PERSON-ENVIRONMENT IMBALANCE IN AN OCCUPATIONAL SETTING: A COMPARATIVE STUDY OF NURSING STRESS IN SEVERAL HOSPITAL WARDS

A thesis presented in partial fulfilment
of the requirements for the degree of

MASTER OF ARTS

in

PSYCHOLOGY

at Massey University

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1985

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ABSTRACT

The present study had three major objectives; (1) the development of a model in which to view nursing stress in terms of basic processes which underlie behaviour; (2) assessment of the levels of nursing stress in several hospital wards, including Oncology; (3) definition of the relationship of personality to the levels of perceived stress amongst nurses.

A general information processing model of behaviour, based on the central role of imbalance in process, was developed as the appropriate context in which to understand occupational stress. The sources of stress in nursing, identified in the literature, were reviewed in terms of this model.

Data reported here were obtained with a questionnaire designed to measure perceived frequency and stressfulness of job events, presence and stressfulness of job conditions, propensity to leave the job, role conflict, frequency and degree of satisfaction from a variety of sources, and other variables including a number of possible moderators of stress. Indices of stress were derived from these data and from standard measures of well-being, state anxiety and depression. The personality variables extraversion-introversion, neuroticism, trait anxiety, self esteem and locus of control were measured. Scores for stressfulness of events and job conditions respectively were factor analysed and individual factor scores obtained. Wards were compared on a number of the above variables.

Few of the events or job conditions were perceived as very stressful on average, with only job conditions related to work load rated as very stressful. Although scores of frequency and stressfulness of each event were not significantly correlated, individuals reporting high frequencies tended to also give high stress scores. Differences between wards in reported frequency of events were generally consistent with the speciality of wards involved. However, Women's Medical showed a general elevation of scores on most items relative to other wards, and on stress indices, particularly depression. Factor analysis of stressfulness scores with two factors

for both events and job conditions respectively revealed in both cases a factor which was heavily loaded on by administrative items and which also correlated strongly with measures of depression.

Scores on personality tests did not differ significantly between wards, although neuroticism, trait anxiety and self esteem correlated to similar degrees with a number of stress indices and appeared to be measuring the same trait. Extraversion-introversion and locus of control were not correlated significantly with stress.

The results do not support the prevalent view that nurses in Oncology and Intensive Care wards suffer high levels of stress compared with nurses in other wards. The methodology used in this and similar types of study is critically discussed in light of the present results, and the relevance of personality variables to stress is discussed in relation to the present findings.

ACKNOWLEDGMENTS

Thanks to Shannon Roache and John Podd for their excellent supervision. Particular thanks to John for the generous and conscientious way in which he has shared his time and enthusiasm with me, and many other students, throughout my post-graduate training.

Thanks to Dr England, Medical Superintendent of the Palmerston North Public Hospital at the time of this study, for permitting it to be used as the basis for an MA thesis, and to the nurses, who willingly cooperated.

Thanks to Dale Rosvall for her considerable skills in typing and in deciphering the illegible.

Thanks to my family, Liz and David, for their support.

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BACKGROUND

The opportunity to conduct the study described in this thesis arose in the first place from concern of the administration of the Palmerston North Public Hospital, that staff on their Oncology unit were under excessive stress. Some staff on the ward had appeared to suffer from depression, and there had been a spate of resignations. This led to a request for help from the Psychology Department, Massey University, initially in the form of a comparative assessment of stress levels in several wards, including Oncology.

From conversations with a number of hospital staff who had worked on the involved wards, and from a review of the literature it was evident that the assessment of levels of perceived stress should be made not only in terms of differences between wards, but in terms of differences between individuals. Furthermore, there did not appear to exist a readily applicable abstract framework, based on the links between occupational stress, personality and the processes which conjointly determine both of these, to allow all of the results to be interpreted in the same general terms. It therefore seemed appropriate to direct some attention to a model of interaction between occupation and person which would accommodate individual difference.

From these considerations the three major objectives of this study arose:

1. Definition of the patterns of experience of nurses with respect to setting, involving the measurement of differences between several hospital wards.
2. Definition of the patterns of experience with respect to differences in personality between individuals.
3. The development of a theoretical framework allowing interpretation of the findings in terms of the common processes underlying the behaviours which define both personality and response to stress.

INTRODUCTION

The prospect of providing a concise review of stress research is at first sight daunting, for stress involves the reaction of a whole organism to its setting, and has been the subject of research in areas ranging from endocrinology to organisational structure (Cox, 1978). Since Selye published his seminal paper 'A syndrome produced by diverse nocuous agents' (Selye, 1936), the list of stress-related publications which he has collected has grown to over 120,000 (Selye, 1979).

Many of these papers will have related to people working in particular classes of environment, which define them as 'blue collar' workers, managers, teachers, nurses and so on. But given that we use the same structures and processes for dealing with information, irrespective of the environment which is its origin, a logical way of reducing the task to more manageable proportions is to identify the principles relating to stress in any situation, and to then apply these to the particular occupation of interest. Such an approach is adopted in this thesis.

Before proceeding however, it is necessary to examine the meaning of 'psychological stress'.

A. Definitions of Stress

Definition is of paramount importance to research, as the usefulness of scientific research is a function of its ability to add systematically to a body of knowledge. For it to do so it is necessary that there be both agreement about the meaning of the concepts involved, and linked to this, consistency in the way in which they are measured, or operationally defined.

On both counts stress research can be found wanting, for definitions of stress are numerous (Cox, 1978), and debate about the meaning of the term is intense (Anisman and Zacharko, 1982).

The many definitions of stress which have been used can be placed into three general categories; stimulus-based, response-based, and interactional.

1. Stimulus-based definitions

'Stress' has been used in the sense in which it is used in the physical sciences, that is, as an external applied constraint. In this sense stress is viewed as a stimulus and an independent variable, having no explanatory power but simply denoting a category of environmental conditions.

The concept has been used in this manner in studies of human performance, and of stress in work settings, involving such variables as environmental temperature (Ramsey, 1983) and noise (Jones, 1983). It is an appealing use of the concept in its consistency with the physical sciences, but at the same time the operational definitions to which it leads are potentially infinite in number, and if the variables in use are adequately defined there is in any case no longer a need to employ the term 'stress'.

2. Response-based definitions

Stress has also been defined in the completely opposite sense, as a response to conditions, a use of the concept common in research on biochemical and physiological response to environmental manipulation. In this case stress is used as a dependent variable, and the corresponding term in the physical sciences would be 'strain'. Selye's original work on stress (Selye, 1936) within the physiological framework used the response-based definition, and such use has continued to prevail in studies of response to imposed conditions.

But like the stimulus-based definitions, those based on response are numerous, for many changes occur in the body as a consequence of environmental change. The range of parameters available for physiological measurement alone is suggested in the statement of Murison and Ursin (1982) that 'The simplest operational definition of stress is that it is the process which produces a change in your own favourite physiological parameter' (p.115).

The fact that adaptation of any organism to its environment involves a coordinated response in all its aspects, motor, cognitive, affective, autonomic and neuroendocrine, has led to the use of a wide range of variables in response-based definition of stress. At the psychological level these have included behaviour, and emotions such as helplessness and depression (Anisman and Zakarko, 1982). At the more physiological level use has been made of direct autonomic

indicators such as blood pressure and heart rate (Warburton, 1979), electrocortical activity (Warburton, 1979), and endocrine measures such as levels of plasma noradrenalin, adrenalin and corticosteroids (Henry and Meehan, 1981). In the long term physical deterioration may result from excessive neuroendocrine activation, and lead to conditions such as artherosclerosis (Henry and Meehan, 1981), loss of immunocompetence (Riley, 1982), and stemming from the latter, a greater than average incidence of physical illness (Rabkin and Struening, 1976), all of which can be viewed as part of the syndromic response to stress.

As in the case of stimulus-based definitions, whenever such variables are used to operationalise a response-based definition of stress, they must be carefully defined and measured, and the study then becomes a study of the chosen variable, rendering the term 'stress' redundant.

3. Interactional definitions

The growing realisation of the importance of individual cognition and subjectivity in determining the stressfulness of external conditions has led to the interactional definitions, in which stress is viewed as a variable intervening between external events and reaction to them (Cox, 1978). Much of the impetus for this 'cognitive revolution' (Dember, 1974) can be traced to the work of Lazarus (1966), in whose view there can be no such thing as an objective stress, for a situation will not be psychologically stressful unless it is perceived as such.

The interactional definition takes account of the fact that the relationship of a person to the environment is unique, being dependent on that person's view of the environment, and their expectations regarding it. McGrath (1970), for instance, proposed that 'There is a potential for stress when an environmental situation is perceived as presenting a demand which threatens to exceed the person's capabilities and resources for meeting it, under the conditions where he expects a substantial differential in rewards and costs from meeting the demand versus not meeting it' (p.1352).

The interactional definitions recognise that people do not respond to the environment per se but to the processed information which the perceptual system has provided about the environment. Thus, response is not to a set of conditions as objectively defined, but to the

perceived nature of, or significance of those conditions. And in humans, where the capacity for learning and discrimination, and the range of encoded experience is relatively enormous, the variation in significance of a given set of conditions for different individuals is correspondingly large. What may be aversive for one individual may be enjoyable for another.

Problems with interactional definitions

The interactional view of stress, and awareness of the multivariate nature of response to stressful conditions, has led in recent years to models which attempt to interrelate the environment, cognitive assessment based on encoded information, and reactions - behavioural, emotional and physiological. It has therefore become common to cross the boundary from the psychological, to the level of the physiological correlates of behaviour (Cox, 1978). Variability in the effects of environmental conditions extends beyond their perception, to the complex of these reactions, which represent the response of the interdigitated elements of the whole organismic system. Unlike in studies involving laboratory animals, where subjects are often genetically homogeneous, those with humans must deal with a full range of biological variation, leading to idiosyncratic patterns of change in the complex multidimensional domain which encompasses the many reaction parameters. Thus there has been a growing realisation that when one speaks of stress, it is necessary to consider the state of a system, which in all its aspects is unique for every individual. This system is identical to that underlying any behaviour, involving exactly the same structures and processes, so that in trying to delineate a domain to which the term 'stress' can be applied one must deal with multiple continua, representing extensions of normal behaviour processes, in patterns which will differ between individuals. Any attempt to define stress in a way that is both precise and distinctive must employ quantitative cut-off points in several interrelated dimensions, and will therefore be operationally impractical as well as arbitrary.

Adequate definitions of stress therefore necessarily become models of behaviour, and any time that the concept is used in any exact manner in a research context it becomes critical to define a range of both conditions and effects, and the type of person involved. It seems that if one does this, and all relevant parameters are defined,

there is no longer any need to use the word 'stress'.

Not surprisingly therefore, there are those who regard the term 'stress' as useful only in indicating a broad area of study (McLean, 1974), and at a more extreme position, those who regard it as a useless term which should be discarded altogether (Hinkle, 1973).

The difficulties associated with attempts to verbally define stress as an interactional phenomenon can be illustrated with reference to the definitions of McGrath (1976) and Cox (1978). Both of these authors see stress as a consequence of an imbalance between demand, both external and internal, and capability in meeting demand, when coping is important (Cox, 1978). However, an interactional definition must regard stress not as a consequence, but as an intrinsic part of interaction, otherwise the definition becomes response-based. In other words stress should not be regarded as a consequence of imbalance, but as imbalance itself. Furthermore, it is impossible to distinguish imbalance from demand; they are synonyms for the state of disequilibrium preceeding reaction. Also, as importance is a function of imbalance, one cannot, by definition, have imbalance without coping being important. If reaction was not of some importance it would simply not occur. Again, there arises the problem of setting an arbitrary cut-off between what is considered important, and what is considered unimportant. One can also argue that 'demand' and 'capability in meeting demand' are inseparable, for perceived capability must be part of the information base from which demand (imbalance) arises.

Thus verbal attempts to define stress as something distinctive seem to result in entanglement and circularity. A principle reason that they run into difficulty is that they do not sufficiently take into account the identity of processes and parameters underlying stress-related and other behaviour, from which it follows that the only way to distinguish stress-related processes from other behaviour processes, is to specify quantitative criteria for distinction. They tend to imply that imbalance in the relationship between internal and external information sets is a condition specific to stress, and thereby lose contact with the central principle of all interaction - that it is the relationship between information sets which is the essence not only of stress, interactionally defined, but of behaviour in general.

Use of the term 'stress' in this thesis

Despite the difficulties surrounding definition of the concept of stress, the word has proved useful in communication as a general term directing attention towards that portion of the behavioural universe in which negative emotions, excess demand, depression, job dissatisfaction and such like are situated in loose association. Therefore, rather than discard the term as useless or redundant, it will be used in this general sense, rather than in a precise or distinctive way. And instead of interpreting nursing stress in terms of a model of 'stress' it seems more rational to do so in terms of the processes which underlie response to any class of situation, whether perceived as stressful or not.

B. Stress as Imbalance

The fundamental role of imbalance in behaviour

Interactional definitions of stress accentuate the role of imbalance, between perceived demand and capacity (Cox, 1978; Lazarus, 1966; McGrath, 1976) or similarly between person and environment (French, Rogers and Cobb, 1974). The viewing of stress in these terms is treated as an important advance in the conceptualisation of stress. Yet the role of imbalance in any system is fundamental.

Imbalance is a necessary requirement of any process, and no process can continue in a state of equilibrium. This is in fact a statement of a universal thermodynamic law governing the behaviour of matter. To say that reaction to the environment is a result of person-environment imbalance is simply a restatement of this basic axiom, which has already been applied to psychology in the guise of homeostasis - the tendency of a system to regain equilibrium from a state of imbalance.

But although stress psychology has been emphasising the need to take an interactional view of stress its approach to the analysis of work settings has not developed to account for this need. Instead, occupational studies have tended to concentrate on the enumeration and classification of external conditions in terms of their physical identity (Kasl, 1978), with little reference to their role in creation or maintenance of imbalance, and through this their connection with processes of reaction to them.

For instance, McGrath (1976) isolates three independent systems, the physical environment, the social environment and the person. These overlap in pairs to give three further subdivisions, namely, the task (physical environment-person overlap), the role (social environment-person overlap) and the behaviour setting (physical-social environments overlap). This classification therefore gives six sources of stress: (1) task, (2) role, (3) behaviour setting, (4) physical-environment, (5) social environment, (6) person.

Cox (1978) separates sources of stress into (1) internal demands, needs, values and satisfactions, (2) external demand and the work situation, (3) physical environment factors, (4) task-inherent demand, (5) role-related demand.

Both of these approaches, in separating out person in the first case, and needs and values in the second, have reduced the necessary emphasis on the fact that these must always be coupled with any other factor, if it is to produce the state of informational imbalance which underlies reaction to the environment. Yet, because imbalance is a necessary prerequisite for process, the interactional view has the potential to provide the basis on which personality, cognition, and stress, can be linked in common terms, within the general context of behaviour, and to thereby provide a psychologically relevant framework for the interpretation of work-related stress.

I will now move on to the development of such a framework, which can then be applied to the central topic of this thesis, nursing stress.

Imbalance and reaction to the environment

Two major classes of reaction to the environment - cessation of behaviour associated with the onset of undesirable conditions (the STOP reaction), and the initiation of behaviour aimed at dealing with such conditions (the GO reaction) - can each be identified with a particular form of imbalance.

The first form of imbalance arises from the disconfirmation of predictions during goal-directed behaviour, that is, from a discrepancy between internal information in the form of the predicted outcome of behaviour, and the external information input representing the actual behavioural outcome. If such a discrepancy is encountered a motor programme in execution must be halted, as no longer relevant and potentially maladaptive. Thus, signals of non-reward, punishment

or novelty lead reliably to behaviour inhibition, marked by a cessation of ongoing behaviour, increased arousal, and increased attention to the source of unexpected input (Gray, 1982).

The above observations have led to the psychological concept of a behaviour inhibition system (Gray, 1982). A good deal of evidence also suggests that it is the activity of the behaviour inhibition system that is the basis of anxiety. For instance, the behaviour inhibition, arousal increment and increased attention that result from unpredicted outcomes are all reduced by antianxiety drugs (Gray, 1982).

The role of the imbalance between expectations and outcomes in activating the behaviour inhibition system is of considerable importance to the topic of stress, because, in the words of Hamilton (1979) 'Anxiety - widely and cognitively defined - is the major and most fundamental source of strain in the person' (p.86).

The mention of cognition brings us to the second major form of imbalance, the imbalance between conditions identifying a goal and the actual goal state. The relationship between the two imbalances, assuming for simplicity that outcomes are such as to result in behaviour inhibition, is summarised in Figure 1. The imbalance between expectations (predictions) and outcomes (Imbalance I) leads to behaviour inhibition, abortion of motor programmes, and the pickup of information required for goal identification. The imbalance between conditions of goal identification and goal attainment (Imbalance II) will, on the other hand, lead to the cognition required to generate a motor programme which can bridge the gap between these two conditions. Behaviour inhibition may therefore lead on to the information processing required for the resumption of activity, so that anxiety has a cognitive component. If conditions and encoded information are such that it is difficult or impossible to generate an appropriate motor programme, so that there is an inability to control, the state of sustained anxiety and active cognition known as worry will result (Eysenck, M., 1983).

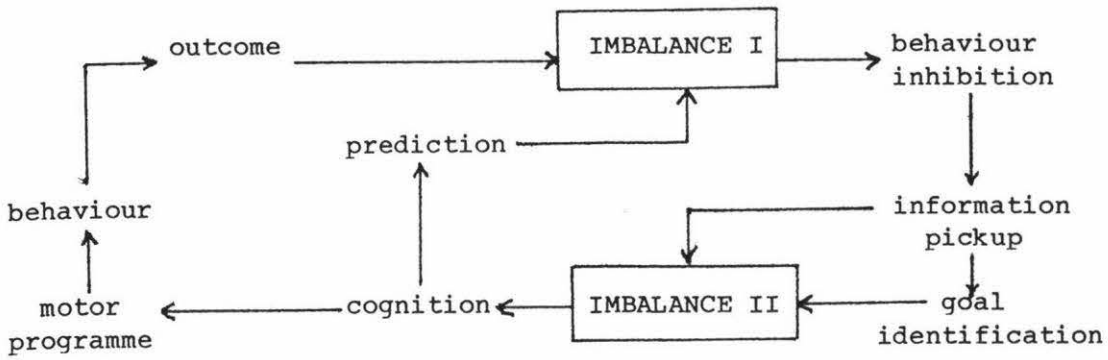

Figure 1. Relationship of imbalances to inhibition and resumption of behaviour.

The role of imbalance in behavioural and cognitive reaction to the environment is described more fully in Figure 2, which includes the information processing steps necessary for behaviour inhibition and motor programme generation. A third form of imbalance, shown in Figure 2, but not in Figure 1, is that which ensures that the information pickup necessary for adaptive interaction with the environment is maintained. Figure 2 is not intended to be a comprehensive model, but highlights those aspects of information processing most relevant to the present discussion.

An important feature of the model shown in Figure 2 is the comparator. It is essential to postulate the existence of such an entity, as a comparison of internal and incoming information sets must be made, leading to detection of imbalance, before the processes which result from imbalance, and which lead to cognitive or behavioural reaction, can be set in train. The comparator has had a central role to play in recent information processing models of behaviour (Powers, 1974; Welford, 1978), although the identity of the systems or structures which subserve the function of comparison, is at present uncertain.

Generally a sequence of behaviours is required to link an initial input to the final goal which it identifies. Under stable conditions a motor programme suitable to the environment may become established in memory and immediately available for execution, when a high degree of skill will be apparent. But more often a sequence of performances must be tailored to the environment at the time. A sub-goal must be chosen for each step in the behaviour chain required, and the performances which achieve each of these sub-goals must be stored in working memory, in the correct sequence, as the motor programme.

