THE PREVALENCE AND PREDICTORS OF PSYCHOSOMATIC SYMPTOMS AND CONDITIONS AMONG A SAMPLE OF POLICE OFFICERS

by

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A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
MASTER OF ARTS
in
DEPARTMENT OF PSYCHOLOGY

Winnipeg, Manitoba, 1982

MARCH, 1982. BRENT A. VULCANO, 1982

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ABSTRACT

The study examines 1) the prevalence of psychosomatic disorders among a sample of police officers and 2) those variables believed to be significant predictors of psychosomatic symptoms and conditions. Five hundred and seventy-one police officers completed an extensive mail-out questionnaire. The psychosomatic symptoms and conditions which were included in this survey were: headaches, indigestion, constipation, nervous stomach, stomach aches, diarrhea, hypertension, asthma, ulcers, colitis and weight trouble. Psychosocial predictors included; 1) environmental stress (life experiences and occupational stress), 2) environmental moderators (social support including social assets and loneliness), 3) personality factors (trait anxiety, Type A coronary prone behaviour, and rationality). The results indicated that psychosomatic symptoms and conditions are somewhat more prevalent among police officers than in the general population. Symptoms and conditions that were particularly prominent in this group included nervous stomachs, diarrhea and ulcers. Results showed that psychosomatic symptoms/conditions in general were significantly associated with; 1) a lack of social assets, 2) a low rationaltiy score, 3) high job dissatisfaction or job stress, 4) high

anxiety, 5) high loneliness, and 6) high scores on the Type A behaviour pattern. Multiple regression analyses indicated four factors accounted for 15% of the explained variance in psychosomatic disorders.

Path analysis indicated a final recursive model did not resemble the original hypothesized model. Five exogenous variables; job stress, job dissatisfaction, negative life change, loneliness and negative life change combined with a Type A behaviour pattern remained significant predictors at tier one of the final model. A single endogenous variable, anxiety, remained at the second level of the final model. The final model was concluded to be incomplete and that several exogenous variables, which predict the variables at tier one in the final model, were missing. A number of variables were suggested for inclusion in future testing of the model.

ACKNOWLEDGEMENTS

The author would like to express his sincere appreciation and gratitude to Dr. Lawrence Breen for his invaluable aid in every aspect of this study. Often the study seemed doomed to certain failure, but time and again his support and efforts made the success of the project possible. Special thanks are to be extended to my wife, Cindy, for her endless support. There really are no words to express my indebtedness to you. The author wishes to thank his committee members; Dr. R. Linden for his input, suggestions and efforts, and Dr. G. Barnes for expending much effort in aiding me to overcome many shortcomings that hindered the progress of this project. Also, the author would like to thank Skip Stambrook for his personal interest and input. Certainly, a thank-you must be extended to those police officers who completed the lengthy questionnaires. Lastly, the author wishes to acknowledge that many other individuals contributed at various stages of this project. These people are too numerous to mention but their role was an important one for without their help this document might have never been completed.

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THE PREVALENCE AND PREDICTORS OF PSYCHOSOMATIC SYMPTOMS AND CONDITIONS AMONG A SAMPLE OF POLICE OFFICERS

The present study examines the epidemiology of psychosomatic disorders among a sample of police officers and those variables believed to be significant predictors of the psychosomatic disorders. As an organizational aid to the understanding of how the relevant predictors might relate to the psychosomatic disorders, this study employed a theoretical model. A second major objective of this study was to test this hypothetical model.

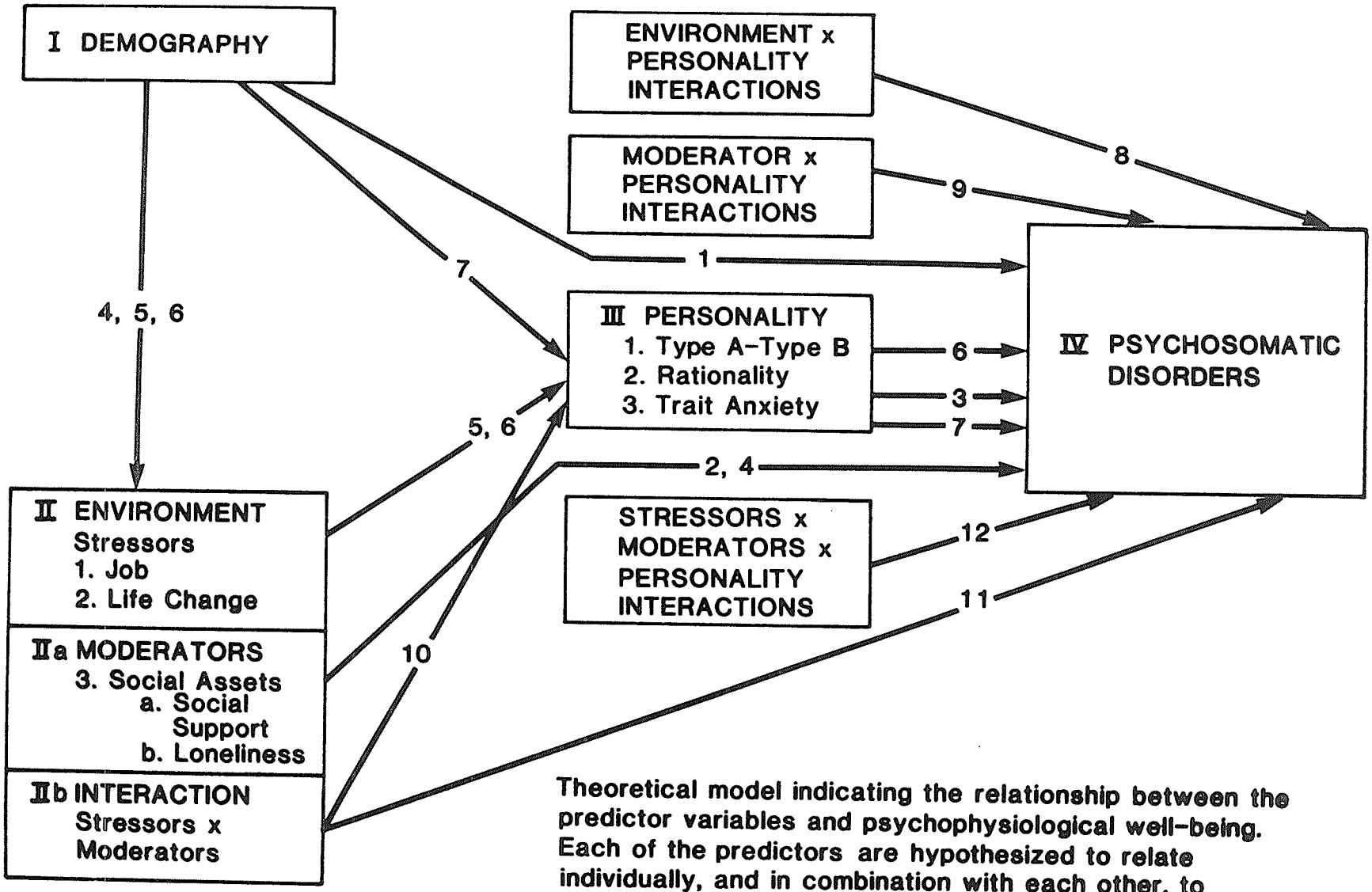
A psychosomatic or psychophysiological disorder, as defined by the Diagnostic System of the American Psychiatric Association (1980), is "any physical condition to which psychological factors are judged to be contributory." Further, the diagnostic criteria for psychological factors affecting an individual's physical condition includes "psychologically meaningful environmental stimuli [which] are temporally related to the initiation or exacerbation of a physical condition [i.e, headache, asthma, ulcer, colitis]" (p.303). Psychosomatic disorders for present purposes include the following symptoms and conditions; headaches, indigestion, constipation, nervous stomach, stomach aches, diarrhea, high

blood pressure, asthma, ulcers, colitis, and problems in weight control. Previous research has indicated the aforementioned symptoms and conditions to be best thought of as "psychosomatic" because of the link between perceived stress in the environment and a personality overreactive to stress (e.g. Cochrane, 1971; Weiner, 1977; Lipkowski, 1968).

With regards to the first objective, the examination of the prevalence of psychosomatic symptoms and conditions is important for several reasons. The prevelance of psychosomatic symptoms and conditions seem to be on the rise (Spielberger & Sarason, 1975; Canada Health Survey, 1981). In addition, these symptoms and conditions are considered to be possible precursors of serious diseases (e.g., coronary heart disease).

The factors considered to be potentially relevant predictors of psychosomatic symptoms and conditions are outlined in the model depicted in Figure 1. This model will be described in the following section.

Figure 1



Theoretical model indicating the relationship between the predictor variables and psychophysiological well-being. Each of the predictors are hypothesized to relate individually, and in combination with each other, to psychosomatic disorders.

Theoretical Model

Prior exposure to stress, illness and personality have been coupled to explain a individual's susceptibility to illness (e.g., Martin, 1978). According to the model used in this study, psychosomatic symptoms and conditions are viewed as being produced by a combination of high job stress, high life stress, low social assets, including social support, and psychological vulnerability. That is, psychosomatic symptoms and conditions are viewed as being produced by a combination of environmental stressors, environmental moderators and personality variables. Also, numerous theorists have indicted an individual's demography and environment as significant factors to be considered in the development of personality (e.g., Jessor, 1975). Similarly, several models have been proposed which outline the important roles the environment and personality play in the development of health problems (e.g., Henry & Stephens, 1977; Kagan & Levi, 1974).

At this point it seems appropriate to describe the model utilized in this study (see Figure 1). The larger boxes outline the predictors: demography, environment and personality (I, II, III, respectively), while the smaller boxes represent the possible predictor interaction relationships which could relate to psychosomatic disorders (box IV). The

predictors are related to each other and to the dependent variable via numbered paths. Paths one through seven indicate relationships among the predictors and between the predictors and psychosomatic symptoms and conditions. (A more in depth examination and review of the relationships outlined in the model will be presented later.)

According to path one, any of the demographic variables (e.g., age) may contribute to the development of psychosomatic disorders. By way of an illustration, hypertension or high blood pressure is conceded to be of greater prevalence among the progressively aged (Weiner, 1977).

In considering path two, either environmental stressors or a lack of social assets, including social support, may contribute to the development of psychosomatic disorders. For example, high job stress may contribute to the development of psychosomatic disorders. In addition, a lack of social assets may also contribute to the development of psychosomatic symptoms and conditions. Similarly, path three outlines the possible relationship between the personality variables and psychosomatic symptoms and conditions.

Path four outlines a possible combined relationship between demography and environmental factors which may contribute to the development of psychosomatic disorders. In other words, demographic variables may combine with the environmental factors in their influence on the dependent variable. Likewise, path five indicates demography may com-

bine with environmental factors; the combinaton of these variables then in turn, may affect psychological vulnerability.

Path six is a straightforward extrapolation of path five. The development of psychoscmatic symptoms and conditions may be affected by psychological vulnerability, which has been affected by the environmental factors and demography.

Path seven is a simple outline of the possible mediated effect demography may have on the development of psychosomatic symptoms and conditions. According to this path, demogrpahy is mediated by psychological vulnerability.

The theoretical ability of the environment-personality interactions to predict psychosomatic symptoms and conditions are outlined in paths eight through twelve in the model. Paths eight, nine, ten and eleven represent possible two way interaction relaticnsips.

According to path eight, the environmental stress variables may interact with the personality factors and this interaction may contribute to the development of psychoscmatic symptoms and conditicns. That is, the interaction between high job stress and a high level of anxiety may serve to predict the development of psychosomatic disorders. Similarly, the environmental variables may also interact with the personality factors and result in the prediction of the development of psychoscmatic symptoms and conditions.

According to past research (e.g., Kagan & Levi, 1974) the development of illness due to stressors may be promoted or prevented according to the action of moderator variables. These moderator variables are hypothesized to act as a cushion or serve to modify the effect stressors have on a person's illness development.

According to path ten, any interaction(s) between the environmental stressors and the environmental moderators may possibly predict an individual's level of psychological vulnerability. For example, an interaction between a high level of job stress and a low level of social assets may contribute to an individual's increased level of psychological vulnerability, such as a high level of anxiety.

Path eleven outlines the possible relationship between the stressor by moderator interaction, mentioned in path ten, and psychological symptoms and conditions. For example, it is possible that high job stress may interact with a lack of social assets and contribute to the development of psychosomatic symptoms and conditions.

Finally, path twelve is a possible three way interaction. Environmental stressor, moderator and personality variables may all interact and contribute to the development of psychosomatic symptoms and conditions.

Paths one through seven are not entirely unique to this model but have been suggested elswhere as being important in the prediction of poor health (e.g., Kagan & Levi, 1974).

Paths eight through twelve are considered to be unique to this model as interaction relationships in general, have not been previously tested for their ability to predict psychosomatic symptoms and conditions. At least no mention of the testing of interaction relationships in their ability to predict poor health was found in the reviewed literature.

The inclusion of interaction relationships in the model utilized in this study was appropriate as both, characteristics of the job environment and characteristics of the person, have been offered as important determinants of the development of psychological distress and pathophysiological problems (e.g., Chesney & Rosenman, 1980; Caplan, et al., 1975). According to Kagan & Levi (1974) for example, it is expected that there will be significant interactions among environmental factors and personality.

Similarly, person-situation interaction theory (Endler, 1975) suggests the person by situation interaction will generally prove to be an important aspect in the prediction of psychosomatic symptoms and conditions in comparison to solely observing the effects of the factors on an individual basis. For example, Endler (1975) pointed out that the person by situation interaction was the most important aspect in the production of anxiety. It is suspected that these interactions may prove to be better predictors than the single factors by themselves.

Logically, there are likely to be a number of variables associated with a person's environment and his/her personality that may interact. For example, according to the theory to be tested in this study, a very stressful job in combination with a person that possesses a Type A personality may serve to promote the onset of psychophysiologic illness. Gastorf, Suls & Sanders (1980) suggest the possibility of a process which may increase job related stress for Type A's. Basically, Gastorf, et al. (1980) concluded that Type A's may prefer to work alone if previous performance has been disrupted or impaired by the presence of others, particularly on complex tasks. This process may then serve to increase job related stress. This is just one example of how the environment and personality may interact resulting in different effects on the health of people.

By examining variable interaction it is hoped some insight will be gained into the etiology of psychosomatic illness. The model utilized in this study and outlined in figure one, combines two perspectives. It investigates the accumulation of life changes and stress appraised events along with examining personality traits i.e. maladaptive personality traits which are thought to produce negative emotional states, such as anxiety. Basically, there are two ways in which stress and/or personality could affect illness. Stressful experiences may alter one's appraisal of physical symptoms and the mode utilized in coping with them.

As well, a personality dimension involving either a response tendency to complain about physical symptoms and life difficulties, or hypersensitiviy to physical symptoms and to negative aspects of one's life situation may affect how symptoms are perceived, reported and treated (Stone, Cohen & Adler, 1980).

In this study, the effects of stress on psychosomatic symptoms and conditions were postulated to be mediated by personality characteristics. These personality characteristics (e.g. Type A coronary prone behaviour) are believed to predispose an individual to certain emotional states. By way of an illustration, they affect " appraisals and subsequent emotional reactions to various situations which then produces inadequate coping strategies that prolong stressful encounters, resulting in behaviour (such as drinking and smoking) that is damaging to health " (Lazarus, 1966). In addition, there is the potential for personality characteristics to influence whether stressful life events are encountered or avoided, and whether an appraisal of stress is made.

On the other hand, stressful life experiences could influence the development of personality or these two factors could act in combination. Another important consideration is that the occurrence of life events are stress-appraised or perceived by the individual as being stressful and because of this perception, illness is likely to develop when

personality trait characteristics that are thought to produce negative emotional states are present. These personality traits or characteristics include anxiety and depression (Stone, Cohen & Adler, 1980). At this time it would be useful to provide a brief explanation as to why the specific variables incorporated in the model outlined in Figure 1, are included vis a vis other variables. In order to do this, it would appear necessary to point out the perspective of the model utilized in this study.

There are two view points as to the link between psychological factors and disease. One is a focus on general susceptibility to illness, the other a focus on the development of specific illnesses. The basic distinction between the generality versus the specificity approach is whether generalized or specific somatic effects are predicted to result from the particular factors under study (Stone, Cohen & Adler, 1980). The generality theories postulate general biological mechanisms have negative effects on the system as a whole, or on vulnerable organ systems. The specificity theories focus on particular biological mechanisms which are directly implicated, through their effects, in the development of a specific disease. In this study, the generality approach is utilized to link psychological factors and psychosomatic disorders.

As far as the specific variables that are included in this study are concerned, many of these have been indicted

as precursors to a variety of disorders, illnesses and diseases. Anxiety and Type A coronary prone behaviour have been found to be the most consistent psychosocial predictors of coronary heart disease (Stone, Cohen & Adler, 1980). Other factors as well have been shown to be linked with CHD. For example, less job satisfaction has been associated with myocardial infarction and conflicts in work have been shown to be related to angina pectoris (Stone, Cohen & Adler, 1980). (Myocardial infarction and angina pectoris are two specific types of coronary heart disease.) These same factors have also been indicted as precursors to the development of psychosomatic symptoms and conditions (e.g., Stone, et al., 1980). Thus, the variables that are outlined in the model depicted in Figure 1, were included in this study since many of the same factors seem to contribute to psychosomatic symptoms and conditions generally and to coronary heart disease particularly.

In addition to including interaction relationships as potential significant predictors of psychosomatic symptoms and conditions this model is somewhat unique insofar as, the model utilized in this study incorporates "job stress" as a possible significant environmental predictor variable. According to past research (e.g., Cobb & Rose, 1973), high stress occupations have been found to be related to increased psychosomatic symptoms and conditions. With this in mind, it appeared to be important to select a high stress

occupation for testing the proposed model. Since police work has been found to be a high stress occupation (e.g., Kroes & Hurrell, 1975; Stratton, 1978) it seemed an appropriate group for testing at least partially, the theoretical relationships proposed in the model.

