, (s.d.)</td>
<td>mean, (s.d.)</td>
</tr>
<tr>
<td>INTER PERSON VIEW RATING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>81.26 (23.09)</td>
<td>88.38 (6.70)</td>
<td>85.25 (15.22)</td>
<td>85.57</td>
</tr>
<tr>
<td>D</td>
<td>76.13 (19.64)</td>
<td>62.38 (14.08)</td>
<td>82.66 (9.89)</td>
<td>72.37</td>
</tr>
<tr>
<td>J</td>
<td>78.06 (21.02)</td>
<td>80.66 (15.40)</td>
<td>82.25 (9.67)</td>
<td>80.22</td>
</tr>
<tr>
<td>1</td>
<td>88.73 (8.59)</td>
<td>86.38 (7.53)</td>
<td>91.16 (7.28)</td>
<td>88.44</td>
</tr>
<tr>
<td>D</td>
<td>48.80 (25.15)</td>
<td>71.44 (18.31)</td>
<td>51.91 (13.97)</td>
<td>58.68</td>
</tr>
<tr>
<td>J</td>
<td>73.60 (12.08)</td>
<td>78.44 (13.23)</td>
<td>72.66 (7.11)</td>
<td>75.28</td>
</tr>
<tr>
<td>2</td>
<td>OVERALL</td>
<td>74.43</td>
<td>78.12</td>
<td>77.65</td>
</tr>
</tbody>
</table>

Key: P=Patients; D=Doctors; J=Judge.

remains a strong person effect (F=65.60, df 2,84, p<.0001). This pattern is similar to previous scales, in that the patient again rates higher than judges and doctors (patient 85.58, 88.44; judge 80.22, 75.28; doctor 72.38, 58.69). For this scale, an interview effect is also present (F=10.72, df 1,42, p<.005) and this is indicated by the fact that the overall rating of satisfaction decreases across interviews (1st. int=79.39, 2nd. int=74.14). However, an interaction between interview and condition (F=4.45,
df 2, 42, \( p < .05 \) is illustrated in that the decrease in satisfaction rating occurs only in the heart and control conditions, and not in the cholesterol group (outpatient decrease = 24.34; heart decrease = 34.41; cholesterol increase = 3.82). A further interaction between interview and person (F = 9.57, df 2, 84, \( p < .0005 \)) is illustrated when one sees that, although there is a decrease in the rating of satisfaction across interviews by doctor and judge, there is an increase in the rating of satisfaction by patients. It is not surprising that there is a significant three-way interaction present, therefore (F = 7.21, df 4, 84, \( p < .0001 \)). In summary, there is an effect of person rating on this scale, such that the patient rates satisfaction higher than does the doctor or judge. There is also a tendency for satisfaction rating to decrease across interviews, but this trend is only true for the heart and control groups, and for doctors and judges as opposed to patients. For the cholesterol group, there is no overall decrease in rating across interviews; here, there is an increase in doctor rating of satisfaction across interviews.

5.6.6 Compliance.

TABLE 5.13 presents the means and standard deviations for the compliance scale. As with satisfaction, this scale has no condition effect, but there is an effect of person (F = 20.50, df 2, 86, \( p < .0005 \)). For this scale, the means indicate clearly a higher rating of compliance given by patient, as opposed to the assessment given by doctor, with the judge evaluating compliance between the other two raters. However, there is a two way
### TABLE 5.13: Means and standard deviations for Compliance scale.

<table>
<thead>
<tr>
<th>GROUP RATING</th>
<th>OUTPATIENT mean, (s.d.)</th>
<th>CHOLESTEROL mean, (s.d.)</th>
<th>HEART mean, (s.d.)</th>
<th>OVERALL MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTER PERSON VIEW RATING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>79.37 (23.09)</td>
<td>67.11 (27.07)</td>
<td>77.58 (22.01)</td>
<td>74.10</td>
</tr>
<tr>
<td>D</td>
<td>43.06 (26.83)</td>
<td>72.00 (25.64)</td>
<td>66.66 (19.03)</td>
<td>60.54</td>
</tr>
<tr>
<td>J</td>
<td>67.25 (25.72)</td>
<td>66.72 (16.47)</td>
<td>67.50 (17.71)</td>
<td>67.10</td>
</tr>
<tr>
<td>P</td>
<td>81.25 (17.83)</td>
<td>79.27 (13.41)</td>
<td>87.83 (13.71)</td>
<td>82.19</td>
</tr>
<tr>
<td>2 D</td>
<td>46.06 (34.18)</td>
<td>69.83 (29.95)</td>
<td>56.66 (23.28)</td>
<td>58.13</td>
</tr>
<tr>
<td>J</td>
<td>63.93 (22.72)</td>
<td>68.05 (18.54)</td>
<td>70.66 (11.80)</td>
<td>67.30</td>
</tr>
<tr>
<td>OVERALL MEAN</td>
<td>63.48</td>
<td>70.50</td>
<td>71.15</td>
<td></td>
</tr>
</tbody>
</table>

Key: P=Patients; D=Doctors; J=Judge.

Interaction between person and condition ($F=6.05$, df $4,86$, $p<.0005$), and this is illustrated by the fact that this pattern of person rating only applies for the outpatient and heart group.

In the cholesterol group, for the first interview, the doctor rates compliance highest of the three raters (doctor=72.00, patient=67.11, judge=66.72). For the second interview, the patient returns to producing the highest rating of compliance, but the doctor is still closer to the patient’s rating than is
the judge (patient=79.28, doctor=69.83, judge=68.06). In summary, there is an effect of person on the compliance scale, such that the patient rates compliance more highly than does the judge or doctor, but this only holds true for the heart and control groups. As with satisfaction, the cholesterol group presents a different trend than does the other experimental group, and the control group.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>OUTPATIENT RATING mean, (s.d.)</th>
<th>CHOLESTEROL RATING mean, (s.d.)</th>
<th>HEART RATING mean, (s.d.)</th>
<th>OVERALL RATING mean, (s.d.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTER PERSON VIEW RATING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>53.12 (33.44)</td>
<td>36.61 (31.71)</td>
<td>42.00 (31.51)</td>
<td>43.76 (30.92)</td>
</tr>
<tr>
<td>D</td>
<td>57.37 (24.15)</td>
<td>47.61 (26.42)</td>
<td>49.16 (21.07)</td>
<td>51.41 (24.83)</td>
</tr>
<tr>
<td>J</td>
<td>51.75 (25.18)</td>
<td>43.55 (24.83)</td>
<td>67.83 (21.63)</td>
<td>52.73 (21.65)</td>
</tr>
<tr>
<td>P</td>
<td>39.43 (33.40)</td>
<td>41.88 (30.58)</td>
<td>35.58 (32.85)</td>
<td>39.39 (32.85)</td>
</tr>
<tr>
<td>D</td>
<td>43.56 (30.92)</td>
<td>43.44 (25.31)</td>
<td>65.00 (17.52)</td>
<td>49.10 (19.65)</td>
</tr>
<tr>
<td>J</td>
<td>46.68 (25.20)</td>
<td>34.27 (21.57)</td>
<td>49.50 (19.65)</td>
<td>42.56 (19.65)</td>
</tr>
<tr>
<td>OVERALL MEAN</td>
<td>48.65</td>
<td>41.23</td>
<td>51.51</td>
<td></td>
</tr>
</tbody>
</table>

Key: P=Patients; D=Doctors; J=Judge.

TABLE 5.14: Means and standard deviations for Patient Severity scale.
5.6.7 Patient assessment of Severity.

TABLE 5.14 presents the means and standard deviations for the patient severity scale. As with satisfaction, there is no condition effect, but an effect of person ($F=4.33$, df $2,86$, $p<.05$), and an effect of interview ($F=4.34$, df $1,43$, $p<.05$). However, these are small effects relative to a three way interaction effect between interview, person, and condition ($F=4.13$, df $4,86$, $p<.005$). The trend for persons is for the patient to rate lower severity than is assessed by doctor or judge. The overall trend across interviews is for patient severity rating to decrease (49.30 to 43.69). However, when one considers the six cells present in the means table, it can be seen that only four of the cells have the patient as lowest severity rater; and with regard to the change in rating across interviews, while the trend is for a decrease, two ratings increase. These deviations are likely accounted for by the three way interaction. Thus, for the outpatient group at the first interview stage, the judges rating of severity is lower than the patients; and for the cholesterol group at the second interview stage, the pattern is the same. This latter pattern can perhaps be tied in with the increase in cholesterol patients' rating of severity across interviews. Additionally, the doctors in the heart group increase their rating of patient severity across interviews. In summary, while patients rate lowest patient severity, and ratings decrease across interviews, cholesterol patients and heart doctors increase in severity rating across interviews, and control judges rate lowest patient severity at the first interview stage.
5.6.8 Doctor Severity.

TABLE 5.15 illustrates the means and standard deviations for this scale. As with compliance, this scale has an effect of

<table>
<thead>
<tr>
<th>GROUP</th>
<th>OUTPATIENT VIEW RATING</th>
<th>CHOLESTEROL</th>
<th>HEART</th>
<th>OVERALL MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean, (s.d.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>45.19 (34.20)</td>
<td>41.50 (31.03)</td>
<td>52.42 (26.94)</td>
<td>45.73</td>
</tr>
<tr>
<td>D</td>
<td>43.19 (31.54)</td>
<td>53.62 (31.33)</td>
<td>65.59 (16.06)</td>
<td>53.11</td>
</tr>
<tr>
<td>J</td>
<td>34.13 (18.70)</td>
<td>43.06 (19.30)</td>
<td>51.59 (18.10)</td>
<td>42.17</td>
</tr>
<tr>
<td>P</td>
<td>41.00 (36.36)</td>
<td>44.67 (29.73)</td>
<td>30.92 (17.80)</td>
<td>39.80</td>
</tr>
<tr>
<td>D</td>
<td>35.09 (25.14)</td>
<td>36.12 (24.77)</td>
<td>70.25 (11.86)</td>
<td>44.70</td>
</tr>
<tr>
<td>J</td>
<td>40.44 (23.47)</td>
<td>37.73 (22.43)</td>
<td>44.09 (19.75)</td>
<td>40.33</td>
</tr>
<tr>
<td>OVERALL MEAN</td>
<td>39.85</td>
<td>42.78</td>
<td>52.47</td>
<td></td>
</tr>
</tbody>
</table>

Key: P=Patients; D=Doctors; J=Judge.

TABLE 5.15: Means and standard deviations for Doctor Severity scale.

person (F=5.76, df 2,86, p<.005) and a two way interaction between person and condition (F=4.69, df 4, 86, p<.005). However, as with patient severity and satisfaction, there is also a three way interaction (F=4.30, df 4,86, p<.005). The person
effect indicates that the doctors give the highest severity rating, while the patient and judge indicate a correspondence in their lower ratings. The two way interaction is indicated by the fact that such a pattern is in fact only present in the heart condition. Thus, the patient gives the highest severity rating in the outpatient group. The three way interaction occurs due to the fact that while there is a trend for lower severity rating at the second interview stage, the control judges increases their severity rating, as do the cholesterol patients, and the heart doctors. In summary, this scale indicates an effect for person rating, in that doctors have a tendency to rate higher on doctor severity than patients or judges. However, such a pattern is only entirely present for the heart group. A three way interaction occurs due to the increase in severity rating by control judges, cholesterol patients, and heart doctors, across interviews, as opposed to the general tendency for a decrease in severity rating.

5.6.9 Assumptions.
The above repeated measures analyses were carried out on the data of patients who attended at both interview stages. Thus, the outpatient group consisted of sixteen patients, the cholesterol group eighteen, and the heart group twelve. A further set of analyses were carried out on the first interview data only. This was carried out so as to include the data of those patients who did not return for the second interview. The result of this was to increase the size of the cohorts included in the analysis, but to remove from the analyses other relevant data (the second
interview data, to see what effect, if any, this would have on the analyses findings.

Four scales indicated different patterns as a result of this manipulation. The communication scale no longer produced a significant condition effect (F=0.7, ns). The responsibility scale no longer produced a significant two way interaction effect between person rating and condition (F=1.2, ns). The patient severity scale lost the person effect (F=2.9, ns), and the doctor severity scale lost the person-condition interaction effect (F=0.9, ns). Thus, in all four scales, there was a loss of significance in one particular aspect. The reason that such a pattern occurs is most likely because, since the second interview data were not included, a substantial amount of data was lost from the analyses, with the resultant reduction in significance levels. It is also possible that such a finding could suggest that the patients who did not return for the second interview constitute an important group with perhaps different tendencies from the majority of the samples. However, this is doubtful.

Additionally, because a smaller number of doctors than patients had been employed for the rating of the questionnaires, it was entirely possible that extreme rating in one or two doctors may have produced some of the results, as opposed to a general trend among all doctors. This possibility was suggested by the unexpected pattern of results in the satisfaction scale, where there was a large decrease in the satisfaction rating of doctors in the heart and control groups across interviews. Such a finding was counter-intuitive, and a suspicion that something was amiss was fueled by the knowledge that these two groups shared a certain number of the doctors. To test if there was a
general trend in the rating, rather than the alternative possibility that only one or two of the doctors were producing large decreases in satisfaction rating, t-tests were carried out for all groups, on the means of each doctor's rating on the satisfaction scale, between first and second interview. All t-tests were significant (outpatient t=2.82; cholesterol t=-9.92; heart t=10.55, \( p<0.05 \)) suggesting that the findings of the main analyses were the result of a general trend in the doctor rating. Since the satisfaction scale produced the most dramatic and peculiar findings of all the scales, the fact that significant t values were found here was held to suggest that the doctor sample did not include one or two "rogue" doctors whose extreme rating was causing a distortion in the data.

5.7 Fortnightly Reports.

The next aspect of the data to be analysed, was the fortnightly report data, submitted by 50% of the patients in the control and cholesterol group, and by five of the heart patients. The analysis was within group (comparing the scores on the three scales of upset, compliance, and coping, over time) and between groups (comparing each scale across groups over time). There are therefore six comparisons to be made overall, and to give a clear indication of scoring trends over time, these six comparisons are presented graphically in FIGURES 5.1 to 5.6. As with the questionnaire data, high scores represent the strong presence of an element, and low scores the lack of that element.
FIGURE 5.1: Rating on 3 scales over time by Outpatients.

Key: Upset   Coping   Compliance
FIGURE 5.2: Rating on 3 scales over time by Cholesterol patients.
FIGURE 5.3: Rating on 3 scales over time by Heart patients.
FIGURE 5.4: Upset rating over time by 3 groups.