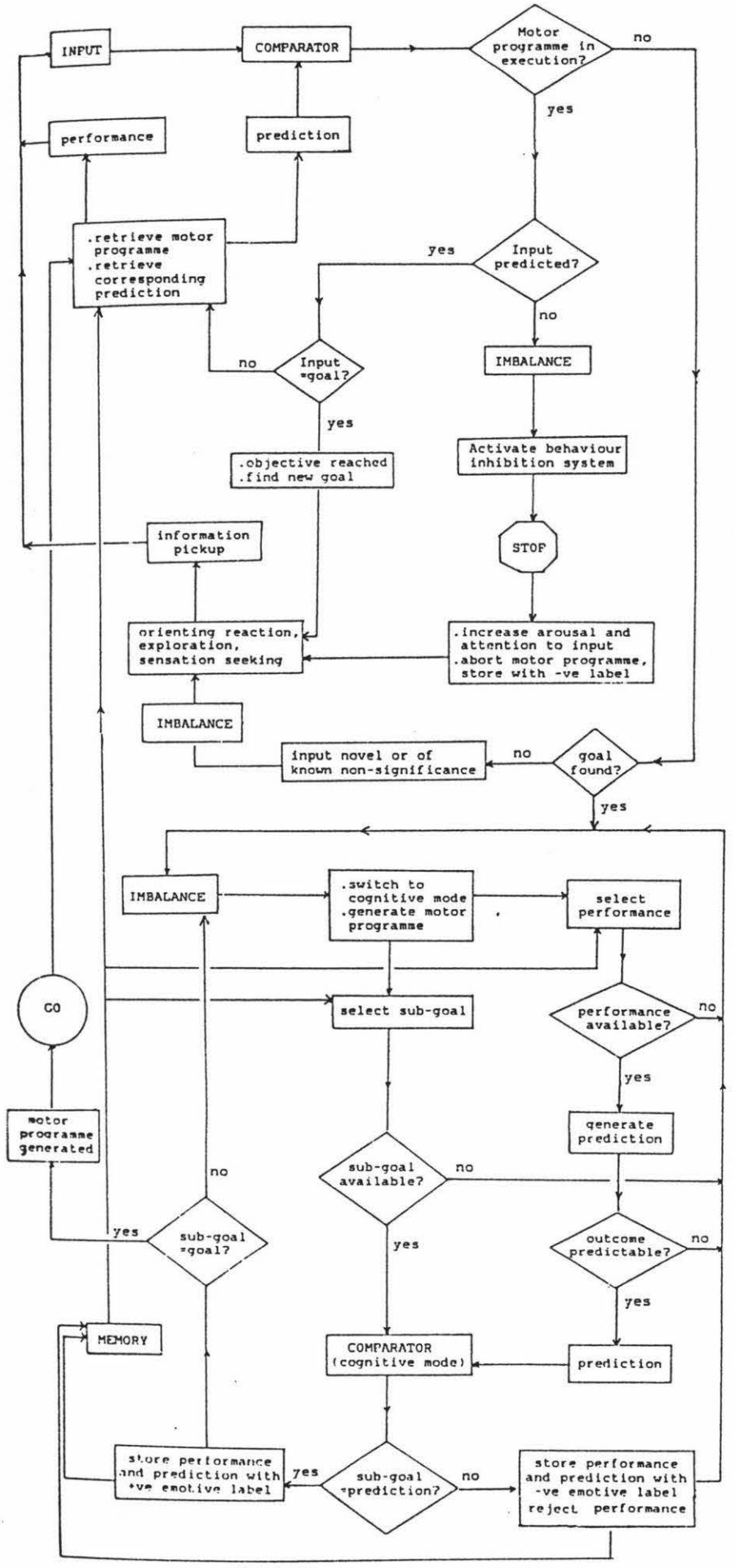

Figure 2 Role of imbalance in behavioural and cognitive reaction to the environment.

Before selection each of these performances must be tested internally in the process of cognition, by generating a prediction of its outcome in light of existing environmental conditions, and comparing the prediction with the sub-goal, at the comparator. If the predicted outcome and sub-goal match, the performance can be stored, with its predicted outcome (= subgoal) as part of the programme and the next sub-goal in the sequence retrieved. If they do not match another performance must be cognitively tested, and the process repeated until one which has the desired outcome is attained. The cognitive looping involved can be seen in the lower part of Figure 2.

It can be seen that the comparator acts in at least two modes; in an interactive mode during execution of motor programmes, when actual outcomes are compared with goals (equivalent to predictions during programme execution) and in a cognitive mode during generation of the goal directed motor programmes, when predicted outcomes are compared with goals.

In summary, Figure 2 outlines the way in which imbalances which reside in the relationship between information sets may on the one hand drive processes which prevent imbalance from increasing (the STOP reaction), and which on the other hand provide impetus for the processes necessary to achieve a reduction in imbalance (through the GO reaction).

Factors leading to high frequency and/or sustained imbalance

The above discussion of the model shown in Figure 2 allows us to identify, in an information processing context, the general conditions under which states of imbalance are created and sustained.

The imbalance between expectations and outcomes, responsible for behaviour inhibition and anxiety, will occur when goal-directed behaviour is inappropriate to existing conditions, and therefore leads to non-reward, punishment or novelty. It will occur when:

(1) conditions change after programme generation

(2) information about the environment, used as a basis for sub-goal selection and outcome prediction during cognition is either inadequate or inaccurate.

Under these circumstances the STOP condition will be imposed, and the activities necessary to identify an appropriate goal, and to generate the motor programme required to achieve that goal, will be initiated. That is, activity of the system will be redirected from

interaction to cognition.

The state of sustained cognitive imbalance responsible for worry may occur when there is an inability to identify sub-goals, or to generate predictions which correspond closely enough with selected sub-goals to achieve a state of balance. Both of these conditions will occur when:

(1) learning has not been adequate for the conditions,

(2) there is insufficient information available about the nature of the conditions,

(3) when the information to be processed, or the length of the performance chain to be stored, exceeds the capacity of working memory.

Under these circumstances there will be a delay in reaching, or inability to reach the state of motor programming and predictive readiness required for the GO decision, which is necessary for reinstatement of goal-directed behavioural interaction of the system with the environment.

Individual differences and stress

Any consideration of internalised information, relationships between information sets, or reactions to these relationships, necessarily brings one to within the domain of personality.

Like stress, personality is a concept which has been difficult to pin down, and which has received a range of definitions. There is no doubt however that the idiosyncratic yet consistent way in which individuals act is the product of two interrelated factors.

(1) Inherent difference in brain function which determines individual reactivity to informational imbalance.

(2) Individual experiences which result in unique sets of encoded information, to serve as the template against which the comparison of other information leads to imbalance.

A large and fairly consistent body of evidence has now accumulated in support of the views of Eysenck (1967), who, on the basis of factor analytic evidence, has proposed that individual difference can be explained largely by variability along two major dimensions, Introversion-Extraversion (E) and Neuroticism (N), both considered to reflect differences in underlying brain function.

The high E/low N and low E/high N combinations have been noted to coincide exactly with the sanguine (lively, sociable, stress

resistant) and melancholic (quiet and fearful) types for whom Pavlov (1955) had postulated differences in nervous properties. Recently, measurements on individuals reliably defined in terms of extraversion and neuroticism as corresponding to the Pavlovian types, have been shown to differ in the transmissive properties of relevant central neurones (Robinson, 1982). Thus the link between Pavlovian/Eysenckian personality types and constitutional difference in brain function has been experimentally confirmed.

Gray (1981) has proposed that a range of observations can be better accommodated if Eysenck's factor analytic axes are rotated 45° to give two new dimensions, which he has termed Anxiety and Impulsivity. The anxiety dimension runs from high E/low N (low anxiety, 'sanguine') to low E/high N (high anxiety, 'melancholic'), and the impulsivity from low E/low N (low impulsivity) to high E/high N (high impulsivity).

The Anxiety dimension is considered by Gray to be a primary dimension reflecting levels of sensitivity to signals of punishment, non-reward and novelty, that is, to prediction-outcome imbalance. It thus reflects activity of the behaviour inhibition system, responsible for the STOP reaction, while impulsivity is considered to reflect responsiveness to signals of reward and non-punishment. Thus neurotic introverts can be regarded as most susceptible to behaviour inhibition, and as having a behaviour inhibition system which is relatively more powerful than the impulsivity system. In contrast to the behaviour inhibition system, the impulsivity system remains anatomically undefined (Gray, 1981).

Individual differences in reactivity are important to the information base of future response. Neurotic introverts (High anxiety) have been shown to be particularly susceptible to aversive conditioning (Gray, 1981), so that not only will their reaction to aversive conditions be intense, but they will be prone to develop a cognitive set characterised by a high loading of negative experience. This will provide a basis for prediction of negative outcomes during cognition, leading to a tendency for excessive rejection of possible coping performances (see Figure 2). The resulting tendency to inaction will lead in turn to generalised expectations of failure (non-reward), a sense of inability to control, a perception of low personal effectiveness, and to an even higher degree of behaviour inhibition, evident as learned helplessness. The latter has

consistently been shown to be associated with loss of control (Abramson, Seligman and Teasdale, 1978; Watson and Clark, 1984; Zuroff, 1980).

One can predict from this that individuals who have a tendency to experience job events and conditions as relatively stressful, are also likely to be introverted, neurotic, low in self esteem, external in locus of control, and high on trait anxiety. Trait anxiety has been described as a combination of a reservoir of potential anxiety responses accumulated through experience, with an innate susceptibility to anxiety (Spielberger, 1975).

Imbalance in an organisational context

The preceding discussion has attempted to relate person-environment interaction to the information processing required for reaction, and has placed some major general factors that act to sustain a state of behaviour inhibition, or retard response generation required for release from it, into an interactional context.

These factors reflect the nature of information processing, and as information is processed by the same brain structures and functions regardless of its origin, they are abstract, and will apply to any situation. Moreover, by being related to distinctive processes involved in the basic STOP and GO decisions underlying behaviour, they are both non-arbitrary and psychologically relevant.

In contrast, by taking the usual approach to analysis of job stress, in terms of external entities such as tasks, roles, behaviour settings and so on, one invites redundancy, because although such categories are represented by different information sets, these are however all processed by the same biological system, which itself categorises information not in terms of convenient external abstractions, but in terms of more basic criteria related to survival value. Furthermore, it is through the operation of this one system that all of the information processing which preceeds development of the stress syndrome, takes place. McGrath (1976) has himself implied the presence of redundancy in the usual approach to analysis of job stress, by saying 'It is clear that our admittedly arbitrary specification of six sources of stress is far too "neat" for sustained discussion. Our consideration of "tasks" has already spilled over into consideration of "role" and "persons" and we will find ourselves covering some of the same ground later' (p.1380).

Therefore, rather than try to analyse nursing stress solely in terms of such arbitrary groupings, it will be reviewed with reference to the basic facets of imbalance, information processing, and response generation, which cut across and operate in all settings. By concentrating on psychological process, rather than arbitrary external groupings, one retains contact with the essence of the interactional definition of stress, imbalance, and is able to work from a base on which stress and personality can be linked in the same terms.

C. Stress Amongst Nurses

Nursing has been the subject of a number of studies of occupational stress (Grout, 1980). There has grown a wide acceptance that it is a high stress occupation, in its demands for skilled performance, high work rates, intense interpersonal contact and exposure to situations high in personal meaning, usually in the context of a large bureaucratic organisation (Marshall, 1980). Attention has frequently been drawn to the high levels of absenteeism, staff turnover and burnout observed in nursing (Brief, 1976; Kramer and Baker, 1971; Nichols, G., 1971; Weiland, 1979), which are characteristic of high stress occupations (Kahn, Wolfe, Quinn and Snoek, 1964).

A good proportion of the literature on nursing stress has been based on opinion and surmise. Where measurements have been made they have relied largely on the use of questionnaires to identify and ennumerate the sources of stress perceived by nurses, but there has been little subsequent systematic analysis of the way in which these relate to the underlying processes which must preceed reaction to them.

A detailed exposition of the quantitative findings of previous studies is not warranted, because so many variables operate within an occupational setting that the results of each study will be rather specific to the time and the setting in which it was conducted. Results are likely to vary not only between wards, but also between hospitals, as a result of their organisational structures and climates, staff attitudes, patient backgrounds and so on (Marshall, 1980; Miller, 1976), and also temporally in relation to such factors as changes in leadership (Nichols, Springford and Searle, 1981). One must therefore be cautious in generalising, and prudent in viewing the levels of stress as probably being in a state of continual

fluctuation. However, previous studies have provided an indication of the types of situation which occur in hospital settings, and which will now be subjected to an analysis in terms of the preceeding discussion; that is, in terms of the states of imbalance which must underlie reaction to them.

1. Sources of imbalance between outcomes and expectations

The disconfirmation of expectations by job content has been recognised for some time as a source of job stress, and has been termed role conflict - the extent to which expectations associated with a role are incompatible (Kahn, Wolfe, Quinn and Snoek, 1964; Rizzo, House and Lirtzmann, 1970). Role conflict can arise either when there is a discrepancy between the expectations a person has of their job (role conception) and actual job demands, or when different job demands require the achievement of disparate goals. In either case, satisfaction of one demand requires non-satisfaction of another, or perhaps even some form of punishment, so that an element of imbalance between outcome and goals exists. This will lead to activation of the behaviour inhibition system, and thus to elevated levels of anxiety, and in turn to dissatisfaction and a propensity to leave the organisation. These effects of role conflict have consistently been shown in a number of work settings (Kahn *et al.*, 1964; Rizzo *et al.*, 1970).

Role conflict has been studied specifically in relation to the nursing role (Corwin, 1961; Kramer, 1970; Redfern, 1980). Corwin (1961) identified three major classes of role conception in nurses. They were:

(a) bureaucratic, in which the overall objective is effective administration so that the hospital runs effectively as an organisation,

(b) professional, when the emphasis is on keeping abreast of knowledge in the health care field and applying it in a flexible way to the formulation of strategies, in response to specific patient problems,

(c) service, in which the emphasis is more on the traditional nursing-role involving direct interaction and care of the patient.

These expectation sets are largely a reflection of different emphases during nursing education, and establish a potential for disparity, because in reality nursing demands a range of behaviours,

and therefore goals, which cover all three categories.

Corwin (1961) found the greatest degree of discrepancy between ideal conceptions of a nursing role and reality to occur in the newly graduated nurse, in whom a strong professional orientation had been established. Whereas the nurse with a professional conception of his/her job values the flexible application of professional skills, and tailoring of activity to the needs of the individual patient, the bureaucratic system demands standardisation and rules. An inappropriate role conception will therefore lead to a high probability of non-reward. And consistent with this Redfern (1980) has found voluntary turnover in nurses to be positively related to role conflict, and job tension.

A second source of role conflict in the hospital can stem from multiple lines of authority (Kalisch and Kalisch, 1977; Marshall, 1980; Rizzo et al., 1970). Since authority can be viewed as a system of punishers consequent upon non-compliance, the need to choose between conflicting demands will necessarily result in threat of an aversive outcome, in the form of a punishment, from whichever source of authority has not had its demands met. The professional in organisations with multiple lines of authority frequently experiences stress as a result of being caught between the lines.

Hospitals provide a particularly clear example of multiple lines of authority. Despite the doctor and nurse having so often to act in partnership, interaction between the two has traditionally been a source of role conflict in nursing (Kalisch and Kalisch, 1977; Marshall, 1980). Although teamwork is required the doctors often act independently and with little regard to the goals and aspirations of the nurse as a professional. Furthermore, they are not subjected to the same degree of authority, which would constrain and standardise their behaviour as a congruent and predictable entity in the nurses' world.

If there is lack of clarity and agreement about the exact roles of team members, and about the final objective, there will be behavioural interference between team members, leading to frustrative non-reward, and thence to the natural consequences, anger and conflict.

At the more specific level there are a multitude of actual situations which will lead to behaviour-inhibiting imbalance in the nurses' work setting, in fact, any novel, non-rewarding or aversive input during ongoing behaviour will fall into this category.

Apart from the obstructive behavioural interferences which stem from conflicting organisational demands there are those due to uncooperative patients, interruptions, and from having to work with others who differ idiosyncratically in their approach to work, their motivation, work rate and so on.

Non-reward may also result from a failure of outcomes to materialise, such as deterioration in a patient's condition despite or because of treatment, or an inability to relieve pain.

The nurses' work environment is also full of stimuli which are likely to be aversive; vomit, excreta, mutilation and the emotional expressions of patients, such as those associated with pain or grief. The latter, as innate responses to inner states are likely to intrinsically affect those who perceive them. In units where there is a high rate of patient mortality, exposure to death and dying has been regarded to be an important source of distress, leading to feelings of helplessness and grief in the nurse (Chiriboga, Jenkins and Bailey, 1982; Steffan and Bailey, 1979).

The perception of external conditions as aversive may be modulated by the physiological state of the body. A clear example of this, of particular relevance to nursing, is the state of fatigue, motivating the person to rest, when the need of the body for recuperation will result in an aversiveness of those conditions that demand further activity. And as physiological capacity is partly a function of circadian rhythym this imbalance may be exacerbated by the need to work shifts, particularly when frequent changes in shift mean that there is little chance of synchronising circadian and job-related activity. Thus, although work-load _per se_ is seen as a major source of stress in nursing, adjustment to shifts may also be seen as a contributor (Bailey, Steffan and Grout, 1980; Gray-Toft and Anderson, 1981; Hay and Oken, 1972; Ivancevich and Smith, 1981; Marshall, 1980).

External events may also become aversive when they lack significance and therefore fail to satisfy the basic human need for at least a moderate degree of stimulation. Repetitive jobs which lead to habituation (loss of significance) and tasks not relevant to the nurse's speciality, and which may therefore be of low intrinsic reward, may both be sources of boredom for the nurse.

Although the nurses' environment may be full of obstructive stimuli, to which attack is a natural reaction, of aversive stimuli,

to which escape or withdrawal would be appropriate, and of others such as death or separation, which may evoke reactions of grief or sadness, there is also a system of potential punishers to inhibit the expression of these options. These punishers are set by the complex system of organisational constraints which in effect lead to patterns of behaviour inhibition, directing behaviour as the organisation demands. Thus for many elements in the nursing environment for which the basic fight and flight options are naturally appropriate, there also exist constraints which act to maintain behaviour inhibition and ensure that the nurse at all times gives the impression of being committed, in control, and emotionally uninvolved, even at the cost of suppressing real feelings (Marshall, 1980).

A three-tiered set of factors may therefore act to maintain behaviour inhibition in the nursing environment:

1. The aversive situation
2. The organisational constraints preventing withdrawal (flight)
3. authority, preventing destruction of the constraint (fight)

With the fight and flight categories of response so heavily constrained the freeze option, involving withdrawal within the environment, assumes increasing importance, and the stage is set for depression. These points are summarised in Figure 3.

In actual practice however, this consequence is averted through the extensive use of a variety of coping strategies, such as denial, rationalisation, or the spreading of patient contact so that time spent with any one patient is minimised (Chiriboga et al., 1983; Marshall, 1980; Maslach, 1979). However, such defenses are essentially palliative, as they have no influence on the actual sources of imbalance, and therefore may be maladaptive in the long run. Individuals who use mechanisms such as denial or repression, which evade information, generally show persistent high levels of stress (Heilbrun, 1984).

2. Imbalance between stimulus conditions identifying a goal and conditions of goal attainment.

Identification of a goal creates the imbalance necessary for response organisation, to bridge the gap between conditions identifying the goal and conditions of goal attainment, that is, of

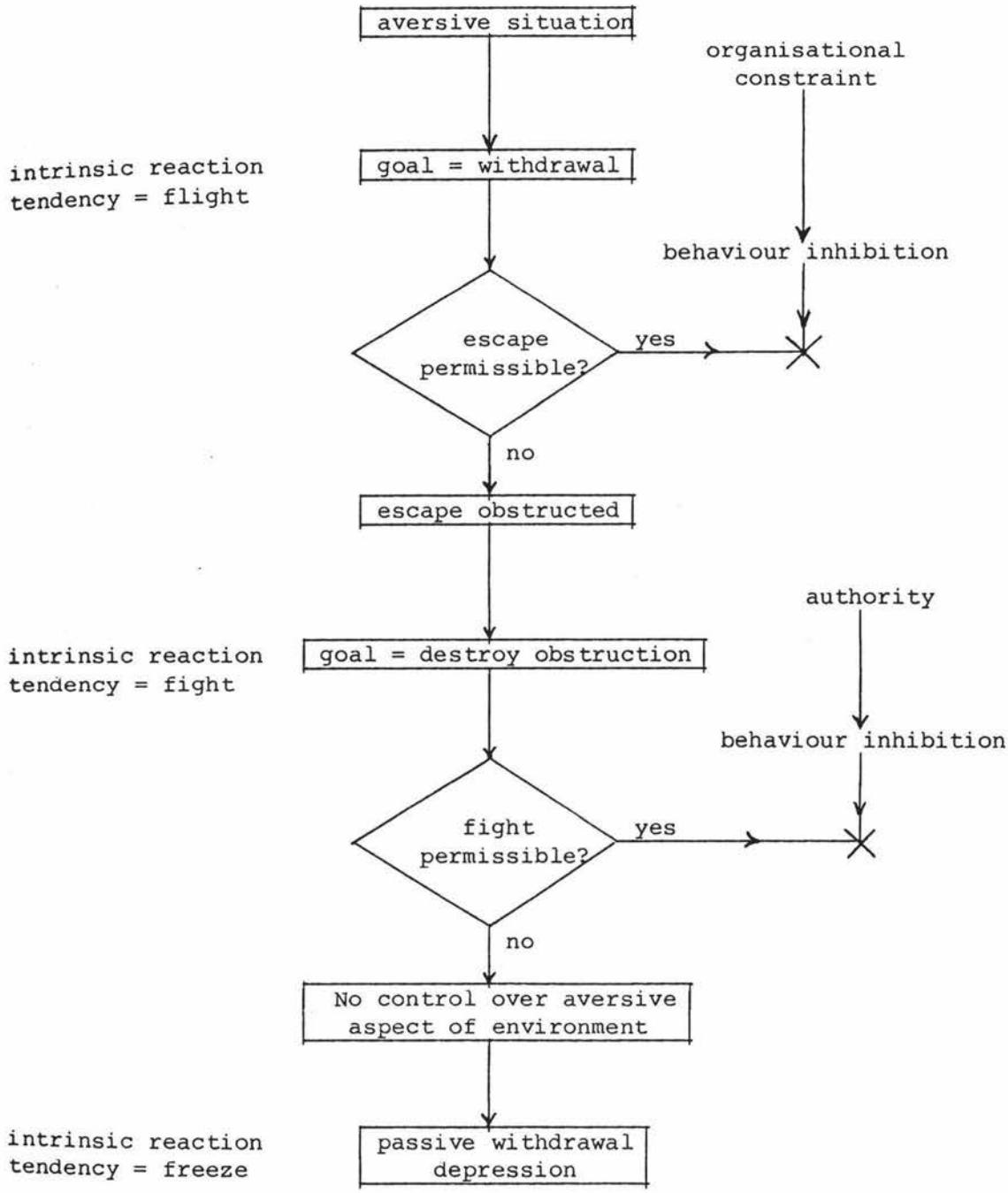

Figure 3. Role of the organisation in the maintenance of behaviour inhibition

task completion. Much of nursing education, like any occupational training, is aimed at establishing relevant motor programmes and providing the information with which these can be generated or modified to meet task demands on the ward.