Since one of the principle objectives of this study was to provide Canadian data on the prevalence of psychosomatic symptoms and conditions it would appear relevant at this point to provide a brief review of the prevalence of psychosomatic disorders.

Prevalence of Psychosomatic Symptoms and Conditions

In considering the literature on the prevalence and incidence of psychosomatic disorders, the data indicated that the frequency of psychosomatic disorders was increasing in Western culture (e.g., Spielberger & Sarason, 1975; Canada Health Survey, 1981). In other words, previous research (e.g., Pelletier, 1977) has shown that a significant percentage of people in the general population suffer from psychosomatic symptoms and conditions. For example, Schwab & Traven (1979) estimate that the total rate of psychosomatic conditions in adult patient populations range anywhere from 15% to 50%. In addition, they estimate rates were as high as 60% in the general population.

A recent Canadian study (Canada Health Survey, 1981) sampled 40,000 people of all ages (0-65+) and provided prevalence rates for headaches and digestive disorders. Almost five percent (4.8%) or 1,102,000 Canadians suffer from headaches, while 3.0% or 687,000 suffer digestive disorders. A Swedish study (Tibblin, Lindstrom & Ander, 1971), provided prevalence rates for five symptoms. Of 462 non-hypertensive males, who were born in 1919, ten percent reported having indigestion, 15.6% headaches, 10.6% diarrhea, while 2.7% suffered from constipation, 4% reported weight loss and 18.1% felt they were obese or overweight.

For the psychosomatic conditions included in this study, i.e., ulcers, hypertension, asthma and colitis, the following figures were available:

1) Ulcers

The prevalence rate of ulcers (peptic) was 9% among men and women in Germany (Klein, 1951) and Scotland (Thompson, 1954). The prevalence in Iceland was 0.43 % in men and 0.35 % in women (Dungal & Hansen, 1958). In South Africa, the rate was 0.7 % in men (Higginson & Simpson, 1958). In Uganda, the rate was 14.5 % (Weiner, 1977). According to a report by the National Centre for Health Statistics (1973), the prevalence rate for ulcers in the United States in 1968 was 1.72 %. Lachman (1972) reported 3 million in the U.S. population suffer from peptic ulcers. Prevalence rates in

Canada vary from 0.7% to 2.1%, according to sex and age (Canada Health Survey, 1981).

In a recent study (Vogt & Johnson, 1980), the incidence of ulcers was examined in over 200,000 people. According to this study, the incidence of ulcers appeared to have declined in western societies over the past two decades. Besides this finding, no firm evidence exists that the incidence or prevalence of ulcers has altered significantly in any single country or culture over the past several decades (Weiner, 1977).

In terms of the etiology of ulcers, there is no firm evidence to indicate that abrupt changes in social and political conditions enhance or depress the incidence of ulcers. Nor does there seem to be any social class difference (Jones, 1956). The mechanisms by which psychological stress and distress lead to ulcer formation are being advanced, but the process is complex (Weiner, 1977). At present, little evidence is available that elucidates the role of genetic, developmental or behavioural factors.

2) Hypertension

As was the case with the prevalence rates of ulcers, there is much variance and discrepancy in the prevalence rate obtained for hypertension or high blood pressure. The incidence and prevalence rates vary according to age, sex, geographic location and ethnicity (Weiner, 1977).

An estimate, based on a sample of 44,000 households, of the prevalence rate of hypertension in the U.S. population in 1972 was six percent or 6,010 per 100,000 population (National Center for Health Statistics, 1974). A more recent report (National Health Education Committee, 1976, p.29, in Antonovsky, 1979) indicated U.S. figures for hypertension prevalence rates were 11,053 per 100,000 population or some 23 million people were afflicted. This figure is consistent with prevalence rates reported by Pelletier (1977).

Scotch (1961) reported a large prevalence rate in South Africa. Under the age of 45, the rate was 20%, and in older men it was 58%. The prevalence of hypertension seems to increase with an increase in age (Henry & Cassel, 1969). By the age of 60, the rate is about 40%.

According to Canadian figures (Canada Health Survey, 1980), the prevalence rate for Canadian men, aged 15-64, is 1.8%. This age range approximately corresponds to the sample in the present study.

More specific to this study, air traffic controllers, who are classified as having a high stress occupation (Cobb & Rose, 1973), had four times the rate of hypertension as a group of second class airmen. In addition, the number of new cases per year of hypertension was found to be 6 times as great in air traffic controllers as the group of second class airmen.

Hypertension is believed to be a condition brought about by various mechanisms and, social and psychological factors are considered to play an etiological and pathogenetic role (Weiner, 1977). For example, physical danger, violence, marital discord, separation and poverty are all documented factors that promote high blood pressure (e.g., Weiner, 1977).

On the other hand, social stability is believed to be conducive to even blood pressure levels throughout an individual's lifetime (e.g., Antonovsky, 1979). Of importance to note is that, psychological factors are not believed to "cause" by themselves, the syndrome of hypertension. Nevertheless, the role of environmental factors has been emphasized (Weiner, 1977). In addition, social and psychological factors may play a different etiological, pathogenetic, and sustaining role in the different forms of hypertension (Weiner, 1977).

3) Asthma

According to several studies, the prevalence rates for adult asthma vary from 0.6% to 5.7%. For example, the Canada Health Survey (1981) reported the prevalence rates for males, aged 15-64, to be 0.6%. Catch (1943) reported a rate of 1.4% in German men. In an American study, Van Arsdel (1959) found the prevalence rate among college men to be 4.7%, while Maternowski & Mathews (1962) reported a rate of 5.7%.

According to a recent U.S. figure (Weiner, 1977), nearly 18 million people suffer from some form of asthma. Similarly, over 500,000 Canadians reportedly suffer from asthma (Canada Health Survey, 1981).

This psychosomatic condition seems to be heterogeneous, and as a result not much is known about the etiology, sustaining factors or incidence, however, at least one study has shown a strong interdependence between asthma and psychosocial factors (Teirama, 1977) Further, methodological problems in the aforementioned retrospective studies have made it difficult to evaluate the roles of social, environmental and psychological factors in the etiology and pathogenesis of asthma (Weiner, 1977).

4) Colitis

As far as colitis is concerned, this disorder is generally conceded (e.g., Weiner, 1977) to have a worldwide distribution. Cases have been rported from developing countries as well as those countries that are technologically and economically advanced (e.g., Weiner & Lewis, 1960). For example, the incidence in England (Evans & Acheson, 1965) and in Denmark, is in the range of 4.5 to 6.7 per 100,000 population for men. In the U.S., the prevalence was reported to be approximately 0.93% (Weiner, 1977).

Accumulated evidence seems to suggest that psychological factors do account for an unidentified proportion of the

etiological and pathogenetical variance (Weiner, 1977). Also, investigators have not made clear their contention that social and psychological factors by themselves do not account for the predisposition or onset of the disorder.

Recent Figures

Finally, a fairly recent study examined the same psychosomatic symptoms and conditions as utilized in the present study (Schwab, Fennell and Warheit, 1974). Schwab, et al. (1974) found psychosomatic symptoms and conditions to be present and frequent in all socioeconomic groups, particularly among the lower socioeconomic groups. They based their research on the premise that accelerated social and cultural change have a definite impact on health and illness. Further, they add that change necessitates adjustment, which if it occurs too rapidly may cause problems in adaptation for individuals and institutions. The responses that result from the forced adaptation are believed to be directly related to health and illness.

Schwab, et al. (1974) sampled 1,645 respondents, of whom 44.7 % were male and 55.3 % were female. The age range was from 17 to 92. the authors concluded; 1) the poor suffer from a disproportionate higher percentage of physical and mental illness, that is, 30 % of the respondents with annual incomes under $3,000 suffer psychosomatic illnesses compared to only 9.8 % of those with annual incomes above

$15,000; 2) psychosomatic symptoms and conditions are present and frequent in all socioeconomic groups, and 3) a psychosocial and psychosomatic focus should include life styles in the search for illness.

In addition, according to an inventory that measured whether or not an individual had "none" or "two or more" psychophysiologic symptoms and conditions, approximately 10% of the males reported having two or more symptoms and conditions. These 10% were defined as being psychosomatically ill. Similarly, the black respondents were reportedly more psychosomatically ill than were the whites.

One of the principle objectives of this study was to provide comparable Canadian data on the prevalence of psychosomatic symptoms and conditions. According to the epidemiological studies cited earlier and the Schwab et al. (1974) study, the role of environmental and psychosocial factors must be considered in the development of psychosomatic disorders. This psychosomatic approach, (predicated on the hypothesis that social and psychological factors play a role in the predisposition, inception, and maintenance of many diseases) concerns itself with 1) how people adapt to changing conditions and forces, 2) how these changes and conditions may be perceived as stressful by some persons and not by others; and at a specific point in time in their lives, and 3) if these disorders are pathogenetically heterogeneous, the role of social and psychosocial factors may vary in the different forms of each disorder.

In addition to examining the prevalence of psychosomatic symptoms and conditions, a second major objective of this study was to test a causal model provided in Figure 1. With this purpose in mind, a review of the literature concerning the specific predictor variables included in the model follows.

Demography

As suggested previously, demographic variables may contribute to the prediction of psychosomatic symptoms and conditions. For example, an individual suffering marital discord or who happens to be separated or divorced may be susceptible to the development of psychosomatic symptoms and conditions. This could be the case as being married is believed to be a form of social support (e.g., Gore, 1973). A lack of this type of social support alone, may be sufficient to increase an individual's susceptibility to the development of psychosomatic symptoms and conditions. In addition, a lack of marital social support may combine with a specific stressor (e.g., life changes or job stress) to contribute to either an increased susceptibility to psychosomatic symptoms and conditions or perhaps to an increased psychological vulnerability.

Environmental Stressors and Moderators

Stressors

Stress is suspected to be linked with health via physiological mechansims which produce biochemical changes in the body. Basically, these changes are believed to produce a vulnerability or susceptibility to disease. Stress creates a weakness in the bodily systems in a general manner, but these weaknesses are also noted to take specific paths as well as non-specific routes (Mikhail, 1981).

Among the first to establish a link between psychosocial stressors and health were Hinkle & Wolf (1957). Since that time the literature on this topic has grown. The role of stress in psychosomatic diseases has long been accepted (e.g. Selye, 1936) and in fact, the notion of stress as a precipitating factor in chronic diseases is gaining widespread acceptance. As mentioned, there is very little consensus as to what constitutes a stressor, as different events mean different things to different people. Herein lies the only agreement among researchers, that is, the individual's perception of an event, whether it is seen as stressful or otherwise, is what is important. One person's stress can be of no consequence to another, or may in fact, become a challenge to another (Finestone, 1978; List, 1967). Two types of perceived stress that have been shown to be related to illness onset are: 1) job stress (e.g., Cobb &

Rose, 1973) and 2) life stress (e.g., Dohrenwend & Dohrenwend, 1974).

Job Stress

The area of stress is multifactorial and the sub area of occupational stress has many aspects under this rubric as well. In this study, the types of job stress included are 1) specific stressors indigenous to the occupation of the sample and 2) job satisfaction.

Often linked with occupational stress is dissatisfaction with one's job or occupation. House (1974) feels job dissatisfaction qualifies as a form of job stress under the general definition of stress put forth by Lazarus (1966), which is also the definition used in this study. According to Webb (1979), job satisfaction is predicted to be of importance in accounting for stress, and within this framework, it is not the objective condition but rather the subjective perception which may lead to frustration or dissatisfaction.

Others have linked general job dissatisfaction and absenteeism to stress (see Margolis, Kroes & Quinn, 1974; Grant, 1977). Other factors found to be related to job satisfaction included the impact of promotion, status incongruence, lack of job security, and thwarted ambition (Cooper & Marshall, 1976). In addition, little or no participation in the decision making process lack of effective consultation,

restrictions on behaviour, office politics all can make work life satisfactory or stressful (Webb, 1979)

Job satisfaction, as a source of job stress, has been linked to poor health. Three different samples of occupations produced consistently negative and generally significant correlations across occupations between average levels of job satisfaction and heart disease (House, 1974). Controlling for occupational status does not appear to seriously diminish the relationship between satisfaction and coronary heart disease (House, 1974).

Job satisfaction of police officers in particular has been frequently cited as a problem (see Lefkowitz, 1977; Waldron, 1978). Besides job satisfaction, there are other more specific forms of stress in police work.

Much of the available literature and knowledge related to police specific stressors is taken from what is known about occupational stress in general. In considering the major stressors it is perhaps surprising to some that issues such as physcial danger do not rate very high. This is not to say that police officers are unconcerned about physical safety; quite the contrary (Breen & Vulcano, 1981). As mentioned in this report, " physical danger is something with which officers have been taught to cope". It is an expected part of police work and is at the same time consis tent with their "crime-fighter" image (Kroes, Margolis & Hurrell, 1974).

What rather consistently receives a great deal of emphasis is the organizational and administrative practice of the police agency (see Webb, 1979). Included under this heading would be such issues as promotions, transfer, current assignment and relations with supervisors. For example, supervisors are generally distrusted. Work assignments, operating procedures, personal conduct and dress, paperwork are all considered aspects that are generally disliked by the officers.

One other major stressor in this category is lack of participation in decision making. Margolis et al. (1974) found worker nonparticipation was consistently associated with job stress, including low motivation and self esteem, depressed mood and job dissatisfaction. French (1975) found nonparticipation to be related to job dissatis faction, boredom and depression. According to French & Caplan (1973) and Kasl (1973), greater participation is associated with better performance, higher productivity, lower levels of psychological strain, good working relations and positive attitudes towards work.

Other major stressors are such things as court decisions, interactions with the public, and restrictions on personal and social life (Kroes & Gould, 1979; Hayes, 1977). For example, Kroes, Margolis & Hurrell (1974) found 56 % of officers sampled indicated court rulings and procedures were bothersome and in another study only 13 % noted the courts

as a stressor. Public attitudes toward the police agencies are generally perceived as being negative, critical, suspicious and hostile. In one study, Webb (1979) noted 38 % of those sampled ranked community relations as stressful.

Other factors rated as stressful by officers included those intrinsic to police work. Shift work, role conflict and ambiguity, danger or fear, work overload and underload, exposure to human suffering and misery, need to maintain a "macho image", pressure to conform to peer group expectations (e.g., Kroes, 1975).

Extra organizational sources of stress also are believed to be of concern to officers (e.g., Breen & Vulcano, 1981). Cooper & Marshall (1976) outline specal aspects of the job that help create special difficulties for the marriage and family of police officers. Over 97 % of married officers that were interviewed indicated that they felt their job influenced their homelife (Kroes, et al. 1974a). These home problems include missed holidays and weekends with family, taking job pressures home, worrying about officer's safety, and the public image of police which affect the officer's family .

Sources of stress have been categorized as those internal to the force, those coming from the justice system and public, those intrinsic to the nature of police work and extra organizational sources. The specific rating of the stressor depends on the individual's perception of the

event. Primarily, these stressors are believed to constitute a general work environment that is frustrating and stressful.

Webb (1979) agrees that stress is best conceived as being nonspecific in both its determinants as well as its consequences. Any number of factors may contribute to the stress syndrome and the reactions to stress can also vary over a wide range of social and psychophysical problems and diseases.

Cobb (1972) pointed out the effects of various types of occupational stress are specific relating only to certain diseases or clusters of disease entities e.g. job dissatisfaction was found to be related to some diseases but not others. There is growing evidence that occupational stress in the workplace is a causal factor in disease (Margolis, Kroes & Quinn, 1974).

Much of the research completed to date examined the relationship between jobstress and a specific disease, that being coronary heart disease (CHD). According to Jenkins (1971) environmental stressors lead to a reaction of anxiety and in time to CHD or mental health. Men in occupations involving greater stress seem to show greater susceptibility to heart disease. Yet no research exists that establishes specific occupational stresses as significant predictors of CHD (House, 1974).

Retrospective and prospective studies (e.g., Jenkins, 1976) have provided evidence for a relation between social psychological aspects of work and chronic diseases, but retrospective studies are criticized for their inability to indicate causality. A few retrospective studies have found that persons with CHD were significantly more dissatisfied with their overall jobs or aspects thereof e.g. poor relationships with co-workers, poor working conditions (Jenkins, 1971; House, 1974).

Russek (1962) documented the relationship between high stress and incidence of CHD. Russek (1965) found prolonged emotional strain associated with job responsibility preceded heart attacks of 91 % of patients sampled. Objective and subjective reports of high job pressure have also been found to relate to elevated heart disease risk in a variety of populations (House, 1974).

Although there is little evidence relating occupational stress to specific disease, evidence does exist for a generality approach where, occupational stress related to CHD may also relate to psychosomatic symptoms and conditions. For example, Cobb (1972) found an excess of every psychosomatic disease that could be studied in men in a high stress occupation (air traffic controllers) compared to a control group. In addition, other researchers (e.g., Jacobi, 1976; Kroes, 1976; Cooper & Marshall, 1976) pointed out the potential of workers under stress to develop psychophysiological or psychosomatic symptoms and conditions of all kinds.

Other researchers upon examining the relationship between indices of occupational stress and the incidence and prevalence of psychophysical disorders (see Richard & Fell, 1975; Jacobi, 1975), have reported that policemen do not appear to suffer any greater frequency of "mild impairment" than other occupational groups. This statement was based on rates of "seeking aid" and levels of neuroticism in two separate studies (Richard & Fell, 1975 and Fenster & Locke, 1973).

