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MULTIFACETED ASPECTS OF STRESS IN THE POLICE SERVICE

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&

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PART 1

STATE OF THE ART AND LITERATURE REVIEW

CHAPTER 1

STRESS - DEFINITIONS AND RESEARCH PARADIGMS

HISTORY OF THE STRESS CONCEPT

The concept of stress is certainly not new. Even so, it is only since the beginning of the twentieth century that the social and biological sciences have investigated the effects of stress on the physical and mental health of people. Hinkle (1973), in reviewing the evolution of the stress concept, refers to a lecture of Sir William Osler given in 1910 as being an example of the beginning of the "stress and disease" acknowledgement. In that particular case, Osler assumed a causal relationship between hard work, stress, and strain, with those of his patients suffering from angina pectoris.

Early stress research was carried out predominantly on non humans. In the 1920s, the physiologist Walter Cannon began to use the term "stress" in relation to some of his laboratory animal experiments in the "fight or flight" reaction. Both Hinkle (1973) and Selye (1976) suggest the concept was originated by Cannon as a result of his initial observations of the "homeostatic" properties of living organisms in their ability to restore to their original state when acted upon by external forces or disturbing agents. Cannon noted certain reactions by the adrenal medulla and the sympathetic nervous system when humans and animals were exposed to a variety of external conditions. When these physiological changes were occurring, *eg*, emergency epinephrine secretion, Cannon stated such organisms were "under stress".

However, it was not until the mid 1930s and early 1940s with the work of Hans Selye (1936) (cited by Selye 1976) that these types of phenomena were scientifically connected as individual manifestations of a single coordinated stress syndrome. Selye observed that thymic olymphatic involution, adrenal enlargement, and gastrointestinal ulcers were all signs of damage to the body when under attack. In 1976, Selye (p5) posited that these three physiological changes 'become the objective indices of stress and the basis for the development of the *entire stress concept*'.

This syndrome, according to Selye (1936), was produced by diverse noxious agents and became known as the biologic stress syndrome or the General Adaptation Syndrome (GAS). The GAS is, claims Selye, an indication of the finiteness of the body's adaptive capacity. The fact that exhaustion always results in a body subjected to constant strain is considered evidence of the claim.

The GAS for Selye and his followers was a "specific syndrome" indicating the presence of stress in an organism (Hinkle, 1973; Selye, 1976). Selye did emphasise, however, that this "specific" syndrome incorporating the pattern of stress reaction, *eg*, changes in thymus, pituitary, adrenals, and gastrointestinal tract, was non specific in causation.

Through the 1940s and into the early 1950s, Harold G Wolff and other physicians asserted that both physical and psychosomatic diseases are influenced by stress. Wolff's original concept of "lifestress" has evolved. Hinkle (1973) points out that in Wolff's first edition of *Stress and Disease* (1950), the nature of stress was discussed without giving a specific definition. However, in the 1968 edition (p4), Wolff states that 'stress is a dynamic state within an organism in response to a demand for adaptation and since life itself entails constant adaptations, living creatures are continually in a state of more or less stress'.

Wolff (1968) claims that noxious stimuli capable of proving detrimental to human health include danger, threats, and life change demands. Although stress reactions are complex, involving the central nervous system, the nature of the stress experienced by an organism is dependant on the meaning of the stimuli for the individual. This meaning is based on a person's past experience, expectations, and innate characteristics.

Unlike Selye, therefore, Wolff failed to explain adequately how the state of stress could be recognised, although both agreed that stress is a biological state within an organism. Hinkle (1973) interprets these as being non-specifically induced in a system although not the result of the direct damaging action of a stressor, *eg*, a noxious agent but, which may exist as a part reaction of a system to a variety of stressors. Although there has subsequently been some confusion over the interpretation of some of Selye's stress theory (*eg*, Hinkle, 1973; Levi, 1971; Selye, 1975, Selye, 1976) through the assumption of an objective relationship between physiological stress and level of stimulation, Selye was the first to scientifically investigate the physiological changes that occur when the body tries to adapt to stress and the concomitant diseases of adaptation which may ensue.

Perhaps, most importantly, Selye and Wolff both laid the foundations of future scientific psychophysiological stress research by their agreement that 'noxious or damaging agents or, the relation of a subject to his society, or whatever else initiated the stress, acted as a stimulus or trigger, and that this trigger induced the organism to elaborate within itself the "state of stress" together with most of the subsequent pathological changes (Hinkle, 1973: 35)'.

DEFINITIONS

There appears to be a great deal of confusion and contradiction in the scientific literature concerning the definition of stress. Indeed, many recent authors (Hinkle, 1973; Kearns, 1973; McGrath, 1970; Sells, 1970) believe it is not necessary to invoke a special variable called "stress".

In discussing the multiple unsatisfactory definitions of stress, Kearns (1973) maintains that investigators define it either as a mechanical model in which external stress causes strain inside an organism or as a descriptor of external stressors which then cause internal stress. McGrath (1970) sub-divides this latter approach into response based definitions and situation based definitions. Basowitz *et al* (1955) criticise both approaches for their shortcomings and inadequacies in explaining inconsistencies, *eg*, individual differences in response to a presumably similar stimulus.

Lazarus (1966) (cited in Levi, 1971) more systematically clarifies the stress definitional problem. That is, stress has been used to signify environmental agents which disturb structure and function, as well as responses to such agents. Lazarus further asserts that it is the three different emphases - physiological, sociological and psychological - which have influenced the discrepancies in definitional and theoretical approaches in stress research.

The physiological referents have their base in Selye's GAS, where stress is defined as 'the state manifested by the specific syndrome which consists of all non specifically induced changes within a biologic system thus stress has its own characteristic form, but no particular specific cause' (Selye, 1975a: 324). In another paper of the same year, Selye, (1975b) attempted to clarify the confusion between stress as both an agent and a result by stating it could be avoided only by the distinction between "stress" and "stressor" and, that the stress syndrome is, by definition, non specific in its causation. Thus, for Selye, stress refers to the state of the total organism under extenuating circumstances whereas stressors are the noxious variables and events in the environment.

PSYCHOSOMATIC

Grinker (1953) and Alexander (1950) developed a psychosomatic model of stress, arguing that if conflicts are not confronted directly, tension will be internally dissipated and flow throughout the bodily systems producing

organic changes. Wolff (1968) has since modified this psychosomatic approach by introducing the protective reaction pattern concept. Unlike the psychosomatic model, Wolff does not see the protective reaction pattern as a chain reaction beginning with feeling states progressing to altered bodily reactions and then to organic changes. Changed behaviour, bodily adjustment, and feelings, according to Wolff, occur simultaneously and in varying degrees.

PHYSIOLOGICAL

There have been numerous studies that have adopted the physiological stress approach first developed as a biochemical model by Selye. The studies which have aimed to isolate specific physiological changes often produced by stressful stimuli have, according to Scott and Howard (1970), fallen into two broad categories. Firstly, those studies which have investigated the effects of stress on such physiological processes as gastric functioning (*eg*, Dunn & Cobb, 1962), and blood pressure (*eg*, Rose & Blackburn, 1968). Secondly, studies researching the relationship between stress and the onset of specific disease syndromes such as cardiovascular disease (*eg*, Byrne & Henderson, 1976).

According to Scott and Howard, the majority of these studies assume the mechanical model of stress - 'stress is viewed as the internal response of the organism to an external load placed upon it by some pathogenic agent, stressor, or life crisis. Stress, in turn, produces distinct pathological changes and certain typical disorders of adaptation (1970: 262)'.

SOCIOLOGICAL

The sociological stress approach, on the other hand, is concerned with the processes involved when a social system or organisation is involved. The sociologist deals with system rules which bind individuals together and the effects on these individuals when social and/or organisational systems are disrupted (Lazarus, 1971). Dodge and Martin (1970), for instance, maintain that the incidence of socially induced stress in a population varies inversely with the stability and durability of social relationships in that population. These ultimately vary with the extent to which individuals conform to patterned and socially sanctioned demands placed upon them. They go on to state that populations experiencing social stress have higher rates of chronic disease, morbidity, and mortality, than non stressed societies. They maintain that incidence and

prevalence of chronic disease in a population varies inversely with the existing degree of status integration and role conflict. Although Wilkins (1974) has questioned the sorts of people Dodge and Martin refer to as having incompatible status (factors such as age, sex, and race, for instance, are not modifiable), Welford (1974) supports Dodge and Martin's theory by citing evidence that underdeveloped countries do have less status ambiguity than developed ones and thus have less chronic disease. Levi (1971) goes further in suggesting that besides disease, other effects of social stress may be found in efficiency, economic wellbeing, personal happiness, and even political tranquility.

Therefore, one type of sociological approach concentrates on the rapid nature of change in modern society; while others, according to Gowler and Legge (1975) (cited in Selye, 1976) attempt a multifactorial approach employing five levels of analysis (individual, role, group, organisation, culture). However, Gowler and Legge believe these approaches still fail to deal comprehensively with the interactive nature of the stress situation *ie*, to adopt a more "dynamic" view of the subject.

PSYCHOLOGICAL

Psychological referents in the area of stress research have been adopted by behavioural scientists as referring to the variables operative in the appraisal of harm or threatened harm (Lazarus, 1971). Mechanic and Volkart (1961) define the behavioural science approach to stress as seeming to be signified by a state of affairs which is characterised by anxiety, discomfort, emotional tension, and difficulty in adjustment.

Mechanic (1962) concerned himself with the social psychology of adaptation. He was interested in investigating relevance of coping behaviour in individuals to situational demands and the "defenses" used in reference to behaviour and thoughts aimed at managing feelings evoked by the situation and the coping behaviour. For Mechanic (1962: 7), stress is defined as 'the discomforting responses of persons in particular situations'.

Dohrenwend and Dohrenwend (1973), on the other hand, have modified Selye's physiological stress model and applied it to studies of the distribution and prevalence of mental disorders in the social environment. They have focused their research on stressful stimuli or situations everyone is exposed to throughout their lives, *ie*, "life events"; their hypotheses being that these stressful life events are instrumental in the development of various somatic and psychiatric disorders. Consequently, according to Scott and

Howard (1970: 263), stress in the Dohrenwend model can be defined as

> 'a state intervening between antecedent constraints and consequent efforts to reduce constraint ... the product of any behaviour in response to pressures, regardless of whether the behaviour is adaptive or maladaptive.'

While there is a positive emphasis on the involvement of the mental apparatus and the psychological and/or behavioural responses to psychological stress, authors such as Lazarus (1971) still view the term stress as referring to the state of the organism rather than the circumstances (*ie*, stress or conditions) to which an individual is exposed. Lazarus (1966) for instance, has formulated a concept of cognitive appraisal and psychological stress or threat whereby stress is not seen as an imbalance between objective demand and the organism's response capability but, as an imbalance between *perceived* demand and *perceived* response capability. Psychological stress or threat therefore, according to Lazarus, implies the anticipation of adverse consequences arising from failure to meet demands - an organism is able to alter the state of stress by: (1) avoiding the consequences, (2) fulfilling the demands (at tolerable cost), or (3) altering the perception of demands of capabilities and/or consequences.

From the preceding discussion it is clear that there is much disagreement over the definition of the stress concept itself, the term stress having been used to signify environmental agents disturbing structure and function, as well as responses to such agents in the different levels of psychological, physiological, and sociological analysis. Many authors (*eg*, Frankenhaeuser, 1974; Lazarus, 1971; Selis, 1970) maintain that there are points of interaction among these different levels of analysis. Lazarus (1971: 53) believes stress should be considered a 'general rubric for a large collection of related problems, rather than a single narrow concept'. In an organisational system, *eg*, a police department, to solely apply Selye's stress adaptation syndrome would mean one would be dealing only with a limited portion of the total problem of society, organisation, stress and disease, *ie*, noxiousness to tissue systems and the adaptation responses of tissue systems. This, according to Lazarus (1971), excludes other stress indices such as psychoses, neuroses, and subsequent character disorders such as alcoholism, suicide, drug addiction, and heavy smoking.

RESEARCH PARADIGMS

We agree with authors such as Cooper and Marshall (1976) who believe that occupational stress can only be

adequately investigated by taking a multidisciplinary approach. That is, by investigating the whole arena of problems - psychological, sociological, and physiological, in which individuals (policepersons) in an organisation (police department) are taxed by stimulus demands up to the limits of their potential ability to adapt. For us, stress is essentially multifactorial and, as suggested by Cooper and Marshall, future research in occupational stress should focus on more than one stressor at a time.

A variety of authors (French & Caplan, 1973; House, 1974; Levine & Scotch, 1970; McGrath, 1970) have adopted a multidisciplinary approach to stress research. All maintain the question to be posed is "not what is stress?" but, rather "what is stress research?" They maintain that emphasis should be changed from expending resources in pursuit of the definition of stress, to consideration of the types of phenomena which have been investigated and labelled under the stress label and how these phenomena are related to one another. They, in fact, suggest that it may be more beneficial to view stress research as a paradigm rather than stress as a concept.

House (1974: 13) aptly summarises five classes of variables necessary in any comprehensive paradigm of stress research:

> '(1) objective social conditions conducive to stress; (2) individual perceptions of stress; (3) individual responses (physiological, affective, and behavioural) to perceived stress; (4) more enduring outcomes of perceived stress and responses thereto; and (5) individual and situational conditioning variables that specify the relationships among the first four sets of factors.'

He (1974: 13) clearly relates these five classes of variables in the form of a model (see Figure 1.1). It is important to note that the arrows coming down from the box labelled "conditioning variables" indicate that social and individual variables condition or specify the nature of these relationships whereas the arrows between the boxes indicate hypothesised causal relationship.

A second paradigm (see Figure 1.2) of stress research of high utility for any police stress research project was proposed by Cooper and Marshall (1976) and claims to account for occupational stressors *per se*. Accordingly, the model has certain limitations but, the approach is highly important as it provides a more comprehensive picture than that depicted at Figure 1.1 regarding variables related to occupational and occupation related stressors.

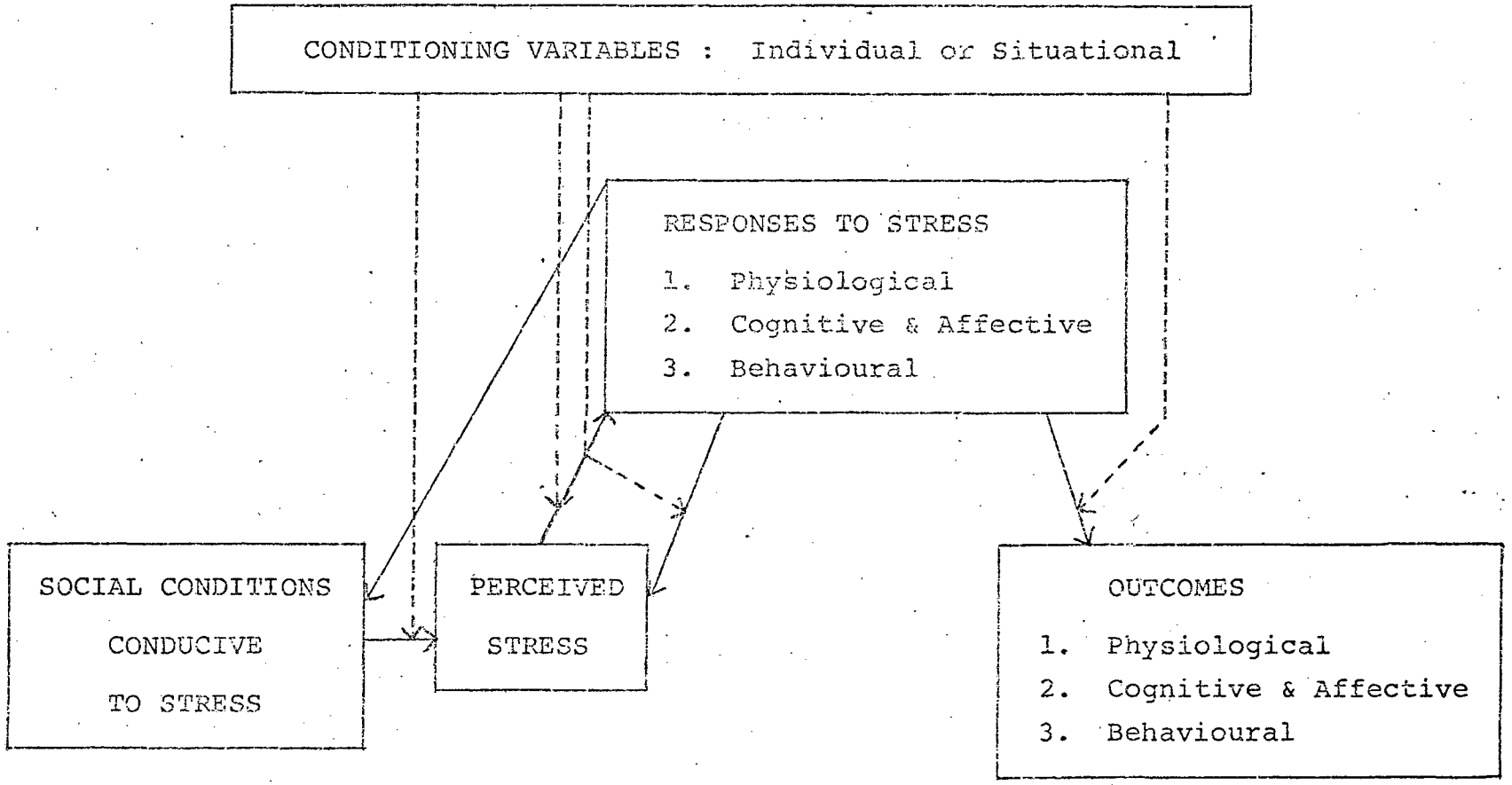


FIGURE 1.1 PARADIGM OF STRESS RESEARCH (HOUSE)

Note: Solid arrows between boxes indicate presumed causal relationships among variables. Dotted arrows from the box labelled "conditioning variables" intersect solid arrows, indicating an interaction between the conditioning variables and the variables in the box at the beginning of the solid arrow in predicting variables in the box at the head of the solid arrow.

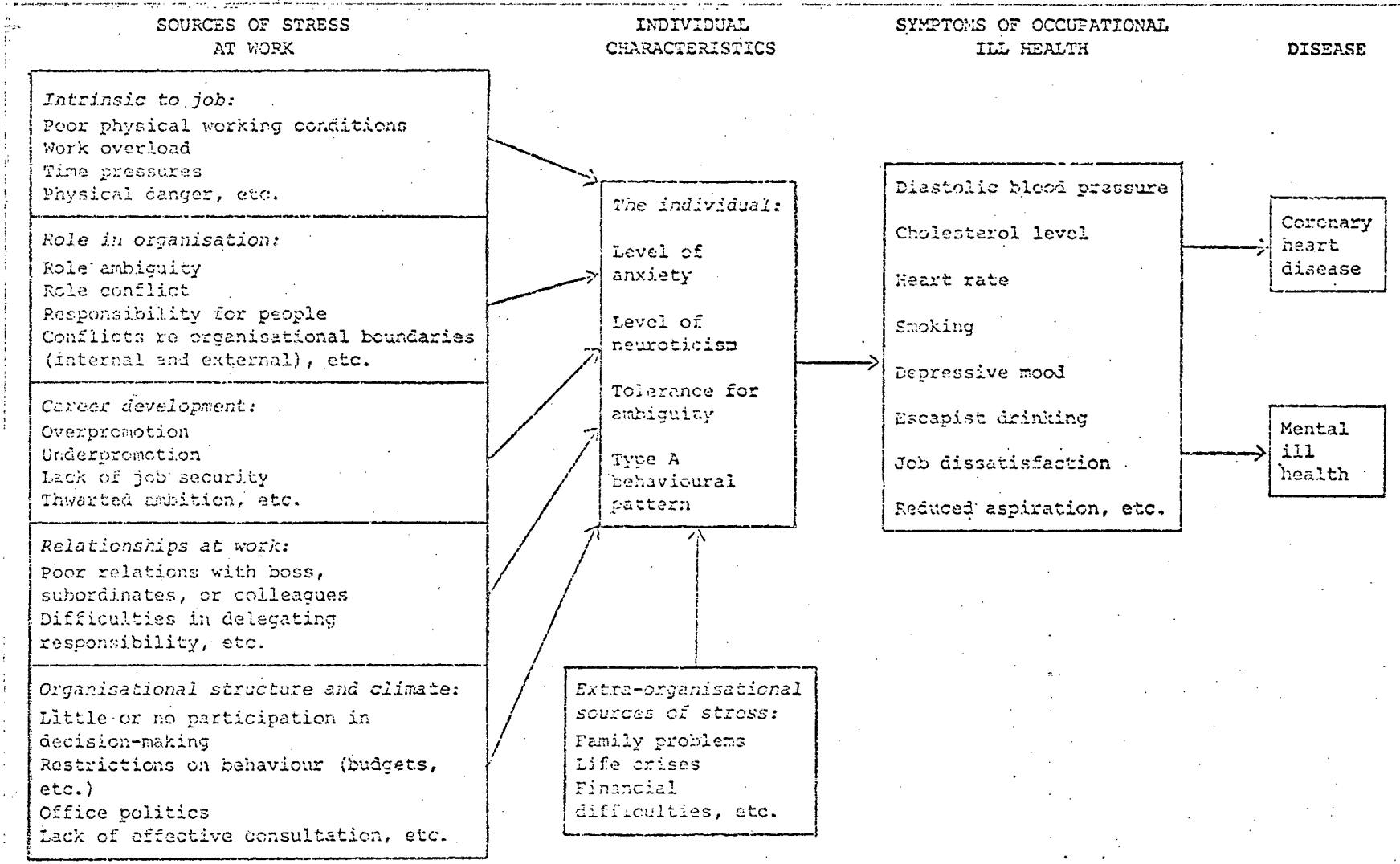


FIGURE 1.2 PARADIGM OF STRESS RESEARCH (COOPER & MARSHALL)

The paradigms of stress research proposed by House (Figure 1.1), and Cooper and Marshall (Figure 1.2) are attempts at developing a truly multifaceted, multi-disciplinary paradigms of the concept of stress. We suggest that these attempts to systematically delineate the dimensions of stress can be integrated into the paradigm presented in Figure 1.3.

Figure 1.3 presents a comprehensive model of stress as an interrelated whole. From this figure one can see that the three major settings for behaviour form an integrated whole of forces which impinge upon and interact with the individual. Thus, the stress from one arena can affect the individual which in turn may affect changes in the amount of stress in relationships in other arenas.

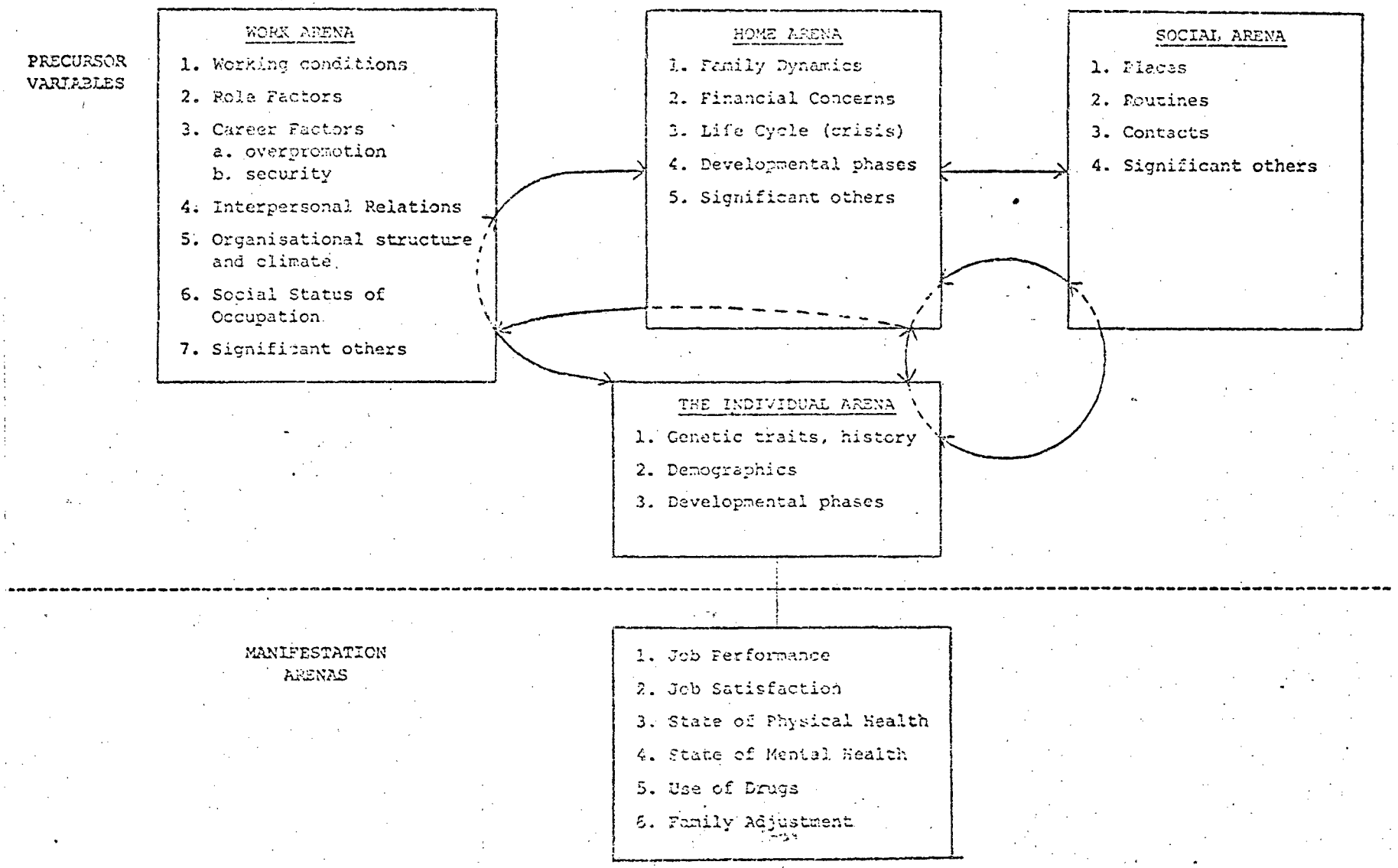
When an individual is stressed in one (or more) of the precursor arenas to a sufficient extent then the stress will manifest in one of the manifestation arenas. The specific nature of the manifestation is, of course, dependant upon a number of variables; but, clearly is an individual-within-context situation. Thus, when exposed to the same apparent stressor, one individual may engage in escapist drinking while another may develop bronchitis. Given that the precursor variables do form an interrelated whole which, when stressed, individuals manifest in various ways; there seems little utility in delineating specific precursor variables to specific manifestation variables. Rather, the utility of the model we propose from our literature review and critical analysis is that it allows for a multifaceted analysis of the "absolute" degree of stress upon individuals.