When a response is not immediately available to deal with an aversive situation, the anxiety which stems from activity of the behaviour inhibition system is coupled with the active cognition required to generate a motor programme, so that a state of worry arises (Eysenck, M., 1983). The degree of worry can be expected to depend on a number of factors:

(a) The degree of aversiveness of the situation. Since degree of aversiveness and arousal will be a function of imbalance, and imbalance underlies process, highly aversive situations are likely to lead to a high level of cognitive activity where an immediate response is not available.

(b) The time within which a response must occur. When time limits for action are imposed, not only must cognition be more intense to organise a response, but the cognitive testing of predictions against goals is likely to be less complete, so that action that does result is more likely to be tinged with uncertainty - residual imbalance - and the anxiety which it generates.

(c) The need for response precision. When a high degree of correspondence between performance outcome and goal is necessary cognitive testing of predicted outcome against goal must be extended to reach the degree of correspondence representing precision.

(d) The clarity of the goal. Where the goal is unclear there will be a degree of uncertainty regarding appropriateness of the response, and thus an inability to predict the consequences of action.

(e) The availability of information about the environment in which the response must occur. If knowledge of conditions is inadequate, selection of the sub-goals and therefore performances necessary to bridge the gap between conditions of goal identification, and goal-attainment, will not be possible. Furthermore, it will be difficult to predict the consequences of action with incomplete knowledge of the conditions under which it must occur.

All of these factors are relevant to the demands for response placed upon the nurse. The consequence of non-response to a patient's needs could be death of the patient, reaction must often be immediate, involving complicated equipment and exact administration of drugs, so

that the informational basis of response may often involve considerable detail. And although nurses are trained to a high degree of skill, the performance therefore expected of them, and its high visibility, makes failure increasingly salient, not only in terms of the nurse's view of his/her own competence, but also in terms of the degree of punishment that can be expected from the hospital organisation (Marshall, 1980).

Because of the importance of processed information to immediate skilled response, and the lack of scope for trial and error learning, the nurse will often perceive various causes of unavailability of information to be sources of stress. Therefore, although emergencies, unexpected crises, critical unstable patients, difficult drugs and equipment, have been identified as sources of stress in nursing (e.g., Steffan and Bailey, 1979), a prominent position has also been given to such factors as unfamiliar situations, inadequate knowledge, decision making, lack of experience and skill, lack of continuing education, unclear requests, lack of training, too many details, confused planning, lack of communication, unclear goals, conflicting requests, and making decisions without adequate information (Bailey et al., 1980; Gray-Toft and Anderson, 1980; Ivancevich and Smith, 1981). Conflicting requests from multiple authorities may also be a source of worry to the extent that there may be concern regarding the possible consequences of choice.

The importance of relevant knowledge to effective organisational behaviour, job satisfaction and stress has been a focus of role theory (Kahn et al., 1964), and related to the term 'role ambiguity', which refers to a lack of information relevant to a given organisational position. Lack of clarity about work objectives associated with a role, about others' expectations of the role, and about the scope and responsibilities of a job, have been shown to be associated with lowered job satisfaction, high job-related anxiety, low self-esteem and a propensity to leave the job (Margolis, Kroes and Quinn, 1974; Rizzo et al., 1970). Lyons (1971) found perceived role clarity (the converse of role ambiguity) to be related negatively to voluntary turnover, propensity to leave, and job tension, and positively to work satisfaction in registered nurses.

The treatment of physical illness will usually involve response to relatively clearly defined conditions. But there is a less tangible component to nurse-patient interaction, involving emotional demands of

the patients and their families. Emotional demands are much more difficult to respond to with confidence, because the appropriateness of response may require recognition not only of the stimulus, but also of its underlying source, for, while emotions are limited in variety, their possible causes are infinite in number. A source of worry for the nurse will therefore be identification of the sub-goals necessary to generate an appropriate response, and he/she may have to make a guess at what is relevant.

Associated with the problem of goal definition in emotional support is the difficulty of predicting the response of the patient or family to attempts to provide support.

Nevertheless, the nurse is often left to carry the emotional "can" for the doctor (Kalisch and Kalisch, 1977; Marshall, 1980), and in repeated close contact with the patients, may be forced into a position of responding in some way to their emotional demands, despite seldom having time to play a counselling role.

Given the uncertainties involved, the response of the nurse to emotional demands is likely to be tentative and tainted with anxiety. But evidence suggests that responses are more often avoidant, and although providing short-term relief for the nurse, are inappropriate for the patient. In a study of the way in which nurses reacted to a patient's wish to talk of the fact that they were dying, only 36 out of a sample of 200 responded with relevant discussion, while most adopted some sort of avoidant response such as reassurance, denial, or changing the subject (Kastenbaum, 1967).

The importance of emotional demands of patients and their families as contributors to nursing stress has received frequent mention (e.g. Bugen, 1979; Marshall, 1980; Maslach, 1979) and recent data (Gray-Toft and Anderson, 1981) indicating that these are a significant component in stress amongst nurses, supports the inclusion of items related to the nurse as a source of emotional support, in nursing stress questionnaires.

Sources of job satisfaction

The role of aversive conditioning in directing organisational behaviour has been alluded to. But direct rewards are also important in maintaining this behaviour and are the source of job satisfaction which stems from the congruence of outcomes and role expectations. Primary rewards of this type will stem from improvements in a

patient's condition and/or mood, for instance, but secondarily there is the reward that stems from patient and family gratitude (Bailey et al., 1980; Marshall, 1980).

The hospital organisation can also be a source of reward, by giving positive feedback, such as recognition of the value of a job well done.

Non-reward has been identified as a condition which activates the behaviour inhibition system, so that lack of feedback from other staff to the nurse is a potential source of behaviour inhibition, and has been identified as a source of stress in work settings, relating to role ambiguity (Rizzo et al., 1970). Such feedback is important not only in indicating that expectations have been met, but also in shaping the nurses' skills, and therefore the information base already identified as crucial to release from behaviour inhibition.

Personality and stress in nurses

There has been very little published on the personality characteristics of nurses in relation to stress. The few exceptions have involved measures of trait anxiety (Gentry et al., 1972; Gray-Toft and Anderson, 1981; Gross and Brown, 1967; Maloney, 1982).

Gray-Toft and Anderson (1981) found trait anxiety to have a significant although modest correlation with total stress scores ($r=+.39$, $p<.01$) and with job satisfaction ($r=-.24$ $p<.01$). They suggested that differences in trait anxiety between staff on different units might be a factor contributing to differences in stress experienced on the units. Maloney (1982) found that trait anxiety was lower in intensive care than in non-intensive care nurses. Both of these studies are consistent with an earlier suggestion (Gentry et al., 1972) that nurses with specific characteristics are attracted to particular types of unit. If this is the case, reported differences in the levels of stress experienced in different settings must be determined not only with respect to setting, but also in terms of the types of people which make up their staff.

If the nurses' selection of their work location within the hospital does indeed result in some sorting of personality types, it implies that in hospitals such as that studied in this thesis, where placement is largely directed by the administration, nurses are less likely to be located in an environment compatible with their

personalities. In this case incompatability is likely to be more prevalent and personality likely to show a stronger relationship to stress, than in hospitals where nurses have some control over their placement.

In studies such as the one to be described in this thesis, where settings are compared within a single hospital, and the numbers involved are therefore low, it is imperative that variation arising from individual differences in responsiveness to aversive conditions be accounted for.

Stress in different hospital settings

Various hospital wards can be expected to differ for a number of reasons. The types of case that they are specialised to accommodate will bring their own patterns of aversive element into the environment and make their own particular demands on the nursing staff. For instance, intensive care is held to be characterised by high work loads, a high level of instrumentation, anxious families, and little in depth interpersonal interaction with patients (Hay and Oken, 1972; Maloney, 1982; Steffen and Bailey, 1979), while Oncology typically involves long term, close, interpersonal contact with patients, and a high level of exposure to the impact of dying on them (Chiriboga *et al.*, 1982). Staff on both of these units are exposed to a high patient mortality rate, and supposedly suffer a high level of distress as a result (Chiriboga *et al.*, 1982; Maloney, 1982), whereas those in a surgical unit would not be exposed to the same degree.

The structure of work environments will differ according to speciality, thus affecting the ease with which necessary responses can be generated to attain goals. For instance, in intensive care response may involve rather complex equipment which would not be encountered on other wards (Hay and Oken, 1972). In terms of physical layout the structure of the ward may act to impede or facilitate nursing activity. In older units a greater degree of effort may be required to complete tasks than on newer well designed units, and this may account for differences in apparent job stress observed between old and new units in one study (Gray-Toft and Anderson, 1981).

The pattern of constraint and punishment may also vary as a function of the personality of those in authority in the different wards, so that otherwise similar wards may differ considerably in their interpersonal climates (Nichols *et al.*, 1981).

Most studies of stress in nurses have concentrated on individual units such as intensive care (Grout, 1980; Hay and Oken, 1972; Steffan and Bailey, 1979), coronary care (Cassem and Hackett, 1972), neural care (Wertzel, Volliath, Ritz and Feiner, 1977) and oncology (Klagsbrun, 1970; Newlin and Wellisch, 1978). There have been very few studies which have compared settings in terms of either experienced stress or sources of stress.

In a comparison of five units (medicine, surgery, cardiovascular surgery, oncology and hospice) in a private American hospital, Gray-Toft and Anderson (1981) found the hospice to show the lowest level of stress and medicine the highest, when stress was measured as frequency with which various situations were experienced as stressful. Differences in satisfaction between units appeared to be related to the general work environment of the unit and supervision received. Comparison of means to identify sources of significant difference were, however, not made. Three major sources of stress were identified: work load, feeling inadequately prepared to meet the emotional demands of patients and their families, and death and dying. The low levels of stress in the hospice were attributed to the fact that it was a new unit, with a high staff-patient ratio, and with staff who had been specially recruited and trained to work with dying patients and their families. Differences amongst the units suggested a need for further study of structural characteristics of units that may affect amount of role conflict and ambiguity which staff experience, and personality characteristics which may attract nurses to specific units.

Maloney (1982) compared intensive care and non-intensive care nurses, and found no difference between the two groups in overall job dissatisfaction. However, non-intensive care nurses showed a greater dissatisfaction with work load than intensive care nurses, so, in this respect the findings did not support the commonly expressed view that intensive care units typically impose higher work loads than other units.

In an investigation of distress and discontent in various types of nursing Nichols et al. (1982) compared intensive care, medical, surgical and two renal units using a short questionnaire (13 questions). Only one ward was significantly different from others, and that was one of the renal units, known to be in a state of crisis, due to changes in both medical and nursing leadership which had

occurred just prior to the study. This indicates a fluidity in stress patterns and suggests that such studies are specific not only with respect to location, but also with respect to time.

Patterns of experience in New Zealand Hospitals

There have been no systematic studies conducted on the patterns of stress encountered by nurses in New Zealand hospitals. As discussed, there have been a small number of comparative studies conducted overseas, but even so, the differences between health care systems, the administrative patterns in different hospitals, the physical structure of different wards, and the composition of their staff at any time, ensures that there is limited validity in applying the findings from one hospital to another, particularly when they are in different countries.

Scope of the present research

So far, an attempt has been made to define sources of stress in terms of the imbalances which drive person-environment interaction, thus linking them to some of the underlying processes which govern behaviour, and therefore the expression of personality difference. In doing so stress has been discussed within the framework of a general model of behaviour, which, it was argued, provides an appropriate context for the analysis of stress, because there is no fundamental difference between 'stress related' and other behaviours; they differ only in degree.

Of the three primary objectives stated at the start of this thesis, one has already been addressed, namely the development of a psychologically relevant framework in which to view occupational stress. This interpretive framework was applied to nursing, thus setting the scene for pursuit of the remaining two objectives, namely:

1. definition of the patterns of experience of nurses with respect to setting, involving the measurement of differences between several hospital wards, including Oncology.

2. definition of the patterns of experience with reference to differences in personality between individuals.

The conduct of this study was subject to a number of constraints arising from the fact that it was carried out at the behest of the

palmerston North Hospital administration.

These constraints included:

1. a need for the study to be conducted with minimum delay,

2. the need to make do with the relatively small numbers of subjects in the settings approved for study, and confined to the one hospital,

3. a requirement that the nurses' duties be interfered with as little as possible, thus preventing a thorough observer-based job analysis, extensive interviewing, or the collection of physiological data.

4. a need for much of the data to be of direct interest to the hospital administration.

Thus, although it was necessary for the study to be conducted almost entirely by questionnaire it was not possible to develop and test an instrument specifically for this research. For this reason it was necessary that some degree of job analysis and validation be built into the questionnaire. A partial job analysis was obtained by asking subjects to rate both frequency and stressfulness of events in the various settings. Validation was achieved with several standard stress-related measures (well-being, state anxiety and depression) and from intercorrelation of a number of independent stress indices derived from the questionnaire data. The methods used will be described later in detail, but in summary they included assessment of the significance of various aspects of the hospital environment as sources of stress, measured in terms of perceived frequency, stressfulness, and emotional reaction to relevant events, perceived stressfulness of ongoing job conditions, as well as in terms of role conflict. Overall reaction to various work settings was determined on a variety of measures. These included mood at shift end, propensity to leave the job, perceived overall stressfulness of the job, and other indices of stress derived from the events and job conditions data, as well as from scores on standard tests of well being, state anxiety and depression. The personality variables extraversion, neuroticism, trait anxiety, self esteem and locus of control were also measured.

METHOD

Sample. The study was conducted on nursing staff in seven wards of the Palmerston North Public Hospital. The wards involved included two surgical (SURG 1 and SURG 2), a general medical (GMED), Oncology (ONCOL), Intensive care (ICU), Coronary care (CCU) and Women's Medical (WMED). Response to the questionnaire, sample sizes, and categories of nurses involved are summarised in Table 1.

Instruments

The main study was conducted entirely by questionnaire in the form of two booklets. Booklet 1 was constructed for this study and is included in its entirety in Appendix A. Booklet 2 contains the standard psychological tests.

1. Booklet 1. Booklet 1 did not take its final form until after the incorporation of changes suggested in a pilot run on three wards not involved in the main study. It contains six sections.

Section 1A (Biographical) contains items relating to status, time on ward, experience and age, which could act as moderator variables.

Section 1B (Job events) contains 57 items derived from several published questionnaires (Bailey et al. 1980; Gray-Toft and Anderson, 1981b; Ivancevich and Smith, 1981) and others suggested in reading, and in conversation with staff who had previously worked on the wards under study, or who had taken part in the pilot study. In the piloted version of the questionnaire separate scores for stressfulness of the event when experienced, and for its overall contribution to job stress were sought. However, as the two scores were generally almost identical a single score for stressfulness was used in the final version.

Section 1C (Emotional reaction to job events) asks subjects to indicate the type of emotion which they experience on any event which they perceive as either very or extremely stressful (score of 3 or 4).

TABLE 1 SAMPLING OF NURSES USED IN STRESS STUDY

	WARD						
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED
NUMBER RESPONDING (SAMPLE SIZE)	16	11	11	10	8	5	6
% RESPONDING	89	78	65	71	80	55	67
NURSE TYPE IN SAMPLE							
(a)CHARGE	1	1	0	2	1	0	1
(b)STAFF	12	8	10	8	7	5	3
(c)ENROLLED	3	2	1	0	0	0	2

Section 1D (Job conditions) contains 41 items derived partly from the published questionnaires in nursing stress, and partly from more general studies on role conflict, ambiguity, and job satisfaction (Kahn, et al., 1964). Others were suggested in a variety of general articles on nursing stress, and by staff not involved in the main study, but including those involved in the pilot study.

Section 1E (Sources of satisfaction) contains 12 items derived largely from the study of Bailey et al. (1980) but reworded in terms of events, making possible the assignment of scores for frequency as well as for degree of satisfaction.

Section 1F (General) contains a variety of items. The question numbers and variables to which each relate are as follows.

1F(1); feelings of the nurses at the end of their shifts. This question was modelled on one used by Nichols et al. (1981) in an investigation of distress and discontent in various types of nursing.

1F(2) and (3); the presence or absence of informational and social support respectively.

1F(4); tone of life outside the hospital as a possible contributor to susceptibility to job stress.

1F(5); propensity to leave either the particular ward, the type of ward, the hospital or the occupation.

1F(6); actual intention to leave, and by relating to question 1F(5), the particular option chosen.

1F(7); the relative stressfulness of different wards perceived by individuals who have worked in more than one of the locations under study.

1F(8); overall stressfulness of the job, measured on the same 0-4 scale used in the job events and job conditions sections, thus providing another measure of job stress.

1F(9); the presence of individuals in whom strong religious beliefs might be used as a source of support.

1F(10); the extent of role conflict experienced by nurses, measured as the discrepancy between the ideal and actual parts that bureaucratic, professional and service roles respectively, play in their job.

1F(11); the extent to which job related worry continues beyond

the work place.

1F(12); which, if any, aspects of the job are the cause of worry off the job.

1F(13); reason for choice of job. This question is thus related to work expectations.

1F(14); major aspects of work which the nurses have identified as contributing to job stress. This provided a concrete basis for recommendations to the hospital administration.

1F(15); which aspects of the job are salient to an individual but not already covered in the questionnaire.

This study was conducted partly to obtain data of interest to the hospital authorities, so that although the entire questionnaire is included in Appendix A, not all of the data obtained were included for analysis here.

2. Booklet 2

Booklet 2 contains six standard questionaires.

Section 2A is the 12 item version of the General Health Questionnaire (GHQ) (Goldberg, 1972) designed to measure 'general well-being' and providing an indication of mild degrees of depression.

Section 2B contains the Eysenck Personality Questionnaire (EPQ), containing 90 items from which scores for extraversion (EPQ.E) and neuroticism (EPQ.N) were obtained (Eysenck, H. and Eysenck, S.B.G., 1975).

Section 2C is the State-Trait Anxiety Questionnaire developed by Speilberger, Gorsuch and Lushene (1970). It is in two 20 item parts. The first (STAI.X1) measures state anxiety by asking subjects to indicate the intensity of their feelings of anxiety at the particular moment on a 4 point Likert scale, and the second (STAI.X2) which measures trait anxiety, asks respondents to indicate on a 4 point scale the frequency with which they have experienced specific anxiety symptoms.

Section 2D contains the Coopersmith Self Esteem Inventory (SEST) (Coopersmith, 1967). It contains 32 items but can be used in a shortened form which includes only 25 of the original items. Scores were obtained for both forms but were highly correlated ($r = +.98$), so

that only scores from the shortened form were included in analysis of results.

Section 2E is the 21 item Beck Depression Inventory (BECK) (Beck, 1967) giving a measure of more severe depression than provided by the GHQ, and is commonly used in clinical settings.

Section 2F is Rotters Internal-External Locus of Control Scale (LOCUS) (Rotter, 1966), containing 29 items and measuring the degree to which individuals attribute the cause of events to themselves (internal locus of control) or to external circumstances (external locus of control). High scores are indicative of an external locus of control, and low scores an internal locus.

Administration. The booklets were delivered in plain franked envelopes, and returned by mail. An assurance of complete anonymity was given, and the identity of respondents not sought at any stage.

Indices of stress. Scores were calculated for each individual on a number of possible indices of stress. They included:

(1) The frequency of events which they experienced, totalled over all items (Section 1B).
(2) Their total stress score on all items (Section 1B).
(3) Their total stress score on all job conditions (Section 1D).
(4) The total frequency with which they experienced any of the negative feelings at the end of their shift (Question 1 F(1)).
(5) Their rating of overall job stressfulness (Question 1 F(8)).
(6) Their degree of well-being as measured by their GHQ score.
(7) The level of depression as measured by their BECK score.
(8) Their level of state anxiety as indicated by their (STAI.X1) score.