Other studies have reported an association between the stress of police work and health problems. For example, Margolis, et al. (1974) found stress was associated with poorer physical and mental health. The particular stressor implicated was that of nonparticipation in important decisions related to an officer's work. Further, police officers were found to have higher levels of illness and somatic complaints than members of other occupations (see Webb, 1979). Despite the lack of knowledge available regarding the prevalence of work related health problems among police officers, the literature is relatively consistent in its depiction of the relation ship between stress and psychosomatic disorders. As much of the aforementioned relationships were speculative it seemed appropriate for purposes of this study to conduct a pretest of a subsample of officers to ensure the inclusion of specific items believed to be considered stressful among the overall sample.

Life Stress

The role of stressful life events in the etiology of various diseases has been well documented over the last 30 years (see Rabkin & Struening, 1976). The general framework outlined was that the onset of illness was associated with a recent increase in the number of events that required socially adaptive responses on the part of the individual. The impact of events was presumed to be additive and the more events that occurred, the greater the impact.

Meyer (1951) attempted to systematize the relationship between stressful experiences and the development of somatic disorders. Numerous other studies (e.g., Dohrenwend & Dohrenwend, 1974) have investigated the relationship between life stress and susceptibility to physical and psychological problems. Accordingly, the bases for this research has been that life changes are stressful and require adaptation, while "marked degrees" of life change in the recent past tend to produce illness susceptibil ity. There is an abundance of evidence to indicate that a relationship exists between life stress, as measured by a self report index, and physical illness (e.g. Dohrenwend & Dohrenwend, 1974).

Holmes & Rahe (1967) attempted to quantify the extent of readjustment required by selected events which marked an advancement in specify ing the qualities of stressors that are usually related to later illness. In order to do this, Holmes & Rahe (1967) developed the Social Readjustment Rat-

ing Scale (SRRS) based on a large sample's magnitude estimations of the amount of social readjustment an average person would experience when an event occurs. Social readjustment refers to the degree and duration of a person's accomodation to a life event, regardless of the events desirability. There have been numerous findings of an association between high readjustment scores and illness onset (Dohrenwend & Dohrenwend, 1974; Rabkin & Struening, 1976).

According to Rahe (1974), life events is one measure of psychological stress where the more serious the life stress the higher the liklihood of disease sequelae. These findings have been interpreted as confirmation of the etiological significance of life stress. The idea that change is a central component of stressful experiences is common to many theoretical conceptions of stress (Selye, 1956).

Investigators have found modestly statistically significant relationships between life change and the onset of a host of illnesses (e.g., Prince & Miranda, 1977). Recent studies have focused on the effects of negative life events (e.g., Vinokur & Favero, 1975). Vinokur & Selzer (1975) were one of several investigators who argued undesirable events may have a different impact on individuals than would positive events i.e. certain negative events may have a more detrimental effect than change per se. According to Vinokur & Selzer (1975), undesirable events were found to be related to self ratings of depression, anxiety and tension as well as several other personality measures.

Holmes & Masuda (1974) feel the important thing about stressors is the adaptive demand made on the individual, irrespective of whether the life event is happy or sad. They disregard affect and are concerned solely with negative consequences.

Hinkle (1974) emphasized the role of negative life experiences while investigating differences in illness frequency. Illness was not randomly distributed throughout the sample. They found clusters of illnesses often appeared in a person having trouble adapting to his environment as perceived by the person. Those with the highest susceptibility to illness were those who failed to adapt sucessfully to negative life situations. Aakster (1974) holds a similar view where the failure to adapt to negative consequences is highlighted as the major concern with life events.

Johnson & Sarason (1978) provide support for conceptualizing life stress in terms of negative life change rather than in terms of change per se. This again, is consistent with others (Sarason, Johnson & Siegel, 1978; Mechanic, 1975; Vinokur & Selzer, 1975).

Moderators

Social Assets (including social support)

The link between a variety of psychosocial stressors and periods of illness have been amply documented (e.g., Henry & Stephens, 1977), as well, evidence has been presented which links stressful life events to a wide range of diseases and acute conditions (e.g., Prince & Masuda, 1977). In all of these studies, the stressor is conceptualized as an event or task which places an adaptive demand on the individual. It is inferred that these stressors create changes in life patterns which increase stress on the body and lead to a weakened state and vulnerability to illness (e.g., Antonovsky, 1979).

Recently, several models have been proposed which offer factors that mediate this relationship between stressful life events and adverse health consequences (see Cobb, 1974; Holmes & Masuda, 1974). According to the models, situational moderators, such as social support and social assets, are related to the lack of incidence of illness (see Kagan & Levi, 1974). Results from several studies (e.g., Kaplan, Cassel & Gore, 1977) suggest that the joint effects of social support and stressor factors determine to an extent, the susceptibility or vulnerability of the individual to disease. The psychosocial factors are not deemed as being pathogenic, but conditioning variables determining the vul-

nerability to a wide array of disease outcome, such as psychosomatic disorders.

Cobb (1976) defines social support as " information which prompts the individual... to believe he is cared for and loved... esteemed and valued...and that he belongs to a network of communtication and mutual obligation" (p.300). Cassel (1974) proclaims " support as the simple presence of others, and support as the feedback persons recieve from significant others about the relationship between their behaviour and its consequences" (p180, Carveth & Gottlieb, 1979). Other definitions include "psychosocial assets" (Nuckolls, Cassel & Caplan, 1972), " linkages with valued groups" (Coehlo, Hamburg & Adams, 1974 and " the psychological sense of community" (Sarason, 1974). In short, there is little agreement on the exact definition of social support.

Variables such as social assets have been suggested (Luborsky, Todd & Katcher, 1973) to aid in the "bearing of life's stresses" (p109). Social assets are defined as socially desirable psychological assets, including education and marital status. Testing of the social assets scale developed by Luborsky, et al. (1973) indicated that it could be useful in predicting both the frequency and severity of certain specific illnesses as well as the amount of self reported general illness. These conclusions were based on partial comparison with other measures or instruments, and

it was noted that its " predictive success " would be improved when used with other instruments (p.117).

One basic measure of social assets is socioeconomic status. Numerous studies have shown that poor physical and mental health is most prevalent among the socioeconomically deprived (e.g., Canada Health Survey, 1981; Schwab, et al., 1973).

Social support, on the other hand, is believed to have three possible effects (Burke & Weir, 1980): 1) directly on the source of stress (prevention), 2) directly on measures of strain or well being (therapeutic) and 3) a moderating effect on the stress - strain relationship (buffering). By definition, individuals who have a high level of social support are less likely to have stressful transactions with the environment resulting in the experience of strain and ill health. Initial studies were undertaken by French & Caplan (1972). Generally, they found that social support served as a buffer between strain and job stress.

Lazarus (1966) also pointed out the role of social support in combatting life change. Reactions or demands of life changes depend on the capacity of the persons to deal with the life changes and on the nature of the surrounding environment, including the amount of social support available (Kaplan, Cassel & Gore, 1973; Kaufman, 1973; Mechanic, 1974; Nuckolls, Cassel & Kaplan, 1972). Other studies have advanced the proposition that primary group support has health protective effects (see Cassel, 1974; Cobb, 1976).

Berkman (1977) analyzed the relationship between social support and health according to the 1965 data collected on a random basis from adults in Alameda County, California. There were 9,000 persons, aged 30 to 69 in the sample. The results showed that people with many social contacts had the lowest mortality rates. Berkman (1977) concluded this association controlled for a variety of sociodemographic and risk factor measures.

In addition, isolation, lack of social and community ties may influence resistance and increase vulnerability to disease in general. Support for the hypothesis that social and community ties may be protective against a wide variety of disease outcomes was offered when four sources of social relationships were examined (Berkman & Syme, 1979). The four relationships were 1) marriage, 2) contacts with close friends and relatives, 3) church membership, 4) informal and formal group associations. People with social ties and relationships had lower mortality rates than people without such ties. In addition, each of the four sources was shown to predict mortality independent of the other three. The strongest predictors were marriage and contact with friends and relatives.

Also, for every age group examined, and for both males and females, those with many contacts had the lowest mortality rates in comparison to people with few contacts who had the highest mortality rates. The association between social

relations and mortality was also shown to be independent of physical health at the time of the survey, year of death, socioeconomic status, smoking, alcohol use, physical inactivity, obesity, and low utilization of preventive health services.

Antonovsky (1979) points out further, social ties are indeed a form of social support, where their absence may be viewed as a stressor. At any rate, persons undergoing stressful life events are cushioned from harmful physiological or psychological consequences when such events are experienced in the presence of social support.

Similar results concerning the association of social support and life events were shown, where a person's susceptibilty to physical illness is believed to be influenced by recent occurences of life events involving social change (see Totman, 1979). Social support has been suggested to cushion the effect of life change.

There exists some ambiguity with respect to the definition of social support. This lack of consistency has resulted in several criticisms of the research to date, primarily to do with the vagueness of definition and poor conceptualization of social support (Kaplan, Cassel & Gore, 1977).

One other shortcoming pertains to the question of social support being able to moderate the effects of chronic stress, such as that experienced by air traffic controllers

(e.g. Cobb & Rose, 1973) or policemen (e.g. Stratton, 1978; Kroes & Hurrell, 1975). Much of the studies reviewed provide evidence in favor of the moderating effects of social support on acute forms of stress.

From these conclusions it is possible to state adequate social support can help to protect people in crisis from a wide array of pathological states. Social support interacts with environmental stress to result in better health than would otherwise be expected if social support were not present.

Loneliness

In addition to the actual amount of social support available, a person's subjective reaction to this support level may also be an important factor. In order to ensure that a person's actual social support system is taken into account, a measure of loneliness was included in the model (see Figure 1).

For instance, a person might be lonely despite being surrounded by others. Logically, a person who is lonely would be more likely to have less of a cushion against stress and thereby would suffer an increased liklihood of developing health problems, including psychosomatic symptoms and conditions.

In recent research, loneliness has been defined as a state of perceived social deficiency, where an individual's

social network is rated as undesirable or dissatisfying (Gerson & Perlman, 1979). Thus, the desired and actual levels of social contact are disparate. In addition, loneliness is concieved of as being a temporary condition as well as a consistent condition. Further, loneliness is "almost always accompanied by a sense of discomfort " (Gerson & Perlman, 1979, p.258).

Personality Variables

The effect of high life event stress, occupational stress and social support have been examined for their potential effect on physical illness. As well as a direct association between these variables and illness, studies have proposed that personality factors may be mediating the relationship between the two (e.g., Andrews & Tennant, 1978).

Personality variables have been shown to have some impact on health (e.g. Garrity, Somes & Marx, 1976). As well, personality variables have been implicated as contributing independently and in combination with environmental stressors, such as life change, to the development of illness (e.g., Rosenman, Brand, Sholtz & Friedman, 1976). The notion that a personality variable may be involved in the relationship between environmental stress and the development of illness has gained support from recent evidence of an association between the Type A behaviour pattern, maladaptive response to life events and proneness to heart disease (Totman, 1978).

This section deals with the literature related to personality variables included in the model, which may be involved in affecting an individual's health status. The personality factors believed to be significant predictors of health or illness and included in this study are Type A coronary prone behaviour pattern, level of rationality and level of anxiety.

Type A Behaviour Pattern

As indicated previously, a great amount of the research conducted to date on the etiology of disease has revolved around the investigation of those factors believed to be associated with the development of coronary heart disease (CHD) (e.g., Jenkins, 1976). Rosenman & Friedman (1974) stated, " that in the absence of this behaviour pattern, CHD is relatively nonexistent before 70 years of age. This is the case regardless of diet, lack of exercise, or number of cigarettes smoked. With the presence of this behaviour pattern, heart disease is increasingly evident in younger people e.g 30 to 40 years old" (p.ix).

According to Glass (1977), one of the concerns which stimulates research in this area is the possible indirect relationship and influence Type A coronary prone behaviour pattern may have upon CHD. Keeping in mind this study employs a generality approach in its examination of the association between environmental and personality factors, and

psychosomatic disorders, it is of use to explore the association between these same variables and CHD. In other words, if the factor is significantly related to CHD, it may also apply to the development of psychosomatic disorders in general (e.g.Mai, 1967; Jenkins, Zyzanski & Rosenman, 1978).

Rosenman and Friedman, in the 1950's, noted heart patients tended to exhibit a "constellation of behaviours and emotional "characteristics" (p.188, Chesney & Rosenman, 1980). This was referred to as the Type A behaviour pattern, while the absence of these characteristics was referred to as the Type B pattern. Type A's were found to exhibit enhanced hostility, ambitiousness, competitiveness, and they are often preoccupied with deadlines, and work. Type A's find themselves caught or continually place themselves, in a chronic struggle to accomplish an ever expanding number of goals in the shortest period of time and/or against opposing environmental forces. They continually experience impatience and a chronic sense of time urgency. Frequently these individuals will exhibit a "free floating" but well rationalized form of hostility and almost always a deep seated insecurity. The pattern can be found indiscriminately among virtually all social classes and occupations.

The Type A is believed to originate within the person, and not in his environment. According to Rosenman & Friedman (1974) this pattern is a " complex of personality traits".

In order to investigate the proposed relationship between the Type A pattern and CHD, 3500 men were followed in an 8.5 year study, known as the Western Collaborative Group Study (WCGS). The results of the study confirmed the pattern as a precursor of CHD, independent of the other standard risk factors (see Rosenman, et al. 1975). At least half of heart attack victims (DeGragario & Carver, 1980) did not have their illness linked to any of the known and suspected causative factors. These factors included: smoking, diet, exercise habits, other contributing diseases. Type A's in the WCGS had twice the rate of coronary disease, were five times as likely to have a myocardial infarction (type of heart attack) and had twice the rate of fatal heart attacks experienced by Type B's.

As far as the Type B pattern is concerned, they are described as being the exact opposite of Type A persons. Type B's rarely possess a desire to obtain an increasing number of things or to participate in more and more events in an everdecreasing amount of time. The Type B's level of intelligence may be equal or greater than a Type A along with his/her ambition. There may also be a considerable amount of drive exhibited by a Type B person though he seems to have a character that serves to "steady" him as well as give him confidence and security. The Type A possesses these positive attributes as well, but they on the other hand seem to irritate, incite and provoke the Type A person. Rosenman

& Friedman (1974) believe that everyone fits into either category to some degree i.e. most people are A or B, though in varying degrees.

There has been numerous studies conducted on the specific traits suspected to be associated with the Type A personality. These traits include; time urgency (e.g., Gastorf, et al, 1980), need to control (e.g., Glass, 1977), quest for number (e.g., Rosenman & Friedman, 1974), suppression of symptoms (e.g., Matthews & Brunson, 1979), competitive and hard driving style (e.g., Carver & Glass, 1978), and aggression and hostility (e.g., Carver & Glass, 1978). For a further statement of characteristics associated with the Type A pattern see Lovallo (1978); Friedman (1964); Rosenman & Chesney (1980).

Personality Correlates

There have been numerous studies which investigated the potential role of various psychological, social and behavioural factors in the development of CHD and other diseases (e.g. see Jenkins, 1976a; Jenkins, 1976b; Henry & Cassel, 1969). As far as the Type A pattern is concerned, the body of literature demonstrating that Type A is associated with an increased risk of CHD has been recognized as actually providing evidence for this factor over and above that imposed by age, systolic blood pressure, serum cholesterol, and smoking (Rosenman & Chesney, 1980). In addition, Ahnue,

deFaire, Orth-Gomer & Theorell (1974) demonstrated that the Type A pattern may be linked with the development of other diseases, besides CHD, such as acute or chronic gastritis.

Chesney & Rosenman (1980) concluded, in comparison to Type B's, Type A's usually describe their job situation as having more responsibility, longer hours and heavier workloads. Despite these pressures, A's in general, do not report more job dissatisfaction, anxiety or depression than do B's.

In another study (Dimsdale, Hackett, Hutler & Block, 1980), no relationship was found between Type A's and disease in high versus low depressed or high versus low stressed individuals. Further, "social insecurity" was speculated to be an important aspect of an anxious-depressive emotional pattern, and in addition was speculated to be an independent predictor of severe coronary artery disease (Jenkins, Zyzanski, Ryan, Flessas & Tannenbaum, 1977). Social insecurity is defined as acting in a similar manner to the moderator variables included in this study. Finally, in prospective studies, anxiety and neuroticism were found to precede coronary disease (see Jenkins, 1971b; 1976a).

Anxiety

Anxiety is another factor or variable which is believed to contribute to the development of illness (Jenkins, 1976b). It has been noted that "most people respond to

stressful situations with increased anxiety" (Spielberger & Sarason, 1975 - p.129). Scores on the trait measure of anxiety, utilized in this study, have been demonstrated to increase in response to various types of stress (Spielberger, Gorsuch & Lushene, 1970). For example, life change scores were related to several aspects of anxiety (Reavely, 1974; Lauer, 1973; Sarason & Spielberger, 1979; Vinokur & Selzer, 1975).

Pancheri, DeMartino, Spiombi, Biondi & Mosticoni (1979) assessed the utility of associating a measure of emotional reactivity with a life stress events measure, as they believed that response style or personality aspects have been listed as potential factors affecting the impact of life stress events. Pancheri, et al. (1979) noted that " the [life change] scores reflect, not so much the real impact of the event at the moment it occurs but rather the projection onto the event of the actual emotional state". The scores are believed to say something about the personality and defense structure at the time of testing. In addition, Pancheri, et al. (1979) concluded " the greatest predictive value of 'negative events' as covariables in the genesis of disease lies not so much in the negative quality of the event itself. Rather, it is the emotional state of the patient that causes a negative evaluation of a neutral or even objectively positive event. It may be hypothesized that the event elicited a persistent anxious reaction in a predis-

posed personality, resulting in a lasting negative evaluation" (p.194).