Key:
- Outpatients
- Heart Patients
- Cholesterol patients

Scale Score

Time (Fortnightly Intervals)
FIGURE 5.5: Compliance rating over time by 3 groups.

Key: Outpatients
Heart Patients
Cholesterol patients
FIGURE 5.6: Coping rating over time by 3 groups.

Key:
- Outpatients
- Heart Patients
- Cholesterol patients
5.7.1 Graphs.

Considering FIGURE 5.1 first (Outpatient control against time on 3 scales), it can be seen that there is little variation in rating of compliance and coping over time, and that both remain at high levels. Upset varies greatly across the interval, with highest levels recorded subsequent to initial contact, and prior to second interview. The pattern for the Cholesterol patients (FIGURE 5.2) is similar, although upset indicates little variance and remains at low levels throughout, and compliance and coping are also consistent and high. FIGURE 5.3 illustrates Heart patients’ scoring. Upset starts at high levels subsequent to release from hospital, and declines quickly, with occasional resurgence, to low levels. Coping is initially quite low, but rises over the interval, while compliance is quite high over the entire period, finishing somewhat lower than at initial discharge from hospital.

Considering group differences, FIGURE 5.4 illustrates the pattern of upset rating in the three groups. While the Heart patients initially rate higher than the other two groups, rating quickly falls below Outpatient control and remains there. Cholesterol rating of upset is lowest throughout virtually the entire interval.

With reference to compliance (FIGURE 5.5), there is little difference among groups. No one group appears superior or inferior to any other for substantial periods of time. Compliance appears to finish lower than at initial stages for the Outpatient and Heart patients, whereas the Cholesterol patients finish with higher self-reported compliance than at initial
The pattern for coping (FIGURE 5.6) suggests better coping by the Cholesterol patients than the other two groups. However, at the twelve week mark until the twenty week mark, coping is reported as better in the Outpatient group, and at the sixteen week mark, the Cholesterol group report inferior coping to the Heart group. Coping is initially lowest in the Heart patients but finishing levels are good. Coping is best in the middle interval for the Outpatient patients as opposed to initial or finishing periods. Coping is better at the final period than initially for the cholesterol patients.

5.7.2 Fortnightly report correlations.

Six Pearson correlations were performed. For each illness group, a correlation was carried out between the three scales (coping, compliance, and upset). Additionally, for each of the scales, a correlation was carried out across the three illness groups, making six correlations in all. The six correlation matrices are presented in TABLE 5.16.

Taking the within correlations first, the Outpatients produce a correlation ($r=0.61, p<.05$) between compliance and coping. This is reflected in the Cholesterol patients ($r=0.84, p<.001$). In the Heart patients, however, there is a strong negative correlation between upset and coping ($r=-0.97, p<.001$), while the correlation between compliance and coping is not significant $r=-0.22$). Interestingly, for the Cholesterol patients the negative correlation between upset and coping is also bordering on significance ($r=-0.48, p<.1$).

When considering the between group correlations, it can be
<table>
<thead>
<tr>
<th>TABLE 5.16: Correlation matrices for three measures over time.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A: Within group correlations</strong></td>
</tr>
<tr>
<td><strong>B: Between group correlations.</strong></td>
</tr>
<tr>
<td><strong>OUTPATIENT UPSET</strong></td>
</tr>
<tr>
<td>SCALE</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>U</td>
</tr>
<tr>
<td>Comp</td>
</tr>
<tr>
<td>Cop</td>
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<tr>
<td><strong>CHOLESTEROL COMPLIANCE</strong></td>
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<tr>
<td>SCALE</td>
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<tr>
<td>U</td>
</tr>
<tr>
<td>Comp</td>
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<tr>
<td>Cop</td>
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<tr>
<td><strong>HEART COPING</strong></td>
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<td>SCALE</td>
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<tr>
<td>-------</td>
</tr>
<tr>
<td>U</td>
</tr>
<tr>
<td>Comp</td>
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<tr>
<td>Cop</td>
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</table>

x=p<.05; xx=p<.001; oo=p<.005

Key: U=Upset, Comp=Compliance, Cop=Coping; O=Outpatient, C=Cholesterol, H=Heart.

seen that there are no significant correlations between groups for upset. For compliance, the Outpatients' and Heart patients' correlation borders on significance \( r=-0.69, p<.06 \). However, for coping, the Outpatient and Heart patients are again correlated, this time much more strongly, and in a positive direction \( r=0.89, p<.005 \).
5.7.3 Differences between groups.

The next part of the analysis considered the overall differences between groups on the three variables. A one-way analysis of variance was performed, and the results are presented in Table 5.17. As can be seen, there was no significant difference between groups overall on compliance rating. However, upset indicated significant group differences \((F=10.36, \, df=2,32, \, p<.0005)\). In this case, the Cholesterol patients scored lowest upset, with Heart next, and Outpatient highest \((3.24, \, 18.65, \, \text{and} \, 25.74)\).
respectively). There were also group differences for coping (F=4.61, df 2,32, p<.05). The Cholesterol group scored highest (91.63) with Heart and Outpatient groups indicating poorer levels of coping (81.91 and 86.86 respectively).

5.8 Coronary Prone Behaviour: Bortner Scales.

The final stage of the analysis of the data was to consider the results of the Bortner Scale (short version) for Type A Coronary Prone Behaviour. This seven-item scale was presented to the patients of all three groups at the second interview stage (see section 4.3). The findings are presented below (TABLE 5.18).

<table>
<thead>
<tr>
<th>GROUP</th>
<th>OUTPATIENT</th>
<th>CHOLESTEROL</th>
<th>HEART</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>16</td>
<td>18</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>2.88</td>
<td>2.29</td>
<td>2.55</td>
<td>3.05X</td>
</tr>
<tr>
<td>s.d.</td>
<td>.75</td>
<td>.58</td>
<td>.77</td>
<td></td>
</tr>
<tr>
<td>t</td>
<td>2.58XX</td>
<td>-1.06</td>
<td></td>
<td></td>
</tr>
</tbody>
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TABLE 5.18: Differences between patient groups on Bortner rating

As can be seen, the oneway analysis of variance across the three groups failed to reach significance (F=3.05, p<.06) by only a small degree. Closer examination of the data by t-test indicated that while there was no significant difference between the cholesterol and heart patients (t=-1.06, df 28, ns), and the outpatient control and heart patients (t=1.13, df 26, ns), there was a significant difference between the outpatient control and the cholesterol patients (t=2.58, df 32, p<.05). Since the lower
the score on the scale, the greater the self-reported Type A behaviour, the trend is for the lowest coronary prone behaviour in the control patients, the heart patients next, with the cholesterol patients highest. In comparison with the data presented by Bortner (1969) (see TABLE 5.19), the group

<table>
<thead>
<tr>
<th>BORTNER SCALE</th>
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<tr>
<td>TYPE A</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>mean</td>
</tr>
<tr>
<td>s.d.</td>
</tr>
<tr>
<td>TYPE B</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>mean</td>
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<tr>
<td>s.d.</td>
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TABLE 5.19: Bortner (1969) standardization data.

classified in that study as evidencing Type B behaviour scored with a mean value close to that attained by the heart group in the present study, while the cholesterol group mean lies between the Type A and Type B scores. When testing for a difference between the cholesterol and Type A means, no significant difference was found (t=1.47, ns).
CHAPTER SIX

QUALITATIVE RESULTS
6. RESULTS (Qualitative Analysis).

6.1 Interview Summary.

The statistical analysis of the questionnaire data has indicated that group differences exist on four scales: coping, understanding, responsibility, and communication. The questionnaire was designed to tap the five elements of the illness process found to be of interest in Pilot Study Two. The four scales that showed group differences had been devised to correspond to four of those elements. Thus, the coping scale corresponds to the "Illness Effect" portion of the interview.

The understanding scale corresponds to the "Illness Perception" part of the interview, responsibility corresponds to "Health Orientation", and communication corresponds to "Doctor-Patient Relations" (for details of the match between interview and questionnaire, see section 4.2). So far the analysis has revealed quantitative differences between groups, but the purely statistical analysis can tell us little about qualitative differences, if they exist. For such purposes, the judges completed "fact files" on the patient interviews, in which they were required to summarise, in the five elements of the illness process that were focused upon, those aspects of the interviews which they felt relevant (see section 4.4). Using this material, and the experimenter's own investigation of the interview material, a summary of the qualitative characteristics of the three illness groups, pertaining to the four parts of the interview found to be of importance through the statistical analysis of the questionnaire data, will now be presented.
6.2 Cholesterol Patients.

6.2.1 Understanding.

The large majority (16) of patients suffering from a cholesterol condition reported that they had a good understanding of their condition. Part of the reason for this was suggested by some (10) patients as being the fact that other members of their family have the same, or similar, complaint, allowing for conversation and the transmission of knowledge related to the condition. Perhaps this same aspect of family involvement partially explains why so many (10) of the cholesterol patients saw hereditary factors as the major cause of their condition. Although one might expect that such a perception would lead to the belief that their condition was not preventable or amenable to their control, this is not the case. Most (16) patients claimed that they felt they could influence the progress of their condition.

A large (8) number of the patients also saw hereditary or physiological factors, and dietary factors, as playing equal parts in the causation of their condition. Thus, some (6) patients said that if cholesterol had been known of publically earlier in their personal history, then their parents might have fed them different foods as children. They expressed the feeling that they would have altered their own diets had they known of the dangers of cholesterol.

Only a small number (2) of the patients saw diet as the major cause of their illness, and such patients expressed the feeling that they could influence the course of their condition, and could have prevented the development of their complaint.
they known about cholesterol. Virtually no (1) patient had known much of cholesterol prior to being informed that they had hyperlipidaemia.

Of the patients who were judged to have a poor understanding of their condition (4), one patient admitted to having a poor understanding of illness in general, and said that she had no wish to know any more about her condition, since she did not believe she could cope with the information. Two of the patients had only recently started attending the clinic, and had not yet had a chance to find out more.

Many (7) of the patients had read information independently of the clinic, in an attempt to better understand their complaint. These patients were therefore aware of topics related to heart disease, such as coronary prone behaviour. A number (5) of patients said that while they believed they understood their condition well, they had no accurate gauge as to how severe or mild their complaint was, since they had been given no initial scale by the doctor. Most (14) felt they were doing well at the clinic, but were not sure exactly how well.

6.2.2 Coping.

The cholesterol group had the highest coping rating of all groups, significantly higher than either the control or heart groups. A large (12) number of the patients acknowledged that they had initially been quite disturbed by the knowledge that they had a cholesterol disorder. Reactions ranged from anxiety to shame, and one patient admitted that he felt he had been handed a death sentence. However, these same patients said that,
over intervening years, such a response had diminished to the stage where acceptance of the condition was possible, and that there was little or no anxiety associated with their awareness of their condition. Such an acceptance did not, for the most part, involve denial. Most (10) patients in this group said that they were aware of the severity of their condition, of its possible consequences; but that they had come to terms with this knowledge, and that since the effect on their lifestyle was quite small, they lived out their condition quite happily.

Not all patients were initially disturbed, however. One patient learned of his condition at a very young age; and since awareness of his condition and the consequent restrictions on his lifestyle dawned on him gradually, he never experienced an initial flush of anxiety. A number (5) of other patients mentioned that other members of their family had a similar condition, and that they had therefore expected to have a cholesterol condition diagnosed at some stage. However, the familial aspect of the condition also acted as a buffer to stress, in that lifestyle restrictions and resultant stress can be shared with other family members with the same complaint. Such patients tended to see their dietary restrictions, for example, as less of a burden. Patients whose families did not share the condition, and yet nevertheless shared the consequences in terms of lifestyle restrictions such as diet, expressed their feeling that such "restriction sharing" made their condition much easier to deal with. Other (2) patients claimed that their initial response on being told of their disorder was relief that they only had a cholesterol condition, and not something they saw as more serious. A number (6) of patients said that they didn't
feel "ill" at all. In comparison to other disorders, they did not perceive themselves as having a condition as such.

A minority (3) of patients were distressed by their condition. One patient had a condition of considerable severity, causing her substantial pain, and acknowledged that she found her condition difficult to cope with. Another patient said that her first awareness of her condition followed sharply upon the death of her mother, and that therefore her condition and personal death were closely linked in her mind. Such a strong reaction did not occur for the majority of patients, but a number (8) did express annoyance with their diet, stating that more emotional turmoil resulted from their diet and weight reduction programmes, than from the condition per se. However, only a few (3) said that they became upset because of their diet. One patient said that she became depressed at times, when she realised that she would be on the diet for the rest of her life.

6.2.3 Responsibility.

Cholesterol patients on the whole (13) expressed the opinion that their condition was their own responsibility, and that overall their condition was controllable and susceptible to their influence through diet. On the contrary, they saw general health, in terms of colds and flus, as something which for the most part was outside of their control. Environmental factors were seen as playing a major role in determining general health, along with such variables as hereditary and lifestyle. Although some (5) patients felt that through diet and exercise general health could be influenced, most (15) saw constitution, or luck,
as placing general health beyond the individual's sphere of influence. Colds and flus were seen as "happening" to people. Even one patient, who claimed she was 100% responsible for her health, felt she had no control over her physical status.

The doctor's role was seen by most (12) cholesterol patients to be that of the "expert", who should be consulted when necessary. A number (6) of patients felt that the doctor's role was that of a "partner". In this way of thinking, responsibility was shared between doctor and patient for the condition, with the doctor being responsible for diagnosing and treating, and the patient responsible for following the doctor's advice. Only one patient expressed the opinion that basically the doctor was responsible for the patient's health.

One patient felt that it was his responsibility to find a balance between quantity and quality of life, with regard to his condition: while admitting that it was his responsibility to follow the doctor's advice aimed at increasing his lifespan, he felt he also had a duty to uphold the quality of his life. As such, he said there were certain things he was not prepared to do in order to comply with his doctor's advice, since to do so would be to reduce the satisfaction he gained from life by too great an amount. He saw the doctor as an individual who was there to provide guidance in attempting to achieve the optimum balance between the quantity and quality of life.

6.2.4 Communication.

The great majority (13) of cholesterol patients felt they were able to communicate quite well with their doctor. Most (16) felt that their visits to the clinic were worthwhile, some (8) saying
that they felt the monitoring of their cholesterol levels to be very important. A number (4) of patients commented on the "open, genuine" relationship they felt they had with their doctor, and others (6) mentioned the friendly atmosphere of the clinic. One patient felt, however, that the doctors were only as open with you as far as they assessed you capable of accepting the relationship.