Statistical Analysis

Comparison of wards

Differences between wards, in frequency and stressfulness of job events (Section 1B), stressfulness of job conditions (Section 1D), and frequency and degree of satisfaction (Section 1E) were determined for each item. Wards were also compared in terms of frequency of particular feelings at end of shift (Question 1 F(1)), levels of each type of role conflict measured (Question 1F(10)), on factor scores derived from principal components analysis, on scores from all of the

standardised personality tests contained in Booklet 2 and on all indices of stress listed in the previous section. Significance of differences was determined by one-way analysis of variance using the SPSS subprogramme ONEWAY (Kim and Kohout, 1975) and the sources of significant difference identified using a subsequent Scheffé test for *a posteriori* pair-wise comparison of means.

The F and *p* values obtained from the one-way analyses of variance were not adjusted for the increase in probability of Type II error (failure to reject a false positive) as a function of the number of analyses conducted. With those items for which the omnibus F value was significant, isolation of the sources of significant difference involved analytical comparison of all possible pairs of ward means for each item, using the Scheffé test for *a posteriori* comparison. At this stage, use of the Scheffé test provides a stringent correction for the additional probability of Type II error associated with the multiple pairwise comparisons, as well as being an accurate test where sample sizes differ.

Factor analysis

Scores for stressfulness of job events (Section 1B) and job conditions (Section 1D) were subjected to principal components analysis using the SPSS subprogramme PA1, involving principal factoring without iteration (Kim, 1975). A scree plot of component by proportion of total variance accounted for, suggested that by convention (Gorsuch, 1983), two factors be retained for both events and job conditions. Subsequent analysis with two factors and varimax rotation (Kim, 1975) provided item loadings on each factor, and factor scores for each individual, for further analysis.

Relationships between variables

Relationships between variables were determined as the correlation coefficients (Pearson's r), and the significance of the relationship established by linear regression analysis, using dummy coding where appropriate. In this way the degree of relationship between the various stress indices, between personality test scores (EPQ.E, EPQ.N, STAI.X2, SEST, LOCUS), between stress indices and personality test scores, between personality test scores and factor scores from principal components analysis, between factor scores and stress

indices, and between stress indices and a variety of possible moderator variables, was established.

RESULTS

Table 1 (p.31) shows the percentage response, and the numbers in each category of nursing staff (charge, staff, and enrolled) on each ward responding to the questionnaire. Response rate was reasonable considering that participation was voluntary, although actual numbers in each sample were low, particularly on the Coronary Care, Surgical-2, and Women's Medical wards. Charge, staff, and enrolled nurses did not differ on a number of the indices of stress (Appendix C, Table C1). On all other measures charge and enrolled nurses fell well within the range of scores of staff nurses, and were numerically a small proportion of the total sample, so that the three categories were combined as a single sample prior to analysis.

Job events

Results of one-way analyses of variance of frequency and stressfulness of job events (Section 1B) by ward are shown in Table 2. All items are listed in Appendix A. Mean frequencies were on the whole low, with only three events averaging greater than 3 (occurring 1-3 times per week). These were item 4 - 'Your work is interrupted', item 15 - 'You use a procedure which causes the patient pain', and item 45 - 'You interact closely with a patient who is frightened about the outcome of their condition', and all were considered to be only moderately stressful. The wards did not differ in either frequency or stressfulness of these events. Thirty-four of the fifty-seven events occurred less frequently than once per week.

Nineteen events were rated to be more than moderately stressful (score > 2) but none to be very stressful or more (score > 3), and only four scored greater than 2.5 on stressfulness.

Tables 3 and 4 are essentially abstractions from Table 2, but with items ranked and identified. As there were few high means, only the ten events occurring most frequently overall, ranked by frequency, and their corresponding stressfulness scores are summarised in Table 3. Similarly the most stressful items overall, ranked by stressfulness, and their corresponding frequency scores, are shown in Table 4.

Of the ten most frequent events shown in Table 3, only one (item 35) was also amongst the ten most stressful, shown in Table 4. The lack of relationship between frequency and stress suggested in Tables

TABLE 2 JOB EVENTS: OVERALL MEANS, F RATIOS AND SIGNIFICANCE LEVELS FROM ONEWAY ANALYSES OF VARIANCE OF FREQUENCY AND STRESSFULNESS BY WARD #

	(A)FREQUENCY				(B)STRESSFULLNESS			
EVENT	MEAN (ALL WARDS)	F(6,60)	p		MEAN (ALL WARDS)	F(6,60)	p	
1	1.88	0.19	.978		0.76	1.36	.25	
2	2.90	1.31	.27		1.97	1.66	.15	
3	2.36	0.37	.11		2.21	.82	.56	
4	5.74	1.45	.21		2.00	1.83	.11	
5	2.60	1.92	.09		1.03	1.72	.13	
6	2.69	0.48	.81		1.16	1.27	.28	
7	2.21	0.77	.59		1.87	.66	.68	
8	1.84	4.38	.001	**	1.15	.31	.93	
9	2.11	3.39	.006	**	0.96	.76	.61	
10	2.19	1.37	.24		2.21	.73	.63	
11	2.33	4.16	.0015	**	2.12	4.04	.002	**
12	1.37	1.01	.42		2.07	1.63	.16	
13	2.04	1.20	.32		1.70	1.82	.11	
14	1.79	1.50	.19		1.78	2.69	.02	*
15	3.22	0.62	.71		2.19	1.57	.17	
16	1.28	1.89	.10		1.75	.57	.75	
17	1.73	0.35	.91		1.84	1.11	.37	
18	2.99	3.55	.005	**	2.19	.66	.68	
19	1.54	4.49	.0008	***	2.40	.54	.78	
20	2.55	9.83	.0000	***	1.73	2.51	.03	*
21	1.46	3.39	.006	**	2.39	1.66	.15	
22	1.25	1.26	.29		2.57	.30	.93	
23	1.93	1.20	.32		2.00	1.83	.11	
24	1.64	1.24	.30		1.81	.58	.74	
25	0.99	3.18	.009	**	1.58	1.21	.31	
26	0.87	3.97	.002	**	1.31	1.05	.40	
27	0.68	1.82	.110		1.55	1.67	.14	
28	1.25	2.03	.076		2.16	.88	.51	
29	0.97	1.49	.198		1.82	1.58	.17	
30	1.97	1.85	.10		1.97	.75	.61	
31	1.57	1.94	.089		2.27	1.03	.41	
32	2.82	0.86	.53		1.75	.31	.93	
33	1.58	2.74	.02	*	2.03	2.26	.05	
34	0.66	1.66	.146		0.96	1.96	.09	
35	2.70	1.88	.10		2.57	1.00	.43	
36	1.79	2.98	.013	*	1.19	.42	.86	
37	2.90	8.43	.0000	***	1.72	.38	.89	
38	0.97	1.24	.30		1.12	5.31	.0002	***
39	2.40	2.51	.03	*	2.51	2.24	.05	
40	1.90	1.98	.08		2.73	1.82	.11	
41	2.18	6.92	.0000	***	2.28	.71	.64	
42	2.66	2.17	.058		1.79	.81	.56	
43	1.15	0.85	.54		1.69	.79	.58	
44	1.84	3.41	.006	**	1.78	.28	.95	
45	3.22	1.30	.27		1.75	.35	.90	

(Continued)

TABLE 2 (Continued)

46	2.39	5.81	.0001	***	1.99	.38	.89
47	1.16	2.08	.069		1.39	1.36	.25
48	1.76	3.89	.002	**	1.31	1.18	.33
49	2.12	2.76	.02	*	1.72	.70	.65
50	1.03	0.90	.50		2.01	.35	.90
51	0.60	3.54	.0045	**	0.75	2.11	.07
52	1.03	2.64	.024	*	1.64	1.08	.38
53	1.31	2.28	.047	*	1.72	.87	.53
54	1.36	0.18	.98		1.51	.20	.98
55	1.18	3.46	.0054	**	1.57	2.02	.08
56	1.73	1.55	.177		1.75	.43	.86
57	2.34	2.08	.07		1.70	.89	.51

* p<.05, ** p<.01, *** p<.001.
# Sources of significant difference shown in Table 5.

TABLE 3 JOB EVENTS: OVERALL STRESSFULNESS MEANS
IN ORDER OF EVENT FREQUENCY

RANK	FREQ	STRESS	ITEM
1	5.75	2.00	(4) Your work is interrupted.
2	3.22	1.75	(45)You interact closely with a patient who is frightened about the outcome of their condition.
3	3.22	2.19	(15)You use a procedure which causes a patient pain.
4	2.99	2.19	(18)You look after a patient who is in a critical and unstable condition.
5	2.90	1.72	(37)You deal with a patient who has an advanced degenerative illness.
6	2.90	1.97	(2) You have to work with unclear directions.
7	2.82	1.75	(32) A patients family looks to you for emotional support.
8	2.70	2.57	(35)You want to give a patient emotional support but are too busy.
9	2.69	1.16	(6) You have to work with staff who operate differently from you.
10	2.66	1.79	(42)You interact closely with a patient who is depressed.

TABLE 4 JOB EVENTS: OVERALL FREQUENCY MEANS
IN ORDER OF STRESSFULNESS

RANK	STRESS	FREQ.	ITEM	
1	2.73	1.90	(40)	You try unsuccsessfully to releive a patients constant severe pain.
2	2.57	2.70	(35)	You want to give a patient emotional support but are too busy.
3	2.57	1.25	(22)	A patient with whom you have a close relationship dies.
4	2.51	2.40	(39)	You deal with a patient who is in constant severe pain.
5	2.40	1.54	(19)	You think your patients life is being unnecessarily prolonged.
6	2.39	1.46	(21)	A patient dies unexpectedly.
7	2.28	2.18	(41)	You interact closely with a patient who is uncooperative.
8	2.27	1.57	(31)	You have to break bad news of a patient to his/her family.
9	2.21	2.19	(10)	You have to make a difficult (critical) decision.
10	2.21	2.36	(3)	Someone with special knowledge is not available when required urgently.
11	2.19	3.22	(15)	You use a procedure which causes a patient pain.

3 and 4 was confirmed by regression of overall means of frequency against stressfulness of each item, giving a non-significant correlation of $r = .21$ ($r^2 = .044$, $F(1,35) = .065$, $p > .05$).

To identify the actual sources of significant difference between wards, items which gave a significant omnibus F value on one-way analysis of variance (Table 2) were reanalysed, using the Scheffé procedure for pair-wise comparison of means. Sources of significant difference for both frequency and stressfulness (indicated in Table 2) which retained significance on the subsequent Scheffé tests for a posteriori contrasts, are shown in Table 5. Of the items which differed significantly in frequency between wards only five of them (events 11, 18, 19, 21, 41; identified in Table 5) were considered to be, on average, more than moderately stressful, and of those only item 11 - 'deterioration in a patient's condition despite treatment' also showed a difference in stressfulness between wards. Nurses on the Oncology ward experienced a relatively high frequency of deterioration in a patient's condition despite treatment, but they did not experience a significantly elevated level of stress as a result. In contrast, nurses in Surgical-1 did experience a high level of stress from this source, even though they experienced it with a significantly lower frequency than the Oncology nurses.

Table 5 also shows that Oncology nurses experienced a relatively high frequency of dying patients (Item 20), advanced degenerative illness (Item 37), and patients with nothing left to look forward to (Item 46). Intensive Care nurses on the other hand experienced a relatively high frequency of use of difficult equipment (Item 8), critical unstable patients (Item 18) and unexpected deaths (Item 21). Womens Medical proved to be the most prolific source of high scores amongst the sets of significantly different means, experiencing a relatively high frequency of six events, namely, unnecessarily prolonged life (Item 44), advanced degenerative illness (Item 37), uncooperative patients (Item 41), resentful patients (Item 44), patients with nothing left to look forward to (Item 46) and disrespectful junior staff (Item 51). Nurses on this ward also experienced a relatively high level of stress as a result of medical conditions which they found offensive, although these were not experienced with differing frequency between wards.

Low frequencies of certain events were experienced by Surgical-1 and Coronary Care, namely, deterioration despite treatment (Item 11),

TABLE 5 JOB EVENTS: SOURCES OF SIGNIFICANT DIFFERENCES BETWEEN WARDS

EVENT	WARD						
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED
(A)FREQUENCY							
8	1.31 *	1.18 *	1.45	3.50 **	2.75	1.20	1.67
11	1.88 *	2.36	3.00 **	2.70	1.75 *	2.20	2.50
18	2.63 *	2.18 *	3.18	4.80 **	2.88	2.20	2.83
19	0.94 *	1.82	1.73	1.80	0.75 *	1.80	2.67 **
20	1.81 *	2.64 *	4.55 **	2.20 *	1.50 *	2.60	2.67
21	1.06 *	1.55	1.45	2.00 **	1.75	1.00	1.50
26	1.38 **	0.73	1.00	0.40	0.13 *	0.80	1.33
37	2.13 *	2.27 *	5.18 **	2.20 *	0.75 * *	4.00	5.00 **
41	1.63 *	3.09	1.81 *	2.00 *	1.50 *	1.60 *	4.33 **
44	1.44 *	2.00	2.27	1.50	1.38	1.40	3.33 **
46	1.75 *	2.64	3.27 **	2.00 *	1.00 * *	2.40	4.50 **
51	0.44 *	0.64	0.18 *	0.40 *	0.75	0.60	1.83 **
(B)STRESSFULLNESS							
11	2.81 **	1.55 *	2.00	2.10	2.25	1.20 *	2.17
38	1.06	2.00	0.36 *	0.40 *	1.00	0.80	2.67 **

*,** - * denotes mean which differs significantly from that marked ** in the same row ($p<.05$, Scheffé).

(Continued)

TABLE 5 (Continued)

ITEM
(8) You have to use difficult equipment.
(11) Your patients condition deteriorates despite treatment.
(18) You look after patient in critical unstable condition.
(19) You feel your patients life is being unnecessarily prolonged.
(20) You have to look after a dying patient.
(21) A patient dies unexpectedly.
(26) You withold important information.
(37) You deal with patient who has advanced degenerative illness.
(38) Your patient has a medical condition that you find offensive.
(41) You interact closely with a patient who is uncooperative.
(44) You interact closely with a patient who is resentful.
(46) Your patient seems to have nothing left to look forward to.
(51) A junior staff member is disrespectful to you.

unnecessarily prolonged life (Item 19), dying patients (Item 20), advanced degenerative illness (Item 37), uncooperative patients (Item 41) and patients with nothing left to look forward to (Item 46).

A high degree of variability in scores for both frequency and stressfulness of events can be seen in the raw data matrices (Tables B1 and B2, Appendix B) and in the standard deviations shown in Tables B3 and B4 of Appendix B. Standard deviations for the frequencies of only the ten most frequent events overall, and for stressfulness of only the ten most stressful events overall are shown, but the high degree of variability over all events and job conditions can be appreciated from inspection of the raw data matrices.

Emotional reaction to events

The percentage of each type of emotional reaction occurring in response to each of the most stressful events overall (Booklet 1, Section C), that individuals experienced as very or extremely stressful, are shown in Table 6. For clarity, values of less than 10% have been omitted. Anger, annoyance and frustration tended to occur together, as reaction to absence of someone with special knowledge when required urgently (Item 3), unnecessarily prolonged life (Item 19), being too busy to give emotional support (Item 35), and uncooperative patients (Item 41). Fear and/or anxiety was experienced as a result of absence of someone with special knowledge when required urgently (Item 3), difficult (critical) decisions (Item 10), and breaking bad news of a patient to their family (Item 31).

With all of the events of Table 6 where sadness or grief was felt it was also associated with helplessness. These events included causing or being unable to relieve pain (Items 15, 39, 40), unnecessarily prolonged life (Item 19), unexpected death (Item 21), death of a patient with a close relationship to the nurse (Item 22), breaking bad news of a patient to their family (Item 31), and being too busy to give emotional support to a patient (Item 35). Frustration in the absence of anger occurred with the inability to relieve pain (Items 39, 40). Guilt was associated with causing pain (Item 15), unnecessarily prolongation of life (Item 19), and being too busy to give emotional support (Item 35).

To see whether affective state had influenced experience of emotions a comparison was made of high (> 12) and low (0) scorers on the Beck depression inventory. The results showed that there was no

TABLE 6 EMOTIONAL REACTIONS TO EACH OF THE MOST STRESSFULL EVENTS OVERALL: PERCENTAGE DISTRIBUTION OF FEELINGS FOR EACH EVENT WHEN EXPERIENCED AS EXTREMELY STRESSFULL OR VERY STRESSFULL*

	FEELING										
EVENT	a	b	c	d	e	f	g	h	i	j	q
3	10.6	14.9	-	14.9	19.1	34.0	-	-	-	-	-
10	-	-	21.9	56.3	-	-	-	-	-	-	-
15	-	-	-	-	17.0	-	19.1	-	-	23.4	-
19	17.7	-	-	-	13.9	17.7	22.8	-	-	11.4	-
21	-	-	-	-	15.5	-	32.8	22.4	-	-	-
22	-	-	-	-	12.7	-	41.3	33.3	-	-	-
31	-	-	-	22.4	13.8	-	43.1	-	-	-	-
35	17.9	16.8	-	-	11.6	20.0	10.5	-	-	16.8	-
39	-	-	-	10.4	23.4	20.8	20.8	-	-	-	-
40	-	-	-	-	28.9	25.8	11.3	-	-	-	-
41	22.9	35.4	-	-	-	27.1	-	-	-	-	-

a = anger, b = annoyance, c = fear, d = anxiety, e = helplessness, f = frustration, g = sadness, h = grief, i = disgust, j = guilt, q = don't know, but feel bad.
* Figures of less than 10% have been omitted.

difference between the two groups in the tendency to experience helplessness (means; high=15.8%, low=22.4%: $F(1,16) = 0.11$, $p>.05$), anger (means; high= 5.3%, low=11.9%: $F(1,16) = 0.16$, $p>.05$), or sadness (means; high=24.5%, low=13.2%: $F(1,16) = 3.12$, $p>.05$).

Job conditions

Scores for job conditions (Booklet 1, Section D) were subjected to the same series of procedures as job events, that is, one-way analysis of variance to obtain an omnibus F value (Table 7), ranking and identification of the most stressful items (Table 8), and identification of the sources of significant difference with the Scheffé test (Table 9).

Job conditions were given low stressfulness ratings on average (Table 7). Only two conditions 'Too great a work load for high quality work' (Item 23), and 'Inadequate staffing' (Item 25) were experienced to be on average more than moderately stressful. Only four of the remaining thirty-nine items scored more than 1.5, midway between moderately and slightly stressful, and they related to 'unresponsive hospital hierarchy' (Item 8), 'workload too heavy' (Item 32), 'having to work close to death and illness' (Item 40), and 'depressed patients' (Item 41).

The ten most stressful job conditions overall, ranked by stressfulness, are summarised in Table 8.

A large number of significant differences between wards are indicated in Table 7, and the sources of those which retained significance on a subsequent Scheffé test are shown in Table 9. The most striking feature of Table 9 is that the significance of difference between wards can be attributed to elevated stress scores on the Women's Medical ward, for eight of the nine job conditions shown. Three of those were rated as very stressful or more by the Women's Medical nurses, namely, 'poor communication' (Item 16), 'poor morale' (Item 19), and 'work area poorly designed' (Item 31). Others were rated about moderately stressful, and included 'lack of policies and guidelines' (Item 7), 'inadequate resources' (Item 22), 'work area overcrowded' (Item 30), 'boring jobs' (Item 34) and 'gloomy atmosphere' (Item 35). As well as scoring higher on Women's Medical than on other wards, Items 31, 19, and 16 were also amongst the five most stressful job conditions on Women's Medical, with the remaining two (Items 23 and 25) relating to work load.

TABLE 7 JOB CONDITIONS: OVERALL MEANS, F RATIOS AND SIGNIFICANCE LEVELS FROM STRESSFULNESS BY WARD ONEWAY ANALYSES OF VARIANCE #

JOB CONDITION	MEAN (ALL WARDS)	F(6,60)	p	
1	.69	2.53	.03	*
2	.64	.85	.54	
3	.45	.64	.70	
4	.52	1.87	.28	
5	.21	.87	.52	
6	.72	.98	.45	
7	.55	5.20	.0002	***
8	1.82	.26	.95	
9	1.48	.74	.62	
10	.91	2.65	.024	*
11	.73	1.11	.37	
12	1.00	.45	.85	
13	1.03	.44	.85	
14	.90	.55	.77	
15	.49	.28	.94	
16	1.39	4.91	.0004	***
17	.90	2.04	.074	
18	1.49	2.09	.067	
19	1.03	3.70	.003	**
20	.51	.51	.80	
21	.73	.56	.76	
22	.51	3.64	.0038	**
23	2.33	3.41	.0058	**
24	1.00	1.74	.13	
25	2.40	1.96	.086	
26	1.22	2.38	.0397	*
27	1.42	1.78	.12	
28	.27	2.39	.0387	*
29	1.28	2.02	.077	
30	.63	4.46	.0009	***
31	.73	16.77	.0000	***
32	1.73	4.16	.0015	***
33	1.19	1.81	.113	
34	.66	3.48	.0051	**
35	.46	4.14	.0015	**
36	.82	1.28	.28	
37	.98	3.33	.0068	**
38	1.45	1.63	.15	
39	1.46	.58	.74	
40	1.58	.44	.85	
41	1.66	2.18	.06	

* $p<.05$
** $p<.01$
*** $p<.001$
\# Sources of significant difference in Table 9.