The aspects evaluated by the trait anxiety measure utilized in this study are defined as "relatively stable individual differences in anxiety proneness, that is, to differences between people in the tendency to respond to situations perceived as threatening with elevations in state anxiety intensity" (p.3 - Speilberger, et al. 1970). Jenkins (1971a; 1976b) has shown there is a considerable amount of evidence that associates coronary disease with anxiety.

Other studies have not provided support for a relationship between anxiety and coronary disease (e.g., Blumenthal, Thompson, Williams & Kong, 1979). As a result of their findings, Blumenthal, et al. (1979) speculated anxiety may affect an individual's health via indirect pathways.

In a similar vein, essential hypertension, considered to be a a psychosomatic disorder where emotions and situational stressors play a causative or aggravating role in the disease, was found to be related to anxiety (Whitehead, Blackwell, DeSilva & Robinson, 1977). However, only some people were noted to show increases in blood pressure in response to environmental stressors. As was the case with the previous variables, the consensus suggested by much of the literature is that, anxiety produced by a stressful situation is dependent of the "cognitive appraisal" of the situation as threatening (Spielberger, 1975).

Rationality

Another personality variable which may play a significant role as a moderator between stress and illness, and too, as a coping mechanism for stress, is level of rationality. According to the hypotheses related to the rationality concept, cognition mediates between the stimuli and responses. As outlined by the central hypothesis, emotions and behaviours stem not only from people's reactions to their environment, but also from their "thoughts, beliefs and attitudes about that environment" (p.3 - Ellis, 1977). According to Ellis (1977) there are three ways in which an individual can cope with anger as a result of being stressed.

According to Blumenthal, et al. (1979), anger is related to high blood pressure. One way to cope with anger is to vent or express the anger in some outward fashion. Ellis (1977) views this method of coping as unnecessary and somewhat unpleasant for others that may be nearby. The second avenue suggested for coping with anger is for the person to repress his/her anger and turn it against themself. Ellis (1977) hypothesizes this method of coping may result in illness or psychosomatic disease. The third avenue suggested for coping with anger, due to stress is believed to be a method which is more conducive to an individual's health and less abrasive for other individuals around the angered person.

Ellis (1977) feels anger can be cognitively controlled, where there is no need for " irrational outbursts" and more importantly, controlling anger cognitively, supposedly prevents the development of psychosomatic disease. Accordingly, increasing one's rationality level is believed to be a reliable and valuable method of coping and preventing psychosomatic complaints and other major diseases. People can be taught to minimize their susceptibility to disease by not being so external in their approach to life events. By reducing maladaptive emotional behaviour and fostering an internal approach to life, a person's physical and psychological health should be improved (Lefebvre & Lawlis, 1979).

Predictions:

I) Environmental stress is related to psychosomatic symptoms and conditions.

Related predictions:

1) Prevalence of symptoms and conditions among police officers (a high stress occupation) would be greater than among a general population sample.
2) More psychosomatic symptoms and conditions would be reported by police officers experiencing more job stress.
3) More psychosomatic symptoms and conditions would be reported by police officers experiencing negative life change.

II) Psychological vulnerability is related to psychosomatic

symptoms and conditions.

Related predictions:

4) More psychosomatic symptoms and conditions would be reported by police officers with Type A personality characteristics.

5) More psychosomatic symptoms and conditions would be reported by police officers who scored high on anxiety.

6) More psychosomatic symptoms and conditions would be reported by police officers who scored lower on rationality.

III) Low social support, including low social assets is associated with a greater number of psychosomatic symptoms and conditions.

Related predictions:

7) More psychosomatic symptoms and conditions would be reported by police officers scoring low on social assets.

8) More psychosomatic symptoms and conditions would be reported by police officers scoring high on loneliness.

9) More psychosomatic symptoms and conditions would be reported by police officers with fewer social contacts.

IV) High stress in combination with low social assets is associated with a greater number of psychosomatic symptoms and conditions.

(No specific predictions were made but all possible two-way interactions between stressors and personality social assets were examined.)

V) High stress in combination with psychological vulnerability is associated with a greater number of psychosomatic symptoms and conditions.

(No specific predictions were made but all possible two-way interactions between stressors and personality characteristics were examined.)

Method

Sampling Frame

Of a total possible sample of 912 police officers, 63% or 571 completed questionnaires (see Appendix A).

Measuring Instruments

Each of the members of the sampling frame received the following self report inventories.

1. Demographic Data. This scale consisted of a simple itemization of such factors as age, years of service, years in present division, etc.
2. The Background Questionnaire developed by Luborsky, Todd and Katcher (1973) included such items as parents education, own education, interests, including work, and family size. For this measure the 30 items were combined to form a social assets scale and the weighting scale advocated by Luborsky, et al. (1973) was utilized. Actual scores on the scale were based on the respondents obtained score, divided by the total possible score, for the scale, based on the number of items answered. Scores were not computed for anyone answering less than one-half of the questions. Scores on the social assets scale ranged from .56 to

.99 with a high score representing greater social assets.

3. Jenkins Activity Survey (Jenkins, Rosenman & Zyzanski, 1972). This scale can be used to dichotomize individuals into Type A or B coronary prone, with Pattern A being associated with at least twice the occurrence of heart disease as the opposing Type B (Matthews & Brunson, 1979).

The Jenkins Activity Survey (JAS-C) provides continuous scores on the A-B dimension of coronary prone behaviour. In total there are 52 items which yield several scores, including a Pattern A scale based on 21 of the items. The weighting system outlined by Jenkins et al. (1972) was utilized to develop scale scores for the subjects. To arrive at a raw scale score required summing the individual weights associated with the chosen option for each item in the scale. An identical separate weight was given to cases where either an item was omitted or where the participant selected more than one item. The total raw score then, for the scale, was the sum of the appropriate weights within the scale. These raw scores were then transformed into standard scores according to a linear transformation suggested by Jenkins et al. (1972).

The standard scale scores on the A-B dimension ranged from -19.4 to 19.1. Positive scores denote the Pattern A direction, and negative scores denote the Pattern B direction. The coefficient of reliability, alpha, for this scale was computed to be .50.

4. Trait measure of anxiety (Spielberger, Gorsuch & Lushene, 1970). This scale consists of 20 statements that ask people to describe how they generally feel. Actual scores on the scale were based on the person's total obtained score divided by the total possible score for the scale based on the number of items answered. Scores were not computed for anyone answering less than one-half of the questions. Scores on the anxiety scale ranged from .475 to 1.0 with a high score indicating lower anxiety (alpha = .89).

5. Barnes-Vulcano Rationality Test (BVRT) (Barnes & Vulcano, 1980; Barnes & Vulcano, in press). The BVRT was designed to measure the 10 irrational beliefs proposed by Ellis and Harper (1961). Initial reliability and validity data on this scale has shown this test to be both reliable (alpha = .86) and adequate in terms of both convergent and discriminant validity (Barnes & Vulcano, 1980; Barnes & Vulcano, in press). Scale scores for this test were obtained by summing the person's total score for the items answered and dividing this score by their total possible score for

the scale based on the number of items answered. Similarly, scores were not computed for anyone answering less than one-half of the questions. Scores on the rationality scale ranged from .48 to .96 with a high score indicating a more rational person (alpha = .87).

6. Job Description Index (Smith, Kendall & Hullin, 1969). The questions in this section pertained to the main aspects of the officer's working environment and included attitudes toward pay, promotions, supervisors, co-workers and work in general. The original version of the instructions for this index included three options, "Yes" (Y), "No" (N), and "Sometimes" (S). The S category was eliminated to avoid any potential problem of ambiguity over the interpretation of the questions. Scores on the Job Description Index (total scale) ranged from .51 to .90 (alpha = .89).

7. Job Stressors Survey. This inventory, constructed by Breen & Vulcano (1980), was designed in an attempt to measure the most prevalent stressors among police officers. The items in this section were developed from both the established literature and a pretest of a sample of 20 police officers from the same division as the participants in the present study.

8. The items on this survey were rated on a 5 point scale from "not stressful at all to "extremely stressful". Eleven stressors were rated with space porvided for the respondents to indicate other stressors which they may have experienced in addition to those included in the survey. Examples of the 11 common stressors evaluated by the respondents include, promotion procedures, system for transfer and pay rates. The 11 stressors, when combined to form a scale, provided a reliability value of .79. The minimum value on this scale was .20, with a maximum of .95. A low score meant less job stress or that these particular job stressors were not very stressful to the participant.

9. Loneliness measure (Russell, Peplau & Cutrona, 1979). The scale consists of 20 items measuring general loneliness. The authors report on internal consistency coefficient alpha of .96. In this study, the reliability coefficient was calculated to be .94. A low score indicates loneliness. The values on this scale ranged from .250 to 1.00.

10. The Life Experiences Survey (LES) (Sarason, Johnson & Siegel, 1978). The LES consists of 57 items; however, since the last 7 deal exclusively with students, they were not included in this questionnaire. The portion of the LES designed for all respondents con-

tains a list of 47 specific events plus three blank spaces in which subjects can indicate other events that they may have experienced. The events listed refer to life changes that are common to individuals in a wide variety of situations.

The format of the LES requires participants to rate separately the desirability and impact of events that they have experienced during the past year (0-6 months, or 7 months-1 year) as well as: a) whether the event was viewed as being positive or negative, and b) the perceived impact of the particular event on their life at the time of occurrence. Ratings are on a 7-point scale ranging from extremely negative (-3) to extremely positive (+3). Summing the impact ratings of those events designated as positive by the participant provides a positive change score; whereas, a negative change score is derived by summing the impact ratings of those events experienced as negative. By adding these two values, a total changescore can be obtained, representing the total amount of rated change (desirable and undesirable) experienced by the participant during the past year.

The range for the negative scale was from 0.0 to 49.0 with a higher score indicating a greater amount of negative life change. The positive change scale had scores ranging from a minimum of 0.0 to a maximum

of 33.0 with a higher score indicating greater change in a positive direction.

11. The Social Aspects Inventory. This survey was designed to measure social support relationships. Among the 11 items included in this questionnaire were closeness of the family unit, number of close friends and number of close friends on the force. Scores on the scale were based on the person's obtained score divided by the total possible score for the scale. This calculation was, in turn, based on the number of items answered; where scores were not computed for anyone answering less than one-half of the questions. Scores of the social aspects scale ranged from .31 to .91 with a high score indicating greater social support (alpha = .53).

12. Health Symptoms/Conditions Inventory. This survey, developed by Schwab, Fennel and Warheit (1974), is a measure of frequently cited physical complaints most often identified with stress.

Instructions on the inventory requested the respondent to indicate (from a list of 11 conditions/symptoms) those that they may have experienced in the past year, and to indicate their frequency of occurrence (regularly, occasionally or not at all). These symptoms/conditions were combined to form a scale which ranged from .33 to 1.0, with a high score indi-

cating poorer health or greater prevalence of psychosomatic symptoms/conditions, than a low score (alpha = .66).

Data Analyses

Predictions I to III in this study were tested using correlational analyses. Simple multiple regression analyses were used to examine the relative magnitude of predictors and test Predictions IV and V. Path analysis was utilized to test the theoretical model outlined in Figure 1.

Results

Description of the Respondents

Of the 571 questionnaires received, 551 were from male members with 20 from female members. Almost 90% (88.9%) of the total sample completed high school, 32.4% reported having some university education and 3.7% reported having graduate degrees. Most respondents were married (82%) with 69.5% having children. The average age of the sample was 31.8 years with 46.2% being 30 years of age or younger. Further to this point, 78.1% of the sample were 35 years of age or less. In terms of years of service, the average was 10.6 years and 82% of the sample had 15 years of service or less.

The general population sample, that was used to examine the same psychosomatic symptoms and conditions as examined in the present study, consisted of 1,645 respondents. Forty-five percent of these were male, 55% were female; 22.4% were blacks, 77.6% were whites; age range 17-92, with a mean age of 41 years; 17.9% were single, 60.9% were married, 10.3% widowed, 4.2% separated, 6.2% divorced.

Prevalence of Psychosomatic Disorders

As shown in Table 1, a large percentage of the police officers

TABLE 1

PERCENTAGES REPORTING PSYCHOSOMATIC SYMPTOMS/CONDITIONS

Police Population (N=571) Versus a

Sample from the General Population (N=1645)

(Schwab et al., 1974)

SYMPTOMS	YES (REGULARLY)		YES (OCCASIONALLY)		NO	
	POLICE	GENERAL	POLICE	GENERAL	POLICE	GENERAL
Headaches	7.9	8.7	52.2	38.0	38.4	53.4
Indigestion	7.9	6.4	42.4	27.5	47.5	66.1
Constipation	2.5	6.9	23.1	19.6	71.3	73.5
Nervous Stomach	7.5	5.2	37.7	17.5	52.4	77.3
Stomach Aches	3.3	3.7	20.3	18.8	72.7	77.5
Diarrhea	2.1	0.9	35.4	14.4	59.5	84.8
Conditions						
Hypertension	3.2	6.2	10.2	8.0	83.2	85.8
Asthma	0.7	1.9	2.6	2.9	93.3	95.2
Ulcers	1.4	0.9	4.7	1.4	89.8	97.6
Colitis	0.5	0.4	1.6	0.9	91.6	98.7

reported having 8 of the 11 psychosomatic symptoms or conditions. Specifically, 60% of the officers reported having headaches, while 45% and 50% reported having nervous stomachs and indigestion, respectively. Thirty-six to 38% experienced diarrhea and weight trouble and approximately 25% reported having other gastrointestinal symptoms (stomach aches and constipation). Weight trouble is left out of further analyses as figures on this variable were calculated differently in the two studies making other comparisons impossible. Hypertension occurred at a rate of 13% and ulcers at a rate of just over 6%. Less than 5% had colitis or asthma. Between 7% and 8% reported having headaches, indigestion, and nervous stomachs "regularly", whereas 2% to 3% indicated they regularly suffered from other gastrointestinal complaints.

As is evident from Table 1, a large percentage of members who reported any symptoms or conditions seemed to suffer from these "occasionally". From the data of Table 2, it is possible to compare the police sample with a sample from the general population of people who reported on the same symptoms/conditions (Schwab, Fennell & Warheit, 1974). As is evident, the police officers in the present study reported more

symptoms/conditions in almost every category (see Table 2), in comparison to the sample of people from the general population. For a number of symptoms and conditions, the per-

TABLE 2

PERCENTAGE DIFFERENCES IN PREVALENCE OF SYMPTOMS AND CONDITIONS

Comparing a Police Population with

a Sample from the General Population

	PERCENTAGE DIFFERENCES		
SYMPTOMS	REGULARLY	OCCASIONALLY	OCCASIONALLY OR REGULARLY
Headaches	-9	+37	+29
Indigestion	+23	+54	+48
Constipation	-64	+18	-3
Nervous Stomach	+44	+115	+99
Stomach Aches	-11	+8	+5
Diarrhea	+133	+146	+145
Conditions:			
Hypertension	-48	+28	-6
Asthma	-63	-10	-31
Ulcers	+56	+236	+165
Colitis	+25	+78	+62

centage difference in the "occasionally" category may be considered fairly large when the differences are compared for the two samples. As an illustration, in the general population, 17.5% reported they "occasionally" suffered from nervous stomachs, whereas 37.7% of the members reported they suffered from nervous stomachs. This is 20.2% greater than rate of the prevalence of nervous stomachs in the sample of the general population. To further illustrate the differences found under the "occasionally" column of Table 2, members reported three times the frequency of diarrhea and almost three times the occurrence of ulcers.

As well as the greater frequency of disorders shown in the "regularly" and "occasionally" columns of Table 2, the column in which the "regularly" and "occasionally categories are grouped together shows a definite higher prevalence of symptoms or conditions in the police sample in relation to the comparison sample. For example, members of the police samples reported having more than three times as many ulcers, as the sample of people taken from the general population. There was very little difference between the two samples as far as constipation and hypertension was concerned; also the police officers reported a lower prevalence of asthma. Overall, the police officers reported having more symptoms and conditions, both "regularly" and/or "occasionally" than the comparison group (see Table 2).

The frequency of psychosomatic symptoms and conditions was dichotomized into "none" and "two or more". The dichotomized frequency was then broken down by sex. This was done in order to make comparisons between the findings of the present study and those of the Schwab, et al. (1974) study. Upon comparing males that reported two or more symptoms and conditions in the present study with similar males in the Schwab, et al. (1974) study, it was found that the males in the present study showed a slightly higher frequency (14%) than males in the comparison group (10%).

Psychosomatic Inventory

The first data-analytic step was to examine whether or not the psychosomatic symptoms and conditions items formed a Guttman scale. The items did not form a Guttman scale even though the coefficient of reproducibility was .96. The coefficient of scaleability was not over .60 (the generally accepted value needed in order to form a cumulative and unidimensional scale; Nie, Hull, Jenkins, Steinbrenner & Bent, 1975).

Following this a factor analysis of the psychosomatic symptoms and conditions items was carried out. This analysis showed 25% of the common variance was accounted for by a fairly large principle component. In view of the results, the symptoms and conditions items were combined into a 10 item unitary measure of psychosomatic disorders. Consistent

with the method employed by Syme (1967), the psychosomatic symptoms and conditions were re-structured as a unidimensional measure. The hypotheses were then tested using this psychosomatic inventory.

Predictions

I) Environmental stress is related to psychosomatic symptoms and conditions.

As far as the prevalence of psychosomatic symptoms and conditions among this sample of police officers was concerned, support was found for prediction one. Prediction one was that the prevalence of psychosomatic symptoms and conditions among the police officers would be greater than among a general population sample.

Similarly, support was found for prediction two. Officers that reported a high level of job stress also scored high on the psychosomaitic symptoms and conditions inventory. Specifically, police officers that were dissatisfied with their job scored high on the psychosomatic inventory ($r=.12; p<.005$). Police officers that rated their job stressful also scored high on the psychosomatic inventory ($r=.25; p<.0001$).