One patient stated that she felt happier with doctors she knew well, and that therefore she found the clinic a little formal. A number (8) of patients commented on how busy the doctors were, thus allowing little time for relaxed communication. Most (10) patients were happy with the information they received from the doctor, but several (6) patients admitted having little idea of their current health status. As one patient noted, he felt he could communicate well with the doctors, but that because the clinic was so busy he was pressurised into not asking questions. Since his visits, at this stage, were routine, he felt he was not allocated much time, and as such had no idea as to the progress of his condition. A few patients did express the desire for more information, but most (3) of these patients felt it was their own responsibility to ask for that information. Some (4) patients expressed dissatisfaction with the delay between the blood tests and the information about the results of these test reaching the patient. Normally a patient only learns of his current health status when he returns for his next visit six months hence. Alternatively, the patient can write to his GP for the information. The patients who were disgruntled at this state of affairs felt they should have more
immediate feedback on their health status. Another patient said she would like more regular visits, because the hectic pace of the clinic prevented her from asking all of the questions she would like to ask. She felt that doctors were more concerned with blood counts and cholesterol than the needs of the patient.

Finally, two patients who had only recently started at the clinic felt that they could have been given more information about their condition, and found that the dietary advice in particular could have been better explained, and related more closely to the mechanics of their complaint.

6.3 Heart Patients.

6.3.1 Understanding.

Most heart patients (15) had a good understanding of heart disease. A few (4) volunteered their knowledge of technical terms (such as angiogram and ECG), indicating that their knowledge was probably not simply superficial. A large number of possible causes of MI were offered by the patients. Dominating the causation sphere was smoking, which virtually all (15) the patients who smoked suggested as a part cause of the myocardial event. Stress at work, or trying to do too much, was also a commonly cited cause (10). A number (6) of patients felt that their condition could be inherited, since a family member had a heart condition. A couple of patients expressed the opinion that "general life-long abuse" might be to blame, and one patient linked his attack to a heavy cold he had suffered from in the days leading up to the myocardial event. Some (4) patients said that they were uncomfortably mystified by what could have caused
their attack. One patient suggested that it might be something you "carry in your system".

There were equal numbers of patients who saw their condition as mild, or severe; and such perception seemed independent of whether or not they understood their condition or not. The majority (12) of patients said that, with hindsight, their condition could have been prevented, and that they felt they would eventually recover from their current ill health, no matter how severe they saw their current condition to be. Some (4) patients claimed that they did not have a heart attack. One said his condition was down to smoking, but did not seem to link this with heart disease. Another patient was convinced he had arthritis in his left shoulder; and one claimed that she had had a "coronary", seeming to think this explained everything, and yet obviously not related in her own mind to heart disease. There was a trend for some patients (5) who appeared to understand their condition reasonably well, still not to seem to have any emotional evaluation of their condition, and thus not comprehending the severity of the consequences of the condition. As one patient expressed it, although he was aware of the fact that he had a severe condition, the fact "may not have fully sunk in yet."

6.3.2 Coping.

There seemed three distinct patterns to the emotional response of patients who had just suffered an MI. First, there was the classic anxiety reaction. Such patients (8) expressed great surprise that they should have experienced an MI, since they felt
themselves to be reasonably healthy people. Other patients (4) who admit to being scared by the event acknowledge the extreme pain of the attack, and say that they never want to experience that kind of pain again. Similarly, a number of patients (4) admit their fear that they should suffer another attack. Although these patients might be termed "anxiety" patients, not all of the patients see broad lifestyle changes following their discharge from hospital. Several (4) do state that changes will be many in quantity, and great in extent. However, there are others (2) who claim that they see themselves as taking things easy for a few months, before returning to their normal lifestyle. Still others (2) see virtually no changes in their lifestyle, beyond possibly (for example) giving up smoking.

A second set of patients appear to deny any great response to their condition (7). Such patients seem to play down the initial event itself, and talk instead of feeling that they are wasting rate-payers money, and should be discharged. These patients also talk of how they frequently walk around the ward, despite being requested to take it easy by the ward staff. When discussing lifestyle changes, however, there is a match between this set of patients and the previous set. While some patients (4) do see few changes following discharge, saying that they may take it easy for a few months before returning to their earlier lifestyle, and claiming that there is nothing to be worried about really; some other patients (3), although denying there is anything seriously wrong with them, still acknowledge major lifestyle changes ahead.

The third set of patients, consisting of a much smaller number (4) than the others, admit to being initially quite
shocked by the myocardial event itself, but now find little to concern them, and dispute the fact that there is anything seriously wrong with them. Such a group tend to doubt the necessity of making lifestyle changes on leaving hospital.

Other variables seem to influence how a heart patient copes with his condition. Thus, one patient (aged 37) said that he was particularly upset that he had had a heart attack at such a young age. Another patient (aged 74) said that he was not worried, and did not see the point in trying to change his lifestyle at his age. Another patient claimed that since all that was wrong was arthritis in his left shoulder, there was nothing in particular to be worried about.

6.3.3 Responsibility.

For heart patients, responsibility for their condition is seen as lying mainly with the self, but the role of the doctor is seen as particularly important. Patients (12) express the feeling that the doctor is there to be consulted if the condition is at all severe, or if the patient is in pain. Doctors are seen as responsible for advising patients on health matters, subsequent to which it is the patient's responsibility to make decisions concerning compliance to that advice. The doctor is very much a "back up", supporting the patient when things aren't too good.

Thus, although the patient sees himself as primarily responsible for his condition, the doctor has a substantial degree of responsibility too. Thus, one patient felt that doctors were not concerned enough with keeping patients informed of their health status, which the patient felt was their duty.
Whereas the majority (10) of patients saw their heart condition as being susceptible to influence via lifestyle changes, not all felt that they were capable of making such changes. Most patients (12) felt that general health, in terms of colds and flus, was not amenable to personal control, but was under the control of environmental or hereditary factors. However, another set of patients (7) voiced an opposite opinion, feeling that their heart condition was outwith their personal control, whereas lifestyle changes could influence the course of their general health. These patients tended to see their heart condition as a family complaint. One patient stated that he felt he had some control over his health, although he thought that there were some things which you carried inside you which may suddenly surface, such as a heart attack. Heart disease is thus seen as distinct from general health.

6.3.4 Communication.

The vast majority (16) of heart patients expressed the opinion that they were very satisfied with the level of care they had received on the ward. One patient said he admired the ward staff's ability to meet the needs of the patient. However, a large number (8) of patients also said that they felt that opportunities to talk with the doctor were quite limited, and some patients (4) also said that they were confused on a number of health issues which they would like clarified. As there was so little contact with the doctor, more information would have been appreciated. Several patients (5) made the comment that the nurses were "more approachable" than the doctors, and that this was therefore the source of a lot of their information. One
patient said that although he was happy with the level of information he had received, he felt that doctors only told you what they thought you ought to know. Another patient said that he was rather annoyed at being given conflicting information from different medical staff about his current health status, and what steps he could take to improve his condition in terms of diet and exercise.

Although most patients (12) felt able to communicate easily with the doctor and medical staff, a few (5) admitted to feeling awkward when talking to the doctor. Some patients also did not like the "patient's role", and went out of their way to "rebel" against the medical authority. Such patients (6) claimed to walk around the ward considerably, and could be found smoking in the day section. Several patients (7) mentioned that they had received a booklet on heart disease which they found very helpful, but emphasised that it did not answer all the questions.

6.4 Outpatients.

6.4.1 Understanding.

The majority of patients (12) in this group had a poor understanding of their condition. This would seem to be mainly attributable to the fact that several of the patients (8) had no idea what their condition was exactly, and could only report the symptoms which they had. Similarly, a considerable number (8) of patients had little idea what might have been the cause of their condition. Because of the variety of complaints in this group, it is not easy to pick out groups of factors which are put
forward by the patients as likely causes of their conditions. However, five of the patients admitted that their own behaviour was a likely cause of their illness, in terms of such activities as smoking and drinking. One patient, on the other hand, insisted that although he had no idea what might be causing his complaint, it had certainly worsened at the time he gave up smoking. Another patient claimed that the worsening of his condition was mostly the responsibility of one incompetent doctor.

Just over half of the patients in this group (11) said that their condition was quite severe. The same number of patients suggested that if they had taken precautions early enough, then they might have been able to prevent their condition. Several patients (6) claimed that their condition was a complete surprise to them, since there had been no warning, and the condition had started at a time when they thought they were quite healthy.

6.4.2 Coping.
A considerable number of patients (9) were emotionally upset as a result of their condition. One patient confessed to being a "complete wreck", who relied on his two daughters to help him through each day. Other patients (2) said that their condition was frightening, one because he had no idea what could have caused his condition; and the other because, with no hard information forthcoming from the doctor, the patient suspected that the condition might be terminal. One patient said that she suffered from frequent bouts of depression because of her illness. She went on to say that she had lived with her condition for a number of years without any trouble, until one
day a doctor had told her that her condition was a problem. Since then, she had become obsessed with her condition, and found it extremely embarrassing. A few patients (3) denied that they were upset by their condition, but seemed very anxious when interviewed, and also described behaviours - such as lack of sleep - which were suggestive of emotional upset.

Several patients (6) mentioned that they had initially been very anxious about their condition, but that since that time, their symptoms had abated, and they were currently feeling considerably more at ease with their condition. One patient said that her initial reaction when symptoms appeared, was to try and "hide" her condition as best as she possibly could. However, a couple of patients said that they had been quite relieved when their condition was first diagnosed, since they had suspected that they were suffering from a worse complaint.

Ten patients stated that their lifestyle had become restricted as a result of their condition. Restrictions included a lack of social life, upset within the family, and the loss of employment. Some patients (4) had voluntarily made adjustments in some activities, such as drinking and smoking, in an attempt to improve their condition. Another patient said that for two years he had suffered the consequences of his condition, rather than make the medically recommended alterations in his lifestyle. Finally, his family life had been disrupted to such an extent, that he found it necessary to return and seek further advice, which he intended to keep to this time.

Nine of the patients were little affected by their conditions, or had adapted to their new, restricted lifestyle.
One patient stated that "you have to put up with it", suggesting that such patients are coping in spite of their condition, rather than with their condition.

6.4.3 Responsibility.

Exactly half (10) of the patients felt that their health was their own responsibility. The same number of patients said that they thought they were essentially healthy people, although only one patient took part in any kind of health promoting activity. Five patients were prepared to say that they were "unhealthy" people, in the sense that they were prone to illness. One patient said it was simply a matter of trying to live from day to day.

Only seven patients felt they had any control over colds and flus. Other patients felt that health was largely a matter of chance. As one patient said, "if you're meant to catch it, you'll catch it". Another patient claimed that she had never had a cold, and doubted that she would ever have a cold in the future. The importance of constitution was suggested by a couple of patients, and other patients (4) said that the environment played a part in people becoming ill. Thirteen patients said they felt they had no control over their particular condition. One patient said that she could control her condition, but only with her doctor's help. Two patients mentioned that their condition was controllable, but not curable.

The expressed importance of the doctor varied from patient to patient. Three patients clearly stated that they believed the doctor was responsible for their health. More patients (5) saw their relationship with the doctor as a partnership, such that
the patient and doctor were equally responsible for the patient's health. Two patients said that while the patient was mostly responsible for his own health, the doctor was important for diagnosis and advice. Similarly, two patients saw the doctor as responsible for attempting to find a cure for their complaints, although the patient was responsible for controlling the condition. Other patients (3) claimed that the doctor was there for when an individual's condition became too severe for him to handle by himself. Two of these patients further said that their doctor was not doing much for them, and that their condition was consequently not improving.

6.4.4 Communication.

A large number of patients (13) said that they were happy with the communication between themselves and the doctor, and felt satisfied with the attention they had received at the clinic. However, some patients had reservations about their relationship with the doctor. Five patients said that they felt they should have been given more information about their condition, since they felt that would have been helpful to them. However, one patient insisted that he was not interested in knowing anything about his condition. He said that he had complete trust in the doctors at the clinic, and felt that they knew best what to do about his complaint.

Three patients complained that they had received conflicting information from doctors they had consulted in the recent past, and found this unsettling. Some patients (3) said that they felt doctors would keep information back from a patient, if the doctor
thought it wise. One of these patients said that doctors would do this if the patient’s condition was too severe. The other two patients suggested that doctors preferred to keep patients in the dark, because it made the patients easier to handle.

Only three patients actually admitted that they did not communicate well with the doctors at the clinic. One patient said that she found it difficult speaking if the doctor was young or when there were student doctors present. A couple of patients said that they found a problem with the busy nature of the clinic. These patients said that they felt pressurised by the number of people waiting to see the doctor, and could not help but think they were wasting the doctor’s time. One patient said that he had a very low opinion of doctors, and stated that it was almost impossible to get the information he wanted.
CHAPTER SEVEN.

DISCUSSION.

1.1] Ecstasy Correlations.

The strong correlations that exist between taking Ecstasy and the severity of the other scales (TABLE 6-1) are intriguing. Consistent appraisal of severity was not associated with the Ecstasy scale. A coping scale represented just part of the variance which corresponded to the patient's response to the situation. The section 5.5.1.4 and 5.5.5.1.8 suggest that Ecstasy response is an additive of state effects in the human process. Observations indicate that there is a strong relationship between Ecstasy and the quality of the individual's experience. This individual's experience is the quality and intensity of his communication with the doctor, and the level of responsibility. An individual himself is having with respect to his own health, and in some manner both patient and doctor's satisfaction in the patient's condition. The correlation between these variables, in turn, makes the perception of the patient's experience. The condition would also provide insights into the patient's response to the situation.
7.1 Overview.

The discussion will initially consider the results pertaining to the analysis of the questionnaire scales, since such results form the main body of the present study. Once the results of the correlational and factorial analysis, and analysis of variance of the questionnaire scales has been discussed, the next area to be covered will be the fortnightly report data. The results from the Bortner scale will then be considered. Finally, the limitations of the present study, and the general implications of the findings, will be examined.