TABLE 8 JOB CONDITIONS: OVERALL MEANS
RANKED BY STRESSFULNESS

RANK	STRESS	ITEM
1	2.40	(25) Inadequate staffing.
2	2.33	(23) Too great a work load for high quality work.
3	1.82	(8) Unresponsive hospital hierarchy.
4	1.73	(32) Work load too heavy.
5	1.66	(41) Depressed patients.
6	1.58	(40) Having to work close to death and illness.
7	1.49	(18) Conflict between staff members.
8	1.48	(9) Excessive bureaucracy.
9	1.46	(39) Your life away from work disrupted by job.
10	1.45	(38) Unresponsive illnesses.

TABLE 9 JOB CONDITIONS: SOURCES OF SIGNIFICANT DIFFERENCES BETWEEN MEANS

	WARD						
ITEM	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED
7	0.0 *	0.91	0.45 *	0.80	0.125 *	0.0 *	2.17 **
16	1.63	1.91	1.36	0.70 *	0.38 *	0.60	3.00 **
19	0.88 *	1.18	0.45 *	1.10	0.75	0.40 *	3.00 **
22	0.38 *	0.73	0.27 *	0.20 *	0.25 *	0.20	2.00 **
23	2.88 **	1.91	2.55	2.30	0.75 *	2.60	3.17
30	0.56	1.09	0.18 *	0.60	0.0 *	0.0 *	2.17 **
31	0.25 *	1.36 *	0.45 *	0.20 *	0.13 *	0.20 *	3.50 **
34	0.75	0.54	0.45	0.20 *	0.75	0.20	2.00 **
35	0.50	0.7	0.27 *	0.0 *	0.13 *	0.0 *	1.83 **

*,** - * denotes mean which differs significantly from that marked ** in the same row (p<.05,Scheffe).

ITEM

(7) Lack of policies and guidelines.

(16) Poor communication between staff.

(19) Poor staff morale.

(22) Inadequate resources.

(23) Too great a work load for high quality work.

(30) Work area overcrowded.

(31) Work area poorly designed.

(34) Repetitive and boreing jobs.

(35) Gloomy atmosphere.

The only other source of significant difference in Table 9 stems from a very low degree of stress due to workload (Item 23) on Coronary Care, compared to Surgical-1. But, in terms of means for all wards on this item, irrespective of significance, Women's Medical again scored highest, with Coronary Care much lower than any other ward.

The numbers experiencing the various job conditions on different wards, irrespective of stressfulness ratings, and expressed as the percentage of respondents on each ward experiencing each job condition, are shown in Table 10. For the sake of clarity scores of less than 50% have been omitted, that is, when less than half of the respondents on a ward experienced the condition.

From a comparison of these figures with the ranking of job conditions by stressfulness, shown in Table 8, it is evident that the most stressful job conditions were experienced by the greatest proportion of nurses.

However, the most noteworthy feature of Table 10, which can be appreciated from viewing the table as a whole and disregarding actual values, is the extreme responsiveness of Women's Medical respondents, as thirty-seven out of a total of forty-one job conditions were experienced by half or more of the staff on that ward, compared with a maximum of twenty-three on any other ward. Lowest was Coronary Care, with 13 items experienced by over half the staff. Absolute numbers experiencing the various job conditions on each ward are shown in Appendix C, Table C2.

The ten job conditions most commonly experienced across all wards are summarised in Appendix C, Table C3, in which they are ranked by percentage of respondents experiencing them. All of these, except for item 25 ('lack of feedback on your performance from other staff'), were also amongst the ten most stressful job conditions, shown in Table 8.

As in the case of job events, variability of scores was large (Appendix B, Tables B5 and B6).

Indices of stress

Intercorrelations of the various individual indices of stress, derived from scores on frequency and stressfulness of job events, stressfulness of job conditions, negative feelings (Question F(1)), overall job stress (Question F(8)), state anxiety (STAI.X1), well-being (GHQ) and depression (BECK) are shown in Table 11, where each of

TABLE 10 JOB CONDITIONS: PERCENT OF RESPONDENTS ON EACH WARD EXPERIENCING EACH JOB CONDITION*

	WARD						
ITEM	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED
1	-	-	-	-	-	-	83
2	-	-	-	-	-	-	50
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	50
7	-	-	-	-	-	-	83
8	81	72	82	70	75	80	67
9	69	-	73	80	88	80	67
10	-	-	-	-	75	-	83
11	-	-	-	-	75	-	50
12	50	-	-	50	-	60	50
13	50	-	-	50	-	60	67
14	-	-	-	50	-	-	50
15	-	-	-	-	-	-	-
16	81	72	64	-	-	-	100
17	63	-	55	-	-	-	50
18	69	91	82	50	75	-	67
19	-	55	-	60	-	-	100
20	-	-	-	-	-	-	50
21	-	-	-	-	-	-	50
22	-	-	-	-	-	-	83
23	94	73	91	80	-	100	100
24	56	64	73	-	-	-	67
25	81	82	91	90	50	100	83
26	75	82	-	-	-	60	67
27	56	-	73	-	50	80	83
28	-	-	-	-	-	-	50
29	56	55	73	90	88	-	100
30	-	64	-	-	-	-	67
31	-	73	-	-	-	-	100
32	81	64	73	-	-	80	100
33	56	-	64	-	75	60	67
34	56	-	-	-	50	-	83
35	-	-	-	-	-	-	67
36	63	-	55	60	-	80	100
37	75	55	-	50	-	-	83
38	81	55	64	80	-	80	100
39	56	91	55	-	75	80	50
40	88	82	100	100	88	80	83
41	88	82	100	100	88	100	100

* Figures of less than 50% omitted.

TABLE 11 STRESS INDICES: COEFFICIENTS OF INTERCORRELATION OF STRESS INDICES

STRESS INDEX #	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)FREQ.	-						
(2)STRESS	.49***						
(3) JOB CONDITIONS	.54***	.63***					
(4) -VE FEELINGS	.37***	.48***	.53***				
(5)OVERALL JOB STRESS	.33**	.49***	.38**	.51***			
(6) GHQ	.28*	.28*	.38**	.49***	.39**		
(7) BECK	.31**	.31**	.42***	.43***	.40***	.68***	
(8)STAI.X1	.08	.12	.32*	.29*	.36**	.63***	.53***

* p<.05
** p<.01
*** p<.001

STRESS INDICES

(1) Total of frequency scores on all events (Section B).
(2) Total of stress scores on all events.
(3) Total of stress scores over all job conditions (Section D).
(4) Freq. of negative feelings at shift end (Section F, question 1).
(5) Rating of overall job stress (Section F, question 8).
(6) Score on GHQ.
(7) Score on Beck Depression Inventory.
(8) Score on State section of State-Trait anxiety questionnaire.

the indices is also defined.

Correlations of the various indices derived from the present study (all indices except STAI.X1, GHQ and BECK), with one another, were reasonably strong, and highly significant, as were the correlations of the GHQ, BECK and STAI.X1 measures with one another. But the correlations of the derived indices with GHQ, BECK, and STAI.X1 were less strong, and at times non-significant, particularly in relation to state anxiety.

A stress indices by ward one-way analysis of variance showed only the event frequency ($F = 2.93$, $p<.05$), stressfulness of job conditions ($F = 3.79$, $p<.01$), and the BECK ($F = 5.56$, $p<.01$) and STAI.X1 ($F = 2.57$, $p<.05$) measures of depression and state anxiety respectively, to differ across wards, and only the frequency and BECK scores retained significance on subsequent Scheffé tests (Table 12). Scores on the BECK depression inventory were significantly higher ($p<.05$) on Women's Medical than on all other wards except for ICU on a posteriori analysis. But on all indices the mean score for Women's Medical nurses was well above that of any other ward.

Principal components analysis

Principle components analysis of stressfulness ratings of job events and job conditions revealed a single major factor for each, with remaining factors accounting for smaller similar proportions of total variance (Appendix C, Figure C1). In accordance with convention (Gorsuch, 1983) two factors were therefore used with both job events and job conditions, for varimax rotation.

Loadings of items on the rotated factors are shown in Table 13. Taking loadings of .35 and above for ease of interpretation, and with reference to the items listed in Appendix A, a distinction can be made between the two factors derived from job events. Items concerned with direct patient care, nurse-patient interaction, and emotional support of patient and family loaded most heavily on Events Factor I. Items loading on Events Factor II were related more to organisational climate and inhibition of patient care, and included staff interelationships, and administrative constraints, as well as those arising from a lack of cooperation of the patient's family.

A similar division of loadings can be seen on the factors derived from job conditions. Items related to authority, staff relationships, and physical resources and environment, loaded most heavily on Job

TABLE 12 STRESS INDICES BY WARD ONEWAY ANALYSES OF VARIANCE

	WARD								
STRESS INDEX#	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	MEAN	F(6,60)
(1) FREQ.	102.80	109.10	114.40	112.90	84.80 *	99.40	146.20 **	108.70	2.93s
(2) STRESS	107.1	99.4	96.9	98.6	98.8	82.0	122.80	101.40	0.89
(3) JOB CONDITIONS	42.81	42.36	41.45	35.40	27.75	32.80	77.50	41.97	3.79ss
(4) NEGATIVE FEELINGS	9.73	9.73	10.18	9.20	9.00	10.20	13.00	9.97	1.82
(5) OVERALL JOB STRESS	3.13	2.82	2.86	3.20	3.00	3.20	3.83	3.10	1.10
(6) GHQ	10.69	9.55	8.82	9.50	10.00	10.40	16.33	10.42	1.93
(7) BECK	3.38 *	3.18 *	4.00 *	6.10	4.75 *	2.20 *	12.33 **	4.73	5.56ss
(8) STAI.X1	32.12	30.55	32.55	33.20	31.63	35.00	43.33	33.25	2.57 s

# Stress indices defined beneath Table 11
s = significant (p<.05,Fcrit=2.25)
ss = significant (p<.01,Fcrit=3.12)
*,** - * denotes mean which differed significantly (p<.05,Scheffé) from that marked ** on a posteriori comparison.

TABLE 13 EVENTS AND JOB CONDITIONS: LOADINGS ON FACTORS OBTAINED FROM STRESSFULLNESS RATINGS BY PRINCIPAL COMPONENTS ANALYSIS WITH VARIMAX ROTATION *

	FACTORS			
	EVENTS		JOB CONDITIONS	
ITEM	I	II	I	II
1	-	-	.50	.48
2	-	.64	.52	-
3	-	.51	.51	-
4	-	.46	.56	-
5	.39	-	-	-
6	-	.52	-	-
7	-	.43	.51	-
8	.52	-	.42	-
9	-	.36	.44	-
10	.43	-	-	-
11	.70	-	-	.53
12	.72	-	-	.63
13	-	.47	-	.61
14	-	.41	-	.45
15	.53	-	-	.50
16	-	.39	.71	-
17	-	.59	.49	-
18	.40	-	.56	-
19	.42	.36	.76	-
20	.73	-	-	.36
21	.66	-	-	.56
22	.57	-	.60	.45
23	.69	-	-	.62
24	.62	-	-	.56
25	.46	.41	-	.51
26	-	-	.53	.41
27	-	-	.37	-
28	-	.58	.35	-
29	-	-	.54	-
30	.61	-	.71	.37
31	.42	-	.73	-
32	.63	-	-	.58
33	.73	-	-	.55
34	-	.37	.56	.36
35	.55	.37	.60	-
36	-	-	-	.42
37	.54	-	.64	-
38	-	.47	-	-
39	.54	.35	-	.48
40	.58	-	-	.61
41	-	.42	-	.54
42	.36	.40		
43	-	-		
44	.41	-		
45	.43	-		

(Continued)

TABLE 13 (Continued)

46	.47	.40		
47	-	.52		
48	-	.59		
49	-	.63		
50	-	.55		
51	-	.68		
52	-	.57		
53	-	.60		
54	-	.59		
55	-	.61		
56	-	.58		
57	-	.62		
FACTOR CONTRIBUTION TO TOTAL VARIANCE EXPLAINED	.144	.141	.182	.16

* Loadings of <.35 omitted.

Conditions Factor I, whereas those related to emotions, individual capacity for work, and adjustment to shifts loaded more of Job Condition Factor II. Thus Events Factor II and Job Conditions Factor I appeared to be allied.

Regression of factor scores against scores on the STAI.X1, GHQ, and BECK revealed both Events Factor II and Job Conditions Factor I to have a highly significant relationship ($p<.001$) with the GHQ and BECK measures, of well-being and depression respectively, and a lower but nonetheless significant ($p<.05$) correlation with state anxiety (Table 14). Events Factor I and Job Conditions Factor II on the other hand showed negligible or non-significant correlations with these measures of depression and anxiety. On this basis depression and state anxiety were linked most strongly to those factors related to organisational constraint. Furthermore, the results of one-way analysis of variance of factor scores by ward (Table 15) revealed that while Events Factor II correlates with depression its influence is not significantly concentrated in any particular setting, although Women's Medical did show a much higher mean than other wards. Job Conditions Factor I was however very significantly ($p<.001$) more influential in Women's Medical than in other wards, a finding consistent with the highest scores on STAI.X1, GHQ and BECK being on this ward.

Feelings at shift-end

The results in Table 16, showing frequency of negative and positive feelings at end of shift (Booklet 1, Question F(1)), revealed the negative feelings to be generally less frequent than the positive feelings. Feeling 'drained' was reported as occurring on average more than 'quite often' (score = 2) but remaining negative feelings averaged about 'occasional' (Score of 1). Feelings of satisfaction, cheerfulness, confidence and usefulness occurred about 'quite often'. 'Glad to have chosen job' had the highest mean score of 2.70, approaching 'usually' (Score = 3).

Two negative feelings, 'angry' and 'drained', and one positive feeling, 'satisfied' differed significantly between wards on a one-way analysis of variance, but not on a subsequent Scheffé test (Table 16). The sources of significance (Appendix C, Table C4) on the one-way analysis of variance however appeared to lie with a lower frequency of anger on Surgical-2 (overall mean = 1.08, SURG2 mean = 0.6), a low level of feeling 'drained' on coronary care (overall mean = 2.39, CCU

TABLE 14 CORRELATION OF FACTOR SCORES FROM PRINCIPAL COMPONENTS ANALYSES WITH MEASURES OF STATE ANXIETY AND DEPRESSION

STRESS MEASURE	COMPONENT: EVENTS I	EVENTS II	JOB CONDITIONS I	JOB CONDITIONS II
GHQ	-.073	.455 ***	.412***	.086
BECK	-.007	.437 ***	.465***	.108
STAI.X1	-.092	.273 *	.253	.194

* p<.05
*** p<.001

TABLE 15 PRINCIPAL COMPONENTS ANALYSIS: FACTOR SCORES BY WARD ONEWAY ANALYSES OF VARIANCE

	WARD									
FACTOR	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	MEAN	F(6,60)	p
EVENTS										
I	0.57	-.39	-.08	-.04	0.04	-.62	-.14	-.00	1.59	.17
II	-.33	0.33	-.07	-.11	-.19	-.28	1.08	.00	1.95	.09
JOB CONDITIONS										
I	-.11 *	0.40	-.28 *	-.28 *	-.49 *	-.62 *	1.87 **	.01	7.58	.000
II	.19	-.31	0.27	-.16	-.37	0.04	0.29	.00	0.69	.66

*,** - * denotes mean which differs significantly from that marked ** on a posteriori contrast (p<.05, Scheffé test).

TABLE 16 FEELINGS AT END OF SHIFT: OVERALL MEANS, F RATIOS, AND SIGNIFICANCE LEVELS FROM FREQUENCY BY WARD ONEWAY ANALYSES OF VARIANCE #

FEELING	MEAN (ALL WARDS)	F(6,59)	p	
(A)NEGATIVE				
dejected	0.803	1.23	.302	
angry	1.08	2.38	.0395	s*
drained	2.39	2.89	.0155	s*
frustrated	1.27	0.10	.44	
tense	1.32	1.60	.162	
inadequate	1.12	1.07	.39	
burdened	1.12	0.32	.92	
wishing to leave job	0.80	0.54	.78	
(B)POSITIVE				
satisfied	2.33	2.80	.018	s*
cheerful	2.38	0.24	.96	
wanted	1.74	0.19	.98	
peaceful	1.09	0.98	.45	
confident	2.26	0.57	.75	
useful	2.44	0.15	.99	
releived	1.95	1.79	.12	
glad to have chosen job	2.70	0.51	.80	

\# - Section F,question 1
s - significant ($p<.05$) Fcrit. = 2.25
* - means not significantly different on subsequent Scheffé test for a posteriori contrasts ($p>.05$).

mean = 1.5). Total frequency of negative and of positive feelings respectively did not differ between wards on a one-way analysis of variance (positive, $F(6,60) = .22$, $p>.05$; negative, $F(6,60) = 1.82$, $p>.05$).

Propensity to leave

The tendency of Women's Medical to report a low frequency of feeling 'satisfied', but not of being 'glad to have chosen job' is consistent with the figures relating to propensity to leave (Booklet 1, Question F(5)), shown in Table 17. The outstanding result in Table 17 is that which shows that all of the nurses on Women's Medical wished to leave the ward, but only one of them wished a complete change of occupation, the others preferring transfer to another ward. Half of the nurses on the General Medical and Intensive Care units also wished to transfer to another ward. Both General Medical and Women's Medical wards are situated in an old wing of the hospital, whereas all of the others, including intensive care, are part of a new complex. Surgical-1 and Coronary Care nurses showed the lowest propensity to leave. Overall, 57% of the nurses wished to stay in their present position, 27% to transfer to another ward, 5% to a similar ward in another hospital, and 10% wished to leave the occupation.

Role conflict

Mean discrepancies between actual and ideal job content (Booklet 1, Question F(10)), as a measure of role conflict, are shown in Table 18. A one-way analysis of variance showed significant inter-ward difference for the bureaucratic and professional categories of role conflict, with Women's Medical showing the highest mean in each, but the differences between means for each type of role conflict were not significant on a Scheffé test. However differences between means for total role conflict, the sum of scores of the preceeding three categories, were significantly different on a posteriori contrast ($p<.05$), with Women's Medical showing a significantly higher mean (5.00) than Intensive Care (2.00).

TABLE 17 PROPENSITY TO LEAVE: NUMBERS ON EACH WARD PREFERRING VARIOUS PLACEMENT ALTERNATIVES

	WARD								
OPTION*	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	SUM	%TOTAL
(a)	12	4	8	6	5	3	0	38	57
(b)	2	7	1	3	0	0	5	18	27
(c)	1	0	0	0	2	0	0	3	5
(d)	0	0	0	1	0	0	0	1	1
(e)	1	0	2	0	1	2	1	7	10

Section F, question 5.
* Option:
(a)Stay as is.
(b,c,d,e)Transfer to -
(b)another ward,same hospital;
(c)another hospital,same ward;
(d)another hospital,another ward;
(e)change job completely.

TABLE 18 ROLE CONFLICT: MEAN DISCREPANCIES BETWEEN ACTUAL AND IDEAL JOB CONTENT #

TYPE OF CONFLICT #	WARD							MEAN	F(6,60)	p	
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED				
BUREAUCRATIC	0.80	1.27	1.00	0.50	0.88	1.20	1.67	0.98	2.41	.037	s
PROFESSIONAL	1.34	1.45	1.36	1.00	1.38	0.80	2.33	1.37	2.33	.043	s
SERVICE	0.94	0.36	0.82	0.50	0.38	1.00	1.00	0.70	1.35	.248	
TOTAL	3.08	3.08	3.18	2.00 *	2.64	3.00	5.00 **	3.05	2.79	.019	s

Section F, question 10.
s p<.05, Fcrit = 2.25
*,** - * denotes mean which differs significantly (p<.05,Scheffé) from that marked ** in same row, on a posteriori comparison.

Overall job stressfulness

Ratings of overall stressfulness of job (Booklet 1, Question F(8)), summarised in Appendix C, Table C5, showed that 30% of the nurses considered their job to be either very or extremely stressful. Ratings given did not differ significantly between wards (Mean = 3.10, $F(6,60) = 1.04$, $p>0.05$), although it is noteworthy that from Women's Medical, with a total of only six respondents, two nurses gave a rating of very stressful and two of extremely stressful.