In addition, officers who experienced high levels of negative life change scored high on the psychosomatic inventory ($r=.26; p<.0001$). This finding provided support for

prediction three. Prediction three was that more psychosomatic symptoms and conditions would be reported by police officers experiencing negative life change than those who were not. As support was found for predictions one, two and three, environmental stress would seem to be related to psychosomatic symptoms and conditions (Prediction I).

II) Psychological vulnerability is related to psychosomatic symptoms and condtions.

Upon examination of the relationship between the Type A/B variable and the psychosomatic inventory, support was found for prediction four ($r=.17; p<.0001$). Prediction four proposed more psychosomatic symptoms and conditions would be reported by police officers with Type A personality characteristics than officers with Type B characteristics.

Similarly, support was found for prediction five. As expected, those with high levels of anxiety tended to score high on the psychosomatic inventory ($r=-.29; p<.0001$). The negative correlation reflects the keying of the anxiety scale (i.e., a low score indicated more anxiety).

Support was found for the sixth prediction as low levels of rationality correlated significantly with more psychosomatic disorders ($r=-.21; p<.0001$). As support was found for predictions four, five and six, psychological vulnerability would seem to be related to psychosomatic symptoms and conditions (Prediction II).

III) low social assets,including low social support is associated with a greater number of psychosomatic symptoms and conditions.

Support was also found for prediction seven. A low level of social assets correlated significantly with a high level of psychosomatic symptoms and conditions ($r=-.09;p<.05$), however, this correlation is low (explaining less than 1% of the variance) and may be partially due to the large sample size.

Support was also found for prediction eight. A high level of loneliness significantly correlated with a high level of psychosomatic symptoms and conditions ($r=-.18;p<.0001$).

Prediction nine was the only prediction that was not supported. Prediction nine was that a high level of psychosomatic symptoms and conditions would be reported by police officers with a low level of social contacts. To the extent that support was found for predictions seven and eight, low social assets, including social support would seem to be partially and weakly associated with a high level of psychosomatic symptoms and conditions.

Psychosomatic Disorders

Simple multiple regression analyses, with backward elimination was applied to test for the relative magnitude of the predictors in explaining psychosomatic symptoms and conditions. Interaction effects were also examined in order to test Predictions IV and V.

Originally, 66 variables were entered into a regression equation and these included up to third order interactions. These variables included the moderator variables, personality variables, environmental stress variables and demographic variables. As well, all of the interactions produced by these four sets of variables were included for analysis (see Figure 1). These 66 variables accounted for 21 % of the explained variance of the criterion variable; psychosomatic illness. It was possible to reduce the number of variables entered into the regression analyses as the majority of them were not accounting for a large amount of variance. Therefore, a more parsimonious solution was reached.

Table 3 lists four predictors that account for 14.8 % of the variance. Having more psychosomatic symptoms and conditions was associated with having higher anxiety, having more negative life change, having a Type A personality, experiencing more job stress, not being single (marital status), having fewer social assets, and being male. Thus, support was found for Prediction V. High stress in combination with psychological vulnerability was associated with a greater number of psychosomatic symptoms and conditions.

No support was found for Prediction IV. High stress in combination with low social assets was not associated with a high level of psychosomatic symptoms and conditions.

TABLE 3

STANDARDIZED MULTIPLE REGRESSION COEFFICIENTS, BETA WEIGHTS, R^2 VALUES, & F-VALUES FOR PSYCHOSOMATIC SYMPTOMS/CONDITIONS

VARIABLE	PSYCHOSOMATIC SYMPTOMS/CONDITIONS			
	R^2 Change	Simple R	Beta	F
Anxiety	.080	-.28	-.17	14.21*
E8P1 (negative life change x Type A)	.032	.21	.14	11.48*
Negative Life Change	.021	.26	.14	11.26*
Job Stressors	.014	.26	.13	9.36*
R^2	.148			

Note: Overall F=23.93; D.F.=4 and 553; $p < .01$

* = $p < .01$

Test of the Model

In order to test the original recursive model (Figure 1), path analysis was utilized. According to the definition offered by Asher (1976), "recursiveness implies that there are no feedback loops or reciprocal linkages" (p.14). A final path model (Figure 2) was achieved through "theory trimming" from the original model. Theory trimming implies the elimination of theoretical relationships by means of an appropriate form of statistical analysis. This was done using simple multiple regression along with backwards elimination. Each predictor variable was placed at one of two possible levels and was not duplicated in its placement at either level. The dependent variable represented the third possible level outlined in the initial model. The initial model excluded paths from other variables at the same postulated causal level.

The correlations implied by the final model were computed by adding direct causal, indirect causal and noncausal components (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975; Asher, 1976). These implied correlations were subtracted from the corresponding observed values, and the resultant residual correlations appear in Table 4.

The fully trimmed path model in Figure 2 does not resemble the postulated model in Figure 1. This turns out to

Figure 2

Path Analytic Model

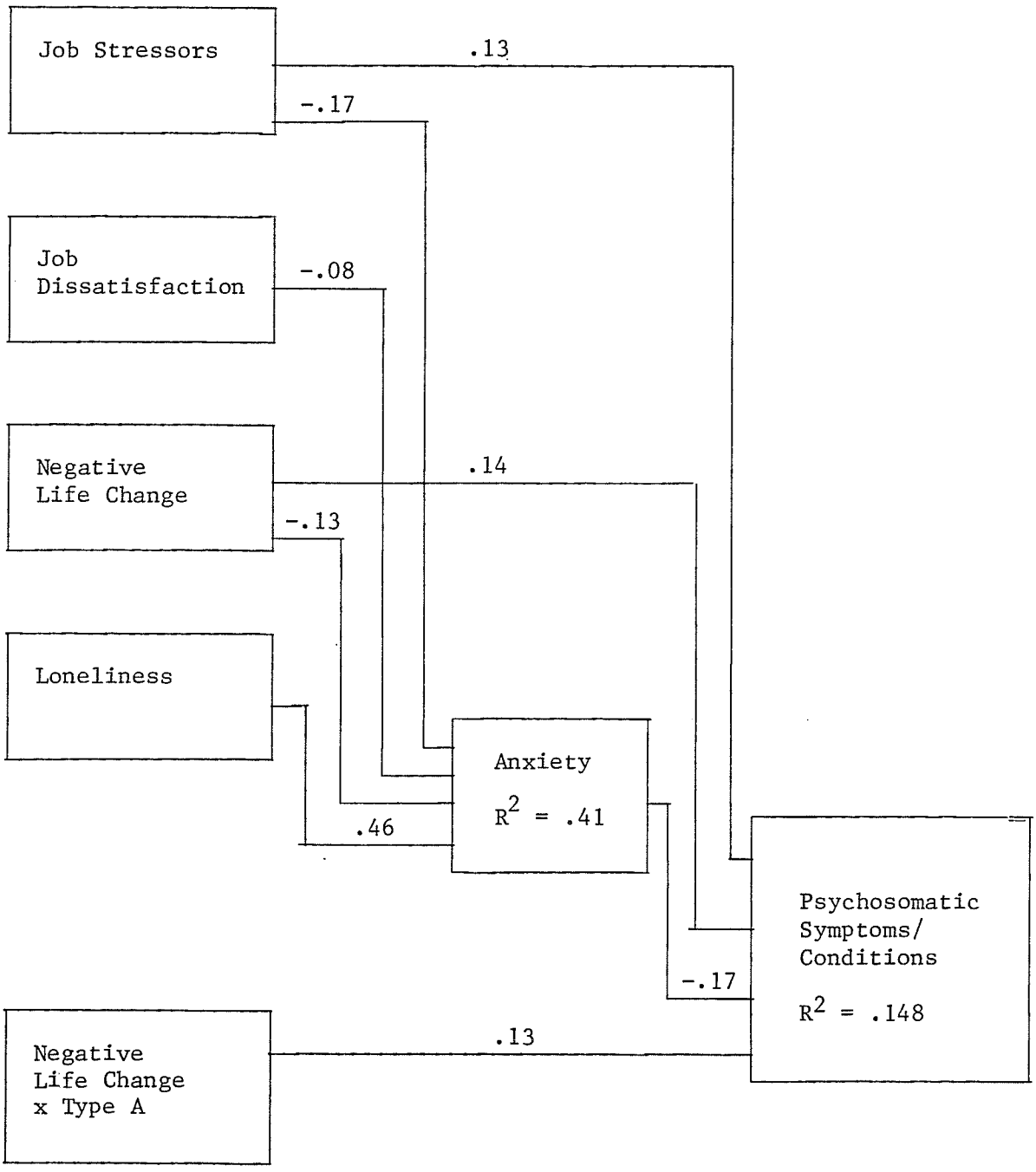


TABLE 4

ZERO-ORDER CORRELATIONS, AND RESIDUAL CORRELATIONS

VARIABLE	JS	JD	Neg	Lon	E8P1	Anx	S/C
Job Stressors (JS)	-	.00	.00	.00	.00	.22	.09
Job Dissatisfaction (JD)	.40****	-	.00	.00	.00	.26	.11
Life Change (Neg)	.25****	.24****	-	.00	.00	.22	.10
Loneliness (Lon)	-.38****	-.34****	-.32****	-	.00	.14	.10
Life Change x Type A (E8P1)	.17****	.02	.21****	-.08*	-	.00	.07
Anxiety (Anx)	-.39****	-.34****	-.34****	.59****	-.10*	-	.11
Psychosomatic (S/C)	.25****	.12**	.26****	-.18****	.21****	-.28****	-

Note: Zero-order correlations appear in the lower triangle, and residual correlations in the upper triangle.

* = $p < .05$; ** = $p < .005$; *** = $p < .001$; **** = $p < .0001$

be the case, as the interaction components originally hypothesized to significantly contribute to the explained variance of psychosomatic symptoms and conditions, fail to do so.

In addition, from the original 66 predictors, four of these seem to adequately account for a large portion of the possible explained variance. That is, of 66 original variables, which accounted for 21% of the explained variance, four of these predictors accounted for 14.8% of the explained variance of psychosomatic symptoms and conditions. This is a much more parsimonious solution than that which was originally hypothesized. Five exogenous variables, job stress, job dissatisfaction, negative life change, high anxiety and negative life change combined with a Type A behaviour pattern, remained significant predictors at tier one of the final model. According to the definition taken from Asher (1976), an exogenous variable is one which "is not influenced by other variables in the model" (p.13). A single variable, anxiety, remained at the second level of the final model.

In order to empirically test whether or not this final solution was an oversimplification, an overidentification test statistic was calculated (Land, 1973). This test statistic basically allows the examination of whether or not the hypothesized model may have been "over trimmed". Comparing the final model in Figure 2 with the initial model in Figure 1 proved non significant [I(62) =3.89;p>.995).

The interpretation of this non-significant finding may be that the final or restricted model did not result in a significant loss of fit vis-a-vis the initial or original model. In addition, it may well be that the restricted version of the model fit the observed data fairly well. This point is demonstrated further by the moderately low values of the residual correlations given in Table 4.

It would seem the model in Figure 2 fit the data collected from this sample of police officers. However, the model did account for a low proportion of explained ariance in psychosomatic symptoms and conditions. The overall multiple regression coeffecient was .39. A multiple regression coefficient of .30 is considered moderate in size, whereas a coefficient of .50 is considered to be large (Cohen & Cohen, 1975). Therefore a multiple regression coeffecient of .39 is moderate to large in size.

Discussion

Based on the obtained data, the sample of police officers in the present study showed a greater prevalence of psychosomatic disorders in comparison to a U.S. general population sample employed by Schwab, et al. (1974). This general population sample reported on the same psychosomatic symptoms and conditions as utilized in the present study. To further illustrate and amplify this finding, it was noted that the general population sample included black respondents while the sample used in the present study was primarily composed of whites. The black respondentsin the comparison sample reported a higher frequency of psychosomatic symptoms and conditions than did whites. Thus, the prevalence of psychosomatic symptoms and conditions reported by this sample would likely be that much lower, if the blacks respondents were eliminated from the comparison sample frequency. In comparison to the present sample frequency then, the difference in frequency of psychosomatic symptoms and conditions between the two samples would be that much greater than is indicated with the black respondents left in the comparison sample frequency.

Similarly, the symptom rates reported by the police sample were higher than those from a Swedish study (see Tiblin, et al., 1971). Of interest to note with respect to this finding, is that the sample members in the Swedish study were much older (average age was almost 60 years).

The average age of the present sample members was much lower by contrast; 31.8 years. In other words, many psychosomatic symptoms and conditions have been noted to increase as one grows older, however, without controlling for the effect of age, the much younger men in the present study were reportedly experiencing a higher frequency of psychosomatic symptoms and conditions than much older males.

Further to the symptoms prevalence rates reported by the present sample, the frequency of headaches was found to be higher than that reported by Canadian males and females of all ages. The females in the Canadian sample had a much higher rate than the males. The fact that the present sample had a prevalence rate that exceeded the Canadian female rate seems to add to the significance of this finding.

As far as the psychosomatic conditions are concerned, this sample's ulcer rate was much greater than the rates reported in most other samples. Likewise, this sample's hypertension rates were approximately equivalent to and/or higher than figures reported elsewhere. This sample's asthma rate, on the other hand, was comparably lower than the rates for most other samples, including American males. The colitis rates reported from various countries ranged drastically and as a result the only comparison that was possible was between this sample and the Schwab, et al. (1974) general population sample. The colitis prevalence rates were much higher in the present sample.

It was only possible to specifically compare three psychosomatic symptoms and conditions that were reported in the present study with those reported in the Canada Health Survey (1981). For the available data on which to compare the two studies, the psychosomatic prevalence rates for the present sample were noted to be higher than those shown for the Canadian population. Not only were the rates reported by the sample in the present sample higher than those reported by Canadian males and females aged 15-64 (this age range approximately corresponds to the age range of the present study sample) but they were higher than those reported by Canadian males and females of all ages and all working Canadians. The fact that the present sample had prevalence rates that exceeded the female rates seems to add to the significance of this finding, as the Canadian females had higher rates than the Canadian males.

As the prevalence rates of psychosomatic symptoms and conditions among this sample of police officers is quite high in comparison to several other groups, it could mean that the high stress occupation is partially contributing to these elevated rates. The findings of the present study, that individuals engaged in a high stress occupation tend to suffer greater prevalence of psychosomatic symptoms and conditions is quite consistent with the findings from other studies (e.g., Cobb & Rose, 1973).

It is difficult to make any further statements comparing prevalence rates between this sample and findings from other studies due to a lack of recent data on prevalence rates of psychosomatic symptoms and conditions. In addition, the groups that have been examined for prevalence of psychosomatic disorders are different.

A logical question that arises is whether the prevalence rates of psychosomatic symptoms and conditions found in this study would apply to other police samples. Aside from the data in the present study, only anecdotal evidence is available to address this issue. According to Webb (1979), upon interviewing seventeen representatives of the police community, only one representative mentioned illness was a "likely consequence of job stress" (p. 52). In other words, according to this finding, the prevalence of psychosomatic symptoms and conditions among the present sample would probably not be attributable to the fact that the officers are employed in a high stress occupation. The anecdotal evidence provided by Webb (1979) is inconsistent with the findings of this study and other studies with similar findings (e.g., Cobb & Rose, 1973).

Further to this point, it is difficult to generalize the findings of this study to other similar sample groups. However, examination of the psychosomatic symptoms and conditions prevalence rates among individuals in other high stress occupations has shown these groups to have higher

prevalence rates in comparision to control groups (e.g., Cobb & Rose, 1973). On this basis, similar findings among high stress occupations would probably be expected. That is, individual's engaged in high stress occupations would probably suffer an increased prevalence rate of these psychosomatic symptoms and conditions in comparison to individual's in a low stress occupation, and individuals in the general population.

As previously mentioned, the prevalence of psychosomatic symptoms and conditions supposedly has not changed much over the past 20 years (Weiner, 1977). Yet, the present sample of officers reported higher rates than those reported by respondents in samples from the U.S. general population, Canadian general population and of older Swedish men. As well, similar findings have been shown elsewhere (e.g., Cobb & Rose, 1973). These findings may be an indication that stress in one's environment is related to psychosomatic symptoms and conditions.

With regards to these findings, it would seem that the present sample of police officers have several reasons for being concerned. The consequences of extended suffering from psychosomatic symptoms and conditions is suspected to possibly lead to serious diseases. For example, hypertension has been shown to be related to coronary artery disease and coronary heart disease, both of which can be fatal. In addition, the officers might ask if they are experiencing a

frequency of psychosomatic symptoms and conditions which is currently well above that of a sample of "old men", what level of psychosomatic symptoms and conditions will this group be experiencing in 20-30 years?

In relation to the elevated frequency of psychosomatic symptoms and conditions experienced by the police officers in the present sample there may be several practical implications that deserve consideration. The effect of psychosomatic symptoms and conditions may directly impinge upon the officers ability to conduct his/her duties and at the same time result in high costs to the police agency in terms of wages payed out to officers on sick leave. Officers with psychosomatic symptoms and conditions would likely be taking sick leave more often than those without psychosomatic symptoms and conditions. According to the present findings, those who reported high levels of psychosomatic symptoms and conditions did take more time off from work due to illness ($r=.16; p<.0001$) than those who did not. In addition, poor health could also affect the quality of work and work productivity. Officers who suffer from psychosomatic symptoms and conditions are not likely to perform their duties as well as those who do not suffer. As well, these concerns could escalate with the passage of time as extended suffering from psychosomatic symptoms and conditions could lead to serious disease or illness, e.g., a heart attack.

Webb (1979) does admit the available evidence regarding the prevalence of health problems and stressors related to these problems, among police officers, is "scant". This makes it difficult to determine the effects of elevated levels of psychosomatic symptoms and condition and what contributes to the development of these symptoms and conditions. The second objective of this study was an attempt to partially fill this void. To the extent that psychosomatic symptoms and conditions are prevalent among this sample of police officers, this study also attempted to relate different forms of environmental stress, as well as personality variables to the psychosomatic symptoms and conditions.