7.2 Scale Correlations.

The strong correlations that exist between coping and the majority of the other scales (TABLE 5.3) are interesting. Only doctor assessment of severity was not associated with the coping scale. A coping scale represented that part of the interview which corresponded to the patient's response to the illness (see section 4.2), and this finding suggests that illness response is an amalgam of many aspects of the illness process. Correlations cannot, of course, indicate anything about causal relationships between variables, but the suggestion is that a patient's understanding of his condition, together with the quality and content of his communication with his doctor, and the level of responsibility he perceives himself as having with regard to his own health, all add together in a manner to produce the patient's response to his particular condition. The correlations indicate that patient satisfaction, and also the perceived severity of the condition might also mediate between the condition per se and the patient's response, but that their
influence is more marginal. This finding supports those within
the medical field who advocate a multivariate approach to a
patient’s psychological response to illness (e.g., Mayou, 1984;
Philip et al, 1981). However, contrary to the amount of research
which has attempted to link perceived severity and illness
response (e.g., Byrne and Whyte, 1979), the evidence from this
study suggests that perceived severity plays only a small part in
the overall picture of illness response. Patient severity was
negatively correlated with coping, but other correlations
involving patient severity were weak. Doctor assessment of
severity was not correlated with any scale, and the combined
picture stresses the fact that the severity of the condition
appears very much independent of other elements in the illness
process. It is interesting, too, that doctor assessment and
patient assessment of severity should not be correlated. The
evidence supports the notion that the patient and the doctor view
the condition in disparate ways, and assess the patients’ health
status from differing viewpoints.

Compliance research has attempted to link many behavioural
variables with noncompliance in patients (Becker, 1979). It is
notable that in the present study, only patient satisfaction and
coping is associated with this behaviour. It is interesting to
speculate on the nature of the satisfaction-compliance link.
Tagliacozzo and Ima (1970) proposed that the motivation of the
patient was important in the maintenance of compliance, and it is
quite possible that if the patient is satisfied with his
consultation and the clinic visit as a whole, he will be more
inclined to follow the advice the doctor has given him.
Furthermore, there was a strong correlation between satisfaction and communication (the two scales designed to tap the doctor-patient relationship) and so it is likely that patient compliance is tied to the doctor-patient relationship quite strongly. Caplan (1979) noted the influence of the doctor-patient relationship on compliance (see section 1.4.3), and Donabedian (1973) has carefully stressed the areas of possible disagreement that exist between patient and doctor when it comes to adherence to recommended therapy. Ley’s work (eg., Ley and Spelman, 1967) suggests that satisfaction about information received from the doctor causes patients to comply with advice. With regard to the correlation between compliance and coping, Conrad (1985) has recently viewed compliance and noncompliance as a coping strategy on the part of the patient, as he attempts to gain control over his condition.

7.3 Factor Analysis of Questionnaire Scales.

Before commenting on the findings of the present study with regard to the factor analysis of the questionnaire scales, a word should be said concerning the nature of factor analysis. Although guided by hard statistical requirements, factor analysis is ultimately a matter of interpretation. One is seeking to impose a structure upon the data, and to that end the data is manipulated until the “best fit” is found. There are three stages where the experimenter’s own aspirations might intrude on this process. Firstly, the selection of structure is variable. Secondly, the way in which the data is manipulated is open to selection. Finally, once the factors have emerged, the interpretation of their meaning is highly dependent on the aims
of perceiver. One is highly fortunate if the data emerge in discrete and "obvious" clusters. Usually, the factors' meanings are dubious, and the experimenter has to decide on the label which best fits the material. Hopefully the present study has adopted sufficiently strict guidelines so as to minimise bias, but the problems of factorial analysis should be borne in mind when considering the following section.

The first attempt at analysing the data produced three factors. The first factor corresponded to the clustering of the correlated scales in the previous section. The factor was labelled "illness coping", but a broader labelling of "illness meaning" is also applicable, since the factor has a sense of the relationship between the illness itself, and the patient's life and attitudes. The second factor was dominated by the compliance scale, but satisfaction was only weakly loaded on this factor. Interestingly, doctor assessment and patient responsibility negatively loaded on this factor. It could be suggested that such a cluster was essentially a compliance factor, with the indication being that the patient's perceived responsibility for his health, together with the doctor's assessment of severity, mediate the patient's adherence to doctor advice and medication. Such a pattern corresponds broadly with Becker's (1974) Health Belief Model, and more specifically with Wallston and Wallston's Health Locus of Control conceptualization (Wallston, Wallston and DeVellis, 1978). The third factor, containing the patient and doctor assessment scales, is clearly a "severity" scale.

When a fourth factor was extracted, it was characterised by "severity discord", since the strongest loading factors were the
patient and doctor assessments, loaded in opposite directions. Since satisfaction, communication, and understanding also appear on this factor, it could be suggested that these components of the illness process mediate the apparent discrepancy in perception between doctor and patient. Both satisfaction and communication are scales devised to tap the doctor-patient relationship aspect of the interview, and so it is clear that the interaction between doctor and patient plays a crucial role in determining the patient’s assessment of his condition.

When the four factor structure was further rotated in an attempt to arrange the data in more "meaningful" clusters, the factors which emerged appeared more sharply definable (see TABLE 5.7). Thus, the first factor was clearly an "illness coping/illness meaning" factor, with understanding, responsibility, communication, and coping all loading strongly. The second factor was composed of compliance and satisfaction, with coping also loading to quite a strong degree. Such a factor clearly indicates the compliance-satisfaction link, and also illustrates the association this behavioural pairing has with coping. The final two factors were both severity factors, with the third factor dominated by patient assessment of severity, and the fourth factor dominated by doctor assessment.

7.3.1 Summary.
The correlational and factorial analyses have indicated strong trends in the questionnaire scale rating. Firstly, original formulations of an illness behaviour framework tied the physical dimension of the illness closely to the perceptual dimension (Mechanic, 1962). However, more recently Blackwell (1981) has
suggested that physical distress and emotional distress are independent. The apparent independence of doctor diagnosis and patient assessment from other behaviour measures, as found in this study, would seem to support such a viewpoint. Researchers interested in a better understanding of patient coping behaviours would be advised to consider the network of beliefs and conceptions that exist between patient, doctor, and condition, as opposed to attempting to forge a relationship between the apparent extent of the disease and patient response.

Secondly, Mechanic (1966) suggested that one way of characterising illness behaviour was as a coping repertoire, and the central role taken by the coping scale in the current study would appear to emphasise the importance of such a model if one is trying to understand illness behaviour. However, the conception of illness behaviour as one-dimensional would appear to be an over-simplification. Compliance behaviours, while linked to coping, appear separate from such facets of the illness process as patient understanding. Although there is a partial hint that some form of locus of control may discriminate some patients with regard to compliance (Table 5.4, factor two), the overall picture implicates patient satisfaction as the single component paired with compliance. Thus, with patient coping as the focus of the illness behaviour network, there seem two main elements of patient illness: one involving understanding, communication, and responsibility; the other consisting of compliance and satisfaction.

Originally (see section 3.5) five major elements were put forward as constituting the illness process: Illness perception;
Health orientation; Doctor-Patient relationship; Illness effect; and Compliance. The findings of the present study to this stage suggest that such divisions are artificial. Thus, illness perception seems to consist of two discrete components, severity and understanding. The doctor-patient relationship is made up of two connected, but apparently different, components, satisfaction and communication. The severity element of the illness process now seems to sit apart from other elements. Understanding, health orientation (responsibility) and communication appear to share common ground, as do satisfaction and compliance; and both these "cells" of the illness process meet at the focus of illness effect (coping).

As with most models, this model is likely to be an oversimplification of the reality of the illness process. The interview and questionnaire were not designed to tap all aspects of the illness process, but to examine those areas of importance to the population under consideration. As such, generalisation to all illness populations cannot be undertaken. However, the findings, firstly, that condition severity does not have a major role to play in the behavioural aspects of the illness process; and secondly, that illness behaviour is quite possibly made up of discrete components, are very important in terms of forming a better understanding of the patient's response to illness. The next stage of the discussion will consider how the analysis of variance results complement these findings.
7.4 Scale Analysis.

7.4.1 Coping, Understanding, Communication, and Responsibility.
These four inter-correlated scales, forming the first factor extracted, share a clear pattern when considering the results of the analysis of variance (TABLES 5.8-5.11). Firstly, there is a definite progression of highest rating for the cholesterol group, followed by heart group rating, and finally the outpatient group. Secondly, patient rating is higher than doctor rating.

Taking the first finding, the cholesterol patients suffer from a chronic condition, and this may have some bearing on the observed pattern. These patients will have had considerable time to come to terms with their condition. Many of the patients said (section 6.2.2) that although they had initially been taken aback by their condition, over the years they had adjusted to the circumstances and now felt that there were few restrictions on their lifestyle. Caplan (1979) notes that a change in the nature and intensity of symptoms is likely to be the standard by which patients decide whether their need for improved health is increasing or decreasing. Cholesterol patients, with their static symptomatology, are likely to perceive themselves as dealing successfully with their condition. Similarly, if one takes Leventhal and colleagues (1965) concept of "fearfulness" from the field of compliance behaviours, it is clear that the cholesterol patients, with low symptomatology, will have low "fearfulness" in relation to their condition, and this will again allow them to view their condition benignly. A number of the cholesterol patients commented on the "friendly" nature of the lipid clinic, and said that they felt happy talking to the

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doctors, and had got to know them quite well over the duration of their visits. Calnan (1984) notes that in studies of doctor-patient encounters, it is only in the treatment of chronic conditions where the patient has to have regular contact with the doctor, that the patient becomes involved and well-versed in medical techniques.

In contrast to this picture, the majority of patients in the heart and outpatient groups will have learned of their condition only recently, probably in an abrupt manner, with a sudden onset of symptomatology. Quite a number of heart patients (section 6.3.2.) reported that they felt their lifestyle would undergo drastic changes as a result of their condition. With the acute illness of the outpatients, there is little opportunity to develop a friendly relationship with the doctor. For this group, the consultation period is between fifteen and thirty minutes. Because the outpatient clinics are very busy, there is great pressure on both patient and doctor to keep informal chat to a minimum. Building up a rapport is therefore very difficult. For the heart patients, there is no time-limit on their interaction with ward staff. Since these patients are in hospital for up to fourteen days, chatting with nurses and doctors is one way of passing the time. A number of patients in this group commented that they found their access to doctors somewhat restricted, usually to morning ward rounds; but such patients would supplement their information by talking to the nurses, and most patients said that their doctor, when he did talk to them, was "very friendly".

When patient understanding is considered, it is common
practice for patients who have suffered an MI to receive a package of information concerning their condition while in hospital. Considerable attention is paid to ensure that the patient is aware of the consequences of his condition, and that he knows the implications for his lifestyle in his home environment. The outpatients, on the other hand, have neither the time to get "involved" with their condition, nor do they on the whole receive information packages to allow them to better understand their condition.

With respect to patient responsibility the difference between the cholesterol and heart groups on the one hand, and the outpatient group on the other, may lie in the way in which the condition has been brought to the attention of the doctor. The cholesterol patients have been asked to return regularly to the clinic, so that their serum cholesterol levels can be monitored. The heart patients have been brought to the hospital under emergency conditions. The majority of the control outpatients, on the other hand, have requested to see a specialist because they were displeased with the progress of their condition under the supervision of their GP, or have been sent to the clinic on the recommendation of their GP. Such patients have, therefore, either voluntarily requested a specialist's aid, or have been recommended because of a lack of improvement in their condition.

In the first case, the patients, by the act of requesting aid, have obviously indicated their willingness to allow the physician to take over responsibility for their condition, to a certain extent. In the second case, the fact that there has been no improvement in their condition may be seen by some patients as a failure, and in such cases the attribution of the cause of that
failure may be ascribed to the environment (Streufert and Streufert, 1969), or, in this case, the doctor. Under these conditions, it is not entirely surprising that the patient will rate responsibility for his health as involving the doctor more substantially.

Another important factor which could lead to better coping in the cholesterol group, is the influence of the family. In Chapter 6, it was noted that several cholesterol patients, when interviewed, mentioned that family support was very important to them, in terms of enabling them to adapt to the daily restrictions a cholesterol condition imposed on their lifestyle. Although there is a genetic component in other types of heart disease, the majority of heart patients in this study did not have close family members who suffered from a heart condition, who were in a position to share the problems of daily lifestyle adjustment. The control patients, to an even greater extent, were very much "on their own", and several patients commented on the fact that their conditions were setting up family tensions, and that this, in return, made the condition more difficult to cope with.

The second distinct pattern which emerges from this constellation of scales, is the higher rating of the patients when compared to the doctors. Social desirability may be operating to inflate patient self-rating, and this is suggested by the greater contiguity of judge and doctor rating in some of the scales. Thus, to please the doctor through the interviewer, the patient reports communication quality to be higher than other factors would suggest that it is. Gallagher (1977, cited in
Ashworth, 1979) has emphasised the "asymmetric" nature of the
doctor-patient relationship, and other workers have stressed the
dominant role of the doctor in the relationship (e.g., Fisher,
1984). The "passive" patient is often seen in this context as
striving to please the doctor, and this may well affect how he
rates the quality of communication and clinic care. Similarly,
the patient would perhaps prefer to appear reasonably competent
to the interviewer, and might find it embarrassing to admit that
he has really not got a clue what his condition is all about. At
the same time, however, the doctor may, because of his own
knowledge of the field, denigrate what little knowledge the
patient actually has. Relative to the doctor's awareness of the
causes and consequences of illness conditions, the patient's
comprehension must seem minimal, and so the doctor might tend to
underestimate the patient's understanding.

When one considers the responsibility scale, Herzlich (1973)
claimed that the individuals she interviewed perceived health as
proceeding from within the individual, while illness was a result
of lifestyle and the environment. Since the wording of the
responsibility scale stressed health as opposed to illness, it
would seem that the attributional bias toward internal control of
health has been tapped, when considering the patients' higher
rating of responsibility (TABLE 5.11). If Farr's (1977) argument
is accepted, it might be suggested that, by setting up a choice
between two attributional poles, and emphasising a positive
outcome, the chances of an internal attribution were highly
predictable. The doctors' rating of patient responsibility is,
overall, at the mid-point of the scale, suggesting a perception
of "partnership" between the patient and doctor. It is not
surprising that the doctor should see matters in this way, since he has, after all, been consulted by the patient about his condition, and thus the patient has given up some of his own responsibility over his health to the doctor.

Denial has, of course, been closely linked with patient response to an MI (Cay, 1982; Berner, 1980). For the cholesterol patients, the lack of overt symptomatology in the majority of patients might enable such patients to "forget" that they are suffering from a blood disorder. Indeed, several patients commented that they did not feel that they had a "condition":

"(There have been very few lifestyle changes because of the cholesterol), certainly not emotionally.

Maybe my wife is trying to buy margarine for me, not butter, that's all. The kids haven't been worried, because we haven't put it to them that way. It hasn't been looked upon as an illness, I don't see myself as having been ill, I regard myself as being bloody fortunate that I had the blood test."

Patient 4B, first interview.