Moderator variables

Correlations between stress indices and a range of possible moderator variables were on the whole low (Appendix C, Table C1). In the case of nurse category, time on present ward, age, informational and emotional social support and religosity, the correlations were not significant. Experience in occupation had a small relationship with job events ($r = -.281$, $p<.05$), job conditions ($r = -.297$, $p<.05$) and frequency of negative feelings at shift end ($r = -.280$, $p<.05$). Tone of life showed a slightly stronger correlation ($r = -.308$, $p<.05$) with score on the GHQ, and a very significant correlation ($r = -.407$, $p<.001$) with score on the Beck depression inventory, despite all tone of life scores being within the range passable to wonderful (Appendix C, Table C6). Most considered tone-of-life to be good, none considered it to be poor or dreadful.

The majority of respondents considered informational and emotional social support to be adequate (Appendix C, Tables C7 and C8).

Sources of satisfaction

The results of one-way analyses of variance by ward, for frequency and degree of satisfaction (Booklet 1, Section E) are shown in Table 19. All means for satisfaction fell within a rather narrow range of 0.63, centred about a mean of 2.85, and were therefore all close to 'very satisfactory' (Score of 3).

Sources of difference which retained significance on a Scheffé test are shown in Table 20. General Medical, Oncology and Intensive Care experienced a lower frequency of improvement in their patient's condition (Item 1) than Surgical-1. Intensive Care also experienced a lower frequency of cheerfulness (Item 2) in patients than all other wards except Coronary Care, a much lower success in raising a

TABLE 19 SOURCES OF SATISFACTION: OVERALL MEANS, F RATIOS AND SIGNIFICANCE LEVELS FROM FREQUENCY AND DEGREE OF SATISFACTION BY WARD ONEWAY ANALYSES OF VARIANCE #

ITEM	FREQUENCY			DEGREE OF SATISFACTION		
	MEAN (ALL WARDS)	F(6,60)	p	MEAN (ALL WARDS)	F(6,60)	p
1	3.67	8.36	.000 *	3.13	0.59	.74
2	4.22	8.18	.000 *	2.77	2.58	.0274 *
3	3.04	4.18	.0072 *	2.85	5.46	.0001 *
4	4.31	4.12	.0016 *	3.00	1.25	.29
5	3.21	1.91	.49	2.81	1.37	.24
6	2.37	1.89	.98	3.03	1.82	.11
7	2.88	0.43	.85	2.55	3.71	.0033 *
8	4.67	0.65	.69	2.75	1.11	.37
9	2.88	2.31	.045 *	2.52	1.24	.30
10	3.46	1.77	.12	2.81	2.38	.0394 *
11	2.70	1.15	.35	2.79	0.74	.62
12	4.39	0.80	.58	3.15	1.13	.36

* $p<.05$ Fcrit. = 2.25

Sources of significant difference shown in Table 20.

TABLE 20 SOURCES OF SATISFACTION: SOURCES OF SIGNIFICANT DIFFERENCES BETWEEN MEANS

	WARD						
ITEM	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED
(A)FREQUENCY							
1	4.44 **	3.36 *	3.00 *	3.10 *	3.88	4.20	3.67
2	4.69 *	4.45 *	4.45 *	2.50 **	3.88	5.20 *	4.67 *
3	3.63 **	3.45	3.18	1.90 *	2.75	3.00	2.83
4	4.50 *	4.63 *	4.91 *	2.80 **	4.13	4.40	4.83
(B)SATISFACTION							
3	3.19 *	2.73	3.00	1.80 **	2.50	3.20	3.83 *
7	3.06 *	1.81 **	2.64	2.00	2.63	2.80	3.00

*,** - * denotes mean which differs significantly from that marked ** in the same row ($p<.05$, Scheffé).

ITEM

(1) You notice a definite improvement in your patients condition.
(2) Your patient is in a cheerful mood.
(3) You succeed in raising a patients level of optimism.
(4) A patient is grateful to you for your work.
(7) You contribute to a significant decision regarding patient care.

patient's level of optimism (Item 3) than Surgical-1, and a much lower frequency of patient gratitude (Item 3) than Surgical-1, General Medical, or Oncology. Raising a patient's level of optimism was found to be less satisfying, as well as less frequent on Intensive Care than on Oncology.

Women's Medical, despite its relatively high scores on indices of depression and state anxiety, did not appear to experience a relatively low frequency or degree of satisfaction. Consistent with this, a comparison of high (> 12) and low (0) scores on the Beck depression inventory, with respect to degree of satisfaction, summed over all items, showed no difference between the two groups (Means; High BECK = 36.0, low BECK = 32.4; $F(1,15) = .89$, $p>.05$).

Personality

Individual scores were obtained for extraversion (EPQ.E), neuroticism (EPQ.N), trait anxiety (STAI.X2), self esteem, and locus of control. A comparison of wards in terms of the personalities of their nursing staff did not show any significant differences ($p>.05$) between means (Appendix C, Table C9) on one-way analysis of variance.

It is noteworthy that two of the six respondents on Women's Medical gave the highest state anxiety scores of all sixty-seven respondents (Scores of 62,65; all ward mean = 33.3), yet they were about average on trait anxiety (Scores of 38,35; all wards mean = 38.5). Individual scores on all of the tests administered in Booklet 2 are given in Appendix B, Table B7.

Coefficients of correlation between scores on personality tests for all subjects combined are shown in Table 21. Directions of correlation were as predicted, but notably, extraversion (EPQ.E) had a very low correlation with other test scores, which reached significance only in the case of self esteem (SEST) ($r = .27$, $p<.05$). Neuroticism (EPQ.N) and trait anxiety (STAI.X2) were quite strongly and very significantly correlated with each other ($r = .688$, $p<.001$) and with self esteem (EPQ.N, $r = -.67$, $p<.001$; STAI.X2, $r = -.639$, $p<.001$).

The correlations between personality test scores and stress indices in Table 22 show distinctive groupings in terms of degree and direction. Firstly, scores on the extraversion - introversion dimension (EPQ.E) and on the locus of control (LOCUS) are virtually unrelated to any of the stress indices. Secondly, neuroticism and

TABLE 21 PERSONALITY: VALUES FOR COEFFICIENTS OF CORRELATION (PEARSONS r) BETWEEN SCORES ON PSYCHOLOGICAL TESTS

TEST	EPQ.E	EPQ.N	STAI.X2	SELF ESTEEM
EPQ.N	-.182			
STAI.X2	-.192	.688 ***		
S.ESTEEM	.272 *	-.670 ***	-.639 ***	
LOCUS OF CONTROL #	-.240	.394 **	.402 ***	-.406 ***

* p<.05
** p<.01
*** p<.001
# high scores = external locus; low scores = internal locus.

TABLE 22 PERSONALITY AND STRESS: VALUES OF COEFFICIENTS OF CORRELATION (PEARSONS r) BETWEEN TEST SCORES AND STRESS MEASURES

STRESS INDEX #	TEST EPQ.E	EPQ.N	STAI.X2	SELF ESTEEM	LOCUS OF CONTROL
(1) FREQ.	.01	.27 *	.09	.04	.02
(2) STRESS	.05	.49 ***	.46 ***	-.25 *	.07
(3) JOB CONDITIONS	-.01	.56 **	.41 ***	-.32 ***	.08
(4) NEGATIVE FEELINGS	.07	.51 ***	.45 ***	-.43 ***	.24
(5) OVERALL JOB STRESS	.08	.39 **	.31 *	-.32 ***	.03
(6) GHQ	-.05	.58 ***	.50 ***	-.50 ***	.21
(7) BECK	-.28	.56 ***	.53 ***	-.44 ***	.20
(8) STAI.X1	-.104	.37 **	.40 ***	-.38 ***	.07

\# Stress indices defined beneath table 11
* $p<.05$
** $p<.01$
*** $p<.001$

state anxiety show remarkably similar patterns of positive and statistically significant correlations with indices of stress, with EPQ.N scores being slightly more strongly related than STAI.X2. Thirdly, self esteem was negatively related to all of the stress indices, but the absolute degree of relationship was rather similar in degree and pattern to that of STAI.X2 and EPQ.N. It is also noteworthy that, of all of the stress indices, perceived frequency of events stood out as correlating very weakly with all personality variables.

DISCUSSION

Job events

To obtain data of relevance to a comparison of settings, this study took the unusual approach of measuring both perceived frequency and perceived stressfulness of job events. The more common approach is to obtain a single measure, usually based on frequency, after a prior job analysis not involving a comparison of settings. For instance, Gray-Toft and Anderson (1981b) in their comparison of nursing units asked their subjects to indicate how often they found given situations to be stressful. Lyons (1971) in his study of role clarity in nursing based his measure of job tension on the widely used index of Kahn et al. (1964), asking respondents to state how often they felt 'bothered by' a particular condition (Lyons, 1971, p.103). Mean frequency and stressfulness scores (Table 2) over all items in the present study were however not significantly correlated ($r = .21$, $p>.05$), suggesting that little redundancy is introduced by the measurement of both, and that stress measures based on either frequency or stressfulness alone may be neglecting the important fact that stress is a function of much more than frequency, so that useful information may be obtained from the separate measurement of each.

By basing a measure of stress on how frequently a person feels 'bothered' by a situation, rather than on how much it 'bothers' them, one does not take into account the importance of significance to the individual. This is strongly suggested in the ranked items of Tables 3 and 4. For instance, the most frequent item 'Your work is interrupted' occurred, nearly 5-8 times/day, but was only moderately stressful, (2.00) presumably because an interruption involves a temporary disruption of ongoing activity. The most stressful item (2.73) 'You try unsuccessfully to relieve a patient's constant severe pain' occurred only 1-3 times/month, but involved an inability to achieve control over a highly aversive situation. Similarly, death of a patient with whom the nurse had developed a close relationship, occurred less than once a month on average, but was second equal in stressfulness. It is noteworthy that only one of the ten most frequent items was amongst the ten most stressful items.

The fact that only four events averaged greater than midway between moderately and very stressful (i.e. > 1.5), and that frequencies were on the whole low, suggests that nursing stress due to

job events is most likely to arise from the cumulative effect of a number of them.

The statistically significant differences between wards, in perceived frequency of stressful events, found in this study, seem to reflect the nature of cases and treatments on the wards involved. For example, ICU showed a relatively high frequency of dealing with difficult equipment and critical unstable patients, Oncology showed the highest level of deterioration despite treatment, dying patients, advanced degenerative illness, and a high frequency of contact with patients having little left to look forward to. Women's Medical also reported a high frequency of contact with advanced degenerative illness, unnecessary prolongation of life and with patients who were uncooperative, resentful, or with nothing left to look forward to.

The fact that wards which differed significantly in frequency of events did not differ similarly in perceived stressfulness of those events reaffirms the non-equivalence of measures based on frequency and stressfulness respectively. The significance of events is likely to vary between settings and to relate to the expectation of its occurrence in a setting. Oncology nurses, for instance, would expect to see a high frequency of deterioration despite treatment, of degenerative illness, and of death in their patients, and through frequent exposure may have habituated to them. Surgical nurses on the other hand, although experiencing a significantly lower frequency than Oncology nurses on item 11, 'A patient's condition deteriorates despite treatment', had the highest stressfulness rating on this item, presumably because most surgical patients are expected to improve as a result of surgery.

Although there has been a good deal written about the sources of stress in Intensive Care, Oncology and other units (e.g. Grant, 1980; Hay and Oken, 1972; Maloney, 1982; Marshall, 1980) this is the first time a quantitative comparison of perceived frequency of events in the different settings has been made.

Job conditions

Of the job conditions, only two related items "Too great a work load for high quality work' and 'Inadequate staffing' were rated to be, on average, more than moderately stressful, in agreement with earlier studies which have indicated workload to a major contributor to nursing stress (Bailey *et al.*, 1980; Gray-Toft and Anderson,

1981a; Ivancevich and Smith, 1981). The results suggest that overall the organisational climate within the hospital is satisfactory, since a number of items were derived from instruments used for measurement of role conflict and ambiguity in organisations.

The significantly lower level of stress derived from work load (Item 11) on Coronary Care compared to that on Surgical-1, and the correspondingly smaller number of respondents experiencing excessive work load may reflect the different types of patient dealt with in the two wards. Care of the coronary patient involves a good deal of monitoring of a fairly standard disorder, in patients who are committed to complete bed rest, and will not involve the range of activities demanded by the variety of pre- and post-operative treatments necessary on the surgical wards.

It is noteworthy that on the remaining eight items which differed significantly between wards, Women's Medical registered a much higher level of stress than on any of the remaining wards. High scores on two of these items, Item 30 'Work area overcrowded' and Item 3 'Work area poorly designed' and possibly Item 22 'Inadequate resources', may have resulted partly from the ward being situated in an old area of the hospital. All other wards in the study, except for General Medical, were part of a new complex. Thus very few nurses from the newer wards (Surgical 1, Surgical 2, Oncology, ICU, CCU) experienced these job conditions at all. Similar results were obtained by Gray-Toft and Anderson (1981) in their comparative study of wards. They found the highest levels of stress to be on a medical ward, which also happened to be an older unit, and this similarly led them to suggest that structural characteristics of the ward might be an important factor in nursing stress. However, in the present study the General Medical ward, also situated in an old area of the hospital, did not report high stress levels as a result, although eight of its eleven respondents considered their work area to be poorly designed, in contrast to all of those on Women's Medical.

'Poor communication between staff' (Item 16), and 'Poor staff morale' (Item 19) were also rated as much more stressful on Women's Medical than on other wards. Given that an item such as 'Lack of policies and guidelines' (Item 7), which would stem from high levels in the administration to affect all wards, had a stress rating 20-fold higher on Women's Medical than on any other ward, and that 'gloomy atmosphere' (Item 35) and 'repetitive and boring jobs' (Item 34) also

rated highly as sources of stress only in this setting, it seems that this ward may have been subject to some more general malaise. The precise origin of the problem in terms of sources of stress cannot be ascertained from the present results, because, as the comparative study of Nichols et al. (1981) showed, a state of crisis due to one factor (change in leadership on a particular ward, in the Nichols study) can lead to an elevation of negative scores across most questionnaire items.

The figures relating to numbers experiencing the various job conditions in each setting support the idea of a general influence in Women's Medical. Nine of the 41 job conditions were experienced by all respondents on this ward, whereas a maximum of 3 items were experienced by all those on any other ward. Similarly, as Table 10 shows, 37 of the job conditions were experienced by over half of the respondents on Women's Medical, compared with a maximum of 22 job conditions for any other ward. Whether such awareness was the result of direct experience, or of the influence of one or two respondents who perceived the conditions particularly strongly, is not known, although respondents were requested to concentrate on their own experiences and not to discuss items amongst themselves.

Role conflict

The operation of a general factor on Women's Medical is also suggested by the figures for role conflict, showing this ward to be highest in mean level of bureaucratic and professional, and highest equal on service role conflict. Nurses on Women's Medical therefore appeared to suffer more of an imbalance between their expectations of their job and actual job content, than other wards.

Propensity to leave

Propensity to leave is commonly used as an index of job dissatisfaction (Redfern, 1980; Rizzo et al., 1970), and the high levels of dissatisfaction indicated for Women's Medical were strikingly paralleled in the data for propensity to leave the ward. None of the nurses on Women's Medical wished to remain there, but their dissatisfaction appeared to be identified with the ward, rather than the occupation, as five of the six respondents wished transfer to another ward, and only one wished for a change in occupation. It is

noteworthy that half of the staff on General Medical also wished to transfer to another ward. As both Women's and General Medical were in old areas of the hospital this probably reflects the desire to work in more modern and well designed surroundings. In contrast to Womens Medical, propensity to leave General Medical was not associated with elevated stress scores. Thus although voluntary turnover and propensity to leave are common correlates of job strain, in the case of General Medical it seemed to simply reflect the existence of better alternatives, so that one cannot assume that the desire for transfer from Women's Medical is necessarily a reflection of high stress levels, although the results are suggestive and consistent with the other concurrent findings. Gray-Toft and Anderson (1981) found nursing staff turnover to be greatest in units showing highest stress scores, and Lyons (1971) found propensity to leave and voluntary turnover in nurses to be negatively related to job satisfaction.

Sources of satisfaction

Differences between wards on scores for frequency and degree of satisfaction, like those for frequency and degrees of stress, appear to reflect the types of patient dealt with by the different wards.

In Intensive Care, where the patients have suffered serious injury or complications, and are often unconscious and linked to life support systems, there is little opportunity for the nurse-patient interaction, or for the sense of well-being in the patient, that would allow patient cheerfulness (Item 2), optimism (Item 3) or gratitude (Item 4) to be experienced by the nurse. Furthermore, as the patients' condition becomes non-critical they will be moved back into non-intensive areas. The Intensive Care nurse will therefore be dealing with only the critical end of the possible range of improvement in the patient. This, coupled with the fact that many moribund patients pass through intensive care, may account for the low level of patient improvement (Item 1) experienced by the ICU nurse.

It is interesting to note that Women's Medical, despite its outstandingly high stress scores, did not score significantly less than other wards in either perceived frequency or degree of satisfaction. This suggests that if a systematic influence was acting causally to give rise to the elevated stress ratings it was not also acting to depress the experience of satisfaction, and was therefore probably not depressive in nature.

Indices of stress

The various indices of stress derived from the results were aimed at providing a basis for comparison of wards on some overall measures of stress. Appropriate norms that would allow valid comparisons to be made between the present sample and relevant populations are not however available.

The five indices derived from this study correlated reasonably well with one another (Table 11) indicating a relatively high internal consistency. However, their correlations with the three remaining indices - scores on the standard GHQ, BECK, and STAI.X1 questionnaires - were not always strong, and the correlation between indices derived from job events (indices 1 and 2) and state anxiety were non-significant. Gray-Toft and Anderson (1981b) in development of their nursing stress scale inferred validity from correlations of 0.35 and 0.39 with state and trait anxiety respectively. Although in the present study event-related indices did not correlate with state anxiety (Table 11), the correlation of stressfulness of job events with trait anxiety was .46 ($p<.001$) and was even higher than the correlation of state and trait anxiety ($r = .40$; Table 22). The low correlation of event-related parameters with measures of state anxiety and depression does not necessarily indicate that the former are not valid indicators of job related stress, because, as discussed in the introduction, sustained anxiety may result when there is an inability to generate a motor programme to deal with a situation, which then becomes a source of prolonged imbalance. But events are by definition temporary, and therefore less likely than job conditions to correlate with state anxiety and depression.

The intercorrelation of stress indices in Table 11 could therefore be taken to indicate that state anxiety and depression may not be obligatory components of the stress reaction to events, and may therefore not be entirely valid indicators of event-related stress.

Furthermore, measures of event frequency or stressfulness do not give any indication of duration of cognitive reaction, yet it is the prolonged cognitive activation associated with worry (Eysenck, M.; 1983) which is most likely to lead to neuronal exhaustion, which has been implicated in reactive depression (Stone, 1983). Thus although negative feelings (index 5) correlated significantly with stressfulness of events and depression (Table 11), the

event-stressfulness and depression indices were themselves not strongly correlated.

In the present study events were considered to be transient occurrences, and job conditions to be more stable features of the work environment, so that the stronger correlation of depression with job conditions than with events, is consistent with the involvement of a temporal factor in depression.

Comparison of wards in terms of the stress indices again showed Women's Medical to stand out, with the highest mean in the case of each index, although the differences were not statistically significant in all cases. However, a highly elevated score on the BECK depression inventory suggests the perceived uncontrollability of some aversive element or combination of elements in that ward. The lack of difference between wards on mean personality scores, and the fact that amongst the six respondents on Women's Medical, two scored highest on state anxiety out of the total of sixty-seven respondents, while their trait anxiety scores were very close to the overall mean, suggests the source of the problem to be situational, rather than a result of hypersensitivity of the involved individuals. As job conditions are relatively stable features of the work environment, the comparatively high scores for both stressfulness of job conditions and depression on Women's Medical is consistent with some aspect of job conditions providing an ongoing, uncontrollable, aversive element in the environment.

Possibly the nature of the medical conditions afflicting patients in the Women's Medical ward were a source of stress for the nurses, as they will have included many which were specifically female and/or associated with old age. As the staff were all female such conditions may have had a high degree of personal significance for the nurses. And although Women's Medical and Oncology both had significantly higher scores than other wards for frequency of 'You deal with a patient who has an advanced degenerative illness', (Item 37), and 'The patient you deal with seems to have nothing left to look forward to' (Item 46), there may have been a more threatening sense of inevitability associated with many of the medical problems in Women's Medical, in contrast to the high degree of chance associated with cancer.

None of the indices of stress support the widely expressed view (Cassem and Hackett, 1975; Gentry et al., 1972; Hay and Oken, 1972;

Marshall, 1980) that intensive care is a particularly stressful nursing location, but rather, confirm the findings of Maloney (1982), and Nichols et al. (1981), that intensive care nurses are not necessarily under more stress than others.