We believe our model of stress is the most applicable and suitable research approach for Australian police purposes. This belief is largely based on the following reasons:

a. it accommodates, the influence of individual and situational conditioning variables throughout the stress stages. This is of particular importance when trying to ascertain why individuals perceive and cope differently with the same stimuli/situation and can be influenced by such variables as personality, age, and life events,

b. it aims to isolate objective social conditions conducive to stress and this can only be achieved successfully if pressures are also perceived, and

FIGURE 1.3 MODEL OF STRESS



c. besides purely physiological responses to stress, (*eg*, adrenal, hormonal changes), the models also include cognitive/affective and behavioural responses and subsequent outcomes; this is of particular relevance to police stress research as not only are physiological disease outcomes such as heart disease of interest but, also, the cognitive/affective outcomes such as psychosis, neurosis, and subsequent behavioural disorders, *eg*, alcoholism.

This general approach to stress research indicates the following major relevant areas for any review of stress in Australian police:

a. extra organisational sources of stress,
   (1) social and cultural,
   (2) homelife and family, and
   (3) life events,

b. occupational stressors and occupational health,

c. individual different responses to stressors, and

d. physiological and psychological measurements of stress and disease.

This approach enables us to advocate a multi-disciplinary psychophysiological approach to stress experienced by Australian police. For purposes of clarity, the word "stress" is used in this paper only when referring to the state of a total organism under extenuating circumstances rather than as events and variables in the environment.

CHAPTER 2

EXTRAORGANISATIONAL SOURCES OF STRESS

Although our study aims to investigate and isolate the causes and effects of stress in a specific occupational group, *ie*, Australian police, it is important to be aware of many of the extraorganisational sources of stress which can affect the mental and physical health of an individual at work. Indeed, Cooper and Marshall (1976: 22) believe this to be an area of research which had tended to be neglected. They view extraorganisational sources of stress as:

> 'important potential stressors since they act in a feedback loop between work and the outside environment: problems outside work ⟶ affect ⟶ individual at work ⟶ exacerbate ⟶ problems outside work.'

This feedback loop can be understood more clearly by referring to our model of stress (see Figure 1.3). The three major extraorganisational areas which have been isolated as sources of stress and which we intend to discuss in this chapter are: (1) social/cultural factors, (2) family homelife problems,and (3) life events and crises.

SOCIAL AND CULTURAL FACTORS

INTRODUCTION

Research studies that concentrate on social and cultural factors related to stress tend to use incidences of chronic disease and mortality rates as the main stress measurement variables (*eg*, Dodge & Martin, 1970; Levine & Scotch, 1970; Selye, 1976). However, one of the earliest investigations into the forces of social stress was Durkheim's 1898 study of suicide rates. Although his research techniques were comparatively crude, he concluded that suicide was a product of social influences such as religion, sex, occupation, and age, and not due primarily to individual forces (Simpson, 1975).

Today, authors such as Frankenheauser (1976) and Dodge and Martin (1970) view the extent of socially induced stress in a population as being dependent on such variables as status integration, role conflict, frustration, and goal attainment struggles. Frankenheauser (1976) suggests advertising, mass media, and other commercial forces, are common factors in affluent industrial societies and that their interaction builds up demands and expectations (*ie*, overstimulation) in different areas of life which can

effect health. Both Frankenhaeuser (1974, 1976) and Dodge and Martin (1970) maintain that their hypotheses can be substantiated by the fact that affluent industrial societies have higher incidences of chronic stress related disease, such as coronary heart disease, than do non affluent societies.

Certainly, Britain, America, and Australia, are affluent societies which have been able to bring infectious diseases under control only to find stress related diseases taking their place. In Britain, for instance, about 53 million middle management working days are lost each year due to anxiety and stress according to Hayton (1975) and, in Australia, heart disease is still the main cause of death and disability (*Australian*, p1, 21 Feb 77). Frankenhaeuser (1974) attempts to explain the different reactions of populations in affluent versus non affluent societies in terms of differing "need structures". Adopting Maslow's (1954) "hierarchy of needs" model, she proposes that poor and underprivileged societal populations have first to satisfy the primary and organic needs before social and psychological needs become important. However, in more affluent societies, the need structure changes and becomes more complex. Demands for opportunities for personality development, influence, status and a more enriching life content grow, and are encouraged and rewarded by society. The conflict, frustration, and pressure, initiated by this complex need structure in the more affluent societies can result in overstimulation, stress, and ultimately in some cases, chronic disease.

ALIENATION AND ANOMIE IN POLICE

A host of authors (*eg*, Brown & Howes, 1975; Denyer, Callender & Thompson, 1975; Hayton, 1975; Jirak, 1975; Lewis, 1973) maintain that the complex need structure and societal pressures inherent in affluent societies have particularly adverse effects on members of the police service (due also to certain unique occupational factors), resulting in such states as role conflict, powerlessness, alienation, and anomie. Milton Jirak asserts that the concept of alienation dominates the sociological works of Karl Marx, Max Weber, and Emile Durkheim; with Durkheim developing the concept of anomie to describe conditions of normlessness.

Jirak (1975: 151) defines alienation as:

> 'an individual's feeling about or frustration with and withdrawal from participation in the society because of discrepancies between his expectations and rewards open to him.'

In order to measure the degree of alienation among 736 members (patrolmen, detectives, and superiors) of the New York City Police Department, Jirak used the Dean Scale for measuring alienation which provided a total score for alienation. He maintains that policemen feel alienated as an occupational group due to lack of support from institutions such as political groups, press, courts, and the community at large.

Unfortunately, Jirak (1975) failed to use a control group in his study. His results are nevertheless interesting. Conclusions arrived at include:

a. officers with 10 to 15 years service had the highest mean score on total alienation,

b. generally, older policemen were more alienated than younger ones, with alienation and powerlessness increasing with length of service and not declining until officers reached their 15th year of service,

c. in the categories of normlessness and isolation, officers with less than five years service had the highest mean scores for both (with regard to isolation, alienation appeared not to increase with length of service),

d. patrolmen were generally more alienated than detectives, and

e. patrolmen and detectives were more alienated than superiors.

According to Jirak, these findings substantiate hypotheses previously proposed by Niederhoffer (1967), in that police tend to feel more isolated than powerless or normless but that alienation generally rises throughout their career, reaching a peak at their 15th year of service - at which point according to Jirak, retirement and pensions are within sight and subsequently feelings of alienation diminish. Jirak's research findings have more recently been supported by Lotz and Regoli (1977) who studied over 300 uniformed police personnel in nine American North West Pacific police departments, and also found that cynicism (a factor of alienation proposed by Jirak) peaks in mid career.

Methodologically, this research design can be criticised for lack of adequate control groups. In fact, Lotz and Regoli (1977) refer to an early study by Wheeler (1961) in which a similar trend amongst prisoners was found

with cynicism being greatest during the middle period of their prison sentence. However, Jirak's study does suggest that there may be definite career phases within the police service in which police are more likely to be exposed to stressors resulting from aspects of alienation, *eg*, officers with less than five years police service may be more prone to feelings of normlessness and isolation than other officers. As well, there may be differences in degrees of alienation not only during different career periods but also between different ranks based upon the phasic nature of alienation.

Taking into account an obvious need for further research in attempting to identify some of the reasons for different degrees of police alienation, it appears relevant to review some of the cause and effect areas which previous research findings (*eg*, Chappell & Wilson, 1972; Hermans, 1975; Munro, 1975) have isolated as being related to police alienation. These include:

a. poor community relations,

b. anomie and police suicide, and

c. social/cultural and geographical influences on police alienation and anomie.

Arthur Niederhoffer (1967: 91) proposes that many of the stressors afflicting today's policepersons are due to the interaction of professionalism, anomie, and cynicism. According to Niederhoffer:

> 'Anomie occurs particularly when the old values of a social system are being supplanted by a new code ... exactly the case in the police organisation. Seeking to wrest control from the old regime, the professionals are introducing a new ethic into the modern police force which is undermining old norms and loyalties. Caught between these contending forces, the policeman in the lower ranks feels uncertain of his position.'

POLICE-COMMUNITY RELATIONS

It appears from numerous crosscultural studies (*eg*, Banton, 1964; Cain, 1973; Skolnick, 1973) that poor police-community relations are instrumental in enhancing police alienation and subsequent increased stress. In tracing the development of police systems in the affluent societies of America, England and Australia, it is evident that cultures have influenced the organisation and structure of police forces and their subsequent roles (*eg*, Critchley, 1967; O'Connor, 1974; Chappell & Wilson, 1972).

The geographical structure of police forces has been suggested to affect police-community integration and ultimately, degrees of alienation, isolation, and stress among police. Chappell and Meyer (1975), for instance, believe that the small locally organised police forces in Britain - compared to the larger centralised police forces in Australia - help to explain the reasons for the better integration and community relations experienced in Britain. However, with the new British trend toward centralisation of police forces, it will be interesting to see if police-community relations are effected.

Critchley (1967) and O'Connor (1974), among others, have suggested that each country (United States, England, and Australia) has modelled its different types of police forces on common origins based on the 18th and early 19th century English notions of policing. This English police system dates back to 1829 when Sir Robert Peel organised the first Metropolitan Police. Peel based his principles of law enforcement on his belief that the public was, in fact, the police and that the police were the public. From this rudimentary stage of development, police were considered to be integral to society rather than a force independent thereof.

Several authors have noted that, in Britain, due to such factors as shortages of personnel and crime increases, Peel's ideal of the police being servants of society has mutated such that they take on a more oppressive role (*eg*, Cain, 1973; Clark, 1965; Critchley, 1971) which results in lowered police-community relations. However, recent research by Belson (1975) strongly suggests that public trust in the police (in London) was comparatively quite high, in that 73 *per cent* of adults surveyed were reported as having 'a lot of respect' for the police. As well, Punch and Naylor (1973) have indicated that British police still respond largely as a community service agency, since roughly one half of the calls received by British police are requests for service-related functions.

In the United States, the rudiments of Peel's conceptualisation of a police body were firmly established by 1870. Radelet (1973) suggests that this modelling on the British police system has been more of a theoretical ideal which was never actualised. He maintains that this is due to the roots of violence inherent in American history. The actual goals of the police in America were characterised by the emphasis on the protection of security and enforcement of the law, rather than Peel's emphasis on prevention of crime and maintenance of peace.

Police duties in the US have been found to parallel British trends in that the vast majority of calls received are likely to involve service requests rather than requests

for police action against activities (*eg*, Bard, 1971). Radelet (1973) suggests these data indicate that the American police role has returned toward Peel's original model of maintaining order and peace in the community. However, the fact that service calls represent such a high proportion of police activities should not be interpreted as meaning that the police actively encourage such duties. As well, it may reflect the fact that in any given area there is a need for a social service delivery system to be organised which would alleviate this duty from the police.

Unlike Britain, crime rates in the US tend to be higher and of a more violent nature, which creates a demand within the community for the police to carry out a deterrence role (Wilson, 1968). Wilson further suggests that this conflict between community demand for deterrence and police activities being largely directed toward service oriented activities, results in worsened police-community relations and increased police alienation, due to this role discrepancy.

Whatever the reasons, it is clear that police-community relations in the United States are less than ideal (*eg*, Banton, 1964; Radelet, 1973). Despite numerous police-community relations programs, a recent survey by Chappell and Meyer (1975) indicates that only 2 *per cent* of US police consider the public holds them in high esteem.

In Australia, as in America, early settlers attempted to structure a police system based on the English model. However, as Chappell and Wilson (1972) suggest, Peel's model was not actualised - due to the fact that many of the early settlers tended to be law breakers rather than law abiders. Consequently, the role of police in Australia, from the early years of settlement, was characterised as being the protection of security and enforcement of the laws - the same as America.

Unfortunately, there are no data to indicate what proportion of police duties in Australian cohorts involve service requests as opposed to requests for police action against criminal activities. These data would be most revealing of the role which Australian police currently serve in contrast with those of US and England; although these data may be associated with great degrees of variance, interpretation would best be tempered before any definite conclusions could be made.

Research by Chappell and Meyer (1975), Belson (1975), and Chappell and Wilson (1969, 1972) using interview and survey methods, indicates that police-community relations are best in England, worst in the United States with Australia occupying the middle position. But, far closer to the American situation than the British. Clearly, then, if

poor police-community relations are related to enhanced stress levels we can hypothesise that Australian police are likely to be experiencing high stress. According to Kroes (1976), negative public image and poor police-community relations is the stressor which is most difficult for the police to live with. A recent limited Australian police public image and status survey carried out by Swanton and Wilson (1974) illustrated the relatively low status of police. Constables ranked below carpenters and police Sergeants ranked only a fraction higher. Again, conclusions about the relative status of police in Australia must be delayed until further research substantiates these findings. As well, it may be that it is the *perception* by police of public attitude which is the critical variable rather than their "actual" status.

There are numerous reports of collaboration between police and social scientists in the US and England which suggest that police-community relations can be substantially improved through *controlled exposure techniques* (*eg*, Allen, Pilnick & Silverzweig, 1969; Bard, 1969; Bell, Cleveland, Hansen & O'Connell, 1969; Krocker, Forsyth & Haase, 1974; Sikes & Cleveland, 1968). However, in Australia there are almost no reports of attempts made to better police-community relations through collaboration between social scientists and police using controlled exposure techniques. An exception to this is Gardner and Veno (1976), and Veno and Gardner (in press), who clearly show that the changing of police attitudes toward being more favourable to "problem" community groups could occur on a long term basis from a relatively short intervention process using controlled exposure techniques.

Therefore, any attempt to isolate stressors inherent in Australian police should investigate the following:

a. police role conflict, isolation, and police-community relations - this information can be formulated generally from results gathered from other sections of the study, *eg*, degrees of family and social isolation felt by the police as well as from results formulated from police attitudes to minority groups, and

b. if the study shows police-community relations to be poor and a possible subsequent police stressor, then we suggest as a follow up, the employment of a functional police-community relations model in Australia.

Both Niederhoffer (1974) and Lewis (1973) maintain that the new emphasis on professionalism has created a split

amongst police and, that this has been caused mainly by socio economic, class, and educational differences, in new recruits over the past few years. Niederhoffer's (1974) American survey on socioeconomic class and the police found that although previously most police candidates had been upper lower class and lower middle class, far more professionally oriented middle class recruits were joining the force. Not only are professional policepersons more likely to advance through the hierarchy more quickly than those unable to adopt to professionalism, but their attitudes often differ, *eg*, professionals advocate higher education programs for police, and sometimes support respect for the civil rights of minority groups (Lewis, 1973).

Consequently, according to Lewis (1973), this class conflict causes the non professionally inclined members of the police force to feel threatened by the proposed changes and become part of the subculture of cynicism. It appears reasonable to assume that the same class and professionalism conflicts occur in Australian police forces.

Research findings by authors such as Wilson and Western (1972) has shown that although the majority of police recruits in Australia are lower middle class, there is a small influx of middle class recruits. Also, today's Australian police adult entrant will have received a higher educational standard in the Police Academy as well as more opportunities to study to degree level than a recruit of 15 or 20 years ago. Therefore, we believe that in any study of stress in the Australian police service it is important to investigate whether or not there are large education and attitudinal gaps existing, both within similar ranks and also between high ranking and low ranking officers. If there is a difference between high ranking and low ranking officers, for instance, this may be provoking a situation where the standards for behaviour and attitudes are set by their superiors but, which may not necessarily be in agreement with their own views. A situation easily conducive to stress and anomie.

POLICE SUICIDE AND ANOMIE

As the evidence establishing the existence of anomie as a condition of police appears to be substantive, it is perhaps not surprising that following the theory of Emile Durkheim, police suicide has been investigated as a measure of anomie (*eg*, Heiman, 1975; Lewis, 1973; Nelson & Smith, 1970; Niederhoffer, 1974). Certainly, the literature tends to indicate that the police profession may well be a high risk population in relation to suicide rates. Nelson and Smith (1970), for instance, found that in the US State of Wyoming, the 1960-1968 suicide rate for police was almost

twice the rate of physicians, the next highest group.

This type of uniquely high suicide rate is not universal in all police forces and not only varies from State to State in the US but, also from country to country. Heiman's (1975) recent comparison of police suicide rate between 1960 and 1973 in the New York City Police Department and the Metropolitan Police Force of London illustrates this point. After statistical analysis, Heiman found the London police suicide rate differed only slightly from its white male, urban population, whereas the New York City police suicide rate was almost twice that of its white male, urban population.

In trying to isolate the societal causal factors for these differences, Heiman (1975) attributes the sparse use of firearms by London police, their higher degree of role acceptance, and their morale compared to their New York counterparts, as being major influences. Obviously, individual psychological, multidetermined aspects of suicide patterns are relevant as are differential rates of access to firearms. When referring to the police as an occupational group, however, Heiman (1975) substantiated the previous hypotheses purported by Niederhoffer (1974), Lewis (1973), and Nelson and Smith (1970) by stressing the societal influences of police suicide at the individual-social interface.

When relating these possible causal agents to Australian police suicides, one could predict that with the use of firearms and the high degree of role conflict and poor community integration this type of isolation may well be causing alienation and anomie, and contributing to suicide rates comparable to those of New York. Unfortunately, there are no official published statistics for the suicide rates in the Australian police.

As with a certain number of suicides in the community at large, many police suicides, according to Kroes (1976), are never reported as such. Very often the first people to reach the scene are the suicide victim's police colleagues, who, showing concern for the widows and children in respect to insurance policy claims as well as social stigma, report the incidence as "accidental death" (Kroes, 1976).

SOCIAL, CULTURAL, AND GEOGRAPHICAL INFLUENCE ON POLICE ALIENATION

Numerous studies (*eg*, Averill, Opton & Lazarus, 1971; Lazarus *et al*, 1966; Matsumoto, 1970) indicate that physiological and psychological stress reactions to technologic change, economic or physiologic deprivation,

epidemics, war, and even movie films, are very different for people of differing cultural and ethnic backgrounds. Selye (1976) maintains that social and cultural stressful agents are also influenced by many other factors such as diet, climate, genetics, religion, social class, overcrowding, and isolation, all of which vary with cultures and geography. For instances, Japanese studies (*eg*, Matsumoto, 1970) have shown that arteriosclerotic coronary heart disease in Japan is relatively uncommon compared to the white North American population.

These cross cultural variances (*eg*, diet and climate) are also important variables which must be considered when hypothesising about differences in chronic disease mortality rates among various segments of a population in the same society. Selye (1976) notes, for example, that in addition to different life styles, heredity and other social and economic stressors constitute an extra stressor for minority groups and migrants in as much as they are often seen as "intruders" by the rest of the population. They may accordingly suffer from a lack of friendly social contact in addition to being obliged to conform to customs, diets, and an alien social ethos.

Consequently, any proposed study of stress among Australian police, should take into account cultural background factors which appear to influence certain stress related outcomes. Thus, it will be necessary to note the cultural and ethnic origins of police in the sample as well as the control group sample.

Another demographic variation relative to the prevalence of stress disorders has been found to exist between urban and rural areas. Levine and Scotch (1970) state the prevalence of hypertension is higher in urban than in rural areas, and Dodge and Martin (1970) claim that coronary heart disease is persistently higher along the North American eastern and western seaboards than in the inland rural farm states. (California, for instance, has nearly twice the death rate from arteriosclerotic heart disease than nearby rural Mexico).

In attempting an explanation of these differences, Levine and Scotch (1970) propose that although certain conditions such as hypertension, are often more prevalent in urban areas compared to rural ones, the factors associated with city living, *eg*, noise, overcrowding, and fast living, could just as easily be counteracted by stressful factors in country living, *eg*, isolation, lack of privacy, and social control. In fact, a study by Syme, Barhani and Buechley (1966) on a rural population, showed that some factors associated with people who tend to move frequently from one social setting or occupation to another, are especially conducive to coronary heart disease. Thus, although

hypertension and heart disease tend to be more prevalent in urban areas compared to rural ones (as with different societies, cultures, and sub group populations) it is still difficult to demonstrate a causal relationship as to why these differences occur.

Although there is a lack of empirical findings which would enable us to compare stress disorders for urban police with those for rural police, there have been numerous studies (*eg*, Cain, 1973; Munro, 1975) showing that rural police report different types of occupational inconveniences and stressors when compared with their urban counterparts. In a detailed study in Britain for instance, Cain (1973) interviewed policemen in both rural and city areas asking certain questions about particular sources of inconvenience.

As can be seen in Table 1, men in the country and city differed as to "inconveniences" listed. Rural police appear to be far more affected by transfer problems, delays on duty, *eg*, accidents, poor car allowance, than their urban counterparts. Callers and lack of social privacy was another complaint particularly prevalent in the rural police which is consistent with the suggestions of Levine and Scotch (1970). Certainly, one can safely hypothesise that with the vast distances which Australian rural police cover, delays on duty such as unpredictable incidents at inconvenient times, and subsequent disruption of domestic life are probably common occupational inconveniences.

Urban police on the other hand, appeared to be affected more than rural police by inconveniences stemming from working hours, holiday systems, long hours, and shift work, especially when only allowed eight hours off between the shift. Although Cain's (1973) study illustrated the different occupational inconveniences listed between rural and urban police, the most common stressor reported by both was that resulting from tension between home and work (an important issue which will be discussed in the next section).

Before applying the findings of Cain to the Australian situation, however, differential transfer procedures from country to city duty between Australian police and their US and British counterparts must be considered. That is, since Australian police tend to be transferred from urban and rural settings more frequently than US or British police; then it may well be that the stressors associated with both urban and rural duties will reveal a very different perspective for Australian cohorts. Nevertheless, these suggested differences and similarities are empirical issues. Clearly, we must operate on the assumption that there are different problems associated with country and city duties here in Australia, although to date we can not state the exact nature of these differential problems.

TABLE 1 *REPORTED INCONVENIENCES EXPERIENCED BY URBAN AND RURAL POLICE*

	Country		*City*	
	#	%	#	%
None				
Place posted	31	48.4	7	12.7
Timing of transfer	15	23.4	-	-
Other problems about transfers*	17	26.6	-	-
Callers/lack of privacy	7	10.9	-	-
Disruption of family life unspecified	4	6.25	5	7.3
Hours/never normal working day	13	20.3	24	43.6
Delays on duty/unpredictable incidents at inconvenient times. Unable to plan social or domestic life	41	64.1	27	49.1
Lack weekends/bank holidays/ annual leave in school holidays	-	-	6	10.9
Shift work - general	-	-	7	12.7
Overtime and long hours	-	-	3	5.4
Night duties	1	1.6	1	1.8
Quick changeovers+	-	-	14	25.5
Training courses	4	6.25	1	1.8
DHQ duties	11	17.2	1	1.8
Lack of car allowance	7	10.9	-	-
Other	5	7.8	-	-
n	4		55	

* Inadequate notice; inability to make long term plans; cost of movers; continual uncertainty; number of moves.

\+ Shift change with only eight hours off between shifts.

(Cain, 1973: 132)

Having suggested that Australian rural police will be facing differing occupational stressors than their urban counterparts, it is also relevant to consider Munro's (1975) hypothesis that urban born policemen have different personality perceptions than rural born police. In this investigation of personality perceptions of South Australia policemen, Munro found that place of birth was the most pertinent variable and urban born policemen saw themselves as more competitive and rebellious than those born in the country.

Although it is impossible to derive firm conclusions from a single study, the data do appear to reflect the differences that often exist between the city and country perspectives on life. The results from Munro's (1975) study appear to support the hypothesis that social background and early life are more important in shaping a policeman's attitudes to citizen, criminal, and self, than his current location and its associated experience.

With regard to any proposed study of stress in the Australian police service, the literature of social, cultural, and geographical factors affecting stress suggests:

a. ethnic and cultural backgrounds of each policeman in the sample need to be noted,

b. stressors experienced by urban and rural policemen will vary in degree and type, and

c. history of mobility, as well as urban vs rural birthplace, and work background of each policeman in the sample must be noted.

POLICE FAMILY AND HOMELIFE

When investigating the disruption of homelife and family as a direct stress outcome resulting from occupational stressors, one has to be aware of a multitude of interrelating variables. Firstly, as stated by Cooper and Marshall (1976), there is a feedback loop with stressors at work being able to effect family life and *vice versa*, with one often exacerbating the other. Croog (1970: 25) (cited in Levine & Scotch, 1970) denies such a feedback loop suggesting the family itself is never a source of stress but is a "crystallising entity" within which external stressors 'emerge and exert their impact'. Moreover, we cannot always assume it is always occupational stressors that cause home disruptions although selfreported occupational grievances by

police and their wives and their subsequent effects on family life compared with controlled populations are of obvious importance.

Secondly, actuarial statistics, such as separation and divorce rates, do not give absolute indications of family disruption patterns. Kunzel (1974), for instance, in her crosscultural study on the relationship between family cycle and divorce rates found that in highly industrial societies (such as Australia), the socioeconomic structure of the country influences the family cycle, *eg*, rise in life expectancy, more working wives, falling age of marriage, nuclear family, and decreasing number of children, all of which correlate with a rise in divorce rates. Religious background, and availability of legal aid, are also important factors capable of influencing separation and divorce rates (Krupinski & Stroller, 1974).

Finally, when attempting to investigate the correlation between occupational stress and its effects on family life, it is important to be aware of the fact that measurements used to ascertain marital satisfaction over the family life cycle have produced contradictory results, with the Blood-Wolfe Composite Index of Marital Satisfaction (1960) showing the trend to be a general decline in marital satisfaction throughout the cycle, whilst the Rollins and Feldman (1970) index found the trend to be a U shaped curve with a decline over the earlier stages followed by an increase over the later stages of married life (Rollins & Cannon, 1974).

An extensive cross sectional American study by Rollins and Cannon (1974) provides an excellent reevaluation of these marital satisfaction measurements over the family life cycle. Their results suggested that the Blood-Wolfe Composite Index of Marital Satisfaction was an invalid measurement technique and that males and females had a very similar pattern of a shallow U shaped trend of general marital satisfaction over the family life cycle. However, Rollins and Cannon (1974) emphasised that this trend was in fact very minimal with over 92 *per cent* of the variation in marital satisfaction being unrelated to family life cycle.

Due to the limiting effects family life cycle appears to have on marital satisfaction, Rollins and Cannon (1974) believe the explanation of the trend lies with the theory of role strain originally proposed by Burr (1970). They suggest that role strain intervenes between family life cycle and marital satisfaction, thereby making it a critical variable in explaining the U shaped curve type of relationship between family life cycle and marital satisfaction.