Alternatively, the doctors are perhaps looking at different cues when assessing patient coping. The doctor may attempt to assess the patient's apparent stability. He may associate sleeping problems, and problems with medication, with an indication that the patient is not "coping" well. Overall, the doctor only sees the patient in the medical environment, and in this way the concept of "illness" may be attributed to the patient whether or not he is coping with his condition. The very fact that the patient has decided to see the doctor may lead the doctor to
assume that the patient is having problems coping with his condition. Weyrauch (1984), for instance, noted that physicians and patients described different dimensions of the experience of illness when asked to explain the decision to see the physician. The patients described their symptoms in terms of time duration, whereas physicians described symptoms by type of problem.

It is notable that the patients when interviewed, placed special emphasis on the "warmth" of their relationship with their doctor. For the patients, it was as if the quality of the relationship, in terms of its friendliness, and sincerity, were more important than the quantity of information they were given. Perhaps the patient is also looking for consistency in the relationship, so that simply seeing the same doctor several times reassures the patient that he is receiving personal attention. This may play a part in the superior rating of the cholesterol group. The doctor, however, may be attending to other cues: an indication that the patient has understood and followed his advice, that the patient still acknowledges his diagnosis, and so on. Research has indicated that if the patient perceives that the physician is working in the patient’s best interest, then this is far more important to the patient than aspects of the physician’s technical expertise and skill (Ben-Sira, 1976). Trust in a friendly doctor is therefore important to the patient, beyond such factors as interpersonal skills and curative abilities.

7.4.2. Satisfaction and Compliance.

The satisfaction-compliance linked scales produced a pattern of results in the analysis of variance which echoed certain aspects
of the coping cluster, but also manifested unique characteristics. There is a clear division between doctors and patients in their rating of these two scales, but such a distinction is here condition dependent. To be precise, the cholesterol group does not evidence the same level of discrepancy as found in the other two groups.

Similar to the previous cluster of scales, the patients rate satisfaction and compliance higher than do the doctors. Perhaps the doctor is protecting himself against the possibility that the patient is extremely unhappy with the treatment he has received, by rating patient satisfaction lower than it truly appears to be. Or perhaps the patient is exaggerating his satisfaction, so as to please the interviewer, and through him the doctor. With regard to compliance, it could be asked on what grounds the patients' compliance is being estimated by the doctor. There is no such thing as a pill-count available in the majority of situations for the doctor to base his estimate on. Rather, the doctor has to decide on the basis of the patient's self-report, and also his own estimate of the patient's condition: if the doctor has prescribed a treatment, he will presumably consider how effective that treatment has been. Taking the patient's self-report into account, the doctor will then decide whether the treatment has come up to his earlier expectations. If the treatment has produced a poorer outcome than expected, one option open to the doctor is for him to attribute this event to poor compliance on the patient's part; that is, to estimate the patient's compliance to be lower than the patient's own estimate. However, doctors have difficulty
when it comes to identifying poor compliers (Becker, 1979).

The question remains as to why the acute illness groups - heart and outpatient - exhibit the rating discrepancy to a greater extent than the cholesterol group. When considering satisfaction, a plausible explanation for the finding is that after an illness has proceeded for a length of time, the initially shared aims and perceptions of the doctor and patient have become disparate and confused. Gerbert's (1984) study indicated that attributed characteristics of a patient may influence the treatment given by a doctor. Although at initial contact the shared aims of doctor and patient may be too strong to allow for substantial influence by interpersonal perceptions, by the second interview the doctor, evaluating the patient's behaviour and performance, will have made decisions about the patient's "likability" and "competence". It is the doctor's rating of the patient's satisfaction which alters radically from the first to second interview stage in the acute illness groups, suggesting that the patient is gaining a level of satisfaction from the stability of the doctor-patient relationship, while the doctor does not place the same importance on this factor. It could be suggested that by the second interview stage, there is likely to be a high degree of clinical uncertainty surrounding the diagnosis and prescription in the heart and outpatient groups. Calnan (1984) notes that clinical uncertainty arises in the doctor as a result of insufficient knowledge about what is wrong with the patient, and whether treatment can be effective, as a consequence of the doctor having to make a decision without full knowledge of the case or the client, and where in the course of diagnosis in clinical practice general disease entities have
to be applied to specific cases. In a study by Stimson (1976, cited in Calnan, 1984), the "best" patients, according to the doctor, were those that had a "real" physical or organic illness which was eminently treatable. Other studies have indicated that doctors are more comfortable with "sicker" patients (Greenberg, Eisenthal, and Stoeckle, 1984). However, there are problems with this argument. Stimson also found that acute illnesses were preferred to chronic illnesses; and secondly, there is no indication in the present study that any condition group is "sicker" than the other (see section 7.4.3).

Greenberg et al's (1984) study, however, is open to interpretation. Perhaps the finding additionally indicates that the more "real" the physical nature of the pathology, the more comfortable the doctor is. Certainly evidence suggests that doctors prefer physical to somatic complaints (Hall and Beresford, 1984), and this would fit with Calnan's description of clinical uncertainty above. Both the heart patients and outpatients, by the second interview stage, will have reached a point in their condition, where emotional concerns of rehabilitation will have taken over from direct anxieties over treatment. So long as the condition has shown signs of abatement, the likelihood is that these patients will consult the doctor more for social reassurance than for a physical examination. The cholesterol patients, on the other hand, will be returning to the clinic for the same reason that they attended initially; namely, a blood test of cholesterol levels. Additionally, the outpatients are heterogeneous, with a variety of conditions and a multitude of symptoms. It could be suggested
that these mild conditions, with less readily classifiable symptomatology, produce a greater degree of clinical uncertainty, accompanied by an element of discomfort on the doctor’s part, leading to negatively perceived patient characteristics and responses. The cholesterol patients, on the contrary, are an easily definable illness group, and the doctor’s role during consultation is perhaps more strictly outlined. As Calnan (1984) notes, evidence from studies on doctors’ and patients’ accounts suggests that while the problem of clinical uncertainty poses problems for the doctors in terms of their relationship with the patients, it is rarely an issue which patients are concerned with. The discrepancy in doctor and patient rating of satisfaction at the second interview stage is possibly a reflection of this.

For compliance, one cause of disagreement between patient and doctor could be the individual’s definition of compliance. The patients are intimating that they have complied, by and large, with the treatment that has been recommended to them. The doctor, clearly, feels compliance is lacking. To him, the patients have only truly held to his recommendations half of the time. It is hardly surprising, when taking this into account, that so many attempts to increase patient compliance fail, when the patient believes he is already complying satisfactorily. Very few patients, when asked, thought that they could have adhered to treatment recommendations any better. Donabedian (1973) appears to have correctly assessed the situation when he lists areas of disagreement between doctor and patient over the meaning of compliance, and Conrad (1985) also clearly believes that patient and doctor have separate definitions of compliance. The role of
patient motivation in compliance has already been mentioned (Tagliacozzo and Ima, 1970). If the patient is sincerely content with his own compliance, he will hardly be motivated to increase adherence to a treatment regimen.

As to why the cholesterol group does not exhibit a discrepancy, patient estimate of understanding is highest in the cholesterol group, and this self-rating trend is supported by the rating of doctors and judges, across both interviews. Podell (1975) notes that there is no concrete evidence that patient understanding of condition increases compliance, and the present study would tend to confirm this observation. What in fact may be happening is that the patients' definition of compliance is closer to the doctor's own, due to their greater understanding of their condition relative to the outpatient and heart groups. As such, there may not be the same tendency towards over-estimation of compliance as exists in the other two illness groups. Remember also that, for the most part, the cholesterol patients are free of symptomatology. The patients will have no external gauge to judge whether their condition is improving or deteriorating. Although some patients in the group are on a weight reducing diet, such a programme is notorious for the "bottoming out" of weight loss (Krantz et al, 1985). Patients will therefore have problems in rationalizing eating binges, due to the lack of observable weight reduction. Their satisfaction with their compliance is unlikely to go through fluctuations due to variations in symptomatology, and thus compliance is likely to remain at a fairly consistent level. In contrast, the acute illness groups will, in the normal course of events, perceive a
reduction in overt symptomatology. With this reduction, a lowering of motivation is likely to occur, and as such, their compliance levels will drop. However, such patients will still be satisfied with their compliance, since they will see their compliance levels as commensurate with their levels of perceived health.

The overall result will be for the cholesterol patients to perceive compliance in much the same way as the doctors at the clinic, but for the patients in the outpatient and heart groups to develop a perception of compliance discrete from that of their physicians. As Calnan (1984) observed, only the chronically ill become involved in the technical side of their illness; only such patients will be likely to see compliance from the physicians point of view.

7.4.3 Assessment of Severity.
Both severity scales indicate different rating trends across the three illness groups. However, the trend is not one of degree, but of kind. Each group produces its own distinct pattern. For the outpatient group, there is little disagreement amongst raters on either scale. For the cholesterol group, the patients' rating of severity increases across interviews, contrary to the overall trend, but is not significantly large. As this is a chronic condition, symptomatology will be static, and improvement little and slow. A typical patient response to an enquiry about how they felt their condition was progressing follows:

"I know that (the cholesterol level) has been coming down each time that I've been coming back to the clinic but I never had a...a given standard to begin
with, you know. It's not like marks out of ten. If the doctor told me that way, say out of ten, and he told me it was nine out of ten, and I had to get it down to two out of ten, or whatever, I'd be able to evaluate it better." Patient 58, second interview.

Thus, although there was a vague awareness of improvement, for the most part patients found it hard to estimate degree of change; their rating suggests that they felt the change was not a significant one. The interesting, and perhaps key feature of the cholesterol group scoring, is that, by the second interview stage, the discrepancy between patient and doctor rating has decreased. It should be remembered that patient assessment of severity was correlated with patient coping, and weakly with responsibility and satisfaction. The patient severity factor which emerged from the factor analysis had additional weak loadings from responsibility and coping. It may be that the closing together of patient and doctor rating for the cholesterol group is a product of the better mutual understanding between patient and doctor that develops as the semi-yearly meetings progress; and additionally is indicative of fluctuations in patient coping, satisfaction, and health orientation, since without a firm ground on which to evaluate the severity of the condition, these patients might allow their judgment to be influenced by other factors.

On the doctor assessment of severity scale, the cholesterol group produces an intriguing pattern. Whereas the doctor’s estimate of severity was the highest in this group at the first interview, by the second interview stage his estimate is the
lowest. When one compares this rating to that on the patient assessment scale, it can be seen that the doctor is very close in his estimate of patient assessment of severity, so it would appear that the doctor is well aware of how the patient sees his condition. However, the doctor estimates that the patient views his condition as more serious than the doctor diagnoses it to be. If, as this finding suggests, the doctor knows the patient to be better, and yet is aware that the patient does not believe this to be the case, then why does the doctor not make special effort to increase the patient’s awareness of his condition? Considering the evidence that positive information to the patient improves compliance and gives other benefits (Jones et al, 1984; Becker, 1979), this behaviour is hard to understand. If the patient’s condition has improved, surely giving the patient this information would increase the likelihood of greater attention to the behaviours that have led to this improvement; for example, more stringent appliance to the treatment regiment?

Presumably the improvement in the patient’s condition is due to some cause or other; and yet on considering the doctor’s rating at the second interview, we find that he perceives significant improvement across interviews in only patient communication (see appendix 12). This suggests that the doctor is attributing the improvement in patient condition to a facet of the communication between himself and the patient. Yet since there is no accompanying acceleration in patient understanding and compliance, the doctor appears to be seeking the cause of patient improvement in the interaction between himself and the patient. This is perhaps the key to the pattern. If the doctor is, in fact, attributing the improvement in the patient’s
condition to his own investment and effort in his interaction with the patient, then the patient's behaviour is minimally influential in determining the improvement, and thus there is no need for the doctor to reinforce compliance or other behaviours.

A further reason why the doctor avoids imparting accurate information to the patient concerning the improvement in his condition, could be that the doctor holds the opinion that such action could be detrimental to patient compliance. If, as seems the case, the doctor feels that the patient is producing little in the way of risk-reducing behaviours, then there is not much point in attempting to reinforce these behaviours. On the contrary, if what little compliance behaviours occur are due to the patient's perception of susceptibility to an MI, then removing an element of fearfulness by informing the patient that he is getting better may reduce patient motivation to compliance, and therefore bring an end to those behaviours that the patient has been engaged in. From this perspective, the doctor's best approach is to maintain the level of communication with the patient and refrain from giving accurate positive feedback. There is evidence in the research literature that doctors can at times structure their consultations so as to diminish the disclosure of information (McIntosh, 1976).

In the heart group, for patient assessment of severity, it is the doctors who produce the increase in rating across interviews. The doctors apparently consider patient assessment of severity to have increased, whereas the patients do not indicate this fact. A possible reason for this is the verbal information which the patient gives during consultation. Denial
(Cay, 1982) has already been mentioned as a typical response to an MI, and may be operating at the first interview stage, to lower the doctor’s rating. By the second interview stage, the patient may be affected by invalidism (Klein et al., 1965) and homecoming depression (Degre-Coutry and Grevisse, 1982), the effect of which is to raise doctor rating. Patients when interviewed reported a feeling of relief that the event was over; the impression was that the crisis had passed, and several patients indicated that they had not been too worried about the event (see section 6.3.2). These patients might give the doctor the impression that they do not see their condition as very serious. After four months, the patient may, on his return to the clinic, be reporting all the problems that he has to contend with at home, and may be demonstrating a tendency towards invalidism (Klein et al., 1965). Alternatively, the patient, tired of the sick role, may be recounting tales of frustration because of his slow rate of recovery. Whatever, because of the nature of the medical environment, forces may be acting on the patient, compelling him to adopt the sick role, and thus giving the appearance of illness to the doctor.

The judges, however, rate higher than the doctors for possibly two reasons: first, other aspects of the patients' behaviour might lead the judge to feel that the patient is more shaken than he admits to being. The patient may, indeed, reveal more of his anxieties to the judge than the doctor; second, the judge may be bringing preconceptions to the rating situation. A heart attack is, after all, “meant” to be a serious, traumatic event, and therefore the judge may see the patient as being more alarmed than he is verbally reporting.
On doctor assessment of severity, the surprising trend is for heart doctors to rate an increase in the severity of the patient's condition across interviews. This is counter-intuitive, since one would expect the patient's condition to have improved after four months. However, the increase is not large, and it may merely reflect the doctor's perception that the patient's condition is perhaps more complex now, when returned to the social context, than when considered in its stable state within the hospital environment. It is interesting that the doctor's high rating on this scale corresponds to his high rating on the previous scale, suggesting that the reason for the doctor's perception that the patient assessed his condition as so severe, might be due to the doctor "wishing" to see the patient as viewing his condition as the doctor sees the condition. This is consistent with cognitive dissonance theories (Festinger, 1957).