Of particular relevance to this study, there was no evidence that at the time of the present investigation the Oncology Ward was a high stress area, contrary to the suspicions of the hospital administration.

Factor analysis

Although accounting for a modest proportion of the total variance the two factors isolated in the case of both job events and job conditions could be distinguished in the patterns of loadings onto them. Events Factor I was loaded on largely by items concerned directly with nurse-patient interaction, and Factor II by many items related to obstruction of patient care and to administration. Events Factor II was thus apparently more related to unresolvable imbalance between expectations and outcomes, due to inhibition of patient care activity (through non-cooperation of the patient, their family, other staff, or through inadequate information), than Events Factor I. The non-correlation of depression (GHQ and BECK) with Events Factor I, but reasonable correlation (GHQ, r=.455; BECK, r=.437) with Events Factor II (Table 14), suggests the existence of a distinctive perceived uncontrollability component, which accounts for only part of overall perceived stressfulness.

Loadings on the two factors derived from job conditions showed a similar pattern with items related to administration, staff interrelationships and interference with nursing activity loading on one factor, Job Conditions Factor I, which in contrast to Job Conditions Factor II was correlated with measures of depression. London and Klomski (1975) in a study of job complexity in nursing, failed to separate nurses according to speciality, but isolated three dimensions, which they termed general complexity, task demands and situational constraints, and control and authority. Job Events Factor II, and Job Conditions Factor I, isolated in the present study appear similar to the control and authority dimension of London and Klomski.

Comparison of wards in terms of factor scores, showing Women's Medical to have a very significantly higher mean than other wards for factor scores derived from Job Conditions Factor II, specifically

suggests a link between the high levels of depression on Women's Medical and the organisational-administrative climate on that ward.

Although the subject numbers were less than ideal for application of principal components analysis, the concurrent findings of clear-cut relationships of factor scores with other variables, suggests that in the present case the approach was valid.

Personality and Stress

Although wards did not differ significantly in mean scores on any of the personality tests, the large differences between individual nurses on all tests, and in all wards, indicated that some individuals with a high susceptibility to stress were present on all wards. An important finding in the light of the consistently high scores displayed by Women's Medical on a range of indicators of stress, was that this ward did not show the same degree of elevation of scores on the personality tests. And, as discussed earlier, the two individuals with the highest state anxiety scores of all respondents, were located in Womens Medical, but their trait anxiety scores were very close to the overall mean. This suggests that none of the significant differences between wards on stress indices reflected an uneven distribution of the personality traits measured here, between wards.

The significant positive correlation of trait anxiety with stress is in agreement with other studies of nursing stress that have measured this trait (Gray-Toft and Anderson, 1981; Maloney, 1982). In both of these studies the pattern of trait anxiety between wards led the authors to infer that high anxiety individuals choose low stress wards on which to work. But nurses involved in the present study had little choice in their placement and under these circumstances the strong correlation between state anxiety and stress indices, seen in Table 22, may have been higher than would have been observed had the nurses been able to choose a ward which they felt most suited to their temperament.

The non-significant relationship of extraversion, but relatively strong and highly significant relationship of neuroticism to stress fails to support the view that introverts are more susceptible to stress than extroverts (Gray, 1967), but links such susceptibility more to neuroticism. It is possible that the relative dominance of neuroticism is partly a consequence of having an almost totally female sample of respondents. Females tend to have higher neuroticism and

lower extraversion scores than males (Eysenck and Eysenck, 1975), but the neuroticism scores are more different than the extraversion scores between the two groups.

Another interesting possibility is that the EPQ.E scores do not reflect the degrees of basal arousal, thought to underlie the introversion-extraversion dimension (Eysenck, 1967), which existed at the times at which stressful events occurred. Some evidence suggests that the introversion-extraversion difference is not stable, but is dependent on diurnal rhythm, and in a recent experiment on the effect of arousal on performance, extraverts and introverts were found to actually swap positions on performance measures when the experiment, carried out in the morning, was repeated at night (Revelle, Humphreys, Simon and Gilliland, 1980). If introverts and extraverts do differ in diurnal rhythm it is possible that in nurses the difference may be partly cancelled out by regularly changing shifts. Thus because of shift changes the stressfulness ratings obtained here may reflect experience averaged over the period of diurnal rhythm, whereas questions in the EPQ will refer largely to experiences obtained during the standard day-night cycle.

In contrast to measures of neuroticism, trait anxiety, self esteem and locus of control, extraversion also showed a very low inter-correlation with other personality test scores. These results are contrary to the view that trait anxiety should correspond to a combination of low extraversion and high neuroticism (Gray, 1970). Instead, the close relationship between neuroticism and anxiety supports the more recent suggestion of Gray (1981) that his anxiety dimension should be more closely aligned with Eysenck's neuroticism dimension.

The correspondence between neuroticism and anxiety dimensions has been implied by Eysenck himself (Eysenck and Eysenck, 1975), who has said '...we may describe the typical high N scorer as being an anxious, worrying individual, moody and frequently depressed' (p 9). If anxiety is a subjective accompaniment of behaviour inhibition, and worry is the cognitive component of anxiety, occurring during attempts to generate a motor programme for resumption of behaviour, then it seems that both behaviour inhibition and worry would be part of the same primary anxiety dimension, reflecting a susceptibility to imbalance. Gray has in fact argued in favour of treating anxiety directly as a primary variable, rather than as an amalgam of high

neuroticism-low extraversion.

Evidence in favour of a correspondence between neuroticism and anxiety has appeared at the time of writing of this report (Watson and Clark, 1984). Trait anxiety and neuroticism were two of a number of diverse personality tests (including the Beck Depression Inventory) which a variety of psychometric data indicated to be measures of the same stable and pervasive trait, which Watson and Clark termed negative affectivity.

Given the apparent similarity of neuroticism and anxiety dimensions, the high negative correlations between neuroticism and self esteem ($r = -.670$), and between trait anxiety and self esteem ($r = -.639$), obtained here, can both be viewed as reflecting the heightened degree of aversiveness with which high neuroticism individuals experience signals of punishment, non-reward and novelty. With a susceptibility to aversive conditioning, high anxiety individuals will be likely to develop an information base rich in negative experiences, leading to predictions of negative outcome, that is, to expectations of non-efficacy, and thus to low self esteem, and a tendency to inaction. The consequences of inaction will of course feed back to further strengthen the information set responsible for low self esteem. And the information base of low self esteem will overlap with the informational component of trait anxiety, which is the potential for a given response based on both innate reactivity and experience (Speilberger et al., 1970).

The correlations of neuroticism, state anxiety and self esteem with external locus of control found in the present investigation are similarly explained. A highly reactive behaviour inhibition system must restrict attempts to actively eliminate aversive conditions, thereby limiting experience of control over the environment, and contributing to a failure to develop an internal locus of control.

The above findings are consistent with learned helplessness theory, which maintains that attribution of locus of control will determine whether or not uncontrollable conditions lead to loss of self esteem (Abramson et al., 1978). The significance of the correlation of locus of control with neuroticism, trait anxiety and self esteem, but its lack of correlation with indices of stress in the present study is possibly explained by the role of attribution. If there is no ambiguity about the reason for uncontrollability, then failure to control will not be differentially attributed by internals

and externals (Endler and Magnusson, 1976). In the case of administrative constraints in the hospital, where the source of control lay quite clearly with the organisation, or where interaction between nurses had led to a normative attribution of control to the administration, neither externals nor internals were likely to attribute inability to control to their own ineffectiveness. The results of this study have shown that the elevated anxiety and depression scores relate most strongly to administrative factors.

The results suggest that there are better grounds for including neuroticism than there are for including introversion-extraversion in studies of occupational stress which wish to control for personality. And given the probable causal links between trait anxiety, susceptibility to behaviour inhibition and aversive conditioning, and low self esteem, it seems that there is a good deal of redundancy in measuring trait anxiety, neuroticism and self esteem in the same study. The results of the present study showing a very similar pattern of correlation of trait anxiety, neuroticism, and self esteem with stress indices, certainly suggests this to be the case, and suggests furthermore that self esteem, like neuroticism and trait anxiety, may be another measure of negative affectivity (Watson and Clark, 1984).

General Discussion

Taken overall, the results suggest that in the Palmerston North Public Hospital, at the time of this study, the levels of nursing stress were not high. Only four job events scored an average over 2.5 (midway between moderately and very stressful) and none averaged over 3 (very stressful). Of the job conditions only two averaged greater than 2, but less than 2.5 in each case. Overall job stress was rated as only slightly more than moderate (Mean = 3.1, moderately stressful = 3, very stressful = 4).

Other recent studies (Nichols et al., 1982; Redfern, 1982) have found nurses to be generally well satisfied with their job. These and the results presented here indicate that the widely expressed view (Bates, 1975; Marshall, 1980; Maslach, 1979; Menzies, 1960) that nursing is a high stress occupation does not find general support.

Similarly, the contention that intensive care nursing is particularly stressful (Cassem and Hacket, 1975; Grant, 1980; Hay and Oken, 1972) has not been upheld in this study, in agreement with

others recently conducted (Maloney, 1982; Nichols et al., 1981).

Of particular relevance to the present study there was no evidence that Oncology was a high stress area, contrary to the suspicions of the hospital administration, and to reports which have claimed that contact with death and dying is a source of considerable distress for nurses on such units (Chiriboga et al., 1982; Hay and Oken, 1972; Newlin and Willisch, 1978; Steffan and Bailey, 1978). Events related to cancer, which were of significantly higher frequency in Oncology than in other wards did not lead to a corresponding relative increase in perceived stressfulness of these items, and events and job conditions related to death and dying were no more stressful on Oncology than on other wards.

The commonly expressed assumption that nurses who receive a high degree of exposure to death and dying must suffer strain as a result (Chiriboga et al., 1982; Hay and Oken, 1972; Marshall, 1980) seems logically unsound, because it is based solely on knowledge of the environment. But, as discussed, the state of imbalance underlying stress exists in the relationship between two sets of information, one representing the environment, and the other, the expectations (predictions) of the individual with regard to that environment (Figure 2). The common approach to assessment of organisational stress, based on frequency, rather than significance, is therefore to some degree misguided, and it is not surprising that this and other recent quantitative studies (Maloney, 1982; Nichols et al., 1981) have not supported the prevalent opinion that Intensive Care and Oncology nurses suffer more stress than those on other units.

However, it is possible that high levels of perceived stress did exist in Oncology prior to this study, but which were reduced by staff turnover. With the constant flux of staff and large variation in individual susceptibility to stress, problems are bound to arise from time to time in any ward, when fluctuations in the composition of staff result in an unusually high proportion of anxiety-prone individuals in a given setting at a particular time. And because of such variation, not only in ward nurses, but also at higher administrative levels, it seems that comparisons of wards such as that made in this and other studies (Gray-Toft and Anderson, 1981), where sample sizes are relatively small, will be so time specific and so dependent on factors not intrinsic to the type of ward, that they may lack both the abstractness and the control required of any

systematic contribution to scientific knowledge.

In the present study Women's Medical was found to show a pronounced elevation in stress scores on a variety of measures. And although this indicates that nurses on that ward were probably under a high degree of stress relative to the others investigated, it is difficult to make any quantitative assessment of degree or source of stress, partly because there appeared to be a general inflation of scores on most items for the ward. This was made particularly clear with respect to job conditions, by expressing the results in terms of items experienced by over 50% of the staff, shown in Table 10. Nichols et al. (1981) also noted an increase in scores on all negative items for a ward known to be in a state of crisis. But this phenomenon has important implications for stress research, and deserves more than a mention in passing.

It seems that it can be readily explained in terms of attribution theory, which holds that people in a state of emotional arousal will look to the environment for causes of the arousal (Gochman, 1979; Nisbett and Wilson, 1977; Schachter and Singer, 1962). By presenting a list of questionnaire items to individuals in a state of stress or dissatisfaction, one is conveniently providing a list of causes to which respondents may attribute their state. Items may therefore be judged as stressful, whether or not they are anything to do with the actual cause of stress. Therefore, as one can infer from the present data, itemised questionnaires may not be very useful for meaningful identification of sources of job stress in those already under stress. Furthermore, the general elevation of ratings across all items means that any data derived from summation of scores is likely to be inflated, and cannot be used in the quantitative assessment of stress, unless carefully calibrated and validated in advance. But given that such questionnaires are in any case of questionable use for identifying sources of stress, it is difficult to see the point of validating such a questionnaire - it would be more simple, less redundant, and provide a more systematic contribution to scientific knowledge, if one simply used the standard validating instruments in the study, particularly if they are directly related to the underlying processes which operate in any situation. Information obtained by using the indices of stress derived from the questionnaire in Booklet 1, devised for this study, added little to that which was obtained with the standard measures of general well-being (GHQ), anxiety

(STAI.X1) and depression (BECK).

Although the conditions under which the present study was conducted dictated that a fairly standard approach to the analysis of occupational stress be taken, it seems that perhaps a clearer and more accurate assessment could have been obtained by use of the standard measures of state anxiety and depression, an observer-based job analysis, coupled with some objective physiological measures, and the simple question "What, if anything, do you find to be unpleasant or stressful about your job?", rather than confusing the issue with an extensive list for misattribution.

Answers to Question 14, Booklet 1 "What would you most like the hospital authorities to do that would improve your job satisfaction", although non-quantitative, provided a clear and human impression of the nurses' problems and needs (Appendix D). And although not suitable material on which to practise statistics, no amount of statistics can compensate for poor quality raw data.

It is important to remember that this and other such studies do not in fact directly measure job stress, but rather, patterns of response to questionnaires. A positive correlation between two test scores means that individuals who give a certain level of response with respect to the mean on one test do likewise on the other with some degree of consistency, so that in interpreting correlations one must take into account the possibility of systematic bias. Some evidence that this occurred in the present study is perhaps obtainable from the correlations of frequency and stressfulness of job events. Based on events, the frequency-stressfulness correlation was low and non-significant ($r = .21$, $p>.05$), but on an individual basis it was reasonably strong and highly significant ($r = .49$, $p<.001$). In other words, high frequency items are not necessarily stressful, but individuals who report high frequency also report high stress. This observation is however also consistent with the experimental finding of von Knorring and colleagues (von Knorring, Jacobsson, Perris and Perris, 1980), that individuals who show an augmentation of perceptual reactance (measured as visual average evoked potentials) in response to visual stimuli, also report more life events, more life events as extremely difficult, and difficulty in adaptation after the life event. While this suggests that the present observation may indicate a hypersensitivity of the involved individuals, and be genuinely stress-related, it is equally likely to be due to the influence of

systematic distortion. Research on systematic distortion has shown that responses to questionnaires involving memory judgements relate more closely to what the respondent thinks that logical relationships should be, rather than to the objectively measured events related to the questions, so that much of the correlation obtained from memory based evidence is in fact probably artifactual (Shweder and D'Andrade, 1980). This must be a particularly serious problem where the context of the questionnaire is quite obvious, as in the case of most stress questionnaires, which thus provide a conceptual framework in which respondents can generate their questionnaire responses.

In the present case there may also have been an element of demand, since the nurses knew in advance, through a memo from the Medical Superintendent, asking for cooperation, that the study had been commissioned. Therefore, potential advantages could be gained from a high stress response. As Women's Medical was an old ward situated alongside spacious modern wards, the degree of advantage to be gained may have been both clear and different between wards, so that the demand effect may have been similarly unequal, and have contributed in combination with high levels of perceived stress, to the relatively high scores on Women's Medical.

Apart from the element of direct gain, there is the danger that knowledge of the purpose of the questionnaire will lead to responses which the respondents think to be consistent with its objectives. And if individuals differ in susceptibility to imbalance between expectations and outcomes, such demand effects are likely to be a strong function of personality, and thus to lead to some systematic bias involving personality or personality dependent parameters. Therefore, the positive correlation between measures of anxiety and depression with those factor analytic components loaded on by administrative items, may have resulted not because these items were causally related to anxiety and depression, but because the demand effect from knowledge that the administration was seeking information, was greatest in those whose sensitivity to imbalance caused a susceptibility both to the demand characteristics of the situation, and to anxiety and depression. There is, after all, no reason to suppose that the processes underlying questionnaire-answering behaviour are different from those involved in any other behaviour.

A serious problem related to the validity of this and other such studies is the use of scales of stressfulness, based on questionnaire

response, for comparison of individuals. For such a comparison to be valid it is necessary to apply the same scale to all individuals. But by asking for ratings of slightly, moderately, very and extremely stressful one obtains subjective assessment for each respondent based on their own, personal, internal scale.

It is unfortunate that empirical relevence is a problem intrinsic to the interactional definition of stress, for by involving subjective experience one enters the private world of the individual, for which objective research has no direct measure, and in which methodology has little power to control variables. Although the nurses were asked to indicate on a 1-5 scale how stressful they found certain events and job conditions to be, there is no way they can know how stressful 'extremely stressful' is on an external scale which allows them to compare themselves with one another, or more importantly, with the person who devised the scale. Each subject will have his/her own internal scale determined to some extent by the range of experience he/she is familiar with, so that although low-anxiety and high-anxiety subjects may call an event 'extremely stressful', the former may in fact suffer a much lower degree of distress than the latter. In such cases the concurrent measurement of more concrete variables, such as patterns of physiological reaction which are part of the stress syndrome, would perhaps be advisable.

Although the statistical analysis of results can provide a tidy summary of relationships within data, the extreme variability in the raw scores (Appendix B) suggested that the respondents were very poor judges of frequency. For instance, in some cases different respondents on the same ward scored the same event as occurring less than once a month and over once per hour respectively. When one considers this variability in relation to the often very low correlations of questionnaire scores with standard measures of anxiety and depression there is cause for concern. Correlations of around $r=0.2$ appear to be quite acceptable in stress research as long as they are statistically significant, indicating an unfortunate tendency in much psychological research of this type to equate statistical significance with meaningfulness. No matter how high the statistical significance of a correlation of $r=0.2$, it is risky to treat it as highly meaningful, in this type of research, when it accounts for only 4% of the variance. Given the large proportion of unexplained variance, and the undetermined likelihood of systematic biases, the

fact that statistics have detected a current in the sea of variation should be treated cautiously, when so much space remains for the truth to lie elsewhere.

An obvious problem with the questionnaire approach to analysis of job stress and associated feelings is that at the time of action people are preoccupied with the activity they are engaged in, and do not consciously commit to memory an on-the-spot assessment of their degree of arousal and associated feelings, nor of the frequency with which the stimulus conditions occur. All questionnaires which measure these variables are therefore tapping information which has been enmeshed within an individual's associative network. The structure of this must depend not only on immediate experience (itself dependent on perceptual reactance), but also on longer term memories, based partly on observation of others, and partly on other sources of information which determine the person's view of what the world should be like.

It seems clear from the raw data, that job analysis based on memory for events is likely to be of very questionable worth, and would be better if grounded on direct observational rating by disinterested observers. In supposedly high stress occupations such as nursing this is especially important, in view of the reported extensive use of psychological defenses in coping (Chiriboga et al., 1982).

The results of factor analyses performed here suggested the existence of two components of job stress, only one of which was related to anxiety and depression. Measures of anxiety and depression, although commonly used for validation of stress questionnaires (e.g. Gray-Toft and Anderson, 1981b), may therefore provide only partial validation.

A good deal of evidence (Anisman and Zacharko, 1981), much of it derived from studies of learned helplessness (Abramson et al., 1978; Millar and Norman, 1979) suggests that the important property of stimuli which links them to anxiety and depression is perceived lack of controllability, so that while tests which measure sustained anxiety and depression are relevant to uncontrollable conditions, they are less relevant to those conditions which although experienced as aversive, are temporary, or rendered so by active response. By asking subjects to rate stressfulness of events one is obtaining a measure of aversiveness, but as the emotional reaction to events showed (Table

6), subjective experience of stressfulness of events may, as well as being temporary, involve feelings of the anger type, associated with priming for a 'fight' reaction, rather than of the helplessness type, associated with depressive withdrawal. However, aggressive reactions are an important aspect of job stress. Not only are they aversive, but the endocrine correlates of the active fight response, involving elevated plasma noradrenalin, have harmful long term effects, different from, but epidemiologically just as important as those stemming from prolonged elevation of plasma cortisol, associated with depression and loss of control (Henry and Meehan, 1981).

It is clear, then, that in studies of occupational stress two different aspects of stress need to be addressed, each requiring different types of validating instrument, and each involving different underlying processes and responses, one related to the active fight option, and the other to the passive freeze option. Questionnaires which measure stress only in relation to ongoing conditions, and those which measure only stress associated with events are each in danger of obtaining an incomplete picture. And those studies which treat life events as independent variables, and depression as a dependent variable, risk losing the causal thread altogether, a point which may be relevant to the low correlations typical of life events research (Payne and Jick, 1982). In support of the suggested distinction, a recent study has found neuroticism not to be a moderator variable influencing the relationship between life events and illness, but found neuroticism and life events to be independent predictors of self reported health problems (Denny and Frisch, 1981).