According to Rollins and Cannon (1974), Burr (1973) proposes four antecedents of role strain (*ie*, role conflict, role incompatibility and the amount of activity normatively prescribed in a person's life) which have a direct linear relationship with role strain. Referring to studies by such authors as Riley and Foner (1968), Cummings *et al* (1960) and Rollins (1967), who have shown that family roles result in more conflict during the middle stages of the family life cycle (especially concerning the use of time in work and conflict resulting in family roles), Rollins and Cannon (1974: 281) conclude that:

> 'role theory suggests that role strain would be greatest and marital satisfaction least at the middle stages of the family life cycle and role strain would be least and marital satisfaction greatest at both ends of the family life cycle.'

Therefore, one can propose that although marital satisfaction is related in part to the U shaped life cycle pattern found by Rollins and Cannon (1974), it is the degree of role conflict that will be the important variable influencing this trend. The hypothesis here is, of course, that families in the middle stage of their cycle will be more at risk than those at early or late stages. Applying this proposition to the Australian situation, extensive research (using clients who underwent marriage guidance counselling) by Krupinski and Stroller (1974) illustrates a similar trend with role conflict and dissatisfaction in the marriage most prominent during the middle years (comprising "The School Age Family" and "The Teenage Family").

During The School Age Family, over 44 *per cent* of clients came for counselling with the major problem being the role conflict between husband and wife (usually resulting from the wife's identity role conflicts even if she has returned to work). This often results in family anxiety and the inability of a husband to understand his wife's conflict. This is the case, especially if he is establishing his career and to him the family appears stable (Krupinski & Stroller, 1974). In the sample, 50 *per cent* of marriages eventually broke up.

During the Teenage Family stage, the husband's infidelity and serious conflict over his feelings of inadequacy and failure if he has not realised his ambition(s) (including work promotions) in life are the two major causes of marriage conflict during this period. However, Krupinski and Stroller (1974) found again, that many such marriages stay intact with children given as the main reason.

Although the first five years of marriage, especially if childless, were found to be a high risk time for marital disruption in Australia, on the whole, the first stages up

to The School Age Family reported fewer cases of marital dissatisfaction than the middle ones (Krupinski & Stroller, 1974). The latter stage in the marital cycle which Krupinski and Stroller refer to as the Post Parental Stage attracted the least number of clients for counselling.

Generalising the results of Krupinski and Stroller's (1974) study is not tenable, as they were relying on an atypical sample (*ie*, people who volunteered for marriage counselling) for their study. However, their findings suggest that similar trends exist in the family life cycle, *ie*, marital dissatisfaction and role conflict, as proposed by Rollins and Cannon (1974) in their US sample. That is, most conflict occurs in the middle years of the cycle. Moreover, applying these theories to the Australian police family, we can hypothesise that high risk marriage prone to marital disruption and role conflict will be childless couples in the first five years of marriage and those in the middle years of marriage with children.

Certainly, research findings in the United States have shown that police, as an occupational group, have one of the highest divorce rates in the country (Stratton, 1976). Although, in America divorce rates are on the increase in the overall population, Stratton (1976) maintains that the high rate of divorce in police marriages compared to other occupational marriages is due specifically to specialised occupational stresses which can create difficulties that do not exist in other marriages.

While there have been numerous studies (*eg*, Cain, 1973; Rafky, 1974; Kroes, Hurrell & Margolis, 1974; Kroes, Margolis & Hurrell, 1974; Kroes, 1976) which have endeavoured to isolate the occupational stressors which appear to be having the most disruptive effects on police family life, none of the studies have included comparable occupational control group families. Kroes (1976), for instance, appears to qualify this important methodological omission by stating that there is no other occupation in which the wife and children of the worker are vexed simply because he is a member of a particular occupational group.

Obviously, lack of control groups must be taken into consideration before making absolute statements regarding police occupational stress influences on family life. Limited interview surveys by such authors as Kroes, Margolis and Hurrell (1974) and Rafky (1974) on American police families have produced similar findings. Rafky's (1974) survey of 100 police wives revealed that one fifth to one quarter were dissatisfied with their husband's career generally and reported that particular aspects of the job resulted in family arguments. Kroes *et al* (1974), in their survey of 81 married police officers, found 79 of them felt that police work had an adverse effect on their home life

with the following list of problems mentioned in order of importance:

a. being a policeman retards nonpolice friendships,

b. being unable to plan social events,

c. taking the pressures of the job home,

d. wives worrying about the officer's safety,

e. negative public image effecting wives and children,

f. wives disliking being alone at night, and

g. police work hardening emotions, so policemen become less sensitive to their families.

Several American police departments according to Paulson (1974), have found three consistent factors in their members. They noted: (1) there appears to be a correlation between poor job performance and poor marital relations, (2) police cynicism appears to have a particularly adverse effect on the officer's first three years on the force (Rafky, 1974) maintained that one third of the married cadets were divorced within their first two years on the force, and (3) the high divorce rate among police generally - some American police departments have introduced orientation programs for the police families. To date, there have been no followup studies carried out to assess the success of such programs. Stratton (1976: 22) refers to two programs currently being run by the Los Angeles County Sheriff's Department. He maintains their goal is to "reinforce the role of the family in law enforcement, lessen the pressures and stresses experienced by both of the marital partners and facilitate stronger and more meaningful relationships between the law enforcement couple". Until the empirical evidence is available, however, the efficiency of these proposals is dubious.

Similar occupational stressor influences have been found in British police families. In a detailed study by Cain (1973), in which she interviewed policemen and their wives in both rural and city areas, asking questions concerned with particular occupational sources of inconvenience, most of the results suggested tension between home and work, suggesting that family life suffered because of work. Police wives from both rural and urban areas felt their children suffered from the constantly changing shifts as they rarely saw their fathers.

Perhaps one of the major factors which both American and British studies (*eg*, Banton, 1964; Cain, 1973; Kroes, 1976; Kroes, Margolis & Hurrell, 1974; Skolnick, 1973) have demonstrated is that enhanced family conflict is related to the social isolation often felt by a policeman and his family. Various studies have shown that police are often regarded with reserve, suspicion, and sometimes hostility even when off duty and at private social functions (Banton, 1964; Skolnick, 1973). Consequently, due to these strong negative pressures, both British and American studies (*eg*, Cain, 1973; Kroes *et al*, 1974) have found that family conflicts arise as the police family tends to become isolated and policemen and their wives tend to make friends amongst other police officers and their families who understand and share their problems. Kroes (1976) believes this effect on homelife is probably greatest for the young policeman who, besides having to face problems of negative community contact and isolation, may also be having to adjust to the new rigors of police work itself.

Cain (1973) found a difference in social isolation between British country and city police. Although, when questioned, both country and city police felt they had fewer nonpolice friends than they would have in another occupation, she found that country police tended to hold themselves aloof to avoid difficult conflict situations when they had to exert authority. On the other hand, she found that isolation, where it existed, with city police stemmed from the community rather than being voluntarily imposed by the policemen themselves.

From American and British research findings we can hypothesise that the Australian police family is being subjected to the same type of police occupational stressors as their US and British counterparts. To date, there are no official statistics on the number of divorce rates in Australian police marriages compared to other occupational populations, nor have there been any measurements carried out on the degree police work effects family life and social contacts. Thus, no definitive statements can be made regarding the relative status of Australian police on this dimension.

Krupinski and Stroller (1974), in their study of the family in Australia, found that only 14 *per cent* of their marriage guidance clients quoted the interference of their husband's work as being a major problem in their marriage. We hypothesise that in our Australian police sample the degree of family and marital disruption due to factors associated with the policeman's job will probably be greater than the population norm and from the previous review of the literature, suggest the following points be applied to any proposed study of stress experienced by Australian police:

a. administer the Rollins and Feldman Marital Satisfaction and Life Cycle Index to the police sample plus selected control groups,

b. ascertain, *via* questionnaire, degrees of role conflict within the family with special emphasis on:

(1) specific aspects of the job adversely effecting family life, *eg*, negative public attitude, shift work, and

(2) specific effects of the job on family life, *eg*, isolation, lack of nonpolice friends, marital arguments, poor job performance.

If research findings indicate the Australian police family is subjected to the same types of unique stressors as their American counterparts, similar programs for police spouses could well be considered in Australia.

LIFE EVENTS AND THEIR RELATION TO STRESS IN AUSTRALIAN POLICE

Extensive empirical research over the past few years has shown that stressful life events play a role in the etiology of various somatic and psychiatric disorders (*eg*, Dohrenwend and Dohrenwend, 1973). According to Dohrenwend and Dohrenwend (1973), Cannon's original work, which showed that strong emotions can cause definite physiologic changes, provided the necessary link in the proposition that stressful life events could prove instrumental in causing somatic and psychiatric disorders. During the 1930s, Adolf Meyer formulated a Life Events chart indicating that important life changes could often be helpful in arriving at a medical diagnosis (cited in Goldberg & Comstock, 1976).

Since then, there have been various modifications applied to Meyer's original life events chart. Today the most commonly accepted test used to quantify the impact of life events on somatic and psychiatric disorders is the Social Readjustment Rating Questionnaire formulated by TH Holmes and RH Rahe (1967) and since modified by Dohrenwend and Dohrenwend (1971, 1973) in which 41 events (both pleasant and unpleasant) have been isolated as major life change stressors and given a weight obtained by using methods of psychophysics (see Table 2.1).

Several cross cultural studies (*eg*, Harman *et al*, 1970; Masuda & Holmes, 1967; Rahe, 1969a) indicate that

TABLE 2.1 *OCCURRENCES OF LIFE EVENTS AS CLASSIFIED BY DOHRENWEND AND DOHRENWEND*

Life Events
Classified as gain
Engaged
Married
Other new love relationship or important friendship
Birth of first child
Improvement in health
Started school or training program *etc*
Graduated from school or training program *etc*
Started to work - first time
Job or own business improved in responsibility, type, location, or some other
Major gains in income not due to change in work
Acquisitions of property
Released from prison, acquitted of other than minor traffic offenses
Changed residence for better one
Started new hobby or recreational activity
Acquired a pet
Took a vacation
Classified as loss
Widowed
Divorced
Separated
Other broken love relationship or important friendship
Miscarriage or stillbirth
Family member left home
Illness or injury
Death of loved one or other important person
Quit or failed school or training program *etc*
Job or own business downgraded in responsibility, type, location or some other way
Laid off or fired from job or own business failed
Major loss of income not due to change in work
Serious property loss
Arrested, indicted, convicted of other than minor traffic offenses
Dropped hobby or recreational activity
Lost a pet
Classified as ambiguous
Pregnancy
Birth of child other than first
New person in home other than birth of new child
Entered armed services
Left armed services
Retired from work
Started at a new type of work
Other major event

different cultures appear to give similar weights and rankings of the life events of the Social Readjustment Rating Questionnaire. Numerous retrospective studies have indicated a positive relationship between physical and mental illnesses and prior life events. Rahe *et al* (1973), for instance, found a correlation between recent life changes and coronary heart disease in Finnish subjects and, Paykel (1973) found that life events occur to an extent greater than chance before the onset of a variety of psychiatric disorders.

However, Goldberg and Comstock (1976) question the validity of these retrospective studies, since life events are recalled after the onset of the illness and, therefore, the persons or relatives may be looking (or overlooking) for extra causes for their illnesses and may, subsequently, be reporting an excess of life events. In order to try and eliminate these types of intervening variables, authors such as Rahe *et al* (1970), Rubin *et al* (1971) and Theorell *et al* (1975) have used prospective study designs in order to investigate the correlation between life events and illness.

The studies by Rahe *et al* (1970) and Rubin *et al* (1971) were similar in that they both looked at the life events of US navy servicemen prior to cruises, comparing medical records for the cruise period with previously reported life events. The results of these studies were similar as they indicated there was a relationship between intensity and number of Subjects' Life events (in some cases) before the cruises and illnesses reported during the cruise period. Both the rates of sickness and the types of illness were minor as were the few life events reported.

One of the most extensive prospective studies according to Goldberg and Comstock was carried out by Theorell *et al* (1975) using a population of 9,097 middle aged males. Although neurosis was common among men with high life events scores initially, and the same kind of correlation was found among men aged between 41 to 51 years of age (but not among men aged between 52-61 years), no relationship was found between high life events scores and most other types of illnesses and deaths in the followup period.

Due to the conflicting findings of previous studies relating to correlations between life events and illness, Goldberg and Comstock (1976) recently undertook a prospective study in which they attempted to avoid some of the methodological flaws encountered by previous studies, *eg*, lack of reporting of serious illness among Subjects, poor control groups, and limited samples. Using Dohrenwend and Dohrenwend's (1971) Occurrences of Life Events Social Readjustment Rating Questionnaire (a revised list based on that of Holmes & Rahe) these authors drew their cases and

controls from two independent population groups with a broad range of characteristics. Unlike the previous studies mentioned which tended to use young, healthy subjects (thereby limiting the illnesses reported to minor ones) Goldberg and Comstock restricted their prospective study to cases of illness severe enough to warrant lengthy hospitalisation and/or death.

Results indicated, that although the differences between the cases and controls on injury or illness during the preceding year did not achieve statistical significance, more cases than controls reported illness during the previous year at the initial interviews which replicates previous findings by Hinkle (1976). However, Goldberg and Comstock make the important point that it is impossible to ascertain whether these illnesses reported as life events were in fact independent of the subsequent illnesses reported as outcomes. Perhaps the most significant outcome of this supposedly more sophisticated design study was that change itself, which is the major concept based on research using life events as a measure of stress, was not shown to be a precursor of serious illness in either the cases of controls. Also, life events with negative connotations were not shown to be more highly associated with illness than positive events.

To date, there appears to have been no research that has utilised life events as indicators of the kinds of stressors that may lead to illness in the police community. The closest related study was one carried out by Knowles and Jones (1974) in which they adopted the "biorhythm" theory in order to examine a policeman's life cycle on a daily basis and to see if there was a relationship between incidences of physical altercations in law enforcement activity and the physical, emotional, and intellectual wellbeing of the officer and citizen involved. However, their findings showed there was little relationship between biorhythmic low periods and altercations between police and suspects as well as nonproductive work activity.

According to Goldberg and Comstock (1976), life events, can still be useful indicators of the kinds of stressors they may lead to illness if the following methodological designs are instigated: (1) well designed prospective studies using random samples of the population, (2) adequate control groups, (3) outcome variables clearly distinguishable from independent variables, (4) a range of outcome illnesses, (5) an account of the mediating factors, and (6) the life events should only be counted as stressors *if seen that way By the respondent himself.*

Consequently, by following the study design suggested by Goldberg and Comstock in a prospective study on stress experienced by Australian police, life events may prove a useful indicator of the kinds of stressors that may be

leading to illness among police. Moreover, we recommend the following:

a. that the Occurrences of Life Events Social Readjustment Rating Questionnaire, based on Holmes and Rahe and revised by Dohrenwend and Dohrenwend, be initially utilised and modified as part of the procedure in any prospective study of stress in the Australian police service in order to isolate the kinds of stressors which may conduce to illness, and

b. that the methodological design suggestions of Goldberg and Comstock be incorporated in such a study, as well as followup interviews at intervals throughout the research period (thereby allowing for individual and occupational differences in relation to stressor events).

CHAPTER 3

OCCUPATIONAL STRESS

In Chapter 2 we reviewed a large range of extraorganisational stressors inherent in the police service. In this chapter we make a special emphasis toward reviewing the literature delineating specific organisational stressors and their subsequent outcome(s). Our ultimate aim is to isolate high risk factors and recommend suitable job environment and health questionnaire(s) for a study of stress in the Australian police service. As well, we propose general recommendations for consideration if the results from subsequent research substantiates our hypothesis that Australian police are a highly stressed occupational population.

In this chapter we discuss the following issues under two major headings:

a. occupational stressors and health,
   (1) mental health and maladaptive behaviours,
   (2) job dissatisfaction,
   (3) coronary heart disease,
   (4) minor ailments, and
   (5) actuarial indices related to occupational stressors and health, and

b. occupational sources of police stress,
   (1) factors intrinsic to the job,
   (2) role in the organisation,
   (3) career development,
   (4) relationships at work, and
   (5) organisational structure and climate.

OCCUPATIONAL STRESSORS AND HEALTH

Aldridge (1970) refers to the report of the British Department of Health and Social Security (1968), in which the sum of incapacity for men suffering from psychoneurotic, mental and personality disorders, headache, and nervousness, accounted for 22.8 million days off work, thereby placing mental illness in second place after bronchitis, and before accidents and heart disease. As well, Cooper and Marshall

(1976), in their extensive literature review of occupational sources of stress, point out that Felton and Cole (1963) found that in the US all cardiovascular diseases accounted for 12 *per cent* of lost working time in their sample. In Australia, current research indicates this figure may be even higher (Byrne & Henderson, 1976). Selye (1976) reports that these diseases, *ie*, psychiatric disturbances, cardiovascular disease, and bronchial maladies, as well as diabetes and gastrointestinal malfunctions, are stress induced. What is of even greater relevance, is that there is substantial evidence suggesting that occupational stress is a causal factor in these diseases (Margolis *et al*, 1974; Selye, 1976).

Cooper and Marshall (1976: 11) define occupational stress as meaning:

> 'negative environmental factors or stressors (*eg*, work overload, role conflict/ambiguity, poor working conditions) associated with a particular job.'

However, they also emphasise that occupational ill health may also be influenced by extraorganisational factors as well as individual personality and demographic differences.

Within this growing body of evidence relating occupational stress and disease certain occupations, including police (Eisenberg, 1975; Kroes, 1976; Selye, 1976), are identified as being particularly high risk occupations in relation to susceptibility to stress induced mental and organic diseases.

OCCUPATIONAL STRESSORS AND MENTAL HEALTH

According to Kasl (1973), mental health indices of functional effectiveness in varying occupations have tended to rely on absence from work, hospitalisation, quitting the job, and spouse desertion. Indices of wellbeing concentrate on measuring self esteem, depression, life satisfaction, job satisfaction, and needs satisfaction. Finally, other indices aimed at ascertaining mastery and competence have relied on measures of adequacy and coping, attainment of valued goals, and psychiatric signs and symptoms indices.

An extensive Australian study by Ferguson (1973) adopted some of these indices in an attempt to investigate the degree and relationship between occupational stressors in several classes of occupational groups among Post Office employees and neurosis and other diseases. Although no significant correlation was found between neurosis and typical stress diseases such as hypertension, coronary heart

disease (CHD), nasal allergy and migraine; bronchial and gastrointestinal disturbances, and absenteeism, were most frequent among telegraphists, and then clerks and mechanics respectively. Neurotic complaints, which included drug and drinking habits, were associated with noise levels and rigid job supervision in these groups and were especially common with the high risk telegraphists sub group. Consequently, Ferguson concluded that the interaction of neurosis, habits, and attitudes, illustrated that the organisation or work influences job satisfaction, and therefore indulgence in habits detrimental to physical health and emotional stability.

Mental health disturbances associated with occupational stress have also been found in dentistry, medicine, and nursing (Selye, 1976). Among physicians and nurses, stress has been found to be most severe among those employed in intensive care units. A statistical study by Murray (1974) found that British physicians were particularly susceptible to drug addiction and suicide. A particularly interesting finding in relation to stress factors in the medical occupations is that a specific occupational stressor appears to be the constant necessity to be ready to act in unexpected, emergency situations (Selye, 1976) - a common occupational hazard found in police careers (Kroes, 1976).

Numerous research findings (*eg*, Kasl, 1973; Schuckit & Gunderson, 1973; Selye, 1976) have found that men who are prone to psychiatric illness tend to have low SES backgrounds and low education achievement. Thus, they tend to work in low skill occupations. Schuckit and Gunderson (1973) for example, found that men working in jobs of lower psychiatric risk tended both to have higher SES backgrounds and to work in better environments. Thus, they concluded that rather than occupational stressors *per se*, the general adverse environments (both at work and home) that lower SES men live with may predispose them to such illnesses as personality disorders, schizophrenia, alcoholism, and drug abuse.

Recent research in the United States by Eisenberg (1975), and Kroes (1976), indicates that occupational stressors inherent in police careers are causal agents in such mental health problems and outcomes as severe nervous conditions, neuroses, job dissatisfaction, high rates of divorce, and marital discord, high suicide rates, increased incidences of alcoholism and other drug abuses. Unfortunately, the majority of these data to date are subjective in nature (relying on questionnaire surveys and personal experiences within the field) with little or no empirical medical indices to substantiate their claims. However, two indices of behavioural and attitudinal/mental disorders which have been associated with occupational

stress in relation specifically to the police, hitherto not discussed, include alcohol and drug abuse (including smoking), and job dissatisfaction.

ALCOHOLISM

Margolis *et al* (1974), after interviewing over one and a half thousand workers in the United States in varying occupations found a positive relationship between escapist drinking and number of specific job stressors. Those experiencing high job stress drank more than those in occupations experiencing less job stress. The following year, Hurrell and Kroes (1975) maintained that the presence of high levels of stress which is linked to stress at work can facilitate some individuals to resort to heavy drinking as a stress coping technique. Further, they posit that men in policing are especially vulnerable to alcoholism. They go on to state that some US police officials have reported, informally, that as many as 25 *per cent* of officers in their respective departments have alcohol abuse problems.

Other specific occupational factors that have been associated with alcoholism include low SES, peer pressure, job dissatisfaction, and isolation (Sargent, 1973; Schuckit & Gunderson, 1974). Schuckit and Gunderson (1974), in their study on the relationship between alcoholism and job type in the US navy established that non technical jobs (equated with upper lower SES) were more prone to alcoholism than men in technical and skilled jobs who were both higher on the SES scale and better educated. As well, they found heavy drinking frequently occurred due to peer pressure and that there was a relationship between job dissatisfaction and alcoholism. Sargent (1973) claims that isolated occupational communities such as merchant seamen and timber-cutting camps tend to be particularly heavy drinking occupations and, unlike Schuckit and Gunderson, found it to be prevalent in the middle as well as the lower class individuals.

Taking these occupational factors into account and applying them to police, one could suggest that since the police are in a high stress occupation comprised of lower to lower middle class SES personnel who are a semi isolated sub cultural group heavily subject to peer pressure, that they can probably be classed as a high risk, alcoholic occupational group. Although, there is a lack of empirical research on this issue, there are subjective indications that alcoholism is a problem in police forces both in America and Australia.

Over twelve years ago in America, Banton (1964) referred to a West Coast police department which found the

need to set up its own branch of Alcoholics Anonymous. More recently Rubinstein (1973) has substantiated the problem, blaming the emphasised drinking opportunities open to the American police. It is of interest that Heiman (1975) has linked alcoholism with police suicide in the States.

With Australians leading the English speaking world in *per capita* consumption of pure alcohol, and alcoholism affecting 13 *per cent* of the male work force (*Australian*, p4, 23 March 1976), it would appear safe to assume that alcoholism is also a problem in Australian police forces. Since a large majority of Australians fit into the high risk alcoholic population of caucasian working class males aged between 20 and 39 years (Cahalan, 1970; Sargent, 1973), any investigation of the degree of the differences in alcoholism rates between Australian police and other demographically matched cohorts needs to be carefully controlled.

The implication of this reasoning for our study is, of course, that alcohol usage must be recorded in a controlled fashion with records relying on actuarial pathological reports (*eg*, diseases of the liver). As well, if research findings indicate that alcoholism is a problem in the Australian police alcoholic counselling services as already established in Queensland and in the US should be considered.

SMOKING AND JOB STRESS

Not only is smoking related to incidences of CHD (Selye, 1976) but, it has also been found to be most frequent in stressful occupations. An early survey by Russek (1965) found that CHD was related to relative stressfulness of occupational activity among lawyers, physicians, securities analysts and traders. As well, high fat diets, and smoking, were most frequent in these high stress occupations.

However, personality variables appear to have a dominant role in smoking behaviour. Russek (1965), for instance, found that CHD was more common among nonsmokers than among persons who had smoked but gave up and proposed this was probably due to a resilient personality response to stress and having the ability to stop smoking, which may diminish vulnerability to carcinerogenic influences. Caplan *et al* (1975), in a more recent survey of 200 male administrators, engineers, and scientists, found the cigarette smoking quit rate was highest for those who scored low on Type A personality characteristics. As well, their findings indicated that an inability to quit was associated with job stress and high levels of quantitative workload. Consequently, quitters tended to be administrators, rather

than engineers or scientists.

Ikard and Tomkins (1973) endeavoured to explain the reasons behind the cigarette smoking quit rate being greatest under low occupational stress as being due to feelings of psychological tension being lowered when people smoke. Thus, quitting smoking would be difficult for those working in stressful environments in which a cigarette may help them endure the demands put upon them.

Therefore, although there are no reported studies of police smoking behaviour *per se*, taking into account our hypothesis that police are a high stress population, the fact that cigarette smoking has been equated with CHD and Type A personalities (which are also associated with CHD) - the amount of cigarette smoking for every subject in any proposed study should be noted *via* medical questionnaire.

JOB DISSATISFACTION AND HEALTH

Recent research by Margolis *et al* (1974) has attributed job dissatisfaction as an important factor contributing to psychological and physiological strain. These findings have been replicated recently by Kroes (1975a) in an extensive study in which he looked at 23 occupations. Results indicated that somatic complaints such as insomnia were common among 36 *per cent* of workers experiencing low job satisfaction. In another study of job dissatisfaction among blue and white collar workers, Sales and House (1971) interpreted their results as indicating there was a possible association between low job satisfaction and risk of CHD.

Kroes (1975a) equates high job satisfaction with job security, social support from one's superior, a high level of education, high social support, and low role conflict. Adopting these common measures his research indicated that job satisfaction was highest in professors and lowest in assembly workers, with foremen the next lowest, and administrators ranking below professors.

After reviewing the research regarding job satisfaction in the police, it becomes evident there are few differences in the causes and degrees of job dissatisfaction related to cultural variance. Certainly, organisational stresses resulting in low morale and high job dissatisfaction have been attributed to such factors as manpower shortages, role conflict, alienation, and frustration resulting from the administrative and organisational hierarchies of police forces (Kroes, 1976; Wilson and Western, 1972; Chappell & Wilson, 1969).

One method of investigating job satisfaction is to look at the reasons why individuals join the police service and, whether their expectations are met. Chappell and Wilson (1969) in their Australian study, found that 60 *per cent* of police applicants thought of becoming policemen after having tried other jobs and that only 4 *per cent* of police (in Queensland) has "always wanted to join" seeing a policeman's job as a lifelong career.