7.4.4 Conclusions for Scale Analysis.

Following the factors which emerged from the factorial analysis, the scales which clustered into each factor have, through analysis of variance, been shown to share certain characteristics. Some characteristics are unique to each factor, others recur in more than one factor. Thus, for the first "illness coping/illness meaning" cluster, there is a trend for the rating to be highest for the cholesterol group across all four scales. It has been argued that this may be due to patient denial; the chronic, as opposed to acute, nature of the condition; and to the role of the family. For the compliance-
satisfaction pairing, the cholesterol group displays a different pattern from the other two illness groups. The suggestion here is that because of the chronic nature of the illness, the cholesterol patients come to share a definition of compliance and satisfaction with the doctor, whereas this is not the case with the acute heart and outpatient illnesses. For the patient and doctor assessment of severity, each illness group presents a discrete pattern of rating, perhaps representative of differing cognitive strategies employed by patients and doctors in each of the three groups.

Thus, the variation in rating appears to fall into distinct patterns, with what is happening in the patient and doctor assessment of severity scales having very little to do with the rating trends in the "illness meaning" or satisfaction-compliance clusters. There is a tendency for the three "blocks" of scales to act independently of each other; and for the third block, of patient and doctor assessment of severity, to consist of two discrete components which have little influence on each other.

The only element which persists throughout this analysis of the scales is the perceptual discrepancy between doctor and patient. For the "illness meaning" cluster, the discrepancy appears to be in degree: the doctor simply does not rate as highly on the four scales as the patient. But for satisfaction-compliance, and the severity scales, the discrepancy is condition dependent.

Interesting trends have been found in the scale analysis. Considering the fortnightly report data may confirm or discount some of the ideas which have been generated.
7.5 Fortnightly Reports.

The outpatients (FIGURE 5.1) represent a heterogeneous sample, and the fluctuation in the measure of upset over the fourteen fortnightly intervals is, perhaps, a reflection of this fact. It is interesting that while upset finishes considerably lower than it started, there is substantial variation between start and finish, so that the highest measure of upset occurs at the 24 week mark. The variation in compliance and coping is minimal in comparison. Because of patients failing to return their completed fortnightly reports, the average figures for the scales towards the end of the sampling period are based on a smaller number of report returns, and therefore fluctuation due to extreme individual ratings are more likely. However, because this does not appear to be the case in all groups, it is unlikely that this is the explanation for all of the variance. The significant correlation between compliance and coping corresponds to the correlation between compliance and coping in the rating of the questionnaire scales.

The cholesterol group (FIGURE 5.2) shows a lower level of variation. Coping and compliance start at high levels, and finish even higher; upset starts low, finishing even lower. The picture is, perhaps, typical of a chronic illness, where symptomatology remains stable across time. The correlation between compliance and coping is in keeping with the results of the correlational analysis, as mentioned above. It seems that compliance and coping are linked in the patients' evaluation of the progress of their condition for both cholesterol and outpatient groups.

The heart group presents a different pattern (FIGURE 5.3).
Here, upset starts at high levels, and finishes after 18 weeks at low levels. Coping follows the opposite trend, beginning low and finishing high. Compliance shows more variation in this group than in the others, and finishes appreciably lower than it started. There is a significant correlation in this group, in a negative direction, between upset and coping. It appears, therefore, that there is a difference between this group and the other two in the importance of the patients' emotional response: being initially more extreme, the way in which the patient perceives his ability to cope with his condition is linked, not with how well he follows doctor advice, but more with how much his condition impinges on his emotional health. This trend in upset rating fits in well with other work in the area of psychological response to MI (e.g., Cay, 1982), which indicate initially high levels of anxiety, which quickly drop to normal; with the possibility of a role played by homecoming depression.

Upset over time (FIGURE 5.4) follows very distinct trends in the three groups, illustrated by the lack of correlation and the significant difference across groups on this measure. As is shown, the cholesterol patients have lower levels of upset, with less variation, than the other two groups. It is interesting that, overall, the heart patients register lower levels of upset than the outpatients, though with greater rating variation. One might expect an MI to cause greater emotional discord than the heterogeneous conditions in the outpatient group, but this does not appear to be the case. Although initial levels of upset are considerably higher in the heart group, they quickly fall below those of the outpatient group.
Compliance rating over time (FIGURE 5.5) indicates a complex intergroup pattern, with little variation over time, and little difference between the groups (TABLE 5.17). Compliance ends lower than it started in both acute condition groups, while it ends higher than it starts in the cholesterol patients. For the cholesterol group, there will be little, if any, change in the overall complaint after six months, and so the need for maintaining treatment is as great as ever. The reason for the apparent increase in compliance after 26 weeks can perhaps be attributed to the patients' awareness that a return to the clinic is imminent, and thus there may be increased motivation to be on one's "best behaviour" before the visit. For the acute groups, there will have been, in general, a decline in the extent of the original symptomatology, and although there may be increasing doubt and confusion in the patients' minds as to the progress of the condition, this lack of overt symptomatology may reduce motivation to compliance (Becker, 1979).

The final variable is coping, and in FIGURE 5.6 and TABLE 5.16, it can be seen that the outpatient and heart groups are significantly correlated. TABLE 5.17, however, reveals that there is a significant difference across the groups. Here, coping is best in the cholesterol group, with lowest variance. The heart patients have the worst coping, with the highest variance. Outpatient rating of coping sits squarely between the other two groups. Thus, while there is a correlation in the trend over time for the heart and control patients, there is a considerable difference in degree.
7.5.1 Summary.

What conclusions can be drawn from this part of the study, in the context of the knowledge generated from the previous analyses? The fortnightly report data indicate a trend in rating on upset and coping where the cholesterol patients register lower levels of upset, and higher levels of coping, compared to the other illness groups. Compared to the previous analyses, it is clear that the data here support the pattern found in the coping cluster whereby the cholesterol group have a "superior" rating.

The reasons for the higher rating of the cholesterol group have already been suggested, and will not be repeated here. However, one of the reasons - the nature of the illness process (chronic as opposed to acute) facilitating adaptation responses in the cholesterol patients - has a bearing on other findings in the fortnightly report data. The importance of the nature of the illness process is reflected in the fact that coping is correlated between the heart and outpatient groups. Similarly, with regard to compliance, whereas the cholesterol group increases compliance rating from first to last interval, heart and outpatient groups decrease in their compliance rating. The suggestion is that, due to the acute nature of the illness process, a degree of shared perception occurs for the heart patients and the outpatients, leading to a similar trend in rating, if not a similar degree.

Furthermore, the outpatient and cholesterol groups indicate that coping and compliance are linked, as was suggested in previous analyses. These illness groups could not be said to represent serious conditions, and so following treatment may well be seen by the patient as an index of coping. For the heart
group, upset and coping are linked. An MI is a powerful influence on lifestyle many weeks after the event itself, and there is a suggestion here that the patient perceives coping in terms of how his emotional health is altered by his physical state. There is no reason why this argument should be challenged by the finding that upset is rated as lower in the heart group than in the outpatient group. At initial stages, upset is considerably greater in the heart group, and this "shock phase" may stain the patients' perception for some considerable time; and thus the patient may continue to measure coping by the degree to which personal upset fluctuates. Perhaps patient coping is only influenced by emotional upset, when such upset reaches dismaying proportions, as is true in the initial stages of the monitoring of the heart patients.

7.6 Coronary Prone Behaviour.

One of the most interesting findings of the present study is that the group of patients with a predisposition to heart disease (cholesterol patients) scored highest in terms of self-rating of Type A behaviour (TABLE 5.18). The difference between the cholesterol patients and the outpatients was statistically significant. As the outpatients and cholesterol patients both suffered from an illness condition, this suggests that it was not simply the presence of an illness which was the causal factor in the high rating of cholesterol patients, but rather something about the cholesterol condition per se which produced the difference in score. These two groups were well balanced for sex and age variables. The only confounding variable present was
social class. While 30% of the cholesterol patients were in social classes I, II, and III non-manual, only 10% of the control patients were in the same range. Although it is doubtful whether such a small difference between the two condition groups could have been responsible for this study's findings, such a possibility cannot be excluded. Associations between TABP, and socioeconomic status and educational achievement have been reported (Steptoe, 1981). Byrne and colleagues (1985) found that, for self-report measures of Type A behaviour, persons in white collar occupations were more likely to score in the Type A range than were subjects in clerical or blue collar occupations.

However, a link between high cholesterol levels and Type A behaviour is supported by other evidence. Friedman and colleagues (1964) originally suggested that Type A individuals showed relatively high serum cholesterol. Van Doornen and Orlebeke (1984) have reviewed the literature on psychological stress and serum cholesterol, and have concluded that there is sufficient evidence to show that psychological stressors considerably elevate serum cholesterol levels, and that psychological characteristics, such as Type A behaviour, are positively correlated with serum cholesterol levels. The authors argue that the relationship between coronary prone behaviour and stress and coronary heart disease may be partially explained by the mediating role of serum cholesterol.

The fact that the heart patients did not rate as highly on Type A behaviour as the cholesterol patients should not be too surprising. As has been noted previously, the heart patients receive information booklets and considerable advice prior to discharge from hospital, emphasising the importance of "calming
down" and "taking things easy". The Bortner questionnaire features scales of overt behaviour that could be influenced by such advice; these scales might not be rated as highly subsequent to MI as they might prior to MI. Self-rating would reflect this change, and also, perhaps, the patients' desire to appear to be complying with physician advice. Scales and questionnaires are notoriously susceptible to social desirability factors, and there seems no reason to believe that this factor is not operating in the heart patients. Indeed, it is interesting to speculate how much of the apparent lack of self-reported Type A behaviour is due to actual behavioural change, and how much to this social desirability factor. Consistency of the TABP over time is still a controversial subject, and an expectancy to find consistency following an MI would depend on whether one took a trait perspective of coronary prone behaviour, or rather favoured a coping response framework (see section 1.2.5).

The problem of social desirability might also occur in the self-rating of the cholesterol patients. As results have shown (TABLE 5.10), the cholesterol patients have a better understanding of their condition than the control patients. Several cholesterol patients mentioned that they had "read up" on cholesterol, and also other aspects of coronary disease, such as TABP. One patient, a male company director of 50 years of age, said:

"I always used to worry at things at work. I was an A type person, no doubt about that. But I'm able to accept things more now."
the above patient appeared to be, it is interesting to consider whether there would be any awareness as to the purpose of the self-rating scale; and if so, how this would affect the rating. Is it socially desirable, or socially undesirable, to be a Type A person? As a point of interest, the patient quoted above scored 2.83 on the Bortner scale, indicative of Type B, rather than Type A behaviour.

The findings support the idea of a link between Type A behaviour and raised serum cholesterol levels. The question is whether the link is causal, or linked to other, shared factors. The relative contribution of Type A behaviour and serum cholesterol to heart disease has been proposed as independent of each other (Rosenman et al, 1976, cited in Steptoe, 1981). Van Doornen and Orlebeke (1984), as noted above, seem to be suggesting a somewhat different relationship, with serum cholesterol acting as a mediating factor between stress and Type A behaviour. Does the high level of Type A behaviour found in some people arise as a product of a stressful environment, with a mediating increase in serum cholesterol, or do Type A individuals seek out challenging environments? Bergman and Magnusson (1986) carried out a study in Sweden which indicated that scores on Type A behaviour at age 13 were related to scores taken 14 years later. If one adheres to the concept that Type A behaviour is fostered by a competitive, goal-orientated environment, then it is clear that such an environment must be present at an early age, rather than being forced on the individual when seeking employment, as has been thought. At school leaving age, it is apparent that there are already "Type A" and "Type B" persons, and the selection of work environment might therefore follow from
one's disposition. However, raised serum cholesterol in many cases is a product of genetic factors (see section 1.1.3.3), and thus raised cholesterol levels can be present from a very early age. It could be suggested that raised serum cholesterol at early ages pre-date the imposition of a Type A environment, and could, perhaps, play a part in forming the physiological attributes necessary for a person responsive to such an environment. Indeed, the fact that there is a correlation between Type A behaviour at age 13 and age 27 could suggest that the environmental influence in Type A is minimal.

The nature of the cholesterol - Type A link can only be speculated upon at this stage, but it is clear from the present study that such a link does exist.

7.7 Limitations and Assumptions of the study.

All studies have their limitations, and the present study is no exception to that rule. Indeed, one of the study's limitations has already been mentioned: throughout this analysis of the illness process, there is a limitation in that one can only discuss what has been measured. The questionnaire scales are not exhaustive, and therefore other variables which remain unmeasured may be influencing and mediating the illness process. The qualitative analysis of the interviews was one way around such a problem. Here, because of the semi-structured format of the interviews, the patients were able to mention aspects of their illness experience which might not have been tapped by the questionnaire. However, the study is still limited by the fact that the questionnaire was designed to examine a heart
population, and as such generalisation of pronouncements concerning the illness process to other populations must be made with caution. Remember that the focus of research was continually narrowed down through the pilot studies, until the final level of examination was reached. It is entirely conceivable that unnoticed bias in the questions presented to subjects led to certain areas of enquiry being unjustifiably neglected, while other areas received attention beyond merit. The pilot study samples were also quite small, and could easily not be representative of the population from which they were drawn. Thus, the study assumes that the variables chosen for examination are the most important aspects of the illness process for the particular population being considered; and also that the freedom allowed to patients during interview, to speak of areas of concern to themselves, would indicate other components of the illness which should be considered, thus providing a safety net for the study.

A further problem arises when one considers that an assumption is being made concerning the meaning of the scales for the raters. In this study, discrepancies in rating have been taken as evidence of perceptual disparity: an assumption is made that the different raters see the same thing, and evaluate it differently. But one could just as easily argue that the raters, when given the same label, perceive a different meaning. As such, the difference in rating would correspond to a discrepancy in meaning, rather than a discrepancy in evaluation. Such an occurrence is distinctly possible when one set of subjects is a "specialist" group - in this case doctors - and another set "lay" persons - the patients.
Turning to the participants of the study, as indicated in section 4.1, the patients were selected for the study by the clinic or ward staff. There is a possibility that the doctors were working to some criteria when they selected the patients; perhaps some patient characteristic which, ultimately, would bias the results of the study. Although this sounds plausible, in practice it is unlikely. The clinics and hospital were very busy, as has been mentioned frequently, and doctors would usually allocate to the experimenter the first patient available who conformed to the requirements of the study. In a similar manner, it could be suggested that the doctors would be on their best behaviour with selected patients, paying particular attention to their needs, and making sure that communication between themselves and the patient was of a high quality. However, it was a frequent occurrence that a doctor would complete his examination of a patient before becoming aware of the experimenter’s presence at the clinic, and only then would the patient be allocated to the study. Furthermore, each illness group had a "head" doctor, who would attempt to ensure that the study ran smoothly. If no patient had been allocated after a certain period of time, this doctor would go round the other doctors, and try to "rustle up" a patient. Given such circumstances, the doctor currently examining the selected patient would scarcely be able to prepare himself in order to make a good impression on the patient. Thus, although these aspects of the study could be improved upon, it is unlikely that there is any resultant bias in the study.