Predictions

Along with the aforementioned findings, more psychosomatic symptoms and conditions were reported by officers who experienced more job stress and negative life change than those who experienced low levels of job stress and negative life change. These findings provided support for Prediction I, which was that environmental stress would be related to psychosomatic symptoms and conditions.

The significant relationships found in this study between negative life changes and psychophysiological (psychosomatic) symptoms have been noted in other studies (e.g. Holmes & Rahe, 1967; Dohrenwend & Dohrenwend, 1974; Sarason & Spielberger, 1979). In addition, the significant asscia-

tions shown in this study between job stress and psychosomatic symptoms and conditions have been acknowledged elsewhere (e.g. Stone, Cohen & Adler, 1980; Margolis et al., 1974; Sarason & Spielberger, 1979; Cobb & Rose, 1973; Cobb, 1972; Jacobi, 1975; Webb, 1979). Further, these findings seem to provide evidence that policing is a stressful occupation, as suggested by previous studies (e.g. Kroes & Hurrell, 1975; Stratton, 1978; Webb, 1979).

Psychological vulnerability was also found to be related to psychosomatic symptoms and conditions as a high score on the psychosomatic inventory was reported by officers; 1) with Type A personality characteristics, 2) who scored high on anxiety, and 3) who scored low on rationality. These findings were also consistent with those of other studies (e.g. Jenkins, 1971; 1976 (a or b); Ellis, 1977).

A high level of psychosomatic symptoms and conditions was reported by officers low on social assets and high on loneliness. The importance of social assets as a moderator variable has been indicated in other studies as well (e.g. Luborsky, et al., 1973; Berkman, 1977; Gore, 1973; Cobb, 1974; Cobb, 1976). A high level of symptoms and conditions was not reported by officers with few social contacts.

High stress in combination with low social assets was not associated with a high level of psychosomatic symptoms and conditions. According to Henry & Stephens (1977), Kagan & Levi (1974) and Nuckolls et al. (1972), social assets in

combination with environmental stressors should have been a significant predictor of psychosomatic symptoms and conditions. A possible reason for the present results is that, the officers were quite homogeneous on this dimension. That is, there was little variation on their level of social assets. As well, it is known (personal communication, Breen, 1981) that officers tend to associate among themselves and are also known to maintain a cohesive social network. In addition, high stress in combination with psychological vulnerability was associated with a high level of psychosomatic symptoms and conditions.

In an attempt to progressively develop the findings in this study, the model shown in Figure 1 was tested using path analysis. Examining the variables in tier one of the model; the effect of experiencing more job stress was mediated by high anxiety levels in its contribution to psychosomatic symptoms and conditions, and the effects of experiencing more job stress also directly contributed to the prediction of psychosomatic symptoms and conditions. Therefore, these specific police job stressors (Breen & Vulcano, 1980) would seem to be a consistent source of stress and one which not only seems to create anxiety, but which also contributes, albeit a low percentage, to the presence of psychosomatic disorders. These included; promotion procedure, system for transfer, pay rates, court decisions, shift work, negative contact with general public, negative contact with

supervisors, restrictions on personal and social life, bureaucracy and its effect on running the force, unpleasant and/or boring duties, and negative working relationship with some coworkers. As the police job stressors were significant predictors of psychosomatic symptoms and conditions, this specific source of environmental stress variable should probably be taken into consideration in future studies that examine sources of stress and their effects among police officers.

Experiencing more job dissatisfaction only served to predict higher levels of anxiety and therefore affected psychosomatic symptoms and conditions indirectly. This finding might serve to clarify previously found relationships between job satisfaction and psychosomatic disorders (e.g., House, 1974). It would seem the effects of job dissatisfaction on psychosomatic disorders are best thought of as being mediated by one's anxiety level.

Negative life changes also affected psychosomatic symptoms and conditions via higher anxiety levels and in a direct manner. Andrews & Tennant (1978) reported that neither negative life changes nor life change had been convincingly found to predict disease onset. Both of these had been shown to predict anxiety or depression but had not been found to be directly related to the onset of illness. The results of this study would seem to indicate that negative life changes are directly associated with illness onset.

An officers negative perception of job stress and life changes would seem tc affect his/her level of anxiety and psychosomatic illness. These two sources of environmental stress seem to be associated with the development of anxiety and psychosomatic disorders, however, the amount of explained variance accounted for by these exogenous variables was quite low. Previcus studies have found similar results (e.g., Rabkin & Struening, 1976).

Loneliness (a moderator variable, indicating lack of social support) also emerged as an important predictor of anxiety, however, loneliness did not emerge as a significant predictor of psychosomatic symptoms and conditions. It would seem that loneliness has an indirect effect on psychosomatic symptoms and conditions by producing anxiety.

A possible interpretation of the relationship found between the significant predictors in the model is provided by Pancheri, et al., (1979). As one's outlook or perception becomes negative, his outlook tends to remain negative with regards to events in his domain. A particular negative event may create anxiety, whereupon the chronic anxiety affects the perception of future events. A neutral or objectively positive event is then seen as negative as a result of chronic anxiety existing within the person. This is somewhat of a cyclical interpretation of the effect of stressors but other investigators have proposed that anxiety does contribute to the perceived stressfulness of an event

(e.g., Howard, et al., 1977). The negative rating given job stress may be interpreted in the same manner. Job stress would seem to contribute to anxiety and this anxiety in turn may result in a negative evaluation of particular events. In short, if the officer percieves work to be a source of stress, he would be likely to also perceive other events in a negative manner. One end result of this would be an increased anxiety level.

As far as the relationship between personality variables and environmental stressors is concerned, the personality characteristics could influence whether stressful life events are encountered or avoided, and whether an appraisal of stress is made. On the other hand, stressful life experience could influence the development of personality, or these two factors could act in combination as seems to be the case with the crossproduct variable of negative life changes by Type A pattern.

In this study, the emergence of the crossproduct variable (negative life change by Type A pattern) as a significant predictor of psychosomatic illness may be considered evidence for this type of relationship. That is, the negative life change by Type A pattern crossproduct variable emerged as a better predictor than the Type A variable by itself. This suggests the Type A variable is acting via, or in concordance with stress. This finding is consistent with the results of other studies (e.g., Glass, 1977; see also

Chesney & Rosenman, 1980), as well as the person - environment fit theory (see Chesney & Rosenman, 1980) and person - situation theory (Endler, 1975). Similar findings of this combination have been shown elsewhere (e.g., Cooper & Marshall, 1976).

Finally, data from the present study indicated that anxiety is directly related to increased psychosomatic illness (i.e., the greater the degree of anxiety the higher the incidence of psychosomatic illness). This finding is also consistent with the results of other studies (e.g., Jenkins, 1976).

An individual's perception does seem to be an important element in how he determines what is stressful. In turn, these stressors would seem to affect one's level of psychological vulnerability. As well, a lack of social support in the form of loneliness would also seem to be important in the prediction of psychological vulnerability. All of these factors, environmental stress, lack of social support and psychological vulnerability seem to contribute to producing psychosomatic disorders, as shown in the revised model.

It was surprising that the interaction variables did not account for more of the explained variance. Again, perhaps the lack of variance on the social support measure contributed to this, also too, the lack of significance could possibly be attributed to not having a more suitable measure of social support.

Future studies might include a social support measure that takes into account the specific group being sampled. For the case of police officers this could mean the pretesting of what aspects within their environment officers find supportive, as well as non-supportive. As a lack of research of this type exists on police officers, these measures need to be better developed and closely examined to ensure an officer's true social support system is taken into account. Pursuant to this point, it is suspected that some aspects of an officer's social support system may have been inadvertantly left out of this study, or more simply; that the police officer's social support system needs to be bolstered in some manner. The lower rank officers and administrative rank officers tend to be segmented with the two forming virtually independent, cohesive networks (personal communication, Breen, 1982). This situation seems to contribute to the breakdown of an officer's support system, especially when it is noted that a lack of support from supervisors has been previously mentioned to be a source of stress. An improvement in the officer's social support system would be likely if the gap between the two groups could be bridged. The extent to which individuals support one another and express themselves freely and openly have been conceptualized as important variables to be considered in the examination of factors related to health status (Moos, 1976).

In essence then, the social support examined in this study is suspected to be inadequate as a cushion against the stress felt by the officers. It is suspected that something is lacking in the officer's social support system and future studies may specifically examine this aspect of an officer's environment. In doing so, some further insight may be gained into the factors that contribute to psychosomatic symptoms and conditions and other illnesses.

It was expected that the interaction relationships included in the present study would be significant predictors of psychosomatic symptoms and conditions. One possible reason that these interaction relationships proved to be non-significant predictors of psychosomatic symptoms and conditions could be that the variables included in the model were not the best possible predictors. The lack of predictability of the variables, as the model stands, may indicate the possibility of specification error.

According to this interpretation, the model omitted one or more important exogenous variables with either or both of the following characteristics: 1) strong contributions to all of the variables in tier one (job stress, job dissatisfaction, negative life change, loneliness and the crossproduct variable), and tier two (anxiety), and 2) high intercorrelations and independent contributions to each of the variables in tier one and tier two. This type of error is referred to as an error of omission and these types of error

are not unexpected (Spaeth, 1975). Specification errors of commission, such as misordering variables, overtrimming or undertrimming the model are considered to be more serious than errors of omission (Spaeth, 1975).

It would seem the model is incomplete. Specifically, some exogenous variables that predict the variables already in the final model are missing. For example, this model does not exhaust the kinds of stresses that may have important effects on physical health, nor the kinds of individual or social characteristics that may indicate the possible relationships between stress and health.

Constitutional weakness and/or genetic vulnerability may be factors that contribute to lower body resistance and thus may enhance the probability of illness development. In this way, the effects of environmental stress would possibly be considered to have a "headstart" in their potential contribution to the development of psychosomatic symptoms and conditions. Measures related to these factors are difficult to include as this type of background information usually requires some longitudinal research methods. For example, a sample worth studying might be chosen on the basis of their parents health record. Offspring of parents who have previously experienced poor health could be matched with offspring that have comparably healthy parents. Also, an individual's family tree might be investigated in order to determine the family's medical background and the possibility of inheritability of diseases.

Other background characteristics, besides those included in the present study, that may have some influence on the individual in different contexts are; socioeconomic status, intelligence, cognitive and emotional development- this was partially examined by the rationality measure, ego strength, and self esteem. These factors are estimated to play a role in how the individual interprets his/her environment and how an individual will utilize psychological and intellectual resources available to handle the situation. For example, "intelligence and the level of cognitive development may play a role in determining an individual's ability to seek or use information to counteract uncertainty or a sense of powerlessness" (Stone, et al., 1980-p.531). A lack of intelligence or low IQ, poor cognitive reasoning ability, a lack of emotional development, a low level of ego strength and poor self esteem have all been offered to contribute to the development of illness including psychosomatic complaints (Stone, et al., 1980).

Other factors related to the characteristics of individual's have been implicated for the role they may play in one's health status. Parental guidance is believed to play a role in the development of disease, where stress tolerance seems to be determined by security acquired from conditioning in the formative years of growth. According to this line of thought, emotions are intrinsically tied into many if not most somatic diseases (Jonas & Jonas, 1975).

Consequently, parental influence is believed to play a role in predicting future illness. The parents inability to convey adequate coping methods to the child is believed to result in the child's susceptibility to develop psychosomatic complications in later life (Jonas & Jonas, 1975). Therefore, rearing methods as they relate to the child's inability to successfully rebell against inconsistent rearing practices are believed to be responsible for a child developing normally versus becoming prone to illness afflicting various body organs.

In a different vein, it is the reaction to stress that is believed to help create illness (e.g., Antonovsky, 1979), where life change and the propensity to react are important, " one is no good without the other" (deFaire & Theorell, 1976). The stimulation, in the form of life change, is needed to spark the reaction. If the individual does not react to the change or situation it would not be possible to produce pathophysiological consequences. One way to reduce the tendency to react to these situations is to become less involved. Individuals that are "uninvolved with life" are suspected to be able to stay healthy. In other words, individuals who are concerned with other people and life goals, where they react to events and situations, are more likely to become ill or experience frequent illness than those who are unconcerned (Hinkle, 1974).

Somewhat related to this aspect of health status is the notion of uncontrollability. A condition that is suspected to be related to uncontrollability, or a reaction to this is depression. Depression in turn, has been associated with an increased frequency of illnesses, including psychosomatic complaints. The relationship between depression and psychosomatic symptoms and conditions may offer some valuable insight into an individual's vulnerability to illness.

Other factors which have been proposed to mediate the relationship between environmental and personal and health status include social environmental and physical environmental or ecological variables. Variations in climate as well as geopraphic location have been related to anxiety, suicide and physical symptoms (Moos, 1976).

Crowding is another geopraphic variable that has been determined to be related to the reporting of psychosomatic complaints. People residing in crowded urban sections of cities are most likely to suffer from these complaints (Stone, et al., 1980).

Lastly, the lack of ability to adequately cope with stressful events is considered to be a variable potentially related to health status. For example, activity (overt motoric activity) versus passivity is one form of coping that has been offered as an effective method for dealing with stressful situations and is suspected to be useful in combatting illness onset (Stone, et al., 1980).

The purpose of coping is to prevent the potentially damaging effects of stress from distilling internally and allow them to be dissipated in a virtually harmless manner. Behaviours such as smoking, poor eating (a diet high in saturated fat, cholesterol and sugar), alcohol abuse and drug abuse have all been identified as methods for coping with stress and tension. These methods are known to have deleterious bodily effects, whereas many strategies exist which offer better alternatives to coping methods which entail bodily harm (e.g., biofeedback, exercise, hobbies-see Kroes, 1975; Webb, 1979).

This group of "detrimental life style patterns and day-to-day health habits have been linked with the probability of developing illness" and are suspected to have negative effects on one's physical well-being (Stone, et al., 1980-p.142). Consequently, these should be considered in future attempts to predict psychosomatic symptoms and conditions.

There is a host of factors which may increase the predictability of psychosomatic symptoms and conditions. In addition, the interaction of these factors may also significantly contribute to the prediction of psychosomatic symptoms and conditions. There is much theoretical reasoning that would predict the interaction of variables to account for the unexplained variance of psychosomatic disorders (e.g., Endler, 1975). For example, the interaction of smok-

ing and drinking with a high stress occupation may be able to partially and successfully contribute to the explanation of the development of psychosomatic symptoms and conditions.

The idea that some other variables may increase the explained variance accounted for is plausible, but not necessarily the case. As noted by Asher (1975), "we should not impose unrealistically stringent criteria in assessing the goodness of our causal model" (p.37). Asher (1975) goes on to point out that we should always look for important variables but to keep in mind that a variety of factors influence the magnitude of the explained variance.

In addition, anxiety may manifest itself in other forms besides psychosomatic symptoms and conditions. Even though the majority of the explained variance of psychosomatic disorders was accounted for by anxiety, the total amount of variance accounted for in psychosomatic disorders was small. In contrast, the other variables in the revised model predicted a large portion of the variance of anxiety. A possible interpretation of this finding is that another set of variables may belong between anxiety and psychosomatic symptoms and conditions as they are currently outlined in the model. For example, smoking, alcohol consumption and poor diet may be anxiety related methods of coping with stress. The deleterious effects of these habits or coping mechanisms may contribute to the development of psychosomatic symptoms and conditions.

In addition to these concerns, there are several other considerations to be taken into account. In considering the relationship between psychosocial factors and psychosomatic illness presented in this study one must be mindful of several methodological considerations. This psychosomatic inventory is subjective as well as retrospective in nature. An objective measure of illness; for example, doctor's reports and examinations would be the best method of assessment, however, the expense involved makes such objective assessments difficult to achieve. Secondly, with the self report method of gathering a measure of illness there is the possibility of participant under reporting or over reporting depending on the social desirability of the items and their characteristics (Stone, et al., 1980). However, despite these concerns over health self report, the following has been concluded "self assessment of health is not random but is persistently and positively related to objective evaluations of health status" (Garrity, Somes & Marx, 1978).

The findings of this study replicated previous findings and provided additional associations between variables. Based on these findings and the model testing, the model could be deemed a moderate success in its ability to predict psychosomatic symptoms and conditions. Therefore, the findings could also be deemed a step in the direction of hypothesizing a theoretical framework which encompasses several of these documented empirical relationships. This is especial-

ly the case since a "simple cause and effect concept" is not considered, by some, to be tenable (e.g., Wolf & Goodell, 1979).

This model included a variety of measures in order to better specify the relations between environmental stressors, moderators, psychological vulnerability and psychosomatic symptoms and conditions. In this way, future tests of this model would allow the determination of whether or not different illnesses result from the same kind of factors, depending on other individual or situational characteristics. A generality approach to the prediction of illness or disorders is important as many researchers believe that prolonged stress, which is related to minor symptoms and conditions may give way to severe chronic diseases (e.g., Weiner, 1977).

This study included a test of a model using one high stress occupation group on a variety of measures, in order to see if the variables included in the model would increase the understanding of the predecessors of psychosomatic symptoms and conditions development. The moderate success of the model would hopefully not discourage the future attempts to predict other illnesses and thereby provide some evidence for a generality approach to the prediction of health status. If the model could adequately predict various measures of health status then this model would be considered ultimately successful. In order to better assess

this possibility, future studies would try to predict other illnesses or disorders, such as depression.

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Appendix A

APPENDIX A

A. BACKGROUND QUESTIONNAIRE

Instructions: On the pages that follow you will find a series of questions on your personal background. Circle one answer for each question.