While a police career is often not the first occupational choice of new cadets, research findings indicate that when police do join the service, advancement in social status and gratification of self actualising needs appear to take priority over security and career needs (Balch, 1972; Lefkowitz, 1974). Lefkowitz (1974) parallels these police patterns of job satisfaction needs with those of such groups as middle class college students and nurses. Moreover, taking into account the frustrations and impacts of negative public attitudes inherent in police careers and, with job satisfaction needs emphasising higher social status and self actualisation, Lefkowitz (1974) suggests that when they do not achieve these social and personal needs police become more dissatisfied and less job involved than other comparable groups.

Thus, it is perhaps not surprising that Niederhoffer (1967) indicated that a large proportion of US officers who join the police in search of job satisfaction become disillusioned and therefore find continued police work a strain. The stress resulting from low job satisfaction and low morale has also been correlated with job performance. Robinson (1970) maintained that once a policeman becomes dissatisfied, his standard of work falls along with his morale. This may have important consequences when considering Chappell and Wilson's (1969) findings in which 25 *per cent* of a Queensland police sample felt morale was poor, with a further 54 *per cent* feeling it was only satisfactory. This particular police sample gave lack of encouragement of initiative and loss of sense of adventure as major reasons contributing to job dissatisfaction.

While the measurements of job satisfaction may relate to mental and physical health, the relationship cannot be taken as being absolute as concomitant psychophysiological indices are needed before definitive statements can be made. Kasl (1973), for instance, notes that most studies of job satisfaction and mental health are correlational in nature and often causal interpretations of the data are far from self evident. He refers to two large surveys carried out by Gunn (1960) and Langer (1963), both of which found respondents in higher status occupations reported more job satisfaction and more stress related work worries than those reporting lower job satisfaction.

Consequently, Kasl (1973) concludes that what may be more closely related to job level is job involvement rather than various indices of wellbeing. Therefore, taking these factors into account with regard to any study of stress among police, we recommend that appropriate indices of job satisfaction be measured in all cohorts.

OCCUPATIONAL STRESS AND CHD

The causal link between job stress and CHD has not been conclusively demonstrated. Indeed, some researchers (*eg*, Ferguson, 1973) question the correlation between CHD and stress *per se*. However, incidence of CHD has been found to have a highly significant association with genetics, high animal fat diets, high cholesterol, and Free Fatty Acids (FFA) levels, disinclination to exercise, smoking, accelerated blood coagulation, hypertension, triglyceride and typoprotein levels, and Type A behaviour (*eg*, Hurrell & Kroes, 1975; Rosenman *et al*, 1976; Selye, 1976).

The literature regarding the relationship between job stress and the incidence of CHD is conflicting. Hinkle *et al* (1968) in their 5 year statistical study on the relation between occupation, education, and CHD, among 270,000 male employees of the Bell Telephone Company in the US found no evidence that men in high level responsibility jobs, or men having been promoted rapidly, frequently, or transferred, had any added risk of CHD. They concluded that rather than job stress, CHD was more closely related to such factors as eating habits, cigarette smoking, and general life style. An Australian study carried out by Ferguson (1975) found no significant association between stress indices, *eg*, neurosis, incidences of hypertension, CHD, or other purported stress related illnesses.

However, other authors (*eg*, Byrne & Henderson, 1976; Hurrell & Kroes, 1975; Cooper & Marshall, 1976) are convinced that the incidence of CHD is stress related and that subsequently, stress within one's job can be an important causal factor in facilitating some of the psychophysical changes which may cause CHD. Certainly, whatever the reasons, CHD appears to be higher in the police population compared to many others.

As well, a particularly recent relevant study by Schiffer *et al* (1976), which aimed to evaluate the possible cardiovascular effects of emotional stress in executives and non-executives, using a 12 minute tape recorded stress quiz, found that executives with angina responded with a significantly higher heart rate and blood pressure than non-executives with angina as well as non-angina control groups. The authors concluded that their results illustrated the

relationship between emotional stress (including occupational stress) and ischaemic heart disease.

Clearly, the issue regarding the relationship between CHD and occupational stressors is by no means resolved. While the state of the art regarding CHD research is such that no clear picture can be presented about job stressors generally, much less police specifically, it seems critical to obtain the necessary medical, historical, and occupational stress data with a police sample so that a more precise picture can be obtained for both the purposes of a police stress study in particular and for the growing body of literature on CHD and occupational stress generally.

OCCUPATIONAL STRESS AND MINOR AILMENTS

Besides mental disorders (including suicide) and CHD, other ailments said to be exacerbated by psychological job stress include asthma, hay fever, thyroid disorders, repeated skin trouble, arthritis, obesity, hypertension, tuberculosis, migraine, ulcers (including ulcerative colitis) and diabetes (Cooper & Marshall, 1976; Selye, 1976; Kroes, 1976). Kroes (1976) maintains that due to the highly stressed nature of police work, police as a population are particularly prone to these stress induced ailments. In particular, Kroes refers to diabetes and gastrointestinal malfunctions as being highly related to periods of high job stress or emotional upset and refers to the American 1974 statistics which showed diabetes mellitus as being the sixth highest cause of death.

Certainly, gastrointestinal malfunctions such as ulcers of the stomach and duodenum have been found to be common in certain occupations undergoing severe stress situations. Selye (1976) refers to their frequency in peacetime soldiers especially when undergoing strict training and severe discipline. He goes on to state that peptic ulcers of the stomach and duodenum have been commonly found in war combat casualties.

While anxiety stimulates gastric hydrochloric acid and enzyme secretion, ulceration appears to develop only in predisposed individuals (for many indigestion may be the only outcome) and not always in high executive occupations as often assumed. Selye (1976), for instance, refers to a statistical study of Polish miners that revealed heredity as being pertinent to an increase in the incidence of peptic ulcers. An earlier study by Dunn and Cobb (1962), which studied the frequency of peptic ulcer among middle management executives, craftsmen, and foremen, using a questionnaire on three indices of peptic ulcer plus serum pepsinogen levels, found that foremen rather than the

executives, had the highest indices of peptic problems.

Stern (1973) proposed that there was a high rate of ulcers in the US police. However, as with the majority of police stress studies, little empirical research has been carried out to substantiate these claims. Even so, in Kroes' (1975) subjective interview study of American police, it is interesting to note that indigestion was the most frequently mentioned health problem. (Headaches were the second most frequently listed health problem for the sample, which according to Kroes, is higher than the norm). Kroes admits this high indigestion rate may be due to the shift work and eating habits of the police, but it may also be attributed to specific job anxiety. We therefore recommend that any study of stress in the police service, the incidence of other stress related ailments should also be noted in all cohorts in addition to the incidence of mental health and CHD.

ACTUARIAL INDICES OF OCCUPATIONAL STRESS AND HEALTH

Three other major indices commonly used in occupational stress and health studies are performance, absenteeism, and death rates. Initially, however, some of the limitations associated with these indices require discussion.

Performance

Prolonged stress has, in general, been shown to decrease physical stamina, mental alertness, and reaction time. As well, stress induced physical and mental disorders (*eg*, depression) can affect occupational performance (Selye, 1976). In relation to the effects of stressors on police performance, the literature tends to be inconsistent. A study by Waltho (1964) (cited by Selye, 1976) for example, indicates that policemen are more efficient and self assertive when under competitive stress. This view was later verified by Drabek and Haas (1969) in their laboratory simulation of organisational stress in which three teams of US police were confronted with system stress through a simulated disaster. They found a stress induced situation caused a change in group structure whereby intrateam activity became more shared which resulted in an increase of system capacity.

On the other hand, a study by Sheppard *et al* (1974) illustrated that stress due to needs conflicts among police resulted in poor morale, and inefficient job performance. Another US study by Cruse and Rubin (1973) found that stress was perceived by patrolmen in 7 *per cent* of calls and

altered police behaviour (in a negative rather than positive way) in 1.5 *per cent* of calls which, the authors concluded, was a small but significant amount. More recently, Kroes (1976) reported that 22 out of 100 officers he interviewed reported minor accidents on the job which Kroes suggested were probably due to stress as most were caused by the police officers themselves. However, as with so many police studies, the interpretation of these findings are hampered by the fact that often small samples were used (with no control groups) and data were collected using the subjective self report method.

It is probably safe to assume that the detrimental effect stress has on police performance depends on numerous variables including the personality of the individual, the degrees of stress experienced, and finally on the effects of police training. Hammerton and Tickner (1968), for instance, in their investigation of the effects of stress upon skilled performance in three different levels of practice in parachutists, found that although anxiety produced a decrement in tasks of this kind, such decrements could be minimised by appropriate training. It is of interest to note that Knowles and Jones (1974), in their US study looking at the effects of biorhythms on police performance, concluded that negative results were probably due to the policeman's highly trained occupational skills being able to override any biorhythm influences.

Thus, stress may have detrimental effects on police performance which in some instances, *eg*, crisis intervention situations (Bard, 1971), may result in disastrous outcomes. However, individual differences, types of stressors, and training efficiency are influencing variables.

Absenteeism

According to Aldridge (1970) measures of absenteeism can be helpful indicators illustrating broad trends of sickness behaviour in various occupational groups. However, along with other authors (*eg*, Kasl, 1973; Kearns, 1973), he maintains they are notoriously inaccurate when it comes to the diagnostic cause of absence which is often due to doctors interpreting emotional symptoms in terms of organic disease or protecting the patient from stigma.

Kearns (1973) takes this viewpoint one step further, suggesting that absenteeism has practically nothing to do with differences in the state of health of a group of workers but, rather indicates length of service, and motivation of workers. His research indicates there is a tendency for absenteeism to fall as length of service increases and Kearns therefore suggests newcomers to a job are more liable to be absent and that sickness absence is

highest in the employees staying only a short time. Both Kearns (1973) and Kasl (1973) propose that absenteeism from work may be seen as an indication of inadequate role performance, low motivation and morale and job stress. Furthermore, Kasl (1973) makes the interesting statement that absenteeism may also reflect a method of coping with job stress and thus may well contribute positively to well being.

Therefore, although we recommend that absenteeism causes and rates are an important index to be adopted in any proposed study, the limitations associated with such data should be taken into account.

Death

Causes of death, early retirement, and resignations are often used in occupational health studies (*eg*, Ferguson, 1973) and should prove particularly useful in any proposed prospective study of stress in Australian police. However, there are certain limitations to be considered when using death certificates as a basis for epidemiological studies of disease.

An extensive study on this particular issue was carried out by Abramson *et al* (1971), whereby death certificate diagnoses were compared with autopsy findings in a series of 476 autopsies in Jerusalem. In many instances they found great differences between the autopsy data and the death certificate which tended to be associated with age, ethnic group, and presence of associated diseases in the deceased. In fact, death certificate data as opposed to autopsy findings were so limiting and inaccurate regarding CHD the authors concluded that, in Israel at least certificate based statistics on mortality caused by arteriosclerotic heart disease and cerebrovascular disease are nowhere near accurate in that they grossly under estimate the true figure.

Therefore, in any proposed study, death certificate findings should be analysed cautiously. Kroes (1976), for example, maintains that many police suicides, due to stigma and insurance claims, are rarely reported as such in police records.

OCCUPATIONAL SOURCES OF POLICE STRESS

Having discussed the overall outcomes and indices associated with occupational stress with special emphasis on police work environment. Extraorganisational variables,

personality characteristics, and individual differences as well as negative community attitudes, alienation, crisis intervention situations, and subsequent role conflicts are all acknowledged as being important stress influences on police. Except for personality characteristics and individual differences (discussed in Chapter 4), we have already reviewed these possible stress sources, consequently we will concentrate on a number of possible environmental sources of stress in police work hitherto not discussed. In order to do this rationally, we have adopted the main isolated sources of stress at work, (see Figure 1.3) and which are commonly found in models of stress at work (*eg*, Cooper & Marshall, 1976):

a. factors intrinsic to a particular job,

b. role in the organisation,

c. career development,

d. relationships at work, and

e. organisational structure and climate.

FACTORS INTRINSIC TO THE JOB

Sources of stress intrinsic to the job across a variety of occupations include poor physical working conditions, work overload, work underload, time pressures, and physical danger (Cooper & Marshall, 1976). In relation to police careers, stressors intrinsic to the job have been isolated as including poor equipment, long hours and shift work, job overload, job underload (due to such factors as paper work resulting in boredom), the courts, and threatening duty situations (Chposky, 1975; Kroes, 1976; Margolis, 1973).

Poor equipment. Two US studies carried out by Margolis (1973), and Eisenberg (1975), both state that police report stress due to poor equipment and continual equipment failure. Eisenberg (1975) maintains this is perhaps not surprising when one considers that both the quality and safety of police work is partly dependent on having efficient equipment, which includes communication equipment, vehicles, safety materials and so on.

Shift work. Numerous occupational studies have found that shift work is a common occupational stressor as well as effecting neurophysiological rhythms within man such as blood temperature, metabolic rate, blood sugar levels, mental efficiency, and work motivation - which may ultimately result in stress related disease (Cobb & Rose,

1973; Colquhoun, 1970; Hurrell & Kroes, 1975; Selye, 1976). A particular occupational study by Cobb and Rose, (1973) on air traffic controllers (a particularly highly stressed occupation), found there was four times the prevalence of hypertension and also more mild diabetes and peptic ulcers than in their control group of second class airmen. Although these authors attributed other job stressors as being instrumental in the causation of these stress related maladies, a major job stressor was isolated as shift work.

There has been no empirical association found between stress related maladies in the police and shift work. However, surveys have indicated that police report shift work as being a major occupational stressor (Eisenberg, 1975; Hilton, 1973; Kroes, 1976; Margolis, 1973). Hilton (1973), Margolis (1973), and Kroes (1976) report police as complaining that rotating shift work not only disrupts their family life and health but, can also effect their performance on the job, especially when they are suffering from fatigue due to their inability to sleep during the day. Eisenberg (1975) suggests that inconveniences related to shift work in the police are further enhanced by the necessity to make irregular and lengthy court appearances, a stressor Kroes (1976) maintains is a unique police stressor.

Although stressors associated with shift work require investigation in Australian police cohorts, we need to take note of Selye's (1976) conclusion on the issue. He suggests that most investigations agree that shift work becomes physically less stressful as individuals can (and do) habituate to the condition. Even so, being "excluded from society" is a common complaint among shift workers. We may for instance find, as Knowles and Jones (1974) did in their US police population, that police training skills has priority over their biorhythm ratings and subsequent shift work effects.

Job overload. French and Caplan (1972) see work overload as being either quantitative (*ie*, having too much to do) or qualitative (*ie*, being too difficult) and, although empirical evidence demonstrating that work overload is a main factor in occupational ill health is not available, certain behavioural malfunctions have been associated with job overload (Cooper & Marshall, 1976). For example, the French and Caplan (1972) research that indicated a relationship with quantitative overload and cigarette smoking (an important symptom in relation to CHD) and Margolis *et al* (1974) in their sample of one and a half thousand employees, found that job overload was associated with such stress related symptoms as lowered self esteem, low work motivation, and escapist drinking.

Similar findings have been reported by Kroes (1976) in his US police surveys. Kroes (1976) suggests that

qualitative job overload among police is often due to expectations placed on the police officer by the police department and society, with quantitative overload being dependent on the particular police department and the population of the area. He found that 70 *per cent* of police felt they were stressed due to job overload. One US police department in which 50 *per cent* of officers (out of a total of 42) were aged over 30 years, there were noted one heart attack, one case of hypertension, several ulcers, two nervous breakdowns and excessive smoking behaviour in all but three cases.

As well, shortage of manpower within the police has been shown to contribute towards work overload. Both American and the British studies, by Rubinstein (1973) and Martin and Wilson (1969) respectively, have indicated that shortage of manpower causes major problems in a police force, especially when it involves longer working hours. These findings have also been substantiated by Wilson and Western (1972) as a problem facing Australian police.

Job underload. On the other hand, job underload associated with repetitive, routine, boring, and under-stimulating work environments (*eg*, paced assembly lines) have been associated with ill health (Cooper & Marshall, 1976). In relation to the police situation, Rubinstein (1973) found that periods of boredom such as routine patroling are a common situation inherent in police careers which he suggests not only cause fatigue but, the resulting sensory deprivation may possibly result in psychological regression, (a state characterised by psychological deterioration).

Eisenberg (1975) maintains these periods of boredom are especially detrimental to health when they are suddenly disrupted due to a crisis call for instance, hence giving a sudden jolt to the physical and mental state of the police officer. Kroes (1976) proposes that besides health, the actual performance of police can be influenced by boredom and suggests that police will occasionally engage in marginal activities such as questioning "suspicious" characters in order to break the monotony.

A particular complaint inherent in police work and related to boredom and routine, has been shown to be excessive paper work. In the United States, Kroes *et al* (1974) reported that police felt they were spending too much time on paper work and, Eisenberg (1975) maintains the frustrations associated with paper work are enhanced by the fact that a majority of police fail to see the need or purpose of this task as being part of their job.

These findings have been replicated in Australian studies. Chappell and Wilson (1969) for example, found that

paper work was a particular area of concern among Queensland police with 55 *per cent* of respondents feeling that this time and effort would be better channelled into such areas as crime prevention and detection. More recently, Swanton (1974) in a survey of the police association of South Australia, found that excessive paper work was considered by noncommissioned members as being second only to pay and allowances, as a cause for concern.

In conclusion, it would appear that both job overload and underload may have detrimental effects on Australian police. A particularly relevant physiological study undertaken by Frankenhaeuser *et al* (1971) found that student policemen, when subjected to both overstimulation (a complex sensorimotor test) and understimulation (a vigilance test), secreted increased norepinephrine in both situations when compared to controls operating under conditions of medium stimulation. However, subjects excreting relatively more epinephrine performed better during understimulation, whereas efficiency was greater during overstimulation in those releasing small amounts of epinephrine.

Obviously then, as in most cases, individuals react differently to the same conditions. However, if we agree with Coburn's (1975) assumption in which he suggests that the closer one is to the job, the greater the detrimental effects from job overload or underload, the police who can rarely escape their work role are probably highly susceptible to maladies related to job underload and overload.

Courts. Kroes (1976) suggests that stressors associated with the courts are specific occupational stressors unique to police careers and not shared with other occupations. Unfortunately, most of the relevant research regarding this issue is American. Chposky (1975), for instance, refers to earlier work by Kroes in which 50 *per cent* of the police interviewed (total being 100) reported they were bothered by the amount of time they had to spend in court and the general lack of consideration given in the scheduling of appearances. Margolis (1973) and Eisenberg (1975), have both substantiated these findings and add that besides court appearances being time consuming, police often are frustrated over judicial procedure, inefficiency, and court decisions.

With regard to Australian cohorts, any proposed research into stress among police will give us some indication as to whether the courts are seen by Australian police as being a particular occupational stressor. Research by Wilson and Western (1972) indicated that 10 *per cent* of time was taken up with court work in their sample.

Physical danger. According to Kroes (1976), physical

danger, which can result from line of duty/crisis situations and racial situations between minority group members, in which a threat to an officer's physical wellbeing may overwhelm him emotionally, is a specific police stressor not shared by any other occupational groups. While we support Eisenberg's (1975) claim that danger, fear of serious injury and disability, and even death, can make police work a hazardous environment in which to work and is probably a major job stress, we cannot agree with Kroes' assumption that such conditions are unique to police careers.

Kasl (1973) for instance, isolates other occupations which share similar physical dangers as including mine workers, soldiers, and firemen (soldiers and firemen being ideal control groups to be considered in any proposed research on stress in the Australian police). In fact Kasl (1973) maintains that rather than such indices as job satisfaction and symptoms of mental illness, the best evidence so far in occupational stress research have shown a causal link between physically hazardous conditions at work and ill health. Thus, although we recommend the measurement of the amount/degree of stress associated with physical danger in all cohorts, it is interesting to note that an American study by Ford *et al* (1971) found that 23 patrolmen (obviously a limited sample) did not differ significantly from mailmen or psychology students in their fear of death. The authors suggested that these policemen were either atypical in that they had worked out their death anxiety consciously and therefore volunteered to do the questionnaire, or due to the hazardous nature of their work had (like most of their colleagues) overcome their death fears.

Rather than assuming that the threat of physical danger is unique to police, we suggest that it is both the clustering of the various dimensions of physical threat (*eg*, brawls, impersonal violence, domestic interventions) and the implications of the officers actions in responses to physical danger (*eg*, court appearances, litigation, liabilities) which are likely to be unique to police careers. Thus, the policeman unlike the fireman, prison guard, or military man is likely to have a unique set of stressors with regard to physical dangers: (1) intensity, (2) frequency, (3) duration, (4) consequences of action/reaction and (5) fear of faulty decisions due to implication. Consequently, whatever control group is used in the proposed study, we must expect this variable to confound results to some degree.

ROLE IN THE ORGANISATION

A person's role at work has been isolated as a main source of occupational stress involving role ambiguity (*ie*,

a lack of clarity about the work) and the role conflict (*ie*, conflicting job demands) as have responsibility for people, and conflicts stemming from organisational boundaries (Cooper & Marshall, 1976). Authors such as French and Caplan (1972), Beehr, Walsh and Taber (1976) and Shirom *et al* (1973), have indicated that these organisational stresses stemming from role ambiguity and conflict can result in such stress related maladies as CHD.

French and Caplan (1972) for instance, in their study of the heart rate of 22 male office workers, found that mean heart rate was strongly related to reported role conflict. As well, Shirom *et al* (1973) in their study of kibbutz members, found a significant relationship between role conflict and CHD in white collar workers. From these findings, Cooper and Marshall (1976) conclude that less physical occupations such as managerial, clerical, and professional, are more prone to occupational stress related to role conflict. However, there appears to be disagreement over whether more professional employees are more prone generally to job stress and such outcomes as CHD. Hollander (1972), for example, maintains that men in highly responsible positions fare no worse than the average in mortality rates and the incidence of CHD.

Even so, degrees of responsibility for people and their safety, appears to be a potentially viable occupational stressor. Kroes (1976) sees this as a potential stressor in policing, although not to the extent it is for air traffic controllers. However, he goes on to state, in some ways this stressor can be as great for police, as their guidelines are more varied and the decisions they have to make, (*eg*, stopping suicide attempts or deciding when to shoot) are less clearly defined.

Balch (1972) emphasises the importance of the fulfilment of police job satisfaction and efficiency. American research by Symonds (1970), and Australian studies by Chappell and Wilson (1969), both indicate that police applicants tend to be attracted to the police role image. Sheppard *et al* (1974) have hypothesised that the police role image may be attracting a specific personality type as recruits. Although, this has been refuted by such authors as Balch (1972), personality differences are an important determinant of how an individual reacts to role conflict and greater job related tension is produced in introverts than extraverts (French & Caplan, 1972). French and Caplan (1972) also hold that flexible people show greater job related tension under conditions of conflict than do rigid individuals.

Eisenberg (1975) has isolated the police role related to stopping the rise in crime as causing most role conflict; the conflict existing between maximising the efficiency in

enforcing law on the one hand versus guaranteeing constitutional rights and civil liberties on the other. Also, he refers to the job conflict resulting from occupational versus marital roles (previously discussed) and the sense of uselessness that sometimes occurs when police are unable to deal adequately with problems experienced by members of the public.

Perhaps one of the major organisational role conflicts found in police careers, and which we have already discussed, stems from negative community attitudes. On this particular occupational stressor, we agree with Kroes (1976) who maintains this is a unique police stressor not found in other occupations. Stress resulting from role expectation and conflict between police and the community can lead not only to isolation but, also induce low morale which may lead to overly aggressive police work; especially when the police regard the public as their enemy, and *vice versa* (Clark, 1965). Ward (1971) goes one step further, believing that if the police service is to be improved, and the ambiguity of the police role clarified, we must begin to look at it in its perspective to society.

CAREER DEVELOPMENT

The next group of environmental stressors is related to career development which, Cooper and Marshall (1976: 18) maintain, refers to 'the impact of overpromotion, underpromotion, status incongruence, lack of job security, thwarted ambition, *etc*.' Certainly, police hierarchy, promotion restrictions, and pay inadequacies have all been attributed to police job stress (*eg*, Cain, 1973; Punch & Naylor, 1973; Reiser, 1974; Rubinstein, 1973; Wilson & Western, 1972).

Status congruency or the degree to which there is job advancement (including pay grade advancement) was found by Erickson *et al* (1972) in their large sample of navy employees, to be positively related to military effectiveness and, negatively related to the incidence of psychiatric disorders. In relation to stress resulting from promotion, Brook (1973) found that overpromotion, (*ie*, beyond maximum level of competence) and underpromotion caused occupational stress, thereby causing some individuals to progress from minor psychological symptoms to psychosomatic complaints, and finally develop into mental illness.

Both Eisenberg (1975) and Kroes (1976) state that in the US limitations on police promotional opportunities and career mobility (unless one is already high in the hierarchy) is another major occupational stressor.

Eisenberg (1975) blames this particular stressor as being a contributing factor behind police leaving the force for career related professions such as firemen and probation officers. Hurrell and Kroes (1975) believe poor promotional opportunities in policing also create disruptive competitiveness which hinders true group cohesion.

Poor pay and promotion through the ranks also appears to be a particular problem facing Australian police, with Wilson and Western's (1972) survey indicating a large proportion of policemen were dissatisfied with the present system, *eg*, 37 *per cent* gave lack of opportunity for promotion as the major reason for leaving the force. The actual waiting period for promotion is another source of concern with little account being taken of efficiency or ability. According to Wilson and Western (1972), the Victorian Chief Commissioner of Police was noted as stating that on average promotion to Senior Constable came after 12 years of service in the force, to Sergeant after 18 years, to Inspector after 27 years, and to Superintendent after 33 years.

In the US, Reiser (1974) has also pinpointed police examinations as another stress area in the promotion system, with many candidates often questioning just how equitable the examination system really is. In Queensland, the Police Qualifying Examinations in 1974 (taken from the *Annual Report* of the Police Commissioner 1974/75) showed that only 36 *per cent* of officers passed. According to Reiser (1974), those who fail and have subsequently lost their chance of promotion often feel stressed, depressed, and alienated.

Inadequate pay is another area of concern for police. In Australia, police earn more throughout their years of service than public servants but, Wilson and Western (1972) suggest their pay is not commensurate with their difficult and responsible (not to say dangerous) job. Moreover, Miller *et al* (1973) found that 40 *per cent* of US police had second jobs, which were mainly in security fields. Although Australian police are not officially allowed to have second jobs, Chappell and Wilson (1969) found that these rules were often ignored by administrators who are eager to keep wastage rates as low as possible. However, objections relating to police personnel working at second jobs include fatigue, adverse job efficiency, and the fact that they may be placed in a compromising situation through their civilian employment (Chappell & Wilson, 1969).