Of more importance is the fact that the doctors in this
study cannot be held to be representative of doctors in general. Throughout this study, labels such as "doctor" and "physician" have been used in a very broad sense, and interchangeably. However, there are differences among doctors, as has been pointed out (section 1.4.3), and it is not possible to generalise from one branch of medical practice to another. Similarly, although there was considerable variance in the patient sample in terms of demographic characteristics, the samples are not representative of the general illness populations at large. Furthermore, all the patients are from the West of Scotland, and it is not safe to generalise this study's findings across national and cultural boundaries.

Finally, the control group in this study was selected so as to represent a "general" illness population. The main task of the study was an investigation of the psychology of heart disease, and as such the presence of illness itself had to be controlled for in order for the specific effects of heart disease to be revealed. A third, specific illness group could have been selected, but would not have served so well as a control, since comparison between the three groups would not have eliminated the simple fact of illness so thoroughly. However, there is no "typical" illness population. Therefore, although the presence of illness can be controlled to an extent, the nature of the illness comparison can not be said to be completely valid, nor invalid, when trying to generalise the results of the present study.

On a general note, the problems encountered in the present study are probably typical of those found by researchers in the health
field. There is an intrinsic problem in being a psychologist within a medical environment, in that while the majority of doctors perceive the psychologist as something "alien" from themselves (witness the study by Streit-Forest and Laplante, 1983), patients have a tendency to perceive the psychologist as equal to a doctor. The interviewer in the present study was frequently addressed by interviewees as "Doctor", regardless of the fact that he wore no "white coat", or carried any other medical equipment. Since the way in which a person responds to another is determined to an extent by the reciprocal role perceptions involved, it is clearly an important issue that when carrying out an interview in a medical environment, the status of the interviewer is made plain. The information received by the interviewer in the present study might have been of one kind if he was perceived as a doctor, and of another kind should he be perceived as an impartial "confidant".

This leads to an acknowledgement of the intrinsic "invalidity" of information gained within a medical environment. Many studies attempt to assess emotional reactions to a medical crisis by administering interviews or questionnaires in a medical environment, and then generalise findings of emotional state to all situations, regardless of environmental context. Clearly a home environment is very different from a medical one, and emotional state will be influenced accordingly. Ultimately, the information gained within a medical environment might apply only to that temporary situation, and have no bearing on external events. To overcome such a problem, the present study tried to assess emotional state in the home environment. Yet once again,
to obtain the information required, the medical environment must penetrate the home world of the patient. The present study indicated that there was no overall effect of monitoring patients for the interval between first and second interview. But whether the fortnightly reports accurately measured the patients' emotional state is debatable. Quite simply, one can expect a patient to be responsive, in some form or other, to the presence of medicine, whether that presence be in the shape of a doctor, or a clinic, or even a questionnaire. Assessing the patient's state at that moment may result in inaccurate information, if the investigator's purpose is to extend his study's findings so as to make pronouncements about other environments.

7.8 Conclusions, and Implications of the study.

7.8.1 Study Findings.

This study had three main aims. The first aim was to further the understanding of the psychological aspects of heart disease. In this aim, it is to be hoped the study has added to our awareness of how heart patients, both pre- and post-infarction, differ from a general illness population. Heart and cholesterol patients involved in this study, were found to have better understanding of their condition, better communication with their doctor, and take more responsibility for their health, when compared to general outpatients. On all three of these elements, the cholesterol group was shown to rate higher than the heart group. In terms of patient coping, the cholesterol group scored significantly higher than the heart and outpatient groups. The crucial variable for coping appears to be the role of the family.
For the cholesterol group, family participation in the lifestyle restrictions caused by the condition served as a source of strength for the patients. Those patients with family encouragement emphasised the benefits gained as a consequence. On the other hand, for the heart and outpatient groups, families tended to be a source of tension and strain for the patients. This finding implies that the role of the family as a mediator in the illness process should be examined more closely.

Additionally, the findings of this study suggest that patients who are biologically at risk of heart disease—the cholesterol patients—are also psychologically at risk, through coronary prone behaviour. Although no light could be thrown on the nature of the cholesterol—TABP link, the present study emphasises the importance of pursuing a course of study which neglects neither the psychological nor biological side of heart disease, but attempts to integrate the two spheres.

The second aim of the study was to consider the ways in which doctor and patient perceive the illness process. To this end, the study has indicated large differences in doctor-patient perception. With regard to patient coping, responsibility, understanding, and communication, doctor and patient are disparate, across illness conditions, in the degree to which patient behaviour is assessed. With regard to other aspects of the illness process, however, doctor-patient perceptual discrepancy is condition-dependent. For example, there is little perceptual discrepancy concerning compliance in the cholesterol group. Thus, while patients and doctors appear to assess certain aspects of the illness process at different levels regardless of
the nature of the condition, other elements of the illness process, such as compliance and perceived severity, are seen by patient and doctor in terms of the condition to which they apply. As such, different cognitive strategies may well be applied by patient and doctor in their interpretation of the condition, leading to interpersonal and illness group differences.

The third aim of the study was to examine the illness process over time. Compliance and coping were found to be correlated over time, in both the cholesterol and outpatient groups. For the heart group, coping was negatively correlated to upset. The suggestion is that when high levels of upset are initially present for an illness condition, the patient perceives coping in terms of his emotional response to his condition. However, for conditions which impinge less on the patient’s emotional life, coping is perceived more in terms of one’s adaptation to lifestyle restrictions. Such a distinction in the concept of coping has been reported in the literature (Mayou, 1984b). Heart and outpatient coping was correlated over time, illustrating the importance of overt symptomatology (present for acute conditions) in coping behaviours.

Finally, although the elements of the illness process examined in this study were not exhaustive, the findings have implications for the concept of illness behaviour. The idea that the physical severity of the illness, as assessed by doctor or patient, has little relationship to the psychological response to the condition, is supported. However, viewing illness behaviour as a single continuum appears a simplification of its true complexity. The present study suggests two constellations of behaviours, both related to patient coping. Compliance and
satisfaction form one cluster, with understanding of the condition, responsibility taken for health, and patient–doctor communication, forming the other cluster. Coping therefore appears central to the illness behaviour network, and because of its relationship with other behaviours, researchers wishing to examine coping behaviours would be well advised to adopt a multivariate approach.

7.8.2 Practical Implications.

The role of the family has been found to be of great importance with regard to patient coping. Researchers have frequently attempted to link the role of the family - often labelled social support - to patient rehabilitation, and general trends in health and illness. Homecoming depression subsequent to MI has been associated with family problems (Degre-Country and Grevisse, 1982), and superior compliance has been found in families with a supportive atmosphere (Sherwood, 1983). An important aspect of family support in times of illness was noted by Flowers (1977, cited in Caplan, 1979), who suggested that the social support that a patient receives may be as much a product of the patient’s health as a determinant of that health.

If the purpose of psychological intervention in patient rehabilitation is to maximise patient adaptation and coping, and minimise stress, then involving the family in the illness process would seem to be a logical step. A review of psychological intervention subsequent to medical crisis (Mumford, Schlesinger, and Glass, 1982) suggests that patients provided with information and emotional support have a better outcome than patients who
receive routine medical care. At this stage, some form of family participation during doctor-patient consultation, for patients encountering problems with their condition, might be advised.

When the illness population attends an outpatient clinic, it should be remembered that frequently relatives attend with the patient, and the opportunity which this gives for family involvement should be recognised. When the patient is ward-bound, relatives visiting the patient could be addressed concerning the problems that are likely to be encountered once the patient returns home. Doctors frequently do take relatives aside for a quiet word, and if the consciousness of doctors could be raised in regard to the importance of the role of the family, then perhaps doctors, confronted with problem patients, might take this option more often. It is unlikely that all patients' families could be involved in the illness process in this way, because of the immense increase in workload that would result.

But there is certainly room for counselling or social work intervention on a broader scale than occurs currently. When counselling patients, thought should be given to the different elements of the illness process which appear linked to patient coping. In this way, patients should be encouraged to read up on their illness, to be more responsible for their condition, and to engage actively in communication with their doctor. The overall picture, indeed, suggests support for the notion that an active patient orientation, with the patient taking responsibility for his health, aids rehabilitation (Wallston et al., 1976; Koslowsky et al., 1978).

When considering the cholesterol patients, it seems clear that the physicians at the lipid clinic may be aware of only one
side of the problem they face. While treating the individual for raised serum cholesterol, the importance of Type A behaviour may go unnoticed. If, as is suggested, both risk factors produce independent, though cumulative, effects on coronary disease, then it is clearly important that steps are taken to additionally treat TABP. While screening procedures are quite adequate in the degree to which individuals suffering from raised cholesterol are picked up, there is as yet no screening procedure whereby Type A patients can be revealed. The evidence from the current study suggests that the lipid clinics themselves deal with a substantial number of such people, although they are unaware of this fact. Considering the increased risk of heart disease that such people are theoretically under, by issuing a quick and accurate scale such as the Bortner scale, at a treatment session, additional risk to individuals could be uncovered and acted upon.

To maximise patient coping in post-MI patients, the findings of the fortnightly reports suggest that further attention must be paid to minimising the emotional upset of heart patients over the first weeks subsequent to MI. The present study does not support the notion that heightened anxiety increases compliance, as theories of fearfulness (Leventhal, Singer, and Jones, 1965) would suggest. Rather, reduced anxiety leading to better patient coping might enable patients to better respond to doctor advice. Attention to the important role of the family, as suggested previously, might help in this cause.

Compliance, the major problem behaviour in health research, appears somewhat simplified as a result of the findings of the present study, in the sense that the only element, out of all
those assessed, which was found to be linked to compliance, was patient satisfaction. Thus, patient understanding, and perceived severity of illness, for example, appear to have no role to play in how well a patient adheres to treatment. Much research has emphasised the importance for compliance of the information given to patients by doctors (e.g., Svarstad, 1974, cited in Becker, 1979), but few have additionally considered the relationship between doctor-patient communication and patient satisfaction (Anderson, 1986). The present study suggests that it is not so much what the patient is told, nor how he is told, but rather that the patient is satisfied with the medical environment (using the term "environment" in its broadest sense) whether or not he is told. Calnan (1983) has shown that the decision to seek help for an illness depends not just on an individual's health knowledge, but also on the circumstances and the contexts in which decisions are made. Recent research (Kindelan and Kent, in press) suggests that tailoring the information to suit the needs of the patient has little effect on patient satisfaction. It is not the intrinsic properties of the information which is important to the patient, but rather the nature of the environment in which the information, if given, is received. This is of great importance for field research, which has been geared toward increasing patient awareness and comprehension. Indeed, the Government is currently spending vast amounts of money in an attempt to raise public awareness of the consequences of AIDS. The present study suggests that such a programme could be a waste of money, since the notion that increased awareness leads to required changes in behaviours is not supported.

Unfortunately, simply saying that increasing patient
satisfaction is likely to lead to an increase in patient compliance does not really help researchers much. Firstly, it is very hard to tell whether or not a patient is satisfied (Merkel, 1984, found that there was no correlation between doctor-rated patient satisfaction, and the patient's own rating). Secondly, there is, as yet, no accepted definition of what constitutes patient satisfaction. The only clue that the present study presents, is that patients frequently expressed dissatisfaction when they felt rushed by their doctor, or when confronted with a new doctor as opposed to their usual physician. The indication is that, for the patient, the consistency of the doctor-patient relationship is important, perhaps leading to a build up of trust, and the feeling for the patient that the doctor is truly interested in him as a person, rather than just another "case". As Caplan (1984) noted, the patient is less concerned with the doctor's skills as a physician than the doctor is himself.

Doctors should be aware that, apart from patients suffering from long-term conditions, most patients which they encounter will not share their definition of "compliance". The difficulty remains how to understand the patient's point of view. Studies suggest that, when the meeting of doctor and patient becomes more oriented toward the patient's needs, there is an accompanying increase in reported compliance, there are better pill counts, and greater patient satisfaction (Stewart, 1984).

7.8.3 Future Research.

As mentioned above (7.8.1), the role of the family in patient coping seems to be of great importance, and research into ways of...
improving patient coping through family counselling would appear to be necessary. Simply involving the family in discussion with the doctor could improve patient adaptation, and initial research should be geared toward assessing what kind of family involvement gains the best results, and what kinds of health problems are most likely to benefit from psychological intervention of this form. It may be that all that is required is ten minutes chat with the doctor. Alternatively, in-depth therapy with experienced counsellors may be called for, and clearly such a programme would only be available for patients and families with severe interpersonal and health problems. Research should attempt to ascertain if a two-tier system of psychological intervention is the most effective. Doctors could be encouraged to bring members of the family into discussion of health matters at all available opportunities. This would not necessitate any extension of the training doctors receive at present. For more serious health matters, where the role of the family has been found to be of considerable importance, psychologists trained in family therapy would appear to be essential, since only such broad experience could deal with the likely tensions that would arise as a result of the changed circumstances and roles subsequent to serious illness.

Research into the cluster of behaviours associated with patient coping should be geared toward increasing coping behaviours through improving patient understanding and doctor-patient communication, and through encouraging patients to take an active role in their health management. The "passive" patient is a long-standing symbol of medical practice, and the present study suggests that maintaining such a patient role is
detrimental to patient coping. Research should clarify the relationship between patient responsibility for health and patient coping in times of illness. The overall effect of encouraging family involvement during illness episodes might be to make the patient less "doctor-centred", and more "self-oriented". In this sense, increased family involvement may be intimately related to increased patient responsibility for health.