1. Sex:
   (1) male
   (2) female

2. Presently:
   (1) living with spouse and children
   (2) living with spouse, no children
   (3) living with children or family (no husband or wife)
   (4) living with alone
   (5) living with friends
   (6) cohabiting with member of opposite sex

3. What is your educational background?
   (1) graduate degree
   (2) some graduate school
   (3) college graduate
   (4) some college
   (5) high school graduate
   (6) some high school
   (7) finished grade school
   (8) some grade school
   (9) no grade school

4. What is your father's educational background?
   (1) graduate degree
   (2) some graduate school
   (3) college graduate
   (4) some college
   (5) high school graduate
   (6) some high school
   (7) finished grade school
   (8) some grade school
   (9) no grade school

5. What is your mother's educational background?
   (1) graduate degree
   (2) some graduate degree
   (3) college graduate
   (4) some college
   (5) high school graduate
   (6) some high school
   (7) finished grade school
   (8) some grade school
   (9) no grade school

6. School record:
   (1) excellent
   (2) good
   (3) fair
   (4) barely passed
   (5) frequent failure

7. Times moved within the last year:
   (1) have not moved
   (2) 1 time
   (3) 2 times
   (4) 3 times
   (5) 4 times
   (6) 5 times
   (7) 6 times
   (8) 7 times
   (9) 8 times
   (10) 9 times or more

8. Number of children (count total number):
   (1) none
   (2) 1
   (3) 2-3
   (4) 4-5
   (5) 5 or more

9. In my family, my parents:
   (1) owned a home
   (2) rented a home or apartment

10. In our family:
   (1) we have a television at home
   (2) we have no television at home

11. In our family
   (1) there is an automobile available for family use
   (2) there is no automobile available

12. Physical condition:
   (1) my physical health is usually very good
   (2) my physical health is usually good
   (3) I am occasionally ill
   (4) I am frequently ill
   (5) I am chronically ill

13. Cigarette smoking:
   (1) I do not smoke
   (2) I smoke 5-10 cigarettes per day
   (3) I smoke 11-20 cigarettes per day
   (4) I smoke 1 pack a day
   (5) I smoke 20-30 cigarettes per day
   (6) I smoke more than 1 pack of cigarettes per day

14. Were you disabled by illness or accident
   (1) for periods of less than one week?
   (2) for periods of less than one month?
   (3) for as long as six weeks?
   (4) continuously?

15. If unmarried, are you
   (1) engaged?
   (2) goind steady?
   (3) dating several (men/women) frequently?
   (4) dating several (men/women) infrequently?
   (5) not dating?

16. Interests, including work
   (1) I have several major interests which are consistently absorbing and extremely gratifying.
   (2) I have a number of interests which are usually interesting and enjoyable.
   (3) I have one major interest which is usually absorbing and satisfying.
   (4) I have a number of interests which occupy me from time to time, with a good deal of shifting from one area to another.
   (5) I find it difficult to maintain an interest in anything for an extended period of time.

17. My mother is
    (1) living
    (2) died when I was over 20 years old
    (3) died when I was 16-20 years old
    (4) died when I was 10-15 years old
    (5) died when I was 6-9 years old
    (6) died before I was 6 years old

18. My father is
    (1) living
    (2) died when I was over 20 years old
    (3) died when I was 16-20 years old
    (4) died when I was 10-15 years old
    (5) died when I was 6-9 years old
    (6) died before I was 6 years old

19. Health in early childhood:
    (1) good
    (2) fair
    (3) poor

20. When you were growing up, did your parents have trouble finding money for necessities?
    (1) often
    (2) sometimes
    (3) rarely

21. When you were growing up, did your mother work outside of the home to earn money?
    (1) yes
    (2) no

22. When you were growing up, which, if any, of the following illnesses did your mother have (please circle)?

    arthritis
    asthma
    bladder trouble
    colitis
    diabetes
    hay fever
    heart condition
    high blood pressure
    neuralgia or sciatica
    nervous breakdown
    epilepsy
    stomach trouble
    skin condition

23. When you were growing up, which, if any, of the following illnesses did your father have (please circle)?

    arthritis
    asthma
    bladder trouble
    colitis
    diabetes
    hay fever
    heart condition
    high blood pressure
    neuralgia or sciatica
    nervous breakdown
    epilepsy
    stomach trouble
    skin condition

24. When you were growing up, were either of your parents in poor health?
    (1) all of the time
    (2) rarely
    (3) frequently
    (4) never

25. When you were growing up, did your parents quarrel?
    (1) all of the time
    (2) rarely
    (3) frequently
    (4) never

26. In your family, has your father been
    (1) employed continuously at the same position for the last 2 years?
    (2) employed continuously during the past 2 years, but his place of employment changed?
    (3) out of work sometimes for the past 2 years?
    (4) unemployed in the past 2 years?
    (5) retired

27. I was born in
    (1) a big city
    (2) a small city
    (3) a small town
    (4) a farm or rural area

Thinking back to the time when you were growing up, did you ever feel

	Never	Sometimes	Often	Always
28. father spent too little time with me	1	2	3	4
29. mother wanted to run her children's lives	1	2	3	4
30. mother did not understand me	1	2	3	4
31. my parents were always proud of their children	1	2	3	4

B. PERSONAL REACTION SURVEY

For each question, mark the best answer. Mark only ONE answer for each question.

1. Do you ever have trouble finding time to get your hair cut or styled?
   ( ) never
   ( ) occasionally
   ( ) almost always

2. How often does your job "stir you into action"?
   ( ) less often than most people's jobs
   ( ) about average
   ( ) more often than most people's jobs

3. Is your everyday life filled mostly by
   ( ) problems needing solution?
   ( ) challenges needing to be met?
   ( ) a rather predictable routine of events?
   ( ) not enough things to keep me interested or busy?

4. Some people live a calm, predictable life. Others often find themselves facing unexpected changes, frequent interruptions, inconveniences, or "things going wrong." How often are you faced with these minor (or major) annoyances or frustrations?
   ( ) several times a day
   ( ) about once a day
   ( ) a few times a week
   ( ) once a week
   ( ) once a month or less

5. When you are under pressure or stress, what do you usually do?
   ( ) Do something about it immediately.
   ( ) Plan carefully before taking any action.

6. Ordinarily, how rapidly do you eat?
   ( ) I'm usually the first one finished.
   ( ) I eat a little faster than average.
   ( ) I eat at about the same speed as most people.
   ( ) I eat more slowly than most people.

7. Has your spouse or a friend every told you that you eat too fast?
   ( ) yes, often.
   ( ) Yes, once or twice.
   ( ) No, never.

8. How often do you find yourself doing more than one thing at a time, such as working while eating, reading while dressing, or figuring out problems while driving?
   ( ) I do two things at once whenever practical.
   ( ) I do this only when I'm short of time.
   ( ) I rarely or never do more than one thing at a time.

9. When you listen to someone talking, and this person takes <u>too long</u> to come to the point, how often do you <u>feel</u> like hurrying the person along?
   ( ) frequently
   ( ) occasionally
   ( ) almost never

10. How often do you actually "put words in the person's mouth" in order to speed things up?
   ( ) frequently
   ( ) occasionally
   ( ) almost never

11. If you tell your spouse or a friend that you will meet somewhere at a definite time, how often do you arrive late?
   ( ) once in a while
   ( ) rarely
   ( ) I am never late

12. How often do you find yourself hurrying to get places even when there is plenty of time?
( ) frequently
( ) occasionally
( ) almost never

13. Suppose you are to meet someone at a public place (street corner, building lobby, restaurant) and the other person is already 10 minutes late. What will you do?
( ) sit and walk
( ) walk about while waiting
( ) usually carry some reading matter or writing paper so I can get something done while waiting

14. When you have to "wait in line" at a restaurant, a store, or the post office, what do you do?
( ) accept it calmly
( ) feel impatient but not show it
( ) feel so impatient that someone watching can tell I am restless
( ) refuse to wait in line, and find ways to avoid such delays

15. When you play games with young children about 10 years old (or when you did so in past years), how often do you purposely let them win?
( ) most of the time
( ) half of the time
( ) only occasionally
( ) never

16. When you were younger, did most people consider you to be
( ) definitely hard-driving and competitive?
( ) probably hard-driving and competitive?
( ) probably more relaxed and easy going?
( ) definitely more relaxed and easy going?

17. Nowadays, do you consider yourself to be
( ) definitely hard-driving and competitive?
( ) probably hard-driving and competitive?
( ) probably more relaxed and easy going?
( ) definitely more relaxed and easy going?

18. Would your spouse (or closest friend) rate you as
( ) definitely hard-driving and competitive?
( ) probably hard-driving and competitive?
( ) probably more relaxed and easy going?
( ) definitely more relaxed and easy going?

19. Would your spouse (or closest friend) rate your general level of activity as
( ) too slow--should be more active?
( ) about average--busy much of the time?
( ) too active--should slow down?

20. Would people who know you well agree that you take your work seriously?
( ) definitely yes ( ) probably no
( ) probably yes ( ) definitely no

21. Would people who know you well agree that you have less energy than most people?
( ) definitely yes ( ) probably no
( ) probably yes ( ) definitely no

22. Would people who know you well agree that you tend to get irritated easily?
( ) definitely yes ( ) probably no
( ) probably yes ( ) definitely no

23. Would people who know you well agree that you tend to do most things in a hurry?
( ) definitely yes ( ) probably no
( ) probably yes ( ) definitely no

24. Would people who know you well agree that you enjoy a "contest" (competition) and try hard to win?
( ) definitely yes ( ) probably no
( ) probably yes ( ) definitely no

25. How was your temper when you were younger?
( ) fiery and hard to control ( ) no problem
( ) strong but controllable ( ) I almost never got angry

26. How is your temper nowadays?
( ) fiery and hard to control ( ) no problem
( ) strong but controllable ( ) I almost never get angry

27. When you are in the midst of doing a job and someone (not your boss) interrupts you, how do you usually feel inside?
( ) I feel O.K. because I work better after an occasional break ( ) I really feel irritated because most such interruptions are unnecessary
( ) I feel only mildly annoyed

28. How often are there deadlines on your job?
( ) daily or more often ( ) monthly or less often
( ) weekly ( ) never

29. These deadlines usually carry
( ) minor pressure because of their routine nature ( ) deadlines never occur on my job
( ) considerable pressure, since delay would upset my entire work group

30. Do you ever set deadlines or quotas for yourself at work or at home?
( ) no
( ) yes, but only occasionally
( ) yes, once a week or more

31. When you have to work against a deadline what is the quality of your work?
( ) better
( ) worse
( ) the same (pressure makes no difference)

32. At work, do you ever keep two jobs moving forward at the same time by shifting back and forth rapidly from one to the other?
( ) no, never
( ) yes, but only in emergencies
( ) yes, regularly

33. Are you content to remain at your present job level for the next five years?
( ) yes
( ) no, I want to advance
( ) definitely no; I strive to advance and would be dissatisfied if not promoted in that length of time.

34. If you had your choice, which would you rather get?
( ) a small increase in pay without a promotion to a higher level job
( ) a promotion to a higher level job without an increase in pay

35. In the past three years, have you ever taken less than your allotted number of vacation days?
( ) yes
( ) no
( ) my type of job does not provide regular vacations

36. In the last three years, how has your personal yearly income changed?
( ) it has remained the same or gone done
( ) it has gone up slightly (as the result of cost of living increases or automatic raises based on years of service)
( ) it has gone up considerably

37. How often do you bring your work home with you at night, or study materials related to your job?
( ) rarely or never
( ) once a week or less
( ) more than once a week

38. How often do you go to your place of work when you are not expected to be there (such as nights or weekends)?
( ) it is not possible on my job
( ) rarely or never
( ) occasionally (less than once a week)
( ) once a week or more

39. When you find yourself getting tired on the job, what do you usually do?
( ) slow down for a while until my strength comes back
( ) keep pushing myself at the same pace in spite of the tiredness

40. When you are in a group, how often do the other people look at you for leadership?
( ) rarely
( ) about as often as they look to others
( ) more often than they look to others

41. How often do you make yourself written lists to help you remember what needs to be done?
( ) never
( ) occasionally
( ) frequently

For questions 42-46, compare yourself with the average worker in your present occupation, and mark the most accurate description.

42. In amount of effort put forth, I give
( ) much more effort
( ) a little more effort
( ) a little less effort
( ) much less effort

43. In sense of responsibility, I am
( ) much more responsible
( ) a little more responsible
( ) a little less responsible
( ) much less responsible

44. I find it necessary to hurry
( ) much more of the time
( ) a little more of the time
( ) a little less of the time
( ) much less of the time

45. In being precise (careful about detail), I am
( ) much more precise
( ) a little more precise
( ) a little less precise
( ) much less precise

46. I approach life in general
( ) much more seriously
( ) a little more seriously
( ) a little less seriously
( ) much less seriously

For questions 47-49, compare your present work with your work setting of 5 years ago. If you have not been working for 5 years, compare your present job with your first job.

47. I worked more hours per week
( ) at my present job
( ) 5 years ago
( ) cannot decide

48. I carried more responsibility
( ) at my present job
( ) 5 years ago
( ) cannot decide

49. I was considered to be at a higher level (in prestige or social position)
( ) at my present job
( ) 5 years ago
( ) cannot decide

50. How many different job titles have you held in the last 10 years? (Be sure to count shifts in kinds of work, shifts to new employers, and shifts up and down within a firm.)
( ) 0-1
( ) 2
( ) 3
( ) 4
( ) 5 or more

51. How much schooling did you receive?
( ) 0-4 years
( ) 5-8 years
( ) some high school
( ) graduated from high school
( ) some college (including junior college)
( ) graduated from a four-year college
( ) post-graduate work at a college or university

52. When you were in school, were you an officer of any group, such as a student council, glee club, 4-H Club, sorority or fraternity, or captain of an athletic team?
( ) no
( ) yes, I held one such position
( ) yes, I held two or more such positions

PERSONAL INVENTORY QUESTIONNAIRE

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

		Almost Never	Sometimes	Often	Almost Always
1.	I feel pleasant	(1)	(2)	(3)	(4)
2.	I tire quickly	(1)	(2)	(3)	(4)
3.	I feel like crying	(1)	(2)	(3)	(4)
4.	I wish I could be as happy as others seem to be	(1)	(2)	(3)	(4)
5.	I am losing out on things because I can't make up my mind soon enough	(1)	(2)	(3)	(4)
6.	I feel rested	(1)	(2)	(3)	(4)
7.	I am "calm, cool, and collected"	(1)	(2)	(3)	(4)
8.	I feel that difficulties are piling up so that I cannot overcome them	(1)	(2)	(3)	(4)
9.	I worry too much over something that really doesn't matter	(1)	(2)	(3)	(4)
10.	I am happy	(1)	(2)	(3)	(4)
11.	I am inclined to take things hard	(1)	(2)	(3)	(4)
12.	I lack self-confidence	(1)	(2)	(3)	(4)
13.	I feel secure	(1)	(2)	(3)	(4)
14.	I try to avoid facing a crisis or difficulty.	(1)	(2)	(3)	(4)
15.	I feel blue	(1)	(2)	(3)	(4)
16.	I am content	(1)	(2)	(3)	(4)
17.	Some unimportant thought runs through my mind and bothers me	(1)	(2)	(3)	(4)
18.	I take disappointments so keenly that I can't put them out of my mind	(1)	(2)	(3)	(4)

		Almost Never	Sometimes	Often	Almost Always
19.	I am a steady person	(1)	(2)	(3)	(4)
20.	I get in a state of tension or turmoil as I think over my recent concerns and interests	(1)	(2)	(3)	(4)
21.	I drink because of job pressures	(1)	(2)	(3)	(4)

D. GENERAL OPINION SURVEY

Instructions: For each of the following statements please indicate the degree to which you tend to either agree or disagree with the statement according to the following five-point scale:

1	2	3	4	5
agree strongly	agree	neither agree nor disagree	disagree	disagree strongly

1.	I do not need to feel that everyone I meet likes me.	1	2	3	4	5
2.	I frequently worry about things over which I have no control.	1	2	3	4	5
3.	I find it easy to overcome my irrational fears.	1	2	3	4	5
4.	I can usually shut off thoughts that are causing me to feel anxious.	1	2	3	4	5
5.	Life is a ceaseless battle against irrational worries.	1	2	3	4	5
6.	I frequently worry about death.	1	2	3	4	5
7.	Crowds make me nervous.	1	2	3	4	5
8.	I frequently worry about things before they actually occur.	1	2	3	4	5
9.	I tend to worry about things before they actually occur.	1	2	3	4	5

10.	If I were told that someone had a criminal record I would not hire him or her to work for me.	1	2	3	4
11.	When I make a mistake I feel worthless and inadequate.	1	2	3	4
12.	When someone is wrong I sure let them know it.	1	2	3	4
13.	When I am frustrated the first thing I do is ask myself whether there is anything I can do to change it--now!	1	2	3	4
14.	Whenever something goes wrong I ask myself, "Why did this have to happen to me?"	1	2	3	4
15.	Whenever things go wrong I say to myself, "I don't like this, I can't stand it."	1	2	3	4
16.	I can usually find a cure for my own unhappiness when it occurs.	1	2	3	4
17.	Once I am depressed it takes me a long while to recover.	1	2	3	4
18.	I feel that when I become depressed or unhappy it is caused by other people or the events that happen.	1	2	3	4
19.	People have little or no ability to control their sorrows or rid themselves of their negative feelings.	1	2	3	4
20.	When I become angry I can usually control my anger.	1	2	3	4
21.	I can usually control my appetites for food or alcohol.	1	2	3	4
22.	The value of a human being is directly proportionate to his accomplishments, if he is not thoroughly competent and adequate in achieveing he might as well curl up and die.	1	2	3	4
23.	The important part of playing a game is that you succeed.	1	2	3	4
24.	I feel badly when my achievement level is lower than others.	1	2	3	4
25.	I feel that I must succeed at everything I undertake.	1	2	3	4

26.	When I feel doubts about potential success I avoid participating and risking the chance of failure.	1	2	3	4
27.	When I set out to accomplish a task I stick with it to the end.	1	2	3	4
28.	If I find difficulties in life I discipline myself to face them.	1	2	3	4
29.	If I try to do something and encounter problems I give up easily.	1	2	3	4
30.	I find it difficult to work at tasks that have a long range payoff.	1	2	3	4
31.	I usually like to face my problems head on.	1	2	3	4
32.	A person never learns from his/her mistakes.	1	2	3	4
33.	Life is what you make it.	1	2	3	4
34.	Unhappy childhoods inevitably lead to problems in adult life.	1	2	3	4
35.	I try not to brood over past mistakes.	1	2	3	4
36.	People who are selfish make me mad because they really should not be that way.	1	2	3	4
37.	If I had to nag someone to get what I wanted I would not think it was worth the trouble.	1	2	3	4
38.	I frequently find that life is boring.	1	2	3	4
39.	I often wish that something new and exciting would happen.	1	2	3	4
40.	I experience life as just the same old thing from day to day.	1	2	3	4
41.	I often wish life were more stimulating.	1	2	3	4
42.	I often feel that everything is tiresome and dull.	1	2	3	4
43.	I wish I could change places with someone who lives an exciting life.	1	2	3	4
44.	I often wish life were different than it is.	1	2	3	4

E. DEMOGRAPHIC DATA

Instructions: Below are questions relating to your age, education, police experience, etc. Your answers here are extremely important. In no way will these be used to identify the person answering this questionnaire. Our purpose is to determine if age, education, police experience, division, etc. correlates with answers on the previous questionnaires. For example, did the younger police officers answer the questionnaires differently than the older officers?