RELATIONSHIPS AT WORK

Relationships at work which include the nature of relationships with one's colleagues, boss, and subordinates,

have also been related to job stress. According to French and Caplan (1972), poor relations with other members of an organisation may be precipitated due to role ambiguity in the organisation, which in turn produces psychological strain in the form of low job satisfaction. Empirical data as to whether this occupational stressor actually contributes to mental and physical ill health, are limited. However, Caplan *et al* (1975) found that high social support from peers relieved job strain and was also shown to condition the effects of job stress on cortisone, blood pressure, glucose, and the number of cigarettes smoked as well as cigarette smoking quit rate.

Hurrell and Kroes (1975) propose that although extreme competitiveness between police peers can be disruptive, loyality and fear of letting a fellow police officer down, often drives police to continue performing their duty. Both Rubinstein (1973) and Reiser (1974) emphasise the importance of hierarchial and peer group good relationships and support in police working environments in which cultural norms, values, and attitudes are overriding.

Furthermore, conflict and anxiety can be generated in officers if dissonance exists with regard to identifying with or conforming to peer group expectations. Reiser (1974) attributes what he labels the "John Wayne Syndrome" whereby new recruits under the new police peer pressure, are often unsure of their police role and these stressors result in such behaviours as talking tough and tensing muscles. After three or four years, Reiser maintains, this behaviour disappears once the officer has been able to balance his police role, with the expectations of peer group, organisation and family. Rubinstein (1973), on the other hand, explains this development of supportive peer relationships as being sustained by police colleagues openly aiming to neutralise personal antagonisms and anxieties arising from any conflict between them, by placing themselves in the debt of others through a continual disclosure of indiscretions, which could be damaging if revealed to persons outside the unit. As well, Rubinstein (1973) proposes that if relationships are good, tensions of police work tend to be relieved by an almost continual amount of joking - its absence he maintains, is a good sign that particular police unit has problems as well as indicating insecurity among the men.

ORGANISATIONAL STRUCTURE AND CLIMATE

The final potential source of occupational stress is related to organisational structure and climate which includes such factors as office politics, lack of effective consultation, no participation in the decision making

process, and restrictions on behaviour (Cooper & Marshall, 1976). Margolis *et al* (1974), and French and Caplan (1972), both found that greater participation led to higher productivity, improved performance, lower staff turnover, and lower levels of physical and mental health (including such stress related behaviours as escapist drinking and heavy smoking).

With regard to the police situation, the main occupational stressors related to organisational structure and climate appear to be due to the lack of support from superiors and frustrations related to administrative policy. In their US surveys, Eisenberg (1975), Margolis (1973), and Kroes (1976), all reported their police samples as isolating poor supervision resulting from lack of availability, advice and support, as a particular occupational stressor.

Moreover, these complaints have not only been attributed to the lower police ranks. Kroes, Hurrell and Margolis (1974), for instance, found that police administrators also experience problems with their major stress areas being associated with policies and procedures as well as a lack of support from higher echelon administrators (other areas of stress being excessive paperwork and red tape).

The survey by Wilson and Western (1972) of the Victoria Police, found that although the issue of superior-subordinate relations was not included in the list of reasons for resigning from the police force, 20 *per cent* of their sample of men who had left the force mentioned it. This suggests that poor supervision may be a source of fairly widespread dissatisfaction in police careers. Kroes, Margolis and Hurrell (1974) suggest that a police officer is better able to cope with the stress he faces if he feels that his superiors understand and know his problems and will support him.

Dissatisfaction with administration is another occupational stressor associated with police work. Kroes *et al's* (1974) survey reported that 51 *per cent* of police respondents when asked what areas of their job they were most dissatisfied with, said administration and related policy, assignments, and procedures. Related to this, both Kroes (1976) and Rubinstein (1973) have found that police officers often complain of not being asked to provide any professional input in the decisions and policies that directly effect them, as well as having little knowledge of police or governmental policies.

CONCLUSION

By reviewing relevant occupational research, we have attempted to isolate possible occupational stressors which may be inherent in the Australian police service. Kroes (1976) has isolated the four following occupational stressors which he suggests are unique to police careers:

a. courts,

b. negative public image,

c. racial situations, and

d. line of duty crisis situations.

Each of the four areas isolated by Kroes as unique police stressors are clearly *not* unique to police. Regarding courts, probation and parole officers are likely to experience similar stressors to police. With regard to negative public image, prison warders are consistently seen as "worse" than police by the public (although they do not have as high a public profile as police). In relation to racial situations, here in Australia this may not be as large a consideration as in the US and Britain where this is a major problem. The line of duty crisis situation also is shared (to some extent) by firemen, and army personnel in time of combat.

Rather, what we suggest is that the components of the stressors posited by Kroes may define the police as a "unique" occupation in the way that they cluster. This is, of course an empirical question which should be examined in detail in another study.

We suggest that for the purpose of the present study, we utilise the public image component of Kroes' scheme as it is the most readily measured and controllable of the variables he posits as unique police stressors. As well, we propose that the uniqueness of the stressors inherent in the police profession is an ancillary question which can be defined with regard to any control groups in an empirical fashion in a later study. Although, we must present a profile along the indices suggested by ourselves and Kroes for our police cohort and any control groups.

METHODS OF MEASUREMENT

In agreement with Cooper and Marshall (1976), we believe the area of stress to be multifactorial, requiring emphasis on more than one stressor at a time. Therefore,

rather than limit attention to only one or two indices of job stressors, *eg*, job satisfaction questionnaires, we recommend that a modified version of the Job Environment and Health Questionnaire for Police Officers and Administrators and Supervisors formulated originally by the US Department of Health, Education and Welfare be administered to all cohorts.

This questionnaire includes the following measurements, all of which have been previously isolated and discussed throughout the chapter:

a. demographics, including rank, age, ethnic background, marital and family background, educational background,

b. types and times of duty,

c. work schedules, including shift work details,

d. extra organisational activities, including education courses and extra jobs,

e. occupational situation preferences and stress associations,

f. job satisfaction measurements which include overload, underload, role conflict/fulfilment relationship with supervisor and peers, pay and promotion prospects,

g. occupational influences on family and social life,

h. ratings relating to specific occupational stressors which previous research findings have isolated including public attitudes, isolation, alienation, administrative policies, promotion systems, paperwork, equipment maintenance, courts, supervisor support,

i. number of accidents on duty,

j. matters related to the police union or association,

k. as previously mentioned in Chapter 2, we have modified this questionnaire to include the five items in the Rollins and Feldman Marital Satisfaction and Life Cycle Index.

All instruments utilised will require to be appropriately modified for control group(s).

CHAPTER 4

STRESS AND INDIVIDUAL DIFFERENCES AMONG POLICE

INTRODUCTION

One of the major issues in the area of stress research *per se* is the old question - why are potentially stressful situations perceived as stressful by some individuals and nonstressful by others? Not only are objective social conditions stressful depending upon the perceptions of the individual subject to it (House, 1974) but, Theorell and Rahe (1974) suggest that much of the same sort of stressful condition may manifest as differing types of somatic and psychosomatic responses (*eg*, in one person a myocardial infarct and in another a depression).

Although we are attempting to investigate aspects of stress in a specific occupational group, *ie*, Australian police, we are still dealing with individuals who will have their own unique life histories, experiences, and personalities. According to such authors as Appley and Trumbell (1967), and Sells (1970), it is an individual's personality profile and past experience which can be instrumental in determining performance under certain stimulus conditions.

Therefore, in any analysis of occupational stress in police, specific individual responses to stress which involve complex interdependence among physiological, psychological, and behavioural variables must be taken into account. For the purposes of a study of stress in the police, there appear to be three main variables which research has identified as discriminant in relation to individual differences in response to stressors:

a. age,

b. personality, and

c. behavioural traits.

AGE AND SUSCEPTIBILITY TO STRESSORS

There is substantial evidence that response to stressors is considerably influenced by age (Selye, 1976; Kral, 1973). There appears to be consensus that resistance to stress does decrease with age and, authors such as Selye (1976) and Kral (1973) maintain this is due to physiological changes.

According to Selye's (1976) application of a physiological explanation to age and stress, individuals who survive and reach old age in good health have preserved a relatively intact pituitary adrenal mechanism involved in response to acute stress. Kral (1973) on the other hand, in his hormonal studies, concluded that not only is there a decline in adrenocortical function with aging in stressful situations but suggested that cerebral pathology modifies the function of the adrenal cortex. Besides purely physiological breakdowns of defences to stressful situations in old age, authors such as Thomas (1966) (cited in Selye, 1976) believe that aging itself may not have a single cause but may represent a variety of chemical and morphologic scars accumulated during an individual's life time of exposure to numerous stressors.

The Australian Heart Foundation's latest report has found that those most affected by heart disease fall in the age range between 30 and 64 years with 60-64 years having the highest rate (*Australian*, 21 Feb 77: 1). In relation to the male Australian police population, a population aged between 19 years of age (entry) to 60 years of age (retirement) would be the necessary focus of study. We can conclude from the literature that the older an individual is, the higher the risk of susceptibility to stressors and subsequent stress outcomes such as disease. Therefore, any comprehensive study of police stress will need to study a cross sectional age sample of policemen. Our hypothesis is that there will be less measurable physiological stress changes in the 19-30 year age group. However, if this proves to be so, we cannot automatically assume that this police age group is subjected to fewer stressors than the 30 years plus group. The lack of psychophysiological stress may be due to the stronger physiological defenses to stressful situations commonly found in younger age groups. Thus, while differences are likely to appear, analyses of the differences should proceed cautiously.

PERSONALITY AND BEHAVIOURAL TRAIT INFLUENCES

Numerous studies (*eg*, Finn *et al*, 1969; Frankenhaeuser, 1974, 1976; Jenkins, 1971; Schalling, 1975; Welford, 1974) have been carried out on individual personality and behavioural differences associated with stress related diseases, particularly CHD. In order to try and isolate the types of individuals (in our case policemen) who may be more characteristically predisposed to stress, it seems appropriate to review the three principal directions of research in the area suggested by Cooper and Marshall (1976):

a. anxiety and stressor types as related to personality,

b. studies aimed at examining the relationship between various psychometric measures and stress related outcomes using psychological tests such as 16PF and MMPI, Barnett Behaviour Pattern Scale and

c. studies examining stress behaviour patterns and the incidence of stress related disease.

ANXIETY AND STRESSOR TYPES AS RELATED TO PERSONALITY

Welford (1974) maintains that individual differences in the degree of anxiety to stressors related to personal dimensions are due to variations between extremes of stability and instability linked to Eysenck's (1958) concept of neuroticism and to Spence and Taylor's (cited in Welford, 1974) measure of anxiety. From linking personality scores and autonomic indications of arousal and performance, Welford concludes that introverts represent greater chronic arousal than do extraverts. Therefore, introverts tend to perform better under monotonous conditions where arousal tends to sag and to be less affected by loss of sleep and by narcotic drugs than extraverts. However, unlike introverts, extraverts tend to seek stimulation in order to sustain optimal arousal and tend to remain stable under pressure and perform well under such conditions.

These assumptions have been verified more recently by Schalling's (1975) anxiety studies. They indicated anxiety as being higher in individuals possessing a high level of neuroticism (using Eysenck's scale). But, the type and degree of anxiety was dependent, to some extent, on whether the person was high or low in extraversion. Another important finding evolving from Schalling's (1975) studies is that self reported sensitivity to different types of stressors was related to different personality dimensions, *eg*, extraverts reported fewer unpleasant feelings than introverts to anticipatory situations.

Although there have been studies which have attempted to define the "police personality" (*eg*, Balch, 1974; Sheppard *et al*, (1974), there have been no empirical studies investigating individual police differences in the degree of anxiety to stressors as related to personality dimensional variations between the extremes of stability and instability. Due to the outgoing nature of the job with the heavy emphasis on fitness and versatility, especially at recruit level, one might expect the police occupation to attract

more extraverted types as opposed to introverts. It is of interest to note that Welford (1974) referred to an earlier study by Salas and Richards (1968) which showed a tendency for Australians to be more extraverted than people in Britain, as measured by the Maudsley Personality Inventory and the Eysenck Personality Inventory.

However, we cannot assume that Australian police are a predominantly extraverted population. Personality variations between extremes of stability and instability linked to Eysenck's concept of neuroticism and anxiety need to be measured in any police population sample with the qualifications on the data that:

a. high extravert subjects and high introvert subjects may perceive the same type of stressor differently, and

b. unlike introverts, extraverts tend to seek stimulation in order to sustain optimal arousal and therefore tend to remain stable under pressure and perform well under such conditions.

As well, we should consider Eisenberg's (1975) observations of particular personality types in the US police who are highly prone to occupational stressors:

a. *the incompetent* - unable to benefit from training and is subjected to severe stress; may choose to leave the police force whilst others who stay attempt to cope,

b. *the fear-ridden* - in constant fear of wellbeing and is therefore subject to extra stress,

c. *the nonconformist* - police demand conformity to established norms - pressure to conform is severe, creating a stressor for the nonconformist, and

d. *the ethnic minority officer* - extra stressors as well, receives scepticism by members of his own background - may not be fully accepted by own police peers, therefore, lack of support, camaraderie, and occupational identity.

PSYCHOMETRIC MEASURES AND STRESS·RELATED DISEASE

When examining the relationship between MMPI and 16PF and other psychometric measures and stress related disease, the findings do tend to be consistent. Cooper and Marshall's (1976) article provides an extensive review of these studies. Referring to the results of six major studies which utilised the MMPI (*ie*, Bakker & Levenson, 1967; Brozek *et al*, 1966; Buhn *et al*, 1969; Lebovits *et al*, 1967; Mordkoff & Rand, 1968; Ostfeld *et al*, 1964), Cooper and Marshall concluded that before the onset of their illness, CHD patients differed from individuals who remained healthy on several MMPI scales including hysteria, hypochondriasis, and depression. Another important issue they emphasised, was that the studies also indicated that after the onset of potentially fatal diseases, survival rates were lower and mortality rates were higher for those who showed greater neuroticism (especially depression). The review by Cooper and Marshall (1976) of three studies utilising the 16PF (*ie*, Bakker, 1967; Finn *et al*, 1969; and Lebovits *et al*, 1967) proved consistent with the previous six MMPI studies in that the patients with CHD or related illness were shown to be introverted and emotionally unstable.

However, Cooper and Marshall (1976) rightly criticise these previous studies by pointing out that they are basically retrospective. That is, anxiety and neuroticism may well be reactions to CHD and other stress related illnesses rather than precursors of it. Even so, they do refer to one of the few prospective studies in the area, that of Paffenbarger *et al* (1966), which found high anxiety/neuroticism scores to be a significant precursor to fatal CHD cases in a student population. Therefore, although the consistency of results substantiates the use of the 16PF measurement in relation to an Australian police sample, the Eysenck Personality Inventory (EPI) is a valid abbreviated version of the 16PF which would yield scores on Introversion/Extraversion and Neuroticism/Psychoticism, which are the salient scales of the 16PF with regard to personality type and CHD.

STRESS BEHAVIOUR PATTERNS

According to Cooper and Marshall (1976), research investigating individual stress differences and behaviour patterns began in the early nineteen sixties being influenced by the work of Friedman *et al* (1958) and has since shown a relationship between prevalence of CHD and behavioural patterns. More recently, Rosenman and Friedman (1974) believe they have isolated two main types of

behaviour patterns - Type A and Type B. Type A behaviour is characterised by high achievement, motivation, striving, hard driving competitiveness, time urgency, and many other activities which involve a tendency to suppress fatigue in order to meet deadlines. Therefore, the kind of life style associated with this type of behaviour pattern is implicated in the etiology of CHD. Type B behaviour is characterised by relative absence of Type A behaviour patterns and significantly lower incidences of CHD.

Frankenhaeuser (1976) agrees with the suggested relationship between behavioural patterns and the prevalence of stress, and blames societal value systems and pressures of overload as being instrumental in producing Type A behaviour patterns in individuals. She maintains individuals develop different strategies such as ignoring selective stimuli or avoiding commitments in order to cope with overload. However, in technological societies, Frankenhaeuser believes many individuals engage in a continual struggle to attain quickly many of the goals set up by the societal value system and it is these Type A individuals who are predisposed to the pressure of overload and its consequences. Frankenhaeuser (1976), when referring to the results of Burman *et al*, (1975) study also emphasises that Type B individuals are not immune to such pressures and under conditions of time, pressure, and overload, may be provoked into taking on Type A behaviour patterns.

Many studies, *eg*, Quinlan *et al* (1969) and Zyzanski and Jenkins (1970), have consistently verified Type A as a relevant syndrome in CHD patients. Early studies by Rosenman *et al* (1964, 1966) are the most sound methodologically. After a two and a half year prospective study on 3,400 men free of CHD, who had been rated either Type A or B by naive psychiatrists and were examined by an independent naive medical internist and electrocardiographer, it was found that a larger proportion of Type A men experienced CHD than Type B men. Also, they had risk factors of decreased blood clotting time, elevated excretion of norepinephrine, elevated betalipoproteins, and elevated serum cholesterol levels. All these results were later verified during eight and a half years of followup observation to the study (Rosenman *et al*, 1976).

Therefore, it appears appropriate to assume that police with Type A behaviour traits will be more prone to stress related disease. It is difficult to ascertain whether the police as an occupation either attracts or encourages Type A people. Skolnick (1973) maintains that the pressures and stresses of the police job itself generates specific cognitive and behavioural responses in police which he refers to as a "working personality". Although there are vast variations in this so called police working personality, some of the basic attitudinal

similarities which have been attributed to it include suspiciousness, conformity, rigidity, cynicism, and authoritarianism (Balch, 1972; Niederhoffer, 1967; Radelet, 1973; Skolnick, 1973).

However, these traits, rather than being an inherent personality construct, tend instead to be developed by the work situation and, therefore, vary not only between cultures but also between police forces in the same society. For example, an American study by Carlson *et al* (1971) found that members of an innovative police department were less authoritarian than those of a traditional police department. As well, we must not assume that this so called working personality will always have adverse attributes when subjected to stressful situations. In relation to conformity and rigidity, for example (by its very nature, police work implies the maintenance of the *status quo* of law and order), Reiser (1976) maintains that flexible people experience more conflict than rigid ones when exposed to severe conflict stress situations.

Barnett (1975) has developed an 18 item test derived from lengthier personality tests which both Easterling and Braun (noted specialists in psychometrics) have publicly supported as valid (personal communication cited in Barnett, 1975). Through the use of this brief 18 item test rather than the massive 550 item MMPI, "high risk" CHD prone police for instance, will be able to be identified with little inconvenience.

CONCLUSION

It appears evident that variables such as age and behavioural and psychometric measurements of individual differences play an important role in stress research. In relation to any proposed study of stress in the Australian police service we make the following recommendations:

a. that any selected sample should include a representative cross sectional age range (+ rank), *ie*, between 19 and 60 years of age,

b. in order to examine the relationship between various psychometric measures including:

   (1) extraversion versus introversion,

   (2) degrees of neurosis and anxiety, and

(3) other personality traits especially those typically associated with Type A and Type B behavioural characteristics and stress related outcomes, psychological tests, *ie*, Eysenck Personality Inventory and the Barnett Behaviour Pattern Scale should be implemented, and

c. that such a study should be prospective rather than retrospective.

CHAPTER 5

PSYCHOPHYSIOLOGICAL MEASUREMENTS OF STRESS AND DISEASE

PHYSIOLOGICAL MEASUREMENTS OF STRESS AND DISEASE

In primitive man, the stress process served to key up the body for fight or flight. The stress process involves the area of the brain known as the hypothalamus, the autonomic nervous system and the adrenal, pituitary and other endocrine glands. Under certain stressful conditions, these glands discharge hormones into the bloodstream causing various biochemical changes which can influence, directly or indirectly, a large number of physiological processes, *eg*, blood pressure, heart rate and contractility, and the digestive system (Levi, 1972).

These psychophysiological reactions to stressors have proved useful measurements of stress. It has been shown that, in some cases, these malfunctions of mental and physiological systems are often "precursor" states which can induce disease (Levi, 1972; Selye, 1976).

Levi (1972) and Selye (1976) point out that there have been difficulties encountered in stress research in attaining objective indices of the measurement of stress intensity. Selye (1976: 668) blames this difficulty on the fact that:

> 'every agent also has specific effects which may selectively affect and alter the response of one or the other target, used as an indicator of nonspecific stress.'

There appear to be limited empirical data available on psychophysiological measures as either indicators of the effects of stressors or general health of police *per se*. Hence, methods and measurements used as psychophysiological indicators of reactions to stressors, their relevance to occupational research findings and disease diagnosis of the common stress associated maladies such as CHD, asthma, skin disorders, peptic ulcers, diabetes, and psychiatric disturbances, will be emphasised throughout this chapter. As our interest rests in the application of psychophysiological stress indices to police and a matched cohort to ascertain and isolate similarities and differences (taking into consideration financial restraints), we limit ourselves to reviewing in detail only those measurements of psychophysiological change that have proved most valid and reliable as being *specifically induced by stressors*. Thus, the following psychophysiological stress measurements are discussed:

a. *physiological stress indices commonly associated with CHD:*

   (1) plasma lipids and catecholamine excretion,

      (a) cholesterol,

      (b) triglycerides, and

      (c) other blood chemistry measurements: haemoglobin, uric acid, creatinine glucose, GGTP,

   (2) electrocardiogram (ECG),

   (3) cardiac auscultation, and

   (4) anthropometric techniques,

b. *endocrine mechanisms and stress indices:*

   (1) sympathoadrenomedullary activity, and

   (2) andrenocortical activity,

c. *medical examination and interview forms, and*

d. *psychological stress indices:*

   (1) Barnett Behaviour pattern scale - to measure A & B personality types,

   (2) EPI - to measure extraversion versus introversion,

   (3) OLEQ - life events and changes questionnaire,

   (4) RFMS - marital satisfaction and life cycle index, and

   (5) toxicomanias - measurement of amount of drug intake.

PHYSIOLOGICAL STRESS INDICES COMMONLY ASSOCIATED WITH CHD

PLASMA LIPIDS AND CATECHOLAMINE EXCRETION

Psychophysiological stressors have been shown to elicit an increased release of adrenal hormones which contribute to a release of increased amounts of FFA from adipose tissue (Levi, 1971). According to Levi (1972: 287-288):

> 'The free fatty acids of plasma are rapidly incorporated into triglycerides of the liver and the plasma lipoproteins. The pool of triglycerides in the liver increases, which secondarily brings about an increase in the amount of plasma triglycerides and of other plasma constituents of the lipoproteins such as cholesterol.'

These lipid changes, *ie*, triglycerides and cholesterol levels, have been associated with and used diagnostically in numerous studies of CHD, *eg*, Rosenman *et al*, 1976; Selye, 1976. Hence, they are critical nonhormonal metabolities which must be measured in the experimental and control subjects in any study of stress in the police service.

TRIGLYCERIDES

Stress in man is associated with catecholamine discharge which ultimately affects the lipolytic action causing a rise in plasma lipids and FFA, especially triglycerides (Selye, 1976). Sarviharju and Vihko (1972) in their study of male students and the physiological effects of physical and mental stress, found a rise in plasma FFA only after intense physical work on a bicycle ergometer but not after a difficult mental choice situation. The negative results of the Sarviharju and Vihko study have been seriously questioned by other studies which employed a different stress task and monitoring process. For example, Somerville (1973) found that in both public speakers and racing drivers, triglycerides peaked 1-2 hours after the event.

The results of a study by Carlson *et al* (1972), which aimed to ascertain whether exposure to common occupational stimuli - in this case monotonous repetitive work and excessive industrial noise - could evoke an increase in the mobilisation of FFA from adipose tissue, found that the amount of triglycerides in the liver increased in the experimental subjects, thus stimulating the secretion into plasma of triglycerides. Consequently, plasma triglyceride levels rose in the subject as did the levels of other lipoprotein constituents such as cholesterol.

Carlson *et al* (1972) also studies the effect of the antilipolytic agent, nicotinic acid, on psychosocially induced responses of the plasma lipids and verified previous findings to the effect that nicotinic acid definitely inhibited the stimulated FFA mobilisation in one of their experimental groups of subjects. Therefore, in any study of stress among police, the measurement of triglycerides should be included as both an indication of stressed subjects as

well as a method of isolating high risk coronary heart subjects. (We recommend that triglycerides should be measured by the common method proposed originally by Carlson, 1963).

CHOLESTEROL

According to Selye (1976), nearly all acute stressors produce a depletion of cholesterol stores in the adrenal system which results in an increase in plasma cholesterol. In relation specifically to occupational stressors, increased cholesterol concentrations have been found in such occupations as young US navy divers undergoing underwater demolition training (Rubin *et al*, 1970), in people who lose their job, or who anticipate loss of employment (Kasl *et al*, 1968), in automobile racers (Taggart & Carruthers, 1971), and in truck drivers and shift workers as a reflection of the stress associated with their work (Kaatzsh, 1972).

Even though a rise in serum cholesterol has been found to be one of the most common physiological reactions to stressors, there are large individual differences (as there are with all physiological changes). Selye (1976) attributes this variance between individuals to such variables as nutrition, genetics, and personality. Certainly, being overweight and eating a high animal fat diet is universally accepted as an important causal agent for enhancing cholesterol levels and hence increasing the risk of coronary heart disease.

A recent, extensive, prospective study on the prediction of CHD replicated earlier findings that the incidence of CHD was highly associated with serum cholesterol level (Rosenman *et al*, 1976). Thus, taking into account the usual physiological methodological considerations and procedures, *eg*, premeasurement diet control (subjects must fast 12 hours before testing) we propose that serial blood samples be taken of all subjects in any prospective police stress study. Adopting the common method of Sperry and Webb (1950) and Carlson (1960) (both cited in Levi 1972), we strongly suggest that:

a. total cholesterol levels be measured as an indicator of stress as well as a predictor of high CHD risk in Subjects, and

b. that cholesterol measurements be taken at optimal times so as to minimise the variance associated with individual differences between Subjects.