For cholesterol patients, clearly the nature of the cholesterol - TABP link needs further research. First, the robustness of this proposed link would have to be tested in divergent populations. Secondly, any third variable which might mediate the link would have to be tested for. If there is no third variable, then a programme of psychological counselling could be started to aid patients in reducing their Type A behaviour. It is doubtful that doctors, in the course of a morning's clinic, would have the time available to carry out such counselling. Rather, patients found through quick questionnaire administration to have a high Type A score, as well as high serum cholesterol levels, might be approached as a sub-population requiring emergency intervention. Should the reduction of Type A behaviour lead to a reduction in serum cholesterol levels, then clearly medication costs could be cut and a new method of combating the risk of heart disease could be assimilated into the current programme.

Distinctive patterns of doctor-patient discrepancies in perception have been generated by the present study, and research from this point might assess the reliability of the patterns.
Patient-doctor discrepancies in perception have been uncovered before. For example, Weyrauch (1984) found that doctors and patients agreed about the reason for the patient's decision to see the physician only 40% of the time. The important aspect of the present study is that there is a clear implication that while certain aspects of patient-doctor perception are disparate regardless of condition, other aspects of perception are condition dependent. Should such trends emerge in other illness populations, then clearly an important aspect of the illness process will have been identified. If such a stage is reached, the next progression would be to determine if patient-doctor discrepancies in perception influence patient outcome. If this is found to be the case, then research is required to find, firstly, if changing the views of doctor and patient is practically possible; and secondly, whether the resultant perceptual changes bring about corresponding changes in treatment outcome.

Attempts to increase patient compliance have been made on numerous previous occasions. Researchers in future might like to concentrate on increasing patient satisfaction. A problem here might be what constitutes a "satisfied" patient, and clearly a better understanding of patient expectations and needs is necessary before a concept of patient satisfaction can be reached. A similar problem arises when one considers the many methods of measuring compliance. First, research should attempt to increase patient satisfaction through altering the manner of doctor-patient interaction systematically (e.g., more/less information, more/less non-medical discussion, more/less questions of the patient, more/less time for patient to talk, and
so on), and measuring patient satisfaction through self-report inventories, allowing the patient space to express opinions about how the interaction could be improved. Patient compliance could then be monitored. Initially, conditions in which compliance can be easily measured (e.g., through pill counts, specimen submission, and so forth) should be explored, to see if there is a robust link between patient satisfaction and compliance. Subsequent to this, other conditions should be considered, to ascertain the extent to which the finding can be generalised.

Finally, on a more theoretical level, the illness behaviour concepts offered to this point in time receive little support from the present study. Research should be directed toward new studies, designed to examine further the dimensionality of illness behaviour: that is, how specific components, such as patient understanding and patient coping, relate to other components, such as perceived severity. The present study suggests that there exist discrete elements within the illness behaviour network, and future research would need to assess the reliability of the present study, and also measure how the manipulation of individual components of the illness behaviour network influence the overall pattern of the illness process.
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APPENDIX 1: Interview schedule for pilot study (1).

Section 1: Reaction to Illness.

1. Are you very surprised that you’ve suffered a heart attack? (why/why not).

2. Could you tell me what sort of things you consider contributed to your heart attack?

3. If you had to pick just one factor, which in your opinion was the main cause of your heart attack, what would it be? (why this particular factor).

4. Do you feel you could have prevented your heart attack, as you look back on things now? (in what way).

5. What aspect of your illness do you find most occupies your thoughts? (what do you think about this aspect of your illness).

Section 2: Personal Attitudes.

6. How much do you do for yourself at home?

7. Do you have a lot of responsibility at work? (do you mind this responsibility).

8. How much do other members of your family depend on you?

9. How much control do you feel you have over the events which most directly affect you? (why is this).

10. Do you sometimes take risks, in any sort of situation?

11. Do you feel that you have any difficulty when it comes to making important decisions? (why do you think you do/why not).

12. Do you find you can cope quite well with problems that arise - that you can deal with them satisfactorily?


14. Do you plan ahead or do you tend to make decisions on the
15 If you are successful at something, is it usually a matter of hard work or just good luck?

Section 3: Illness and the Future.

16 Do you think your illness will affect your family in any way? (why is this).

17 Have you had any thoughts about how your style of life might have to change? (in what ways).

18 Have you given any thought about your return to work? (what particular things have occurred to you).

19 To what extent do you think your own actions will determine how well you recover from your heart attack?

20 Who else, or what else, if anything, will play a part in your recovery?

21 Had you made any plans for yourself, before your illness, which you now feel will have to be changed, or even forgotten?

22 Has your illness caused you to reconsider your attitudes to any aspect of your life - or your view on any aspect of life in general? (why do you think this is so).
APPENDIX 2: Interview schedule for pilot study (2)

A: Knowledge of Condition.
1. How long have you been coming to this clinic, or one like it?
2. How did you first find out about your condition?
3. Did you know much about your condition beforehand?
4. What was your first reaction on finding out about your condition?
5. Could you try and explain to me what you understand your condition to be?
6. How mild or serious do you think your condition is?
7. Do you have any idea why you should have this condition?
8. What, in your opinion, could have caused the condition?
9. Do you think you understand your condition?

B: Effect of Clinic and Medical Supervision.
1. What are your feelings about attending this sort of clinic?
2. Have you found coming to the clinic helpful?
3. Could you say whether you always understand what the doctor is saying to you?
4. Do you feel you can talk quite easily to the doctors?
5. What sort of orders and recommendations do you receive from the doctor about your condition?
6. Do you find it difficult keeping to what the doctor tells you to do?
7. What aspect of the doctor's orders do you have the most difficulty in following?
8. Do you think everybody would have the same difficulty?
9 Could you say whether you always tell the doctor if you don't keep strictly to his instructions?

C: Health Value.
1 How important to you is your health?
2 Do you find you think about your health quite a lot?
3 How often would you say your interest in your health causes you to alter your daily routine?
4 What sort of things do you do to try and stay healthy?
5 Would you say that you've given up quite a lot for the sake of your health?

D: Attribution.
1 Do you think your health in general is within your personal control?
2 What about your particular condition? Is that something you feel you can control?
3 Do you hold yourself responsible for your health?
4 How important do you consider doctors are for keeping you healthy?
5 Do you blame yourself at all for your condition?

E: Personal Influence
1 Do you worry a lot over your condition?
2 Do you ever become depressed because of your condition?
3 Is there any aspect of your condition in particular that upsets you most?
4 Does your upset ever get to the stage where it disrupts your
everyday life?

5. Do you feel that your way of life is restricted by your condition?

6. Do you ever feel that you would prefer to suffer the consequences and live life the way you really want to?

F: Social Influence.

1. Would you say that your family is affected by your condition?

2. What aspect of your condition causes the most problems for your family?

3. Do any of your relatives suffer from the same condition?

4. Do you feel you get support from your family?

5. Do you think you would get more or less support from your family if they did/did not suffer from the same condition?

6. Does your condition cause you any inconvenience in your social life?

7. Is your working life disrupted by your condition?
APPENDIX 3: Patient Interview (Main Study)

A: Details of Attendance.
1 Age
2 Employment
3 Condition (if outpatient)
4 Duration of awareness
5 Duration of treatment
6 Duration of clinic attendance

B: Illness Perception
1 Extent of understanding of illness
2 Awareness previous to diagnosis
3 Perceived cause
4 Prevention possible with hindsight
5 Perception of severity
6 Perception of extent of understanding

C: Illness effect
1 Initial reaction
2 Emotional response
3 Perception of response severity
4 Cause of greatest emotional upset
5 Restriction of lifestyle
6 Alteration of lifestyle
7 Alteration of employment
8 Affect on family
D: Health Orientation
1. General view of personal health
2. Health activities
3. Perception of sacrifice for health
4. Perception of general health control
5. Perception of control over condition
6. Perception of responsibility

E: Doctor - Patient Relations
1. Usefulness of clinic
2. Ability to communicate with doctor
3. Advice from doctor
4. Understanding of advice
5. Perception of information quantity
6. Perception of doctor's assessment

F: Compliance
1. Details of treatment
2. Problems with compliance
3. Cause of greatest problem
4. Confession to doctor
APPENDIX 4

SECOND INTERVIEW SCHEDULE.

A Compliance

B Illness Perception
1 Details of current treatment
2 Perceived extent of condition
3 Problems of compliance
4 Consultation with doctor
5 Current understanding
6 Perceived cause (opinion change)
7 Perceived control over condition for six month period

C Illness Effect
1 Course of condition over past six month period (emotional impact)
2 Restriction of lifestyle
3 Alteration of lifestyle
4 Effect on family/work

D Health Orientation
1 Description of general health over six month period
2 Perceived cause (change of opinion)
3 Activities to promote health

E Doctor-Patient relations
1 Current impression from doctor
2 Change in doctor's assessment
3 Medical involvement in previous 6 months
4 Change in opinion concerning medical supervision
Compliance

1 Details of current treatment

2 Details of treatment over previous six months

3 Problems of compliance

4 Consultation with doctor
**APPENDIX A  PATIENT'S QUESTIONNAIRE**

1. How would you evaluate your understanding of your condition?
   - good understanding
   - poor understanding

2. What is your opinion of the extent of your condition?
   - mild
   - severe

3. How do you believe you are coping with your condition?
   - coping well
   - coping poorly

4. Do you think your health is your own responsibility, or do you think the doctor is responsible for your health?
   - own responsibility
   - doctor's responsibility

5. What is your opinion of the communication between yourself and the doctor and nurses?
   - poor communication
   - good communication

6. What is your assessment of the ward?
   - unsatisfactory
   - satisfactory

7. How are you managing with the treatment prescribed to you by the doctor?
   - manage treatment poorly
   - manage treatment well

8. What do you think is the doctor's assessment of your condition?
   - severe
   - mild
## Doctor's Questionnaire

### 1. What is your opinion of the patient's understanding of his/her condition?

| Good understanding | Poor understanding |

### 2. What is the patient's opinion of the extent of his/her condition?

| Mild | Severe |

### 3. What is your assessment of how the patient is coping with his/her condition?

| Coping well | Coping poorly |

### 4. In your opinion, does the patient see responsibility for his/her health, as lying mainly with himself/herself, or mostly with the doctor?

| Own responsibility | Doctor's responsibility |

### 5. What is your evaluation of the communication between yourself and the ward staff, and the patient?

| Poor communication | Good communication |

### 6. What do you think is the patient's assessment of the ward?

| Unsatisfactory | Satisfactory |

### 7. What is your opinion of how the patient is managing with the treatment prescribed to him/her?

| Manages treatment poorly | Manages treatment well |

### 8. What is your assessment of the patient's condition?

<p>| Severe | Mild |</p>
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APPENDIX A
FORTNIGHTLY REPORT.

1 Have you seen a doctor in the past fortnight?

YES NO

If YES, could you please explain the reason you saw the doctor?

2 Have you thought much about your health this past fortnight?

YES NO

If YES, could you please explain the reason why your health has been on your mind?

3 Have your opinions concerning your health changed over the past fortnight?

YES NO

If YES, could you explain just how your opinions have changed, and what you believe caused this change?
Have you been upset or worried by your health over the past fortnight?

YES           NO

If YES, could you explain why you have been upset or worried?

If YES, could you explain what you believe caused the problem?

Could you please rate how upset or worried you were, by making a mark on this line, which runs from 'slightly upset' to 'very upset'.

slightly upset      | very upset

Have you been on medication this past fortnight?

YES           NO

If YES, have you had any problems keeping to the medication?

If YES, could you explain what you believe caused the problem?

Have you been on a diet this past fortnight?

YES           NO

If YES, have you had any problems keeping to the diet?

If YES, could you explain what you believe caused the problem?
7 Has the doctor recommended any other course of treatment, which you have been on this past fortnight?

   YES  NO

If YES, have you had any problems keeping to this treatment?

   YES  NO

If YES, could you explain what you believe caused this problem?

8 Could you please rate how well you believe you have followed the doctor's advice and recommended treatment, overall, by making a mark on this line, which runs from 'followed advice poorly' to 'followed advice well'.

followed advice poorly

followed advice well

9 This report has asked you several questions about your health, including whether your opinions concerning your health have changed, whether you have been upset by your health, and whether you have been keeping to the treatment recommended for your health. Taking all this into account, could you please rate your opinion as to how you have coped with your health this fortnight, by making a mark on this line, which runs from 'coped well' to 'coped poorly'.

coped well

coped poorly
Now that you have read the interview, I would like to summarize your assessment of the patient and ask if there is anything else concerning your health, which you feel is important, and which you'd like to mention?

1) Factual details
2) Patient's perception of illness
3) Patient's reaction to illness
4) Patient's health orientation
5) Doctor-patient relations
6) Patient compliance.

Thank you very much for your help.
Now that you have read the interview, I would like you to summarize your assessment of the patient in 6 sections:

1) Factual details
2) Patient's perception of illness
3) Patient's reaction to illness
4) Patient's health orientation
5) Doctor-patient relations
6) Patient compliance.
1: FACTUAL DETAILS.

In this section, you should describe the patient's perception of their condition, the perceived severity of their condition, and how they found out about their condition.

Duration of patient’s awareness of condition:

How the patient found out about condition:

Duration of treatment for condition:

Treatment received (diet, medication etc.)
2: Patient's Perception of Illness.

In this section, you might like to record your assessment of how well the patient understands his/her condition; the perceived cause of illness; the perceived severity of illness; whether the patient feels he/she could have prevented the illness, and so on. The emphasis is on how the patient perceives his/her condition.
3: Patient's Reaction to Illness. In this section, you might detail the patient's initial reaction to his/her condition; the overall emotional reaction to the condition and the severity of the reaction; any restriction or alteration to lifestyle as a result of the condition; affect on family, and so on. The emphasis is on the effect the condition has had on the patient's life.
4: Patient's Health Orientation.

In this section, you might note whether the patient considers himself/herself healthy, and takes steps to promote his/her health; does the patient believe he/she has some control over his/her general health, and particular condition; where does the patient see responsibility for his/her health and condition as lying, and so on. The emphasis is on whether the patient believes he/she can influence his/her health and condition, or not.
5: Doctor-Patient Relations.

In this section, you might record how the patient felt about the clinic; whether he/she seems able to communicate with doctors; whether the patient feels he/she has been given sufficient information and care; and the impression you receive of how the doctor has evaluated the patient's condition. The emphasis is on the quality of interaction between the doctor and the patient, and how the patient feels about the medical care he/she has received for his/her specific condition.
6: Patient Compliance.

In this section, you might detail how well the patient is keeping to the treatment prescribed; what is causing the problems, if any; and whether the patient reports any of the slip-ups on treatment to the doctors, and so on. The emphasis is on how well the patient is complying with the advice given to him by the doctor.
APPENDIX 10 Factor Analysis by person rating.

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