Answering every question in this section is critical, so please do not omit any questions.

1. Your age (to the nearest whole year) _____.

2. Total years as a member of the R.C.M.P. _____.

3. Your present assignment is _____ (be specific, e.g., "highway patrol", "drugs").

4. Are you also assigned to a special squad (e.g., "ERT Team")? (Yes or No) _____.

5. Total years in present division _____.

6. In total, how many divisions have your worked in? _____.

7. Your present subdivision is _____ (e.g., Brandon subdivision).

8. Would you prefer to be working in another division right now? (Yes or No) _____.

9. Would you prefer to be posted somewhere else within "D" Division right now? (Yes or No) _____.

10. If your answer to question 9 was yes, where would you like to be posted?
_____.

11. Your marital status is _____ (i.e., single, common law, separated, divorced, married, divorced and remarried).

F. JOB DESCRIPTION INDEX

The following questions pertain to the main aspects of your working environment: pay, promotions, supervisor, co-workers, etc.

In order to complete this questionnaire you would:

- put a "Y" (for yes) beside any item that describes your present job and working environment.
- put a "N" (for no) beside any item that does not describe your present job and working environment.

Examples:

If you believe that your present job is fascinating work, you put a "Y" (for yes) beside the word "fascinating".

__Y__ fascinating

If you believe that your present job is not routine, you would put a "N" (for no) beside the word "routine".

__N__ routine

Do not leave any items blank!

Work

_____ fascinating
_____ routine
_____ satisfying
_____ boring
_____ good
_____ creative
_____ respected
_____ hot
_____ pleasant
_____ useful
_____ tiresome
_____ healthful
_____ challenging
_____ on your feet
_____ frustrating
_____ simple
_____ endless
_____ gives a sense of accomplishment

Pay

_____ inadequate for my normal expenses
_____ satisfactory
_____ barely live on income
_____ bad
_____ income provides luxuries
_____ insecure
_____ less than I deserve
_____ highly paid
_____ underpaid

Promotions

_____ good opportunity for advancement
_____ opportunity somewhat limited
_____ promotion on ability
_____ dead-end job
_____ good chance for promotion
_____ unfair promotion policy
_____ infrequent promotions
_____ regular promotions
_____ fairly good chance for promotion

Supervisor

_____ asks my advice
_____ hard to please
_____ impolite
_____ praises good work
_____ tactful
_____ influential
_____ up-to-date
_____ does not supervise enough
_____ quick-tempered
_____ tells me where I stand
_____ annoying
_____ stubborn
_____ knows job well
_____ bad
_____ intelligent
_____ leaves me on my own
_____ lazy
_____ around when needed

Co-Workers

_____ stimulating
_____ boring
_____ slow
_____ ambitious
_____ stupid
_____ responsible
_____ fast
_____ intelligent
_____ easy to make enemies
_____ talk too much
_____ smart
_____ lazy
_____ unpleasant
_____ no privacy
_____ active
_____ narrow interests
_____ loyal
_____ hard to meet

G. JOB STRESSORS

Based on previous studies the following have been indicated as stressors among police officers. Using the 5-point scale below please indicate how stressful each of these are/are not to you.

1	2	3	4	5
Not stressful at all	Slightly stressful	Somewhat stressful	Very stressful	Extremely stressful

For example:

Pay 2

1. Promotion procedure _____
2. System for transfer _____
3. Pay rates _____
4. Court decisions _____
5. Shift work _____
6. Negative contact with general public, e.g. lack of respect, excessive demands of citizens _____
7. Negative contact with supervisors, negative feedback _____
8. Restrictions on personal and social life, e.g., shift work, voluntary overtime, public image of police _____
9. Bureaucracy and its effects on the running of the force _____
10. Unpleasant and/or boring duties, e.g. paperwork, MVA (motor vehicle accidents), deaths guarding prisoners _____
11. Negative working relationship with some co-workers, e.g., lack of trust, apathy, cynicism, chauvinism, immaturity _____

What other stressors can you think of that are specific to your position/job on the force? Please list these below and indicate how unstressful/stressful you find these as you did for the above factors.

Other Stressors:

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____
5. _____ _____
6. _____ _____
7. _____ _____
8. _____ _____

H. FEELINGS QUESTIONNAIRE

Directions: For the following questions you are to circle the choice that best illustrates how often each of the statements would be descriptive of you.

O represents "I often feel this way"

S represents "I sometimes feel this way"

R represents "I rarely feel this way"

N represents "I never feel this way"

1.	I am unhappy doing so many things alone.	O	S	R	N
2.	I have nobody to talk to.	O	S	R	N
3.	I cannot tolerate being so alone.	O	S	R	N
4.	I lack companionship.	O	S	R	N
5.	I feel as if nobody really understands me.	O	S	R	N
6.	I find myself waiting for people to call or write.	O	S	R	N
7.	There is no one I can turn to.	O	S	R	N
8.	I am no longer close to anyone.	O	S	R	N

9.	My interests and ideas are not shared by those around me.	O	S	R	N
10.	I feel left out.	O	S	R	N
11.	I feel completely alone.	O	S	R	N
12.	I am unable to reach out and communicate with those around me.	O	S	R	N
13.	My social relationships are superficial.	O	S	R	N
14.	I feel starved for company.	O	S	R	N
15.	No one really knows me well.	O	S	R	N
16.	I feel isolated from others.	O	S	R	N
17.	I am unhappy being so withdrawn.	O	S	R	N
18.	It is difficult for me to make friends.	O	S	R	N
19.	I feel shut out and excluded by others.	O	S	R	N
20.	People are around me but not with me.	O	S	R	N

I. THE LIFE EXPERIENCES SURVEY

Instructions:

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. Please check only those events which you have experienced in the recent past and indicate the time period during which you have experienced each event. Be sure that all check marks are directly across from the items they correspond to.

Also, for each item checked below, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact. Do not check any events that did not occur in the recent past, but only those events you have experienced. For example, if you experienced the following three events you would indicate when they occurred and how you rated them.

Example only:

	0 to 6 mo	7 mo to 1 yr	extemely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
1. Marriage	___	✓	-3	-2	-1	0	+1	+2	(+3)
2. Detention in jail or comparable institution	___	___	-3	-2	-1	0	+1	+2	+3
3. Death of spouse	___	___	-3	-2	-1	0	+1	+2	+3
4. Major change in sleeping habits (much more or much less sleep)	___	✓	-3	-2	-1	0	(+1)	+2	+3
5. Death of close family member									
a. mother	___	___	-3	-2	-1	0	+1	+2	+3
b. father	___	___	-3	-2	-1	0	+1	+2	+3
c. brother	___	___	-3	-2	-1	0	+1	+2	+3
d. sister	___	___	-3	-2	-1	0	+1	+2	+3
e. grandmother	___	___	-3	-2	-1	0	+1	+2	+3
f. grandfather	___	___	-3	-2	-1	0	+1	+2	+3
g. other (specify)	___	___	-3	-2	-1	0	+1	+2	+3
6. Major change in eating habits (much more or much less food intake)	✓	___	-3	-2	-1	0	(+1)	+2	+3
7. Foreclosure on mortage or loan	___	___	-3	-2	-1	0	+1	+2	+3

		0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
1.	Marriage	____	____	-3	-2	-1	0	+1	+2	+3
2.	Detention in jail or comparable institution	____	____	-3	-2	-1	0	+1	+2	+3
3.	Death of spouse	____	____	-3	-2	-1	0	+1	+2	+3
4.	Major change in sleeping habits (much more or much less sleep)	____	____	-3	-2	-1	0	+1	+2	+3
5.	Death of close family member									
	a. mother	____	____	-3	-2	-1	0	+1	+2	+3
	b. father	____	____	-3	-2	-1	0	+1	+2	+3
	c. brother	____	____	-3	-2	-1	0	+1	+2	+3
	d. sister	____	____	-3	-2	-1	0	+1	+2	+3
	e. grandmother	____	____	-3	-2	-1	0	+1	+2	+3
	f. grandfather	____	____	-3	-2	-1	0	+1	+2	+3
	g. other (specify)	____	____	-3	-2	-1	0	+1	+2	+3
6.	Major change in eating habits (much more or much less food intake)	____	____	-3	-2	-1	0	+1	+2	+3
7.	Foreclosure on mortage or loan	____	____	-3	-2	-1	0	+1	+2	+3
8.	Death of close friend	____	____	-3	-2	-1	0	+1	+2	+3
9.	Outstanding personal achievement	____	____	-3	-2	-1	0	+1	+2	+3
10.	Minor law violations (traffic tickets, disturbing the peace, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
11.	Male: Wife/girlfriend's pregnancy	____	____	-3	-2	-1	0	+1	+2	+3
12.	Female: pregnancy	____	____	-3	-2	-1	0	+1	+2	+3

		0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
13.	Changed work situation (different work responsibility, major change in working conditions, working hours, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
14.	New job	____	____	-3	-2	-1	0	+1	+2	+3
15.	Serious illness or injury of close family member									
	a. father	____	____	-3	-2	-1	0	+1	+2	+3
	b. mother	____	____	-3	-2	-1	0	+1	+2	+3
	c. sister	____	____	-3	-2	-1	0	+1	+2	+3
	d. brother	____	____	-3	-2	-1	0	+1	+2	+3
	e. grandmother	____	____	-3	-2	-1	0	+1	+2	+3
	f. grandfather	____	____	-3	-2	-1	0	+1	+2	+3
	g. spouse	____	____	-3	-2	-1	0	+1	+2	+3
	h. other (specify)	____	____	-3	-2	-1	0	+1	+2	+3
16.	Sexual difficulties	____	____	-3	-2	-1	0	+1	+2	+3
17.	Trouble with employer (in danger of losing job, being suspended, demoted, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
18.	Trouble with in-laws	____	____	-3	-2	-1	0	+1	+2	+3
19.	Major change in closeness of family members (increased or decreased closeness)	____	____	-3	-2	-1	0	+1	+2	+3
20.	Major change in financial status (a lot better off or a lot worse off)	____	____	-3	-2	-1	0	+1	+2	+3
21.	Gaining a new family member (through birth, adoption, family member moving in, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
22.	Change of residence	____	____	-3	-2	-1	0	+1	+2	+3

		0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
23.	Marital separation from mate (due to conflict)	____	____	-3	-2	-1	0	+1	+2	+3
24.	Major change in church activities (increased or decreased attendance)	____	____	-3	-2	-1	0	+1	+2	+3
25.	Marital reconciliation with mate	____	____	-3	-2	-1	0	+1	+2	+3
26.	Major change in number of arguments with spouse (a lot more or a lot less arguments)	____	____	-3	-2	-1	0	+1	+2	+3
27.	Married male: change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
28.	Married female: change in husband's work (loss of job, beginning new job, retirement, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
29.	Major change in usual type and/or amount of recreation	____	____	-3	-2	-1	0	+1	+2	+3
30.	Borrowing more than $10,000 (buying home, business, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
31.	Borrowing less than $10,000 (buying car, TV, getting school loan, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
32.	Being fired from job	____	____	-3	-2	-1	0	+1	+2	+3

		0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
33.	Male: wife/girlfriend having abortion	____	____	-3	-2	-1	0	+1	+2	+3
34.	Female: having abortion	____	____	-3	-2	-1	0	+1	+2	+3
35.	Major personal illness or injury	____	____	-3	-2	-1	0	+1	+2	+3
36.	Major change in social activities, e.g., parties, movies, visiting (increased or decreased participation)	____	____	-3	-2	-1	0	+1	+2	+3
37.	Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
38.	Divorce	____	____	-3	-2	-1	0	+1	+2	+3
39.	Serious injury or illness of close friend	____	____	-3	-2	-1	0	+1	+2	+3
40.	Retirement from work	____	____	-3	-2	-1	0	+1	+2	+3
41.	Son or daughter leaving home (due to marriage, college, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
42.	Ending of formal schooling	____	____	-3	-2	-1	0	+1	+2	+3
43.	Separation from spouse (due to work, travel, etc.)	____	____	-3	-2	-1	0	+1	+2	+3
44.	Engagement	____	____	-3	-2	-1	0	+1	+2	+3
45.	Breaking up with boyfriend/girlfriend	____	____	-3	-2	-1	0	+1	+2	+3

	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
46. Leaving home for the first time	____	____	-3	-2	-1	0	+1	+2	+3
47. Reconciliation with boyfriend/girlfriend	____	____	-3	-2	-1	0	+1	+2	+3
Other recent experiences which have had an impact on your life. List and rate.									
48. _____	____	____	-3	-2	-1	0	+1	+2	+3
49. _____	____	____	-3	-2	-1	0	+1	+2	+3
50. _____	____	____	-3	-2	-1	0	+1	+2	+3

J. SOCIAL ASPECTS

The following questions are concerned with your social relationships.

1. Would you say that your family unit is:

   a) very close _____
   b) close _____
   c) not close _____

2. Do you have good family relations with:

	Yes	No	Not Applicable
a) spouse	_____	_____	_____
b) mother	_____	_____	_____
c) father	_____	_____	_____
d) children	_____	_____	_____
e) brother and sisters	_____	_____	_____
f) other family members	_____	_____	_____

3. In Winnipeg do you have?

   a) many close friends _____
   b) some close friends _____
   c) few close friends _____
   d) no close friends _____

4. On the police force would you say that you had:

   a) many close friends _____
   b) some close friends _____
   c) few close friends _____
   d) no close friends _____

5. Considering the friends which you have on the force which you are closest to: about how often do you get together with them on an informal basis?

   a) every day _____
   b) at least once/week _____
   c) a few times/month _____
   d) about once/month _____
   e) less than once/month _____

6. Now take the friends outside the force you are closest to: about how often do you get together with any of them?

   a) every day _____
   b) at least once/week _____
   c) a few times/month _____
   d) about once/month _____
   e) less than once/month _____

7. How often do you get together with the neighbour which you see most frequently?

   a) every day _____
   b) at least once/week _____
   c) a few times/month _____
   d) about once/month _____
   e) less than once/month _____

8. Considering all of your social relationships with family, friends, neighbours, etc. How satisfactory would you say that these relationships are?

   a) extremely satisfactory _____
   b) satisfactory _____
   c) neither satisfactory nor unsatisfactory _____
   d) unsatisfactory _____
   e) very unsatisfactory _____

9. In future do you expect that these relationships will:
   a) get worse _____
   b) stay the same _____
   c) improve _____

10. What social recreational activities do you participate in?

a) sports (baseball, hockey, etc.) _____
b) bingo _____
c) dances and socials _____
d) pub visiting _____
e) movies _____
f) other, specify _____
g) none _____

11. What organizations do you now belong to?

List: _____

_____

K. HEALTH SYMPTOMS/CONDITIONS INVENTORY

Instructions: Below you will find a number of symptoms and conditions relating to your health. Please indicate in the appropriate space with a checkmark those symptoms/conditions which you have experienced in the past year. For example, if you have experienced headaches regularly, but only experienced a nervous stomach on occasion, in the past year, you would mark the check list as follows:

	Yes (regularly)	Yes (occasionally)	No
Nervous stomach		✓	
Headache	✓		

Please note any other symptoms/conditions in the space provided which are not listed here.

	Yes (regularly)	Yes (occasionally)	No
Symptoms			
Headaches			
Indigestion			
Constipation			
Nervous stomach			
Stomach aches			
Diarrhea			

	Yes (regularly)	Yes (occasionally)	No
Conditions			
Hypertension (high blood pressure)	_____	_____	_____
Asthma	_____	_____	_____
Ulcers	_____	_____	_____
Colitis (inflammation of the colon)	_____	_____	_____
Weight trouble			
Too heavy	_____	_____	_____
Too thin	_____	_____	_____
Weight fluctuates	_____	_____	_____
Other symptoms/conditions			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

L. STRESS COPING TECHNIQUES SURVEY

Instructions: Please list below in the space provided all of the stress coping techniques you might employ in coping with stress in your daily routine. Please be as specific as you can: that is, exercise - specifically lifting weights or jogging, etc.; sports - specifically golf or tennis, etc.; hobbies - specifically gardening or puttering around home, etc.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____