OTHER BLOOD CHEMISTRY MEASUREMENTS

Other blood chemistry measurement changes relevant to studies of cardiovascular epidemiology, diabetes, and other stress related disease include hematological determinants (Emery *et al*, 1974; Rose & Blackburn, 1968; Selye, 1976), serum urin levels (Levi, 1972), glucose and carbohydrate tolerance (Meguid, *et al*, 1974; Rose & Blackburn, 1968), total protein (Selye, 1976), enzymes (Critz, 1974; Selye, 1976) and, finally, serum sodium, potassium, chloride, calcium, albumin, bilirubin levels, creatinine, GGTP and, uric acid (Selye, 1976). High levels of uric acid exretion have been specifically associated with numerous stressors. Cobb *et al*, (1966), for instance, found that in people who anticipated losing their job, uric acid levels tended to rise. These findings have been more recently replicated by Rahe *et al* (1974) in a study of their own responses to various life events, in which uric acid elevations into the "gout range" occurred prior to taking on a physical change.

However, we feel that all these blood chemistry changes need not be measured, as financially the cost would be high for measures of dubious yield, *ie*, those physiological changes which have not been shown to be specifically induced by stress and/or stress related diseases. Consequently, we propose that the most appropriate blood chemistry measurements to be included in any proposed police stress study are: haemoglobin, uric acid, creatinine, glucose, GGTP.

BLOOD PRESSURE

Blood pressure (BP) is one of the few quantitative measures of a basic cardiovascular characteristic, the level of which is closely associated with the risk of future cardiovascular disease, mortality and, strokes (Selye, 1976; Rose & Blackburn, 1968; Davies, 1971). High blood pressure develops into a condition known as hypertension when a person's BP increasingly fails to return to its original level. According to Pickering (1961), hypertension represents the upper end of a normal distribution of blood pressure in the population.

As in the case with CHD, there are conflicting views as to the extent that stressors influence BP levels. Selye (1976: 769), for instance, in his summary of the relevant literature, states:

> 'There appears to be little doubt that emotional stress is one of the most frequent factors in the development of high blood pressure, congestive heart failure or cardiac infarction in predisposed patients.'

On the other hand, authors such as Davies (1971) dispute this claim, maintaining that hypertension is unrelated to personality factors (*eg*, neurosis) and psychosocial stressors but, does have a positive correlation with family history of cardiovascular disease, body weight, arm circumference, and a square body build. It is thereby implied that inherited physiological factors are dominant in the analysis of variance in BP ratings. Moreover, Davies' (1971) occupational studies of hypertension also appear to substantiate Wolf's (1961) earlier hypothesis that hypertension is associated with a tendency to inhibit strong emotions rather than express them. While there may be conflicting opinion as to the causal agents involved in hypertension, it is generally agreed that increase in BP is clearly related to damage of the vessel walls which contribute to arteriosclerosis as well as enhancing the narrowing of cardiac arteries (which is clearly associated with additional decrease in blood-clotting time) and which can eventually, result in such diseases as thrombosis, strokes, and ischemic heart attacks.

The controversy regarding the utility of the measure of BP as an indice of stress may well be due to variability of measuring techniques. Clearly, the literature suggests that there are numerous systematic measurement errors. Sources of error which have influenced true BP measurements in populations have included variations in width of the cuffs, temperature of the room, speed of deflation, posture of subject, interobserver error, and smoking and eating before measurements (Fukuda, 1976; Rose & Blackburn, 1968). Fukuda (1976) maintains that many of these errors can be avoided by using the Automatic Sphygmomanometer. His research shows the Automatic Sphygmomanometer to be an excellent standardiser of BP measurement.

Assuming that Automatic Sphygmomanometers would be used in any study of police stress to measure BP we suggest the following procedural methods to minimise systematic errors as derived by Rose and Blackburn (1968: 90-92):

a. the arm should not be constricted by clothing,

b. the temperature of the examining room should be comfortable,

c. there should be no exertion, eating, smoking or exposure to cold for half an hour before recording,

d. no change of posture should be made for five minutes before recording,

e. a sitting position is suggested due to convenience but, if a supine position is employed, the arm should be supported on the bed at an angle of $0^{o} - 45^{o}$ from the trunk,

f. the systolic and diastolic levels are determined and recorded, and

g. mean blood pressure is determined by the formula:

$$\frac{\text{Systolic BP} + \text{Diastolic BP}}{2}$$

ELECTROCARDIOGRAM (ECG)

According to Rose and Blackburn (1968), the ECG is an objective, graphic time based record of voltage change produced by electrical events in the heart muscle. ECG measurements are important in cardiovascular epidemiology as, among other factors, they are useful in diagnosing manifestations of ischemic heart disease, *ie*, hypertrophy, myocardial infarction, and ischemia. As well, ECG readings contain independent information of that obtained by physical examination and medical history.

Changes in ECG patterns have also been observed in humans during exposure to stressors (Froberg *et al*, 1969). For example, the effects of seventy-five hours of sleep deprivation on Swedish Army officers. The authors measured performance on electronic shooting ranges, engagement in military staff work, and serial measurement of ECG. They found that some Subjects developed ECG anomalies (particularly ST-T depression) taking several days of rest for ECG patterns to return to normal. According to Rose and Blackburn (1968), the following procedural methods should be followed when measuring ECG:

a. standard posture is supine,

b. room temperature should be comfortable,

c. whenever possible, meals and glucose administration should precede the ECG recording by two hours, the interval being the same for all Subjects, and

d. heavy physical exercise and smoking should be avoided for 30 minutes prior to the recording.

As well, the ECG procedure ought to be carried out by trained testers and coders, thereby eliminating errors resulting from factors such as wrongly positioned electrodes, and faulty ECG recording and coding.

It would appear, therefore, that measurement of ECG in Subjects in any police stress study will prove an important diagnostic method for heart disease as well as a way of isolating high risk subjects.

CARDIAC AUSCULTATION AND PULSE RATE

Cardiac auscultation and pulse rate is a common measurement used in epidemiology to identify heart disease (Raftery & Holland, 1967; cited in Rose & Blackburn, 1968). Rose and Blackburn (1968) suggest the following procedures during cardiac auscultation measurements:

a. room temperature must be comfortable and background noise eliminated,

b. valve auscultatory areas are examined in the following order: mitral, aortic, pulmonic, left sternal border, and tricuspid, and

c. the frequency of murmurs to be tabulated by timing, location, intensity, and age.

Consequently, cardiac auscultation and pulse rate is an important medical measurement to be included in the study, the results of which may be combined with medical historic factors as well as family background and genetic influences.

ANTHROPOMETRIC TECHNIQUES

Anthropometry is the measurement of body dimensions to characterise skeletal and soft tissue development. It is a useful physiological stress index. According to Rose and Blackburn (1968), it has proved a beneficial measurement in cardiovascular epidemiology as correlation has been found between obesity and body build, and such variables as serum cholesterol and blood pressure,as well as CHD. Also, Selye (1976) maintains that overeating which can result in obesity and consequently physiological changes, has been shown in some individuals to have been influenced by stressful stimuli.

Although height and weight of a Subject are also measured, anthropometry allows a more valid index of actual

body composition, *ie*, fat deposits, skeletal structure, and muscle mass. The following measurements are recommended by Rose and Blackburn (1968), and should be followed in any policy study:

a. subcutaneous skinfolds,

b. triceps skinfold,

c. subscapular skinfold, and

d. additional measurements, *eg*, arm circumference, bone size, circumference of chest, abdomen, thigh, and calf, may also be taken.

ENDOCRINE MECHANISMS AND STRESS INDICES

Research into endocrine mechanisms or psychoendocrinology, particularly on the secretion of epinephrine, norepinephrine, corticosteriods, and throxine, has played an important role in stress research (*eg*, Frankenhaeuser, 1974). According to Frankenhaeuser (1974) and Selye (1976), this has been due mainly to the new sophisticated biochemical methods of measurement which enable very small amounts of various catecholamine hormones in urine and in blood to be determined. These endocrine mechanisms can be subdivided into three main activity categories:

a. sympathoadrenomedullary activity,

b. adrenocortical activity, and

c. thyroid activity.

SYMPATHOADRENOMEDULLARY ACTIVITY

It was Cannon's early studies in the late 1920s that first illustrated that the activity of the adrenal medulla is influenced by the brain continuously and that this sympathoadrenomedullary system reacts by an increased secretion of epinephrine by different elements in the environment including stressors (Levi, 1972; Frankenhaeuser, 1974). Since then, experimental psychoendocrinology has been utilised in the area of stress research beginning with the work in the early 1950s by Ulf von Euler on norepinephrine (a hormone produced by the adrenal medulla and also a transmitter substance in the sympathetic nervous system) and by Hans Selye with his work on the significance

in stress diseases of the adrenal cortical hormones (Frankenhaeuser, 1974).

Today, the human organism's sympathoadrenomedullary activity is usually analysed fluorimetrically using the method devised by Euler and Lishajko (1961) whereby the urinary excretion of catecholamine epinephrine and norepinephrine is measured. Levi (1972) refers to a host of studies that have illustrated enhanced sympathoadrenamedullary activity in response to a wide variety of stimuli, *eg*, dental treatment (Weiss *et al*, 1965), hospital admission (Nelson *et al*, 1966), acrobatics, supersonic and space flights (Hale, 1965), and numerous laboratory situations (Frankenhaeuser, 1971).

However, many of these exposures to stressors were for a short duration only and have little relation to occupational situations. As we are concerned in the monitoring of both short term and long term occupational stressor influences, we will concentrate our attention on the recent occupational research into sympathoadrenomedullary stress reactions.

Levi (1972) has conducted numerous studies on such occupational groups as telphone operators, invoicing clerks, engine drivers, and paper mill workers, in which he found that certain stressful stimuli arising from the Subjects' own work situations could increase their liberation of catecholamines. Often Levi and his co-workers would change aspects of the work environment in order to try and isolate specific occupational stressors. In a study with female invoicing clerks, for example, Levi (1970) aimed to investigate the change in productiveness, subjective feelings, (measured by a questionnaire) and urinary catecholamine excretions when the Subjects were changed from salary to piece wages. It was found that, although productivity rose by 114 *per cent* during piece work, the Subjects reported considerable feelings of physical and mental discomfort and the mean epinephrine and norepinephrine exretion rose by 40 *per cent* and 27 *per cent* respectively. This study enabled Levi to propose that if such a stress state was prolonged, it could be detrimental to health in certain individuals.

A somewhat comparable occupational group to the police are military personnel. Military studies have shown that in various combat conditions, dependent upon the duration and intensity of the stress situation, the usual result is an increased catecholamine excretion (Rose *et al*, 1969). Even so, Selye (1976) points out that military personnel face certain occupational differences compared to the police. Firstly the military face similar dangers faced by the police only in times of war and secondly, unlike police, military personnel are generally held in high esteem; two major

differences which according to Selye (1976) are important occupational stress variants. However, the degree to which the latter proposition applies to the Australian situation has to be queried until there are sound research findings to either confirm or refute Selye's suggestion.

Perhaps the most extensive recent research into occupational stress and sympathoadrenomedullary activity has been carried out by the Swedish psychophysiologist, Marianne Frankenhaeuser. Frankenhaeuser (1976) maintains that psychophysiological stress research is focused on the concept of underload and overload, an approach based on the concept of arousal, and the need for the central nervous system to have a varied input of stimuli from the external environment. In the paradigm of stress, the homeostatic mechanisms by which the organism maintains an optimal arousal level can be unbalanced if there is either an excess and/or lack of stimulation. Frankenhaeuser has been primarily concerned with identifying aspects of the psychosocial environment (including those specifically within occupational environments) which elicit biochemical reactions (especially the catecholamines, epinephrine and norepinephrine) involved in the regulation of stress and arousal patterns.

In a recent study on a group of saw mill workers whose somatic and psychosomatic symptoms and rates of absenteeism were high, Frankenhaeuser (1976) found that the average epinephrine secretion was higher than in a control group made up of workers in the same mill with less restricted physical or mental work conditions. Using Euler and Lishajko's (1961) fluorimetric technique to measure the catecholamines in the urine, four measurements of catecholamine secretion were taken during an eight hour work shift and expressed as percentages of baseline values obtained under nonworking conditions at home. Besides the average epinephrine excretion being higher in the high risk group, there was also an increase in catecholamine release toward the end of the working day whereas in the control group there was a decrease.

In order to try and isolate these different occupational stressors more objectively, Frankenhaeuser (1976) refers to the research being carried out by her co-workers, (Johansson *et al*, 1976; Gardell, 1976) in which the following relationships between specific job characteristics and stress reactions were found:

a. *epinephrine*, which Frankenhaeuser (1976) maintains is the most sensitive indicator of stimulus underload and overload of any of the psychophysiological measures:

(1) epinephrine secretion and self-rated wellbeing in three sub groups differed with regard to degree of repetitiveness in the work process with the most repetitive jobs causing the highest epinephrine and the lowest wellbeing levels,

(2) epinephrine secretion and self-rated wellbeing in sub groups with work cycles of different durations showed that epinephrine secretion was highest in the group holding jobs with the shortest work cycle and lowest in the group with the least constricted jobs without a distinct work cycle. Wellbeing showed the opposite pattern, and

b. *norepinephrine*, which is primarily associated with blood pressure homeostatis:

(1) norepinephrine excretion and self-rated irritation in three sub groups differed with regard to restriction of work posture in that the norepinephrine level was highest in the group that stayed in the same posture most of the working day as were their irritation scores, and

(2) also, norepinephrine excretion and irritation were higher when the work pace was controlled by machine rather than the worker being able to control the pace.

From these and other (more peripheral) studies, Frankenhaeuser and her colleagues suggest specific psychosocial stressors within particular occupational populations. Hence, we feel occupational factors that may increase peripheral catecholamine levels in police should be investigated and measured in order to isolate high risk individuals as well as occupational stressors. From previous research findings and methodologies discussed, we propose the following points to be considered in relation to any prospective study of stress in the Australian police service:

a. that sympathoadrenomedullary activity should be adopted as a physiological stress indicator with catecholamines being measured in urine by a fluorimetric technique (developed by Euler & Lishajko, 1961),

b. that these measurements should be compared with a baseline measurement taken in a nonworking situation,

c. that these measurements be specifically associated with certain occupational factors (*eg*, police officers at a desk job with associated restrictions on body posture movement), and these be compared with within group controls (*eg*, officers on the beat), as well as other occupational controls, and

d. that physiological measurements be compared with self rated questionnaires in order to account for individual differences as well as cognitive substantiation.

ADRENOCORTICAL ACTIVITY

It is generally agreed that adrenal cortical stimulation occurs in response to a variety of psychosocial stimuli and that loss of lipids from the adrenal cortex is the major morphologic change noted in man when exposed to certain stressors (Yates & Maran, 1972; Selye, 1976). The adrenal cortical hormones regulate, among other things, the metabolism of water, minerals, and carbohydrates. When upset by stressor influences, this can effect, directly or indirectly, a large number of physiological processes (Levi, 1972).

Although stress induced adrenal changes have been described in almost every animal species (Selye, 1976), most of the studies on man have tended to concentrate on short term rather than long term stressors such as a response to participation in flying activities (Colehour, 1964), hospitalisation (Mason *et al*, 1965) and, psychiatric interviews (Oken *et al*, 1960). Levi (1972) maintains that the hypophyseoadrenocortical system requires more intense stressors to induce change and reacts more slowly than the hypothalamoadrenomedullary system does. This may explain the lack of studies on the effects of more long term stressors, *eg*, occupational stimuli and increased adrenal cortical activity.

However, changes in adrenocorticotropin (ACTH) have proved a useful indicator of physiological stress indices as well as indicators of cerebral cortex organic dysfunction. According to Selye (1976), after exposure to stressors (especially severe ones), an initial loss of cortical lipids is replenished by the secretory granules in the stage of resistance; however, the next stage is usually exhaustion

when a secondary loss of lipids occurs. The inhibition of ACTH release should be measured in any research on stress among Australian police.

These changes in inhibition of adrenocorticotropin release are usually detected by special stains such as Sudan red or Osmic acid and, according to Selye (1976) are often associated with corresponding losses of stainable cholesterol and ascorbic acid granules.

PSYCHOLOGICAL STRESS INDICES

The psychological illnesses commonly accepted as being at least partially stress induced included neuroses (Tinbergen, 1974), schizophrenia and related psychoses (Snyder, 1974), manic depression (Hafner, 1974), toxicomanias including alcoholism (Allman, 1973), and epilepsy (Friis & Lund, 1974). Due to the fact that schizophrenia and psychotic conditions severely restrict the functioning and behaviour of individuals, it is unlikely that sample populations in any study of police stress will reveal such conditions. However, we recommend that medication and family and personal history in relation to psychosis should be recorded for each subject, as well as any psychotic or schizophrenic occurrences, throughout the prospective study.

Although all the psychogenic diseases mentioned above have been associated with specific physiological and chemical changes in the body, due to inconsistencies in the literature and financial constraints tests such as ECGs have been excluded and we have limited ourselves to considering mainly behavioural and psychological test measurements, (as discussed in Chapters 2-4 of this monograph).

MEDICAL EXAMINATION AND INTERVIEW FORM

MEDICAL EXAMINATION

The physiological stress indices previously discussed should be taken by all cohorts during a medical examination by trained medical personnel. Obviously, during the experimental medical examination it is essential to be aware of certain factors that may influence the validity and reliability of results. Levi (1972), in his comprehensive discussion of such variables, mentions the following precautionary methods which we recommend be incorporated in any study of stress among Australian police:

a. physical activity and bodily posture - Subjects should not undergo extreme posture changes or physical activity at least half an hour before examination, otherwise measurements such as BP are affected,

b. diet - it is advisable that Subjects be examined in the morning having fasted since the night before in order not to affect biochemical analysis,

c. drugs - all drugs including tobacco, alcohol, and caffeine containing beverages should not be consumed by the Subject the day of the examination in order not to contaminate biochemical analysis,

d. time - the time of day in which the examination takes place especially in relation to Subjects working hours, *eg*, shift work, should be noted for each subject. This is important as physiological changes vary in individuals dependent on such factors as time of day, hours without sleep, *etc*, and

e. biochemical individuality - before biochemical analysis conclusions are made certain factors such as Subject's age and disease manifestations which can affect biochemical physiology should be taken into account.

MEDICAL INDICES.

Considering the physiological indices we have previously isolated and discussed as well as individual variables, we suggest that a medical biographical questionnaire and a medical questionnaire should be formulated using the standard indices for attaining the following information from all cohorts (see Appendix 5).

a. medical biographical questionnaire:

(1) demographics: family occupation, family religion, family health, country of birth and population, other places of living, present dwelling and household,

(2) interests: sport playing, hobbies, church, community groups, others,

(3) smoking behaviour,

(4) drinking behaviour (alcohol and caffeine),

(5) unprescribed pain reliever intake,

(6) other prescribed medicine intake,

(7) symptoms: a list of standard medical symptoms commonly associated with coronary heart disease, hypertension, neurosis, *etc*, both at work and away plus time duration,

(8) illnesses: a list of illnesses in the past six months, whether illness was diagnosed by a doctor, medication taken and whether caused or made worse by the job,

(9) of the five people on the department worked with most often, the number of serious problems (0-5) with the following: alcohol, marriage, children, health, finances, drugs, neighbours,

(10) the number of officers in the department known to have attempted or successfully committed suicide,

(11) the number of officers in the department known to have had one or more heart attacks on and off duty,

(12) diet: type of diet noted including special diets such as low animal fat and carbohydrates, and

(13) physical activity: amount and type both at and away from work, including time and type of travel to and from work,

b. medical interview form:

(1) height, weight and anthropometric measurements,

(2) blood pressure: systolic, diastolic,

(3) pulse rate,

(4) cardiac auscultation,

(5) neurological disturbance,

(6) ECG patterns,

(7) blood chemistry: haemoglobin, GGTP, uric acid, cholesterol, triglycerides, creatinine, glucose,

(8) urine: epinephrine, norepinephrine, adrenocorticotropin,

(9) diagnosis,

(10) referral,

(11) advice, and

(12) election.

PART 2

PROPOSAL

INTRODUCTION

In our review and analysis of the literature related to the concept of stress with particular emphasis on police, we focused on stress as a multifaceted, multidimensional construct which can be fully understood only by a thorough examination of all social and physical arenas in which an individual lives. In this section we propose: (1) specific research aims and objectives which are consistent with our multifaceted model of stress (see Figure 1 in literature review), (2) a design and costing for the study, (3) a discussion of the construction and administration of testing instruments, (4) a discussion of sampling, (5) a discussion of control groups and associated problems, (6) a procedure (and subsequent research strategy) for the study, (7) a tentative data analytic technique and (8) a summary.

Before turning our attention to the specific aims and objectives of the proposed research, we would like to emphasise again, that stress, health, job performance, family networks, and friendship networks, form an integrated whole for any individual. Thus the stress from one area can affect the individual which in turn may affect changes in the amount of stress in relationships in other arenas. With regard to police, the job is posited as a high stress factor itself. Poor job performance has been shown to be highly related to stress. When we look at the police in the context of the total ecosystem, if, in fact, they are a highly stressed group of people, we can postulate that the society in general is going to suffer the consequences of this high stress. Thus, studying the degree of stress in police, and both similar and dissimilar comparative occupational groups is of extreme importance at an individual, occupational and, societal level.

Beside the specific contribution of this research to police and the subsequent impact on society, another consideration should be noted regarding the model presented in the literature review. That is, the model postulates that stress is a global construct which must be examined as a multidimensional, multifaceted construct. The research proposal which follows is unique in this sense as, to date, no one has attempted to formulate a comprehensive research design to analyse stress in this fashion. Consequently, the project would provide a significant contribution to the scientific understanding of the concept of stress in general. Keeping this global perspective in mind, we will now discuss the specific aims and objectives of this research proposal.

AIMS AND OBJECTIVES

The specific aims and objectives of the proposed research are detailed in the following sections:

a. to obtain an empirical base from which predictive scales of the degree of "risk" an individual is experiencing in relation to stress and subsequent outcomes *in general* can be formulated,

b. to provide police departments with an empirically based profile of the relative degree of stress being experienced by its members and detrimental outcomes as well as identify members who are at varying stages of risk and/or suffering detrimental outcomes *eg* , marriage problems, poor health, alcohol problems, *etc.*,

c. to provide a general descriptive profile of the policeman in the context of his job as compared with other occupational groups. Thus, from the results of the study, it should be possible to answer the controversy as to whether police in general are a more highly stressed group of people than people in other occupations,

d. to develop an empirically based scale of stress in the police which would allow for "primary prevention" in police forces. Thus, results of the study would have utility in the formulation of "high risk profiles" which may eventually produce detrimental outcomes.

RESEARCH DESIGN AND COSTING

Our review of the literature clearly displayed the advantages of a prospective rather than a retrospective study. Consideration of costing and limitations imposed by mobility of qualified researchers and the transient nature of funding priorities seriously limit the amount of time upon which planning can be made. Accordingly, we suggest that the study duration be initially regarded as two years with three testing periods. The first testing at the start of the project, the second at the end of one year and, the third testing at the end of the second year.

Ideally, follow up data should be collected at various intervals following this two year period. More precisely, a

five and ten year re-test should be included for a maximisation of validity. As the responses to be analysed, comprehensiveness of the research and staffing of the research project, *etc*, are unavailable at this stage, the costing of the total project is difficult to estimate. However, depending on the final options chosen (proposed in this research outline) we tentively estimate the cost could range from $40,000 approximately.

TESTING INSTRUMENTS

The testing instruments and a brief description of the measurements to be used in the proposed study are outlined in this section. These instruments have been normed and this information will be provided in due course.

a. It is suggested that modified versions of the *Job Environment And Health Questionnaire For Police Officers* (formulated by the US National Institute Of Occupational Safety And Health), be used. This questionnaire includes the following measurements, all of which were discussed in the literature review:

(1) demographics including rank, age, ethnic background, marital and family background, educational background,

(2) types of duty and time duration,

(3) working schedules including shift work details,

(4) extra organisational activities including education courses and extra jobs,

(5) occupational situation preferences and stress associations,

(6) job satisfaction measurements which include overload, underload, role conflict/fulfilment relationship with supervisor and peers, pay, promotion prospects, *etc*,

(7) occupational influences on family and social life,

(8) ratings related to specific occupational stressors which previous research findings have isolated including public attitudes, isolation and alienation, administrative

policies, promotion systems, paperwork, equipment maintenance, courts, supervisor support,

(9) number of accidents on duty, and

(10) matters related to the police union or association,

b. We have modified this questionnaire to include the five items known as the *Rollins and Feldman Marital Satisfaction and Life Cycle Index* (stressors within the family have been shown to be important extra organisational stressors). Completion time for the entire questionnaire is 45-60 minutes, see Annex 1,

c. Suitably adapted versions of this questionnaire would be necessary for use with control group(s),

Other recommended instruments include:

d. *Eysenck Personality Inventory* (EPI) - to measure degrees of neurosis and extraversion versus introversion (personality factors which have been shown to react differently both psychologically and physiologically to certain stressors), see Annex 2. Completion time approximately 15 minutes,

e. *Barnett Behaviour Pattern Scale* (BBPS) - an 18 item test to measure A type personalities (such types are more prone to stress related diseases as CHD). See Annex 3. Completion time five minutes,

f. *Occurrences Of Life Events Social Readjustment Rating Questionnaire* modified - designed to measure recent life events plus changes, *eg*, divorce, death in family, some of which may cause stress. See Annex 4. Completion time 15 minutes,

g. *Medical Biography Questionnaire* - which includes:

(1) demographics: family occupation, family religion, family health, country of birth and population, other places of living, and present dwelling and household,

(2) interests, time spent per week: playing sport, hobbies, church, community groups, and others,

(3) smoking behaviour,

(4) drinking behaviour,

(5) unprescribed analgesics taken,

(6) prescribed medicine taken,

(7) symptoms - a list of standard medical symptoms commonly associated with coronary heart disease, hypertension, neurosis, *etc*, both at work and away plus duration,

(8) illnesses - a list of illnesses during past six months, whether illness was diagnosed by a physician, medication taken, and whether caused or aggravated by job,

(9) problems experienced by five immediate colleagues in relation to: alcohol, marriage, children, health, finances, drugs, and neighbours,

(10) number of work mates known to have attempted or successfully committed suicide,

(11) number of work makes known to have had one or more heart attacks on or off duty,

(12) diet - type, including special diets such as low animal fat and carbohydrates,

(13) physical activity - amount and type, both at and away from work, including time and type of travel to and from work. See Annex 5. Completion time 30 minutes (approx.),

h. *Medical Interview Form* - which records data concerning:

(1) anthropometric measurement,

(2) blood pressure, systolic and diastolic,

(3) ECG patterns,

(4) neurological disturbances,

(5) blood examination: haemoglobin, uric

acid, GGTP, cholestorol, triglycerides, glucose (fasting), creatinine,

(6) urine: epinephrine, norepinephrine, and adrenocorticotropin,

(7) diagnosis,

(8) referral, and

(9) advice.

See Annex 6.

SAMPLE

Approximately 50 *per cent* (2,000+) of a stratified urban NSW police male sample, representative of the number of men in each rank which would include all grades of Constable, all grades of Sergeant, and all grades of Inspector. Alternatively, if considered more conducive to lower anxiety concerning such a study, the sample could be stratified by age. (Although it would also be desirable to include a rural sample, this would prove epidemiologically and logistically difficult).

CONTROL GROUP(S)

The choice of suitable control groups is still very much open for discussion as well as being subject to financial consideration. In fact, previous research (*eg*, Kroes, 1976) has failed to find a matched control group for police. Therefore, rather than a control group *per se*, we propose that the police stress research could be carried out in conjunction with an appropriate comparison/reference group or groups, which would have the effect of making data more meaningful by comparison analysis. At this stage we suggest the following options for consideration.

a. no reference/comparative group, the study therefore, would be focused exclusively on the degree of occupational stress in a specific population, *ie*, the police,

b. a closely associated occupational comparative group, *eg*, firemen. Firemen have previously been utilised as a reference group for police (*eg*, Remington, 1965; Symonds, 1972). However, both Symonds (1972) and Kroes (1976) emphasised that there are many unshared occupational stressors, *eg*, negative public attitude, and

c. a main stream occupational reference group or groups, *eg*, NSW Public Service employees (demographically matched). A comparison that would maximise differences in stress outcomes by comparing "average" Australian working populations with the police as a specific occupational group.

An important consideration here is that closely matched occupations are scientifically more desirable. However, the significance of differences between police and firemen are limited in terms of subsequent application. Therefore, of the abovementioned options, we recommend that NSW firemen and NSW public service employees be considered as suitable comparative groups for police cohorts. Taking into account financial restraints, if necessary, it would be possible to gather relevant information from the public service reference group by utilising computer stored statistics from previous occupational studies, controlling for such factors as height, sex, *etc*.

PROCEDURE

Stress indices and medical examination should be administered to all cohorts at the beginning of the research period. After 12 months and 24 months (and subsequent follow up intervals) the measurements should be repeated on all Subjects except:

a. certain stable demographics on the *Job Environment And Health Questionnaire* and the *Medical Biography Questionnaire*,

b. EPI, and

c. BBPS.

Throughout the two year period of such a study (and subsequent follow up intervals), the following data should be recorded regarding each subject:

a. sick leave - amount and cause,

b. early retirement,

c. death and cause,

d. divorce and separation,

e. transfer, and

f. promotion.

DATA ANALYSIS

There are a variety of potentially variable analytic techniques which can be employed in this research. Clearly the final analysis is dependent upon the project or facets of the project which are approved.

Basically, we will be looking for multidimensional descriptions of the population(s). Accordingly, a grouping, clustering, or factor analytic technique would be the most appropriate with regard to within population descriptions. With regard to comparisons between groups, there are a host of specific comparisons which can be made utilising parametric and non parametric statistics.

The questionnaires are organised such that codification for computer analysis is as easy as possible. Accordingly, depending upon what particular components of the research are approved, an appropriate amount of monies must be set aside for analysis.

SUMMARY

Throughout the literature review and research proposal, we have presented a perspective of stress which, to date, has not been explored in either other research or other integration of the literature. Considering that the perspective of stress is unusual as in the proposed population of focus (*ie*, the police), we would be most naive to not consider the very delicate and sensitive political nature of the research. While the aim and objectives of the proposed research are easily (empirically) obtainable, the most difficult aspect of the programme is simply coordinating a project of this size working with groups who sometimes find cooperation with academics a difficult exercise.

Consequently, our final proposal in this research synopsis is that a panel of well known academics and, more importantly, well known and highly respected people representing each of the organisations involved in the project be formed. This panel should have the ability to serve as advocator for each group of people being researched. As well, it is well worth considering placing well known community leaders on the council or panel to provide an even more elaborate umbrella of respectability.

The efforts of the "policing" and empirical "leg work" would yield an enormous contribution to the scientific literature on stress. As well, the practical benefits of determining stress in police would, in the long run, make for a better adjusted society.

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ANNEX 1

JOB ENVIRONMENT AND HEALTH

QUESTIONNAIRE

FOR

NONCOMMISSIONED POLICE OFFICERS*

(ADAPTED)

* A separate questionnaire is required for commissioned police officers

INSTRUCTIONS

1. Most questions can be answered by filling in the appropriate numbers in the spaces provided. If you do not find the exact answer which fits your case, choose the one which comes the closest to it. For some questions, you will fill in the blank _____.

2. Please answer all questions in order.

3. Ignore the small numbers to the side or under the responses; these numbers are for later use in computer analyses.

   The value of the study depends on your being honest in answering this questionnaire. Remember, you will not be identified with your answers.

4. CODE NUMBER: _____

1 2 3 4 5 6 7

1. How long have you worked for your present employer ____ Years ____ Months
10 8

2. Have you ever worked as a police officer in any other police force?
____ 1. No
____ 2. Yes
12

a. If yes, for how long? ____ Years ____ Months
13 15

3. What is your present status? (CHECK ONE OF THE FOLLOWING)

____ (01) Constable
____ (02) Constable First Class
____ (02) Senior Constable
____ (04) Sergeant 3/C
____ (05) Sergeant 2/C
____ (06) Sergeant 1/C

17 18

a. How long have you served in each of the following ranks in your present department?

	Years	Months
1. Constable	19	21
2. Constable 1/C	23	25
3. Senior Constable	27	29
4. Sergeant 3/C	31	33
5. Sergeant 2/C	35	37
6. Sergeant 1/C	39	40

4. Which of the following describes your present regular duty assignment best? (Check for one response only)

____ (01) Patrol
____ (02) Staff Planning
____ (03) Operation Special Support Group
____ (04) Crimes Against Persons
____ (05) Crimes Against Property
____ (06) Traffic
____ (07) Vice
____ (08) Internal Affairs
(09) Juvenile
____ (10) Property
____ (11) Communications
____ (12) Records
____ (13) Personnel
____ (14) Training or Education
____ (15) Drugs
____ (16) Canine
____ (17) Prosecution

42 43

1 2 3 4 5 6 7

a. How long have you been on your present assignment?
____Years ____Months.
44 46

b. In an average week, how many hours do you usually work on the following types of assignment:

1.	On foot patrol	____hrs (48)
2.	In a marked police car	____hrs (50)
3.	In an unmarked police car	____hrs (52)
4.	On a motorcycle	____hrs (54)
5.	In a helicopter	____hrs (56)
6.	On a horse	____hrs (58)
7.	In a police station of office	____hrs (60)
8.	In court	____hrs (62)

c. In an average week, how many hours do you usually work:

1.	Alone	____hours (8)
2.	With an assigned partner	____hours (10)
3.	With more than one other person	____hours (12)

5. In your job, do you usually have direct supervisory responsibility over other officers or civilian employees?

____1. No

14 ____2. Yes

a. If Yes; how many people do you usually supervise? (FILL IN THE NUMBER OF PEOPLE)

____People
15

6. As a police officer, how often do you have weekends off? (CHECK ONE)

____1. Rarely

____2. Occasionally

____3. Sometimes

____4. Fairly often

17 ____5. Very often

1 2 3 4 5 6 7

7. As a police officer, do you usually:

____1. Work the same hours each day

____2. Work on a rotating/alternating shift (that is, you work one schedule of hours for a number of days and then change to another schedule). (SKIP TO QUESTION 7b)

a. If you work the same hours each workday, what are those hours? (USE 24 HOUR CLOCK TIMES THROUGHOUT)

Work begins at _____ hours
19

Work ends at _____ hours
23

(SKIP TO QUESTION 8)

b. If you work on a rotating/alternating shift, what are the work hours on your current shift?

Work begins at _____ hours
27

Work ends at _____ hours
31

c. How long do you normally work this shift? (IN DAYS OR MONTHS)

_____ Days
35

_____ Months
37

d. What will your work hours be on your next shift change?

Work will begin at _____ hours
39

Work will end at _____ hours
43

e. How long will you work on that shift? (IN DAYS OR MONTHS)

_____ Days
47

_____ Months
49

f. If your job has another shift rotation, what will your hours be on that shift?

Work will begin at _____ hours
51

Work will end at _____ hours
55

g. How long will you work on that shift? (IN DAYS OR MONTHS)

_____ Days
59

_____ Months
61

1 2 3 4 5 6 7

8. In the last month approximately how many hours of overtime did you work per week?

_____Hours per week
63

a. Of those overtime hours, about how many hours per week did you want to work?

_____Hours per week
65

b. How many hours of overtime would you like to work per week?

_____Hours per week
67

9. In addition to your job with the police department do you now:

a. Attend school/university ____1. No

____2. Yes 69

If Yes, how many hours per week?

_____Hours per week
70

b. Hold an off-duty police/security job?

____1. No

____2. Yes 72

If Yes, how many hours per week?

_____Hours per week
73

c. Hold another (non-police) off-duty job (including self-employed)?

____1. No

____2. Yes 75

If Yes, how many hours per week?

_____Hours per week
76

10. How much do you like or dislike handling the following situations or duties? Use the following code:

1 = Dislike very much	4 = Like slightly
2 = Dislike moderately	5 = Like moderately
3 = Dislike slightly	6 = Like very much

For example, if you "dislike moderately" a certain situation, place a "2" in the blank to the left of it. If you "like very much" a situation, place a "6" in the blank.

1 2 3 4 5 6 7

____Domestic disturbance

____Person with gun

____Auto accidents

10

____Prowler

____Shooting

____Routine patrol

____Car check

____Pedestrian check

15

____Delivering death

16 messages

____Silent burglar alarms

____Possible homicide

____Child beating

____Robbery in progress

20

____Taking rape reports

____Sudden death/D.O.A.

____Burglary in progress

23

____Offense incident reports

24

____Routine department paperwork

____Another officer needs assistance

____Unknown nature of call

27

____High speed auto chase

____Mentally disturbed person

____Staying alert to the police

30 radio

11. How tense or relaxed do you feel in handling the following situations or duties? Use the following code:

1 = Very tense
2 = Moderately tense
3 = Slightly tense
4 = Slightly relaxed
5 = Moderately relaxed
6 = Very relaxed

____Domestic disturbance

31

____Person with gun

____Auto accidents

____Prowler

34

____Shooting

____Routine patrol

____Car check

____Pedestrian check

38

____Delivering death message

____Silent burglar alarms

____Possible homicide

____Child beating

____Robbery in progress

____Taking rape reports

____Sudden death/D.O.A.

____Burglary in progress

12. In the next set of questions, assume you had the job you would most like to have. Use the following code:

1 = Rarely
2 = Occasionally
3 = Sometimes
4 = Fairly often
5 = Very often

1 2 3 4 5 6 7

How often would you like to:

____ Be able to predict what others will expect of you on
54 your job.

____ Experience a marked increase in how fast you have to think.

1 = Rarely
2 = Occasionally
3 = Sometimes
4 = Fairly often
5 = Very often

How often would you like to:

____ Have a chance to develop new talents

____ Remain seated

____ Experience a sharp increase in work load

____ Have the opportunity to be creative
59

____ Be certain about what your job responsibilities were

____ Do different things each day

____ Work in the same location

____ Know how well you did at the end of the day
63

____ Be certain about what others expect of you on the job

____ Experience a marked increase in the amount of concentration required on the job

____ Repeat the same activites over and over

____ See the results of your work
67

13. In the following questions, use this code:

1 = Very little
2 = Little
3 = A moderate amount
4 = Much
5 = Very much

If you could have <u>the job you would most like to have</u>, how much:

____ Would you like to decide with others what part of a task
68 you will do

____ Responsibility would you like to have for the morale of other officers

1 2 3 4 5 6 7

13. (contd.)

____Time would you like to have to do all your work

____Responsibility would you like to have for the well-being of other officers

____Time would you like to have to think and contemplate
72

____Would you like to participate with others in making decisions that affect you

____Free time between heavy work load periods would you like to have

____Would you like to participate with others in determining the way things are done on your job

____Freedom would you like to have in setting your own work
76 hours and days off

14. How satisfied or dissatisfied are you with the following elements of your job as a police officer? Use the following code:

1 = Very dissatisfied
2 = Moderately dissatisfied
3 = Slightly dissatisfied
4 = Slightly satisfied
5 = Moderately satisfied
6 = Very satisfied

____Job security
8

____Fellow officers

____Promotion system

____Academy training
11

____Overtime pay

____Excitement

____Salary
14

____Equipment maintenance
15

____Top administration

____Immediate supervisor

____Disciplinary system
18

____Middle management

____In-service training

____Amount of overtime
21

____System of determining work
22 schedules

____Personal appearance regulations

____Method of determining days off

____Performance evaluation
25 system

____Freedom to make decisions

____Method of determining assignments

____Recognition from supervisors

15. Below are some questions about the future of your job as a police officer. Use the following code:

1 = Very uncertain
2 = Moderately uncertain
3 = Slightly uncertain
4 = Slightly certain
5 = Moderately certain
6 = Very certain

1 2 3 4 5 6 7

15. (contd.)

How certain are you about:

____What your future career picture looks like
29

____The opportunities for promotion and advancement which will exist in the next few years

____Whether your job skills will be of use and value five years from now

____What your responsibilities will be six months from now
32

16. Please read the pairs of descriptions below. Then describe your present job and the job you would most like to have.

JOB A	JOB B
In this job, you are required to be around people constantly. You work and talk with people most of the time.	In this job, you are not required to work with anyone else. You work alone and rarely deal with other people.

Use the following code to describe your present job and the job you would most like to have:

1 = Very much like JOB A
2 = Somewhat like JOB A
3 = Slightly like JOB A
4 = Slightly like JOB B
5 = Somewhat like JOB B
6 = Very much like JOB B

Your present job is____
33

The job you would most like to have would be____

17.

JOB C	JOB D
In this job, you are required to work with people from several different groups. You have to handle each group differently because they have different needs and objectives.	In this job, your contact is strictly with the people in your own group. You do not need to deal with different groups.

Use the following code to describe your present job and the job you would most like to have:

1 = Very much like JOB C
2 = Somewhat like JOB C
3 = Slightly like JOB C
4 = Slightly like JOB D
5 = Somewhat like JOB D
6 = Very much like JOB D

Your present job is____
35

The job you would most like to have would be____

1 2 3 4 5 6 7

18.

JOB E	JOB F
In this job, you are required to work on many different tasks which are all in different stages of completion. Some things are just being started while others are halfway finished, and others may be finished by someone else.	In this job, you are required to work on one job at a time. When that task is completed, you start work on another. Two or more tasks are never worked on at the same time. You always finish one task before starting on another.
1 = Very much like JOB E	4 = Slightly like JOB F
2 = Somewhat like JOB E	5 = Somewhat like JOB F
3 = Slightly like JOB E	6 = Very much like JOB F

Your present job is____
37

The job you would most like to have would be____

19.

JOB G	JOB H
In this job, you have changes in work load. Every once in a while you have to work to your absolute maximum. When that happens, you have to concentrate very hard, work very fast and as carefully as you can	In this job, you go along evenly from hour to hour and from day to day. The pace of the work stays about the same. You rarely, if ever, have to suddenly change the pace of your work and work even faster and harder.

Use the following code to describe your present job and the job you would most like to have:

1 = Very much like JOB G	4 = Slightly like JOB H
2 = Somewhat like JOB G	5 = Somewhat like JOB H
3 = Slightly like JOB G	6 = Very much like JOB H

Your present job is____
39

The job you would most like to have would be____

20.

JOB I	JOB J
In this job, your work is defined and described in almost every detail. Nothing is left to chance. There is a procedure for every type of task.	In this job, you have some idea of the purpose of the job, but no exact instructions are given on how to do the work. There is often no set procedure.

Use the following code to describe your present job and the job you would most like to have.

1 = Very much like JOB 1	4 = Slightly like JOB J
2 = Somewhat like JOB I	5 = Somewhat like JOB J
3 = Slightly like JOB I	6 = Very much like JOB J

Your present job is____
41

1 2 3 4 5 6 7

20. (contd)

The job you would most like to have would be____

21.

JOB K	JOB L
In this job, things change almost every day. Each task is rarely the same as the previous one. You are likely to use different procedures from task to task	In this job, you work on the same tasks every day. You use the same procedures or equipment all of the time. Each task is like the one you just finished.

Use the following code to describe your present job and the job you would most like to have:

Your present job is____
43

The job you would most like to have would be____

22. Now think about your present job as a police officer. Use the following code to describe your job:

1 = Rarely
2 = Occasionally
3 = Sometimes
4 = Fairly often
5 = Very often

How often do you feel that you:

____ Are able to use your skills from your previous experience
45 and training

____ Are certain about what others expect of you on the job

____ Are certain about what your job responsibilities are

____ Can predict what others will expect of you on your job in the future

____ Are able to use your skills and knowledge

____ Are given a chance to do the things you do best
50

____ Get conflicting orders from superiors

____ See the results of your work

____ Have feelings of pressure from having to please too many bosses

____ Have superiors giving you things to do which conflict with other things you have to do

____ Experience a sharp increase in work load
55

1 2 3 4 5 6 7

22. (contd)

1 = Rarely
2 = Occasionally
3 = Sometimes
4 = Fairly often
5 = Very often

____Notice a marked increase in amount of concentration required on your job

____Have a marked increase in how fast you have to think

____Have too little authority to carry out the responsibilities assigned to you.

____Know what opportunities for advancement or promotion exist for you

____Have too heavy a work load

60

____Are able to satisfy the conflicting demands of various people over you

____Are fully qualified to handle your job

____Don't know how your supervisor evaluates your performance

____Have the information necessary to do your job

____Have too much influence over the lives of other people

65

____Are able to influence the decisions of your immediate supervisor which affect you

____Have so much work that you can't do as good a job as you would like

____Have to do things on the job that are against your better judgement

____Repeat the same activities over and over

____Have a chance to develop new talents

70

____Remain seated

____Have the opportunity to be creative

____Do different things each day

____Work in the same location

____Know how well you did at the end of the day

75

1 2 3 4 5 6 7

23. On the next items, use this code:

1 = Very little
2 = Little
3 = A moderate amount
4 = Much
5 = Very much

In your job as a police officer, how much:

____ Responsibility do you have for the morale of other officers
8

____ Do you participate with others in determining the way things are done on your job

____ Freedom do you have in setting your own work hours and days off

____ Time do you have to do all your work
11

____ Responsibility do you have for the well-being of other officers

____ Do you decide with others what part of a task you will do

1 = Very little
2 = Little
3 = A moderate amount
4 = Much
5 = Very much

____ Free time do you have between heavy work load periods

____ Do you participate with others in making decisions that affect you

____ Time do you have to think and contemplate
16

24. In answering each of the following questions, use this code:

1 = Very much less than I ought to get
2 = Somewhat less than I ought to get
3 = Slightly less than I ought to get
4 = Slightly more than I ought to get
5 = Somewhat more than I ought to get
6 = Very much more than I ought to get

____ Compared to other people where you work who do a job <u>similar</u> to yours, how fair is your pay?

____ Compared to other people where you work who do a job <u>different</u> from yours, how fair is your pay?

____ Compared to other people <u>who do not work where you work</u> but who have skills similar to yours, how fair is your pay?

1 2 3 4 5 6 7

24. (contd)

____Compared to other people where you work who do a job different from yours but who have an educational background similar to yours, how fair is your pay?

25. Below are some phrases which indicate how you might see yourself in your work. For example, if you think that you are very "successful" in your work, put a circle around the number right next to the work "successful". If you think that you are not at all successful in your work, circle the number next to the words "not successful". If you think you are somewhere in between, circle the appropriate number.

Successful	1	2	3	4	5	6	7	Not successful ___21
Sad at work	1	2	3	4	5	6	7	Happy at work ___22
Not important at work	1	2	3	4	5	6	7	Important at work ___23
Doing my best	1	2	3	4	5	6	7	Not doing my best ___24

26. The following questions concern your relationships with other people. Use this code:

1 = Rarely
2 = Occasionally
3 = Sometimes
4 = Fairly often
5 = Very often

a. How often do the following people go out of their way to make your job easier for you?

____25 Your immediate supervisor

____26 Your spouse, or if not married, your closest friend of the opposite sex

____27 Other people at work

____ Other relatives

____29 Close friends

b. How often can you have meaningful talks with the following people about your personal problems?

____30 Your immediate supervisor

____31 Your spouse, or if not married, your closest friend of the opposite sex

____32 Other people at work

____ Other relatives

____34 Close friends

27. Please think now about the type of work you do. Use this code:

1 2 3 4 5 6 7

27. (contd)

1 = Very unlikely
2 = Moderately unlikely
3 = Slightly unlikely
4 = Slightly likely
5 = Moderately likely
6 = Very likely

___ Knowing what you know now, how likely is it that you
35 would again take a job as a police officer?

___ If a friend of yours expressed an interest in becoming a police officer, how likely is it that you would advise against it?

28. Please indicate the degree to which you agree or disagree with the following statements. Use this code:

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Slightly agree
5 = Moderately agree
6 = Strongly agree

___ My work is interesting to do
37

___ I often have to "bend" department policies and procedures in order to get my job done

___ My family takes pride in the work I do

___ There's pretty good sharing of information among the
40 officers on all three shifts

___ I like the amount of work I'm expected to do

___ To be married to a police officer is often difficult

___ Most of the time there is not much tension between me and my children

___ I feel bored with the work I have to do

___ The officers who work the same shift with me often get
45 a chance to discuss common problems

___ Department policies are too strict to let me do my job properly

___ I am satisfied with the pace of my work

___ My family is often worried that something might happen
48 to me while I'm at work

___ My children and I don't get along very well

___ The work on my job is dull

1 2 3 4 5 6 7

28. (contd)

____The department's job promotion policies are basically good

____I am happy about my current work load

____Other people give my children a hard time because I am a police officer

____Some of the best qualified people can't get promoted
54 under the current system

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Slightly agree
5 = Moderately agree
6 = Strongly agree

____Many of the department's regulations are unrealistic
55

____Families of police officers are expected by the community to behave better than other families

____Overall, my job has a negative effect on my home life

____This department is a good one to work for

____I don't receive enough praise for the work I do

____My family is no more concerned about my safety than they
60 would be if I were not a police officer

____My department is too much like a military organization

____Nobody seems to notice when I do my job well

____Most citizens have a great deal of respect for the police

____My job requires me to do too much paperwork

____I feel I am getting ahead in the department
65

____My progress toward promotion is satisfactory

____Citizens usually report the crimes they observe

____My department does a poor job in maintaining communications equipment

____Many citizens believe that investigations of police misconduct are usually biased in favor of police

____The public is generally eager to cooperate with the police
70

____Police vehicles are kept in good mechanical condition

____My department does a good job in providing the equipment I need

1 2 3 4 5 6 7

28. (contd)

____The relationship between citizens and police in this city is a good one

____Many citizens believe that police officers are people who like power and tend to abuse it

____I sometimes try to get even, rather than forgive and
75 forget

____I thrive on challenging situations

____In comparison to most people I know, I'm very involved in my work

____There have been occasions when I felt like smashing things

____In general, I approach my work more seriously than most
79 people I know

____I sometimes feel resentful when I do not get my way
8

____The more challenges I have, the better

____I have to spend too many hours in court
10

____The courts are often too lenient with accused offenders

____Court cases are usually scheduled at convenient times for me

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Slightly agree
5 = Moderately agree
6 = Strongly agree

____I don't get enough compensation for my court appearance

____I usually don't have to wait very long in court for a case to be called

____I am sometimes irritated by people who ask favours of me
15

____Most lawyers try to make officers look foolish

____Bail is usually set too high

____I never hesitate to go out of my way to help someone in trouble

____Most judges treat officers with respect

____Juries are often prejudiced against police officers
20

____I have never deliberately said something that hurt someone's feelings

1 2 3 4 5 6 7

28. (contd)

____Plea-bargaining should be eliminated

____There is a big difference between whether a person is really guilty and what the court decides

____I am always courteous, even to people who are disagreeable

____My immediate supervisor keeps me well informed
25

____The officers I work with don't get much chance to talk to each other

____My immediate supervisor is willing to listen to suggestions

____I don't feel there is enough communication among the officers on different shifts

____Officers in this department are quickly informed about police change

____No matter who I am talking to, I am always a good
30 listener

____My immediate supervisor will back me up when I need it

____Department policies are communicated clearly to all members of the department

____I don't feel totally comfortable talking to my immediate
33 supervisor

29. In the past year, have you had any vehicular accidents <u>while on police duty</u>?

____1. No

34 ____2. Yes

If Yes, a. How many accidents have you had on-duty? ____Accidents
35

b. In how many accidents were you found to be at fault by the department? ____Accidents
37

c. How many accidents involved emergency situations or high speed chases? ____Accidents
39

30. In the past year, have you had any vehicular accidents <u>while off duty</u>? ____1. No

____2. Yes

1 2 3 4 5 6 7

30. (contd)

If Yes, a. How many accidents have you had off-duty? ____ Accidents
42

b. In how many accidents were you found to be legally at fault? ____ Accidents
44

31. The following questions concern your appearances in court as a police officer.

a. On the average, how many regular duty hours per week do you spend in court?

_____ Hours per week
46

b. On the average, how many hours per week do you spend in court during which you are not normally on duty?

_____ Hours per week
48

32. What kind of effect do your work hours have on each of the following aspects of your life? Use this code:

1 = Very negative
2 = Moderately negative
3 = Slightly negative
4 = Slightly positive
5 = Moderately positive
6 = Very positive

____ Recreational
50

____ Family life

____ Sleep

____ Holidays

____ Digestion

____ Sex life
55

____ Eating habits
56

____ Ability to stay alert

____ Social life

____ General energy

____ Ability to go to school/university

____ Ability to hold a second job
61

____ Friendships with other police officers

____ Friendships with persons who are not police officers

____ Ability to deal with household chores

____ Ability to perform personal errands
65

33. What kind of effect do the days of the week that you normally work have on each of the following aspects of your life? Use this code:

1 = Very negative
2 = Moderately negative
3 = Slightly negative
4 = Slightly positive
5 = Moderately positive
6 = Very positive

1 2 3 4 5 6 7

33. (contd)

____Sleep
48
____Sex life

____Digestion

____Holidays

____Social life

____Family life
71
____Ability to stay alert
72
____General energy level

____Recreation

____Ability to go to school

____Eating habits

____Ability to hold a second
77 job

____Friendship with other police
8 officers

____Friendships with persons who are not police officers

____Ability to deal with household chores

____Ability to perform personal
11 errands

34.a. How good a job does the union or association which represents noncommissioned rank officers do in the following areas? Use this code:

1 = Very bad job
2 = Moderately bad job
3 = Slightly bad job
4 = Slightly good job
5 = Moderately good job
6 = Very good job

____Getting better benefits for members
12
____Improving relations between members and the department

____Making members' jobs more satisfying and interesting

____Improving members' working conditions

____Representing the interests of its members
16

b. How good a job does the union or association which represents commissioned rank officers do in the following areas? Use this code:

1 = Very bad job
2 = Moderately bad job
3 = Slightly bad job
4 = Slightly good job
5 = Moderately good job
6 = Very good job

____Getting better benefits for members
17
____Improving relations between members and department administration

____Making members' jobs more satisfying and interesting

____Improving members' working conditions

____Representing the interests of members
21

1 2 3 4 5 6 7

35. Are you a member of a police union or association?

____1. No

22 ____2. Yes

36. When you joined the department, what was your marital status: (CHECK ONE)

____1. Never married

____2. Married, never divorced or widowed

____3. Remarried after divorce

____4. Remarried after being widowed

____5. Separated

____6. Divorced

____7. Widowed

37.a. Has your marital status changed since joining the department? (CHECK ONE)

____1. Marital status has not changed (have not been married, separated, divorced, or widowed since joining the department)

____2. Have been married for the first time

____3. Have been married after a divorce

____4. Have been married after being widowed

____5. Have separated (but not divorced)

____6. Have divorced

____7. Have been widowed

b. If you have ever been divorced, are you now paying:

1. Alimony	2. Property settlement	3. Child support
____1. No	____1. No	____1. No
____2. Yes	____2. Yes	____2. Yes

38. Before you joined the department, what was the highest level of formal education you had completed? That is, when you became a police officer, was your education: (CHECK ONE)

____(00) Eight grade or less

____(01) Some high school, but not H.S.C.

1 2 3 4 5 6 7

38. (contd)

____(02) S.C. from high school

____(03) H.S.C. from high school

____(04) Some technical school, but not to final year

____(05) Completed final year

____(06) Some college of advanced education courses, but not completed

____(07) Diplomate or Graduate from college of advanced education

____(08) Graduate from university

____(09) Some post-graduate courses in university

____(10) Post-graduate degree

39. Since joining the department, how much additional formal education have you had? That is, after you became a police officer, have you: (CHECK ONE)

____(01) Had no additional formal education

____(02) Taken some high school courses, but did not complete

____(03) H.S.C. from high school

____(04) Taken some technical school courses, but not completed

____(05) Taken some additional college of advanced education courses, but have not completed

____(06) Completed technical school

____(07) Graduate or diplomate from college of advanced education

____(08) Graduate from university

____(09) Taken some post-graduate college courses, but not completed a degree

____(10) Obtained a post-graduate degree

40.a. If you are now married, does your spouse currently hold a job? (CHECK ONE) (If not married, skip to question 46)

____1. No

____2. Yes, part time

____3. Yes, full time

1 2 3 4 5 6 7

40.b. If yes, how important is your spouse's income for the maintenance of your household? (CHECK ONE)

____1. Very unimportant
____2. Moderately unimportant
____3. Slightly unimportant
____4. Slightly important
____5. Moderately important
____6. Very important

33

41. Please state the number of years you have been married

____Years married

34
35

42. What is the CURRENT AGE of your eldest child (or your CURRENT FAMILY)

____

36
37

43. In general, how often do you think that things between you and your wife are going well: (CHECK ONE)

____All of the time
____Most of the time
____More often than not
____Occasionally
____Rarely
____Never

38

44. How often would you say that the following events occur between you and your wife? Use this code:

1 = Never
2 = Once or twice a year
3 = Once or twice a month
4 = Once or twice a week
5 = About once a day
6 = More than once a day

A. ____ You feel resentful (39)
B. ____ You feel not needed (40)
C. ____ You feel misunderstood (41)
D. ____ Laugh together (42)
E. ____ Calmly discuss something together (43)
F. ____ Have a stimulating exchange of ideas (44)
G. ____ Work together on a project (45)

Please put the appropriate number next to A-G

45. Different stages of the family life cycle may be viewed as being more satisfying than others. Using the scale of:

1 2 3 4 5 6 7

45. (contd)

1 = Very satisfying
2 = Quite Satisfying
3 = Somewhat satisfying
4 = Not satisfying
5 = Not appropriate

A. ___ Before the children arrived (46)
B. ___ The first year with infant (47)
C. ___ Pre-school children at home (48)
D. ___ All children at school (49)
E. ___ Having teenagers (50)
F. ___ Children gone from home (51)
G. ___ Being grandparents (52)

Please put the appropriate number from 1-4 on item A-G, using a 5 (not appropriate) only where you have not experienced the phase.

46. How important do you think your department considers it that an officer go to school in order to be promoted?

___1. Very important

(53) ___2. Moderately unimportant

___3. Slightly unimportant

___4. Slightly important

___5. Moderately important

___6. Very important

47. How many children do you now support? ___ (54) Children

48. Other than your spouse and children, how many people depend upon you as their primary source of support?

___ (56) Persons

This completes the questionnaire. Thank you for your cooperation. If you have any comments about the questionnaire or its contents, please write those comments below.

ANNEX 2

EYSENCK PERSONALITY INVENTORY

PERSONALITY QUESTIONNAIRE

FORM A

Readers wishing to obtain a copy of this instrument are advised to contact:

Australian Council For Educational Research
Frederick Street
HAWTHORN Vic 3122

CODE NUMBER:_____

The Barnett Behavior Pattern Scale[a]

Please answer each item by selecting the letter corresponding to the answer you select. Give your own opinion of yourself. Answer all items according to the following scale:

A. Strongly Agree
B. Agree
C. Undecided
D. Disagree
E. Strongly Disagree

____ 1. I seldom feel rushed by self-imposed deadlines.

____ 2. I often have trouble really listening to another person without thinking of something I consider more important.

____ 3. I am a calm person.

____ 4. I think competition is necessary in order to achieve success.

____ 5. I have been very irritable lately.

____ 6. I am a competitive person.

____ 7. I am not pressed for time.

____ 8. Several times recently I have felt like starting a fight with someone.

____ 9. I need more time to accomplish the things I have to do.

____ 10. Competition makes games and other events more worthwhile.

____ 11. I am a patient person.

____ 12. I feel like I suffer from sort of a "hurry sickness".

____ 13. I enjoy listening to friends discuss actions or thoughts that are of interest only to them.

____ 14. I have been told that I take competitive games too seriously.

____ 15. I often feel rushed.

____ 16. I am a good listener.

____ 17. I feel that participation in competitive activities teaches people how to behave in social activities.

____ 18. I often feel like smashing things.

OCCURENCES OF LIFE EVENTS AS CLASSIFIED BY DOHRENWEND AND DOHRENWEND (MODIFIED)

CODE NUMBER: _____

For each of the following life events please state the number of times each event has occurred to you in the past year (if any) and whether you class this event for you personally as a gain (+), as a loss (-) or as ambiguous (0) e.g.:-

A small money prize win	1	+

Life Events	Number of Occurances in Past Year	Gain Loss or Ambiguous + - 0
Engaged	☐	☐
Married	☐	☐
Other new love relationships or important friendship	☐	☐
Birth of first child	☐	☐
Improvement in health	☐	☐
Started educational or training program etc.	☐	☐
Graduated from educational or training program etc.	☐	☐
Started to work - first time	☐	☐
Job or own business improved in responsibility, type, location or some other way	☐	☐
Major gains in income not due to change in work	☐	☐
Acquisitions of property	☐	☐
Released from prison, acquitted of other than minor traffic offenses	☐	☐
Changed residence for better one	☐	☐
Started new hobby or recreational activity	☐	☐
Acquired a pet	☐	☐
Took a vacation	☐	☐

Life Event	Number of Occurances in Past Year	Gain Loss or Ambiguous + − 0
Widowed	☐	☐
Divorced	☐	☐
Separated	☐	☐
Other broken love relationship or important friendship	☐	☐
Family member has a miscarriage or stillbirth	☐	☐
Family member left home	☐	☐
Illness or injury	☐	☐
Death of loved one or other important person	☐	☐
Quit or failed educational or training program etc.	☐	☐
Job or own business downgraded in responsibility, type, location or some other way	☐	☐
Laid off or fired from job or own business failed	☐	☐
Major loss of income not due to change in work	☐	☐
Serious property loss	☐	☐
Arrested, indicted, convicted of other than minor traffic offenses	☐	☐
Changed residence for worse one	☐	☐
Dropped hobby or recreational activity	☐	☐
Lost a pet	☐	☐
Pregnancy of spouse	☐	☐
Birth of child other than first	☐	☐
New person in home other than birth of new child	☐	☐
Retired from work	☐	☐

Life Event	Number of Occurranced in Past Year	Gain + Loss - or Ambiguous 0
Started at a new type of work	☐	☐
Other major event e.g._____	☐	☐

JOB ENVIRONMENT AND HEALTH IN THE POLICE FORCE

Biographical Questionnaire

INSTRUCTIONS - PLEASE READ CAREFULLY BEFORE ANSWERING ANY QUESTIONS.

There are five types of questions.

1. Answer the question by putting a ring around the appropriate number that you select for your answer, e.g.:

   "When did you last visit a doctor?" (10)

   Last 2 weeks..... 1

   Last 3 months..... 2

   Last 12 months.....(3)

   Last 3 years..... 4

   Not for years..... 5

This means you visited a doctor more than 3 months ago and less than 12 months ago.

2. Some questions ask for a number. In this case put the appropriate number in the box.
   If the number is less than ten always put your figure in the right hand box e.g.

   "In an average week how often do you eat the following?"

   eggs..... (12) (13) | 0 | 7 |

   Slices of bread..... (14) (15) | 2 | 7 |

Means you eat 7 eggs each week and 27 slices of bread.

3. Sometimes you are required to write in the answer, e.g.:

   "Please state brand of margarine?" Answer: Miracle.

4. Some questions ask for a code number. In this case put the appropriate number in the box e.g.

   How much of the time do you have the following feelings while you are at work?

   0 = never
   1 = a little of the time
   2 = some of the time
   3 = a good part of the time
   4 = most of the time
   5 = all of the time

I feel:

[1] Nervous [3] Good [2] Blue

5. Some questions ask you to check the corresponding box. In this case put a X in the appropriate box e.g.

Below is a list of illnesses you may or may not have had. For every illness you have had in the past six months, please check the corresponding box.

Check below if you have had the illness in the past six months. Then check the appropriate boxes to the right for every illness you have had.

For every illness you have had in the past six months, please answer each of these questions:

a. If this illness was diagnosed by a doctor, please check below.
b. If you took any medication for this in the past six months, please check below.
c. If this illness was caused or made worse by your job, please check below.

	a.	b.	c.
a. Asthma	X	X	X	
b. Hay fever	X			

Biographical Questionnaire

CODE NUMBER: _____

1. Occupation of: Father..... (1)

   Mother..... (2)

   Spouse..... (3)

2. Family Health -

   Please indicate in the table below if the particular disorder is or was definitely present in respective members of your family. Do not enter if uncertain or unknown.

	Mother		Father		Sister or Brother	
	No	Yes	No	Yes	No	Yes
High blood pressure...	1	2(4)	1	2(5)	1	2(6)
Stroke.....	1	2(7)	1	2(8)	1	2(6)
Heart attack.....	1	2(10)	1	2(11)	1	2(12)
Heart failure.....	1	2(13)	1	2(14)	1	2(15)
Diabetes.....	1	2(16)	1	2(17)	1	2(18)

3. If your father and/or mother are not now living please indicate by marking appropriate code whether death occurred before the age of 60 years due to any of the following:

	Mother		Father	
	No	Yes	No	Yes
Stroke	1	2(19)	1	2(20)
Heart attack	1	2(21)	1	2(22)
Heart failure	1	2(23)	1	2(24)

4. Religion

   Please indicate religion in table below. If adherence to religion is nominal only and religion is not practised at all, or if there is no religious preference, record 'nominal or none'.

	Self (25)	Spouse (26)	Mother (27)	Father (28)
Protestant.....	1	1	1	1
Catholic.....	2	2	2	2
Jewish.....	3	3	3	3
Other.....	4	4	4	4
Nominal or none.....	5	5	5	5

Office (29) ☐

5. Please indicate the nature of your present household:

	(30)
Self only.....	1
Living at home with parent(s).....	2
Immediate, nuclear family (spouse or other life partner and/or children).....	3
Extended family (other relatives also).....	4
Other (commune, etc.).....	5

6. Please indicate the total number of persons living in your household (including yourself)

..... (31)(32) [ ][ ]

7. Please indicate the total number of rooms in your home (exclude bathrooms, showers, toilets, kitchen, storerooms, halls, enclosed porches, and rooms used for business): (if 9 or more, enter 9 in box)

..... (33) [ ]

8. Country of birth

Please indicate country of birth in table below:

	Self (34)	Spouse (35)	Mother (36)	Father (37)
Australia.....	1	1	1	1
United Kingdom.....	2	2	2	2
Northern Europe.....	3	3	3	3
Central, Eastern Europe.....	4	4	4	4
Mediterranean.....	5	5	5	5
North America.....	6	6	6	6
Asia.....	7	7	7	7
New Zealand.....	8	8	8	8
Other (SPECIFY)	9	9	9	9

Offi[illegible]
(38)
[ ]

9. Birthplace population

Please indicate population of your birthplace (include suburbs of large city as part of that city).

(39)

Under 2,000	1
2,000 - 20,000	2
20,000 - 50,000	3
50,000 - 500,000	4
500,000 - or more	5
Unknown	6

10. Other places of living after birthplace

Do not count suburban moves, temporary, college or military residences.
If still living in town or city of birth, please enter 'nil' under name of place:

Move to: (name of place)	Country (or State if Australia)	Age at move	No. of years residence	Office
.....				(40) ____
.....				(41) ____
.....				(42) ____

11. Please indicate your present dwelling: (43)

Own home	1
Own home unit	2
Rented house	3
Rented flat	4
Room and board	5
Room only	6

11. (contd

In-laws' home..... 7

Parents' home..... 8

Other, e.g. caravan, friends' home (please specify) 9
.....

PHYSICAL ACTIVITY

The following seven questions are designed to study the degree of physical activity on your job and away from it.

Activity at, or connected with work

12. Whilst working, how much time do you spend walking about? (44)

Practically all..... 1

More than half..... 2

About half..... 3

Less than half..... 4

Almost none..... 5

13. How far do you walk on the way to and coming from work? (Include both ways) (45)

Over 2 miles..... 1

2 miles..... 2

1 mile..... 3

3/4 mile..... 4

1/2 mile..... 5

1/4 mile or less..... 6

14. In your work are you required to lift or carry heavy things? (46)

Frequently..... 1

Sometimes..... 3

Infrequently or never..... 5

Activity away from work

15. Do you take long walks? (47)

Frequently..... 1

Sometimes..... 2

Very infrequently or never..... 3

16. Do you garden actively? (48)

Frequently..... 1

Sometimes..... 2

Very infrequently or never..... 3

17. Do you exercise (e.g. tennis, squash, jogging, gymnasium swimming): (49)

Frequently..... 1

Sometimes..... 3

Very infrequently or never..... 5

18. Do you play less active sport (e.g. golf, bowls): (50)

Frequently..... 1

Sometimes..... 2

Very infrequently or never..... 3

19. Before you left shool did you engage in vigorous sporting activities? (51)

Frequently..... 1

Sometimes..... 2

Very infrequently or never..... 3

OTHER INTERESTS

20. Please estimate the number of hours, on average, that you spend each week on active social interests outside work:

20. (contd)

Hobbies, music, art, other creative activities..... (52) (53) ☐☐

Civic, church, service, other community groups..... (54) (55) ☐☐

TRAVEL TO WORK

21. What is your principal means of travel to and from work: (56)

Bus, train or ferry.....	1
Bicycle.....	2
Motor bike.....	3
Car.....	4

22. How long does it usually take you to travel to work? (57)

0-29 minutes.....	1
30-59 minutes.....	2
60-89 minutes.....	3
90 - or more minutes.....	4

MEDICATIONS

Prescribed medicines

23. Please write in the table below the details of medicines, tablets, mixtures, powders, injections etc., presently taken under prescription by a doctor. If none other is prescribed, please enter 'nil' in table:

Name of medicine	No. doses daily	No. months taken	Condition for which taken	Office
.....				(58) (59)
.....				(60) (61)
.....				(62) (63)
.....				(64) (65)

24. Please indicate in the table below the number of currently taken pain relieving tablets or powders of the two main types not prescribed by a doctor and how long you have taking them.

Average Frequency	Aspirin Aspro Panadein Panadol Codral, etc. (66)	Bex Vincents Other APC (67)
Not at all or less than once a week.....	1	1
Once or several times a week.....	2	2
1 - 3 daily.....	3	3
4 - 6 daily.....	4	4
7 or more daily.....	5	5
Formerly (over 3 months ago) once or more daily.....	6	6

24. (contd)

DURATION

	(68)		(69)
Not applicable.....	1	.....	1
Less than 1 month.....	2	.....	2
1 - 6 months.....	3	.....	3
6 - 12 months.....	4	.....	4
1 - 5 years.....	5	.....	5
More than 5 years.....	6	.....	6

25. Other unprescribed medicines

Do you regularly take any other unprescribed medicines, pills, tablets, capsules? If so please write name of compound(s) opposite the appropriate group below. If you are uncertain as to the grup concerned, write in under 'other':

	No		Yes	
Antacid.....	1	...	2	... (70)
Aperient.....	1	...	2	... (71)
Anti allergic.....	1	...	2	... (72)
Tranquillizer.....	1	...	2	... (73)
Pep Pill.....	1	...	2	... (74)
Vitamines.....	1	...	2	... (75)
Iron.....	1	...	2	... (76)
Weight reducing.....	1	...	2	... (77)
Other.....	1	...	2	... (78)

SMOKING

26. Please record, in boxes, the average number of cigarettes smoked daily. Convert ounces of tobacco rolled per week into cigarette smoked per day (1 oz. tobacco - 30 cigarettes) adding this to manufactured cigarettes per day if appropriate.

Enter 00 if you are a lifelong non-smoker or if you have never smoked as much as one cigarette a day for as long as one year.

Enter 77 if you are a cigar smoker only, regardless of amount smoked.

26. (contd)

Enter 88 if you are a pipe smoker only, regardless of amount smoked.

Enter 99 if you are an ex-smoker for at least one month.

Average number of cigarettes smoked per day..... (79)(80) [ ][ ]

DRINKING

27. Please record, in boxes below, the number of drinks you usually have per week. For purposes of this question the standard drink is the middy (19 oz) of beer, the nip (1 oz) of spirits, and the wine glass. Count a schooner, stubby or can as 1½ drinks, a pint as 2 drinks, and a bottle or large can as 2½.

Enter 00 if you are a life long non-drinker (that is, never more often than a glass at weddings, Christmas etc.)

Enter 01 if you are an occasional drinker (on average less often than once a week).

Enter 77 if you were a moderate ex-drinker (moderate regular drinking given up more than 3 months ago).

Enter 88 if you were a heavy drinker (former drinking problem).

Average number of drinks per week..... (81)(82) [ ][ ]

28. Caffeine - number of cups/bottles each day on average: if more than 9 write 9 in box:

Tea..... (83) [ ]

Coffee..... (84) [ ]

Kola, Coca or Pepsi Cola..... (85) [ ]

29. How often have you experienced each of the following during the past month while on duty? Use this code:

0 = never
1 = once
2 = twice
3 = three or more times

29. (contd)

___Fainting or blacking out

___Spells of dizziness

___Headaches

___A loss of appetite

___Being fidgety or tense

___Nausea

___Being nervous or shaky inside

___Backaches

___Hands trembling enough to bother you

___Hands sweating so that you felt damp and clammy

___Stomachaches

___Feeling you were going to have a nervous greakdown

___Being bothered by your heart beating faster than usual

___Shortness of breath when you were not working hard or excercising

___Constipation

Offic
(8

30. In addition, have you experienced any of the following <u>while off duty during the past month</u>? Use this code:

0 = never
1 = once
2 = twice
3 = three or more times

___Nightmares

___Fainting or blacking out

___Headaches

___Being fidgety or tense

___A loss of appetite

___Nausea

___Spells of dizziness

___Stomachaches

___Backaches

___Trouble falling or staying asleep

___Feeling you were going to have a nervous breakdown

___Being nervous or shaky inside

___Hands trembling enough to bother you

___Hands sweating so that you felt damp and clammy

___Being bothered by your heart beating faster than usual

___Shortness of breath when you were not working hard or exercising

___Constipation

Office
(87

31. How much of the time do you have the following feelings <u>while you are at work</u>?

31. (contd)

Use this code:

0 = never
1 = a little of the time
2 = some of the time
3 = a good part of the time
4 = most of the time
5 = all of the time

I feel:

___Nervous ___Good ___Aggravated

___Sad ___Depressed ___Cheerful

___Jittery ___Angry ___Irritated or annoyed

___Calm ___Fidgety

___Unhappy ___Blue

Office (88) ☐

32. Of the five people on the department you work with most often, how many have serious problems with the following: (IN THE SPACE NEXT TO EACH PROBLEM, PLEASE WRITE IN A NUMBER FROM 0 to 5 TO INDICATE HOW MANY OF THOSE PEOPLE HAVE A SERIOUS PROBLEM).

___Alcohol ___Children ___Finance ___Neighbours

___Marriage ___Health ___Drugs

Office (89) ☐

How many officers on this department have you known who have had one or more heart attacks?

_____Officers

Office (90) ☐

How many officers on this department have you known who have attempted or successfully committed suicide?

_____Officers

Officers (91) ☐

a. If you have known officers who have had heart attacks, how many of these officers had attacks during regular duty hours?

_____Officers

Office (92) ☐

33. Below is a list of illnesses you may or may not have had. For every illness you have had in the past six months, please check the corresponding box.

Check below if you have had the illness in the past six months. Then check the appropriate boxes to the right for every illness you have had.

For every illness you have had in the past six months, please answer each of these questions:

a. If this illness was diagnosed by a doctor, please check below.

b. If you took any medication for this in the past six months, please check below.

c. If this illness was caused or made worse by your job, please check below

		a.	b.	c.
a.	Asthma	☐	☐	☐
b.	Hay fever	☐	☐	☐
c.	Bronchitis	☐	☐	☐
d.	Repeated skin trouble	☐	☐	☐
e.	Paralysis, tremor or shaking (of any kind)	☐	☐	☐
f.	Trouble with your spine	☐	☐	☐
g.	Heart disease or any heart trouble	☐	☐	☐
h.	Hypertension or high blood pressure	☐	☐	☐
i.	Diabetes (sugar)	☐	☐	☐
j.	Ulcers (stomach)	☐	☐	☐
k.	A cold or the flu	☐	☐	☐
l.	A stroke	☐	☐	☐
m.	Epilepsy	☐	☐	☐
n.	Trouble in the gastro-intestinal tract	☐	☐	☐
o.	Hypoglycemia (low blood sugar)	☐	☐	☐
p.	Migraine (or severe headaches)	☐	☐	☐

33. (contd)

	a.	b.	c.
q. Gout	☐	☐	☐	☐
r. Whiplash injuries	☐	☐	☐	☐
s. Mental illness or nervous breakdown	☐	☐	☐	☐
t. Other(s) (PLEASE SPECIFY)				
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐

34. Diet

Are you on a special diet or diets? Yes____ No____

If 'Yes', please indicate adherence to it/them in the table ('strict' means full adherence for at least 5 days each week).

Diet	Adherence to diet: strict, not strict, token	Months/Years on diet
1. Low calorie		
2. Low animal fat		
3. Diabetic		
4. Low salt		
5. Vegetarian (no eggs or milk foods)		
6. Low carbohydrate		
7. Other		

If 'other' please specify_____

_____

THANKYOU FOR YOUR CO-OPERATION

*****

JOB ENVIRONMENT AND HEALTH IN THE POLICE FORCE

MEDICAL INTERVIEW

CODE NUMBER: _____

1. Height (cm) in socks..... (1) (2) (3) [ ][ ][ ]

2. Weight (kg) without shoes or jacket..... (4) (5) (6) [ ][ ][ ]

3. Skinfold: Triceps (mm)..... (7) (8) [ ][ ]

   Infrascapular (mm)..... (9) (10) [ ][ ]

   Iliac crest (mm)..... (11) (12) [ ][ ]

   Average.....

4. Present blood pressure, sitting

	Reading 1	2
Systolic	.....	.....
Diastolic	.....	.....
Zero error	.....	.....
True systolic	.....	.....
True diastolic	.....	.....

   Mean of true systolic..... (13) (14) (15) [ ][ ][ ]

   Mean of true diastolic..... (16) (17) (18) [ ][ ][ ]

5. Pulse rate per minute sitting..... (19) (20) (21) [ ][ ][ ]

6. ECG Minnesota code (22) (23) (24) (25) (26) (27) (28) (29) (30)

1	2	3	4	5	6	7	8	9

7. Angina pectoris (31)

(ADMINISTER ROSE QUESTIONARY)

None..... 1
Possible..... 2
Definite..... 3
Unknown..... 4

8. Premature beats (32)

None..... 0
Supraventricular..... 1
Ventricular..... 2
Multifocal ventricular..... 3
Ventricular and supraventricular..... 4
Other, specify..... 5

9. Neurological disturbances (33)

(SIGNS OF STROKE)

None..... 1
Possible..... 2
Definite..... 3
Unknown..... 4

10. Blood (Chemistry report)

Haemoglobin g/dl.....(34) (35) (36)

11.

Test	Normal Range		
Cholesterol	140-260 mg%		(37) (38) (39)
Uric acid	2.0 - 8.0 mg%		(40) (41)
Triglycerides	101 mg% ± .36	(Males 45-60)	(42) (43)
Creatinine	0.4 - 1.4 mg%		(44) (45)
Glucose (fasting)	45 - 95 mg%		(46) (47)
GGTP (Gammaglutamyltranspeptidase)	6 - 26 mu/ml		(48) (49)

12. Urine:

adrenaline.....

noradrenaline.....

adrenocorticotropin.....

13. Diagnostic conclusion:

	Yes	No
Normal	☐	☐
Diabetes Mellitus	☐	☐
Hypertensive Disease	☐	☐
Ischaemic Heart Disease	☐	☐
Other Heart Disease	☐	☐
Cerebrovascular Disease	☐	☐
Peptic Ulcer	☐	☐
Cirrhosis of Liver	☐	☐

Other.....

.....

.....

14. Election:

Stay with survey 1

Reject 2

Reason.....

.....

.....