The lack of significant correlation ($r=.21$, $p>.05$) between frequency and perceived stressfulness of events raises the question as to which, if either of these parameters should be used in stress questionnaires. Frequency is a common basis for the assessment of job-related stress. For instance, Gray-Toft and Anderson (1981b) in their investigation of nursing stress, asked their subjects to indicate '---how *often* on your present unit you have found the situations to be *stressful*?' (p.14). Lyons (1971) in a study of role clarity in nursing used a Tension Index derived from the widely used index of Kahn *et al.* (1964) starting with the statement 'How often do you feel bothered by:....' (Lyons, 1971, p 103).

Yet there are good reasons to suspect that frequency alone does not provide a valid measure of stress. Firstly, habituation is a

function of frequency of exposure, so that high frequency may lead to acceptance. Secondly, frequent events are more likely to be expected than infrequent events, and may therefore produce a lower level of imbalance than infrequent events. And thirdly, stress related anxiety and depression are more likely to result not from frequency _per se_, but from the personal implications and experienced aversiveness of the event, and from the time and effort involved in organising a response to it, that is, from the amount of associated worry. Insofar as experienced aversiveness and degree of worry are a function of personality, it is also notable that of all of the stress indices used in this study, perceived frequency of events was alone in correlating very poorly with _all_ of the personality variables measured (Table 22).

Physiological studies have shown that infrequent events can evoke large endogenous potentials in the human limbic system (Halgren, Squires, Wilson, Rohrbaugh, Bubb and Grandall, 1980), and on this basis one could even argue that frequency of events should be inversely correlated with a component of stressfulness. On the other hand, the more frequently an event occurs with a given degree of stressfulness, the more damaging its cumulative effect might be. The relationship between frequency and stressfulness is likely to be complex, depending on the nature of the events and on such factors as rate of exposure and individual characteristics, which determine whether sensitisation or habituation occurs. For instance the effect of frequency is complicated by the fact that it is likely to lead to an augmentation of perceptual reactance in some, but a reduction in others (von Knorring _et al._, 1980). In view of the emphasis placed on frequency in stress questionnaires it seems extremely important that the role of frequency in job stress be subjected to some rigorous experimental investigation.

The observed correlations between personality traits and stress indices (Table 22) invite some explanation. Recent research (Robinson, 1982) on the physiological underpinnings of Pavlovian/Eysenckian personality theory has shown that Pavlov's sanguine (lively, sociable, confident) and melancholic (quiet and fearful) types (Pavlov, 1959) differ in the transmissive properties of the diffuse thalamocortical system, which is part of the ascending noradrenergic activatory system from the locus coeruleus. Using Eysenck's personality questionnaire (EPQ) to identify sanguine (high

E/low N) and melancholic (low E/high N) individuals, Robinson (1982) found that the sanguine individual is characterised by a diffuse thalamocortical system in which the neurones had a low firing rate, which could be sustained under stimulation, but that in melancholic individuals these neurones had a high firing rate which could not be sustained. This was consistent with Pavlov's postulate that melancholic individuals were prone to exhaustion of 'activatory substance' and therefore had a low 'strength' nervous system.

Given that the noradrenergic afferents to the septo-hippocampal system, which evidence suggest to be the physical basis of the anxiety generating behaviour inhibition system (Gray, 1982), are part of the same ascending activatory system as the diffuse thalamocortical system, that 'lively sociable and confident' is equivalent to behaviourally uninhibited and anxiety free, and that 'quiet and fearful' is equivalent to behaviourally inhibited and anxious, it is reasonable to view stress-prone, high anxiety individuals as possessing noradrenergic systems characterised by a high firing rate, but a susceptibility to neurotransmitter exhaustion. This appears to provide a clear, although not yet experimentally established, causal link between the high trait anxiety and tendency to depression observed in the present study, because individuals with a high degree of septo-hippocampal activation (and therefore high in anxiety), will then also be those prone to neurotransmitter depletion and thus to an inability to sustain neuronal output, which evidence suggests to be the cause of reactive depression (Stone, 1983).

As events are by definition transitory, and the actual process of behaviour inhibition, in which ongoing behaviour is halted and an orienting reaction occurs, covers a short time span, it seems that the prolonged activation which would be necessary to cause neurotransmitter depletion must depend on anxiety-related processes which take place after behaviour inhibition has occurred. And given that behaviour is inhibited, and that release from behaviour inhibition requires the elaboration of a motor programme to eliminate imbalance, an obvious candidate for the cause of reactive depression is the activity of cognition (worry) associated with this. As the results suggested, depression is associated particularly with those aspects of the work environment which are uncontrollable, and which therefore may induce cognition in an attempt to resolve them.

This has further implications for the usefulness of stress

questionnaires, as neither scores of event frequency nor of stressfulness can give a measure of intensity and duration of cognitive reaction, yet it is the prolonged cognitive activation associated with worry (Eysenck, M., 1983) which seems most likely to lead to the neuronal exhaustion implicated in reactive depression (Stone, 1983).

As implied in the introduction, it is reasonable to assume that the septo-hippocampal system acts as a comparator in both the interactive mode, when outcomes are compared with predictions, and in the cognitive mode, when goals (visualised outcomes) are compared with predictions (Figure 2). As anxiety appears to entail a high sensitivity to mismatch at the comparator (Gray, 1981) its effect in the cognitive mode of action may be to set the criteria for acceptance of a predicted outcome so high that the frequency of rejection of performance options during cognition is excessive. Thus high trait anxiety may be associated not only with a susceptibility to behaviour inhibition, but also with a tendency for cognitive rejection of potential performance, thus leading not only to the delayed resumption of activity, evident as an extended 'freeze' reaction, but to a prolonged cognitive activation, itself leading to neurotransmitter depletion and thence to reactive depression, as a more general withdrawal and retardation in the whole system.

Within this context one can suggest a reason for the resignations and several apparently severe cases of depression amongst staff on the Oncology ward, prior to, and which lead to the present study. It is possible that some individuals were present in whom a highly active behaviour inhibition system was coupled with an internal information set which was in some way incongruent with reality. For instance, the prediction of patient improvement as a result of health care, instilled during nursing education as a major goal, would have been incongruent with the fact that hospitalised cancer patients are often those at the terminal stages of illness, in whom continued deterioration will generally occur. Patient care activity directed towards these people would not then have led to predicted outcome, but rather to a state of non-reward in the nurse. In addition, the severe side effects of the use of chemotherapy could have acted as punishers.

As a result, activation of the behaviour inhibition system may have led to anxiety, and to an aversion to activity associated with

such consequences. This tendency to behaviour inhibition could have led to generation of motor programmes directed at escape, evident in the resignations which occurred, or, if various internal and/or external constraints rendered this option unacceptable, to the onset of depression (Figure 3, p.21).

In view of the number of possible sources of stress it is appropriate to suggest only general principles for the prevention and alleviation of such problems.

Realistic expectations and goals should be engendered by appropriate education and vocational guidance. Measures taken to foster an adequate degree of self-awareness may also benefit nurses, helping them to bring to the surface attitudes and experiences that they may not be aware of, but which are nonetheless part of the informational template against which comparison of outcomes, or predicted outcomes, may create the state of imbalance underlying anxiety.

The informational base of imbalance includes not only internal representations of the outer world, but also the affective weighting which determines the intensity of response to them. This too needs to be considered. By allowing a graded exposure to aversive situations an adequate degree of habituation may occur to buffer the young nurse. But, as well, providing the opportunity to confront problems within a supportive group or counselling context would allow the cognitive re-exposure that can facilitate habituation, allow the transfer of experience, and avert the psychological defenses which inhibit the habituation that renders otherwise aversive conditions tolerable, and which adversely affects response to patient needs.

As a corollary to the above, adequate information about the nursing environment must be provided, so that the nurse is prepared for the difficulties and disappointments, as well as for the successes associated with nursing. In this way the possibility of negative outcomes eroding the nurses self esteem, and inhibiting what is otherwise appropriate activity for the nursing role, may be reduced.

The apparently strong relationship between depression and administrative obstruction suggests that, as a general rule, an effort must be made to find ways in which the control of nurses over their work can be maximised without adversely affecting patient care. As responses to question F(14), Booklet 1 ('What would you most like the hospital authorities to do that would improve your job satisfaction?')

contain several relevant suggestions (Appendix D), it appears that the necessary information might be readily available, but needs only to be solicited through communication with those to whom it is of greatest concern - the nurses themselves.

Directions for future research

In the preceding discussion, and in the model of figure 2, the point has been made that a proper understanding of stress requires that both of the components - outcomes and predictions -, required to create a state of imbalance, must be considered. It seems then that future research could benefit from a more thorough analysis of job-related expectations and the attitudes underlying them, in relation to the objective and perceived nature of the work setting. In addition to such measures, a concurrent assessment of individual susceptibility to imbalance would be desirable.

Within this context, useful information could be obtained from a prospective approach in which the expectations, personality characteristics, and anxiety levels in nurses are measured prior to placement and after some time within the setting, so that measures not only of imbalance, but of its change as a function of adjustment could be obtained. This work could be usefully coupled with laboratory measurements of individual characteristics which determine adjustment to a change in conditions. The practical objective of such work would be to identify areas of nursing education and preparation which need more attention, and may also help in the identification of those most likely to have problems, and who could become the prime target of support.

There are a number of avenues down which research could proceed, now that the initial work reported here has been done. For instance, a more detailed study of the interaction of the types of patient and condition encountered on Women's Medical, with the attitudes, expectations, and other salient information sets of the nurses, might lead to a more positive identification of the sources of anxiety and depression, which the present results indicated for the ward. It is important however that such research be conducted under less constraining circumstances than the present study so that, in particular, the problem of small sample sizes encountered on the Women's Medical and Surgical-2 wards, would be avoided. The results obtained here indicate points at which the present work could be

refined, largely by systematic development of the questionnaire. For instance, many low stress items could be deleted, and the apparent redundancy of measuring self esteem, state anxiety and neuroticism could be overcome by choice of a single appropriate personality measure, to give a more compact questionnaire. The chance of Type II statistical error (acceptance of false positives) would be decreased if the number of items was smaller. In addition, it would be reasonable to apply more stringent statistical criteria for identification of relevant items, than were appropriate to the present study, which was essentially exploratory in nature. But the uncertainties surrounding this type of research dictate that attention should, in the first place, be directed urgently at defining what is, and what is not being measured, for at the moment a very large pyramid of results is being built on a somewhat flimsy foundation.

A thorough study is required of the way in which the factors known to influence questionnaire-answering behaviour (Anastasi, 1982; Cronbach, 1984) impinge on occupational studies such as the present one. The aim should be to establish the role of external and individual factors in determining the patterns of systematic distortion which may result, for instance, from demand characteristics and misattribution.

More appropriate validators of stress questionnaires appear in need of development. At present they are couched mostly in terms of depression and anxiety, but pay little attention to the reactions, or hyperreactions (perhaps typified in the Type A coronary-prone individual), which represent an alternative action-based response to stress, in which a relatively minor role is played by the behaviour inhibition system.

In view of the role of a comparator in assessing the correspondence between information sets, the logical identity of the comparator acting during behaviour inhibition and cognition, the probable site of the comparator in the septo-hippocampal system (Gray, 1982), and the role of this system in anxiety, it is apparent that possibilities exist for a broad yet coherent field of research. This could involve the interrelationships of personality, decision making, cognitive activity, depression onset, neurotransmitter changes and so on, within a single unifying framework.

The area of research where great advances appear possible is that which attempts to relate behaviour to the biological systems

underlying information processing. To date, Gray's (1982) well supported theory of the role of the septo-hippocampal system in behaviour inhibition and anxiety, is one of only a few comprehensive theories relating biology and behaviour in general. It seems that the psychological concepts used in stress research would prove more valid and useful if based on the concrete neurobiological underpinnings and biological origins of behaviour.

CONCLUSION

Although the present thesis has been restricted to the psychological level, the approach it has taken to nursing stress has been based on the premise that, in the final analysis, behaviour is governed by a limited number of biological principles, and involves a limited number of response types. These are a function of the operation of an information processing system which has evolved with an economical capacity to categorise a potentially infinite array of environmental stimuli. It does so in terms of the relationship of these stimuli to a few inbuilt criteria of survival value. It does not do so in terms of abstract concepts such as roles, tasks, organisational levels, and so on. Although such concepts may be appropriate for organising information in the context of social science research, they do not represent the information categories which the human system is constructed to use as a basis for response to the environment. By taking cognizance of this, the present thesis has attempted to examine nursing stress in a context in which person-environment imbalance is more closely related to the systems whose operation underlies the many manifestations of the 'stress syndrome'.

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APPENDIX A

Questionnaire Booklets 1 and 2.

PATTERNS OF EXPERIENCE IN HOSPITAL SETTINGS

Booklet 1

Introduction to Booklet 1.

This questionnaire was designed by a research team at Massey University with helpful criticism from a range of nursing and medical staff at your hospital.

One aim of the questionnaire is to obtain a picture of how hospital wards differ in the events and conditions which their personnel experience. It will also explore the patterns in which personnel are affected by certain aspects of their jobs while others are affected by other aspects.

This is an important study. The results may not only be useful in optimising your own work environment but also they will be published in an international research journal and thereby contribute to knowledge required world-wide on health care systems. But for the information to be useful it is imperative that your answers provide an accurate picture of your job experiences, so we will be very grateful if you make the little effort required to answer it correctly.

To help achieve accuracy please make sure that your answers refer to:

(1) Your own personal experiences
(2) Your actual feelings and reactions, not those which you think you should have, or think to be socially desirable. This is a serious problem with questionnaires of this type and is not a reflection of your honesty, but of the way we all act in everyday life.

To help ensure that your own personal experiences are reported please do not discuss the survey items with anyone until you have completed the questionnaire.

So that you feel free to report your actual experiences and feelings the research team guarantees that all completed questionnaires will be treated as completely confidential.

(1) At no stage will the identity of the respondents be sought. Such information is in any case irrelevant to scientific research, which aims to generalise beyond specific individuals places and times.
(2) No member of the hospital staff will see any completed questionnaire.
(3) The questionnaires will be destroyed as soon as the data has been analysed.

Your contribution to this work will be greatly appreciated. Should you have any problems at all with the questionnaire I will be happy to advise you. My contact phone number is 82699 in the evenings.

Thank you for taking part in this study.

John Monro

QUESTIONNAIRE MATCHING CODE

Depending on the results of this survey we may want to make a short "follow-up" survey. If so, we will want to match this questionnaire and any follow-up for each person surveyed. To enable us to do this we have provided a space for you to enter some code - any number and/or letter sequence, name, sign etc., of your choice that you can put on this and any subsequent questionnaire to allow us to pair them.

N.B. Please make a note of the code you choose, and/or make it one that you will not forget.

Please enter your code in the following space:

_____

SECTION A

Biographical

1. What is the title of your present position?

2. On what ward do you work?

3. How long have you worked on this ward?

_____years _____months

4. How long is it since you completed formal training?

_____years _____months

5. What is your age?

Please tick the appropriate alternative.

Under 20 years ☐
20-25 years ☐
25-35 years ☐
35-50 years ☐
Over 50 years ☐

6. How many years experience have you had in your present occupation?

_____years

7. How many hours per week do you work at this hospital?

_____hours

SECTION B
Job Events

In this section you are given a list of events which you may encounter in the course of your work. Please indicate, as outlined below, how frequently they happen to you, and how they affect you.

Column 1. How frequently does the event happen to you?

Please place the appropriate score from the following scale into Column 1.

If the question is not applicable to you put NA.

Frequency	Score
The event does not happen to you at all	0
It happens to you less than once a month	1
It happens to you 1-3 times per month	2
It happens to you 1-3 times per week	3
It happens to you 4-6 times per week	4
It happens to you 1-4 times per day	5
It happens to you 5-8 times per day	6
It happens to you more than once per hour	7

Column 2. How stressful do you generally find the event to be?

Please place the appropriate score from the following scale into Column 2.

Stressfulness	Score
Not at all stressful	0
Slightly stressful	1
Moderately stressful	2
Very stressful	3
Extremely stressful	4

5

SECTION B

Job Events

Place the appropriate scores for each event in Columns 1 and 2.

Column 1. Frequency		Column 2. Stressfulness	
Not at all	= 0	Not at all	= 0
Under once/mo.	= 1	Slightly	= 1
1-3/month	= 2	Moderately	= 2
1-3/week	= 3	Very	= 3
4-6/week	= 4	Extremely	= 4
1-4/day	= 5		
5-8/day	= 6		
Over 1/hour	= 7		

	How frequently does it happen to you?	How stressful do you find it?
	1	2
eg You stop work for coffee	5	0
1. You are given too many details		
2. You have to work with unclear directions		
3. Someone with special knowledge is not available when required urgently		
4. Your work is interrupted		
5. There is a change in procedures		
6. You have to work with staff who operate differently to you		
7. Your superiors make conflicting demands		
8. You have to use difficult equipment		
9. You have to use difficult drugs		
10. You have to make a difficult (critical) decision		
11. A patient's condition deteriorates <u>despite</u> treatment		
12. Your patient's condition seems to deteriorate <u>because of</u> treatment		
13. You give a treatment which you feel to be of doubtful value		

Place the appropriate scores for each event in Columns 1 and 2.

Column 1. Frequency		Column 2. Stressfulness	
Not at all	= 0	Not at all	= 0
Under once/mo.	= 1	Slightly	= 1
1-3/month	= 2	Moderately	= 2
1-3/week	= 3	Very	= 3
4-6/week	= 4	Extremely	= 4
1-4/day	= 5		
5-8/day	= 6		
Over 1/hour	= 7		

	How frequently does it happen to you?	How stressful do you find it?
	1	2
14. You have to use treatment which seems inappropriate to you		
15. You use a procedure which causes the patient pain		
16. You have to use a procedure that you do not agree with		
17. You have to treat a patient without adequate knowledge of his/her condition		
18. You look after a patient who is in a critical and unstable condition		
19. You think your patient's life is being unnecessarily prolonged		
20. You have to look after a dying patient		
21. A patient dies unexpectedly		
22. A patient with whom you have developed a close relationship dies		
23. A patient questions you for details of his/her condition, which you know has a poor prognosis.		
24. You do not know how much you should tell a patient when he/she questions you		
25. When a patient questions you about their condition you withhold information which you know would be important to them.		

Place the appropriate scores for each event in Columns 1 and 2.

Column 1. Frequency		Column 2. Stressfulness	
Not at all	= 0	Not at all	= 0
Under once/mo.	= 1	Slightly	= 1
1-3/month	= 2	Moderately	= 2
1-3/week	= 3	Very	= 3
4-6/week	= 4	Extremely	= 4
1-4/day	= 5		
5-8/day	= 6		
Over 1/hour	= 7		

	How frequently does it happen to you?	How stressful do you find it?
	1	2
26. You withhold important information of a patient's condition from their family		
27. A patient's family blames you for a deterioration in the patient's condition		
28. A patient's family will not cooperate		
29. You are unable to gain the trust of a patient's family		
30. The family of a patient asks for a prognosis, which you know to be poor		
31. You have to break bad news of a patient to his/her family		
32. A patient's family looks to you for emotional support		
33. You want to help a patient emotionally but don't know how to		
34. You would like to give a patient more emotional support but feel that it is not permissible to do so		
35. You want to give a patient emotional support but are too busy		
36. You deal with a patient whose illness has caused severe disfigurement		
37. You deal with a patient who has an advanced degenerative illness		

Place the appropriate scores for each event in Columns 1 and 2.

Column 1. Frequency		Column 2. Stressfulness	
Not at all	= 0	Not at all	= 0
Under once/mo.	= 1	Slightly	= 1
1-3/month	= 2	Moderately	= 2
1-3/week	= 3	Very	= 3
4-6/week	= 4	Extremely	= 4
1-4/day	= 5		
5-8/day	= 6		
Over 1/hour	= 7		

	How frequently does it happen to you?	How stressful do you find it?
	1	2
38. You deal with a patient who has a medical condition which you find offensive		
39. You deal with a patient who is in constant severe pain		
40. You try unsuccessfully to relieve a patient's constant severe pain		
41. You interact closely with a patient who is uncooperative		
42. You interact closely with a patient who is depressed		
43. You interact closely with a patient who will not trust you		
44. You interact closely with a patient who is resentful (bitter)		
45. You interact closely with a patient who is frightened about the outcome of their condition		
46. The patient you deal with seems to have nothing left to look forward to		
47. You find yourself worrying that what is happening to your patient may some day happen to you		
48. You have to work with a staff member who is depressed about work		

Place the appropriate scores for each event in Columns 1 and 2.

Column 1. Frequency		Column 2. Stressfulness	
Not at all	= 0	Not at all	= 0
Under once/mo.	= 1	Slightly	= 1
1-3/month	= 2	Moderately	= 2
1-3/week	= 3	Very	= 3
4-6/week	= 4	Extremely	= 4
1-4/day	= 5		
5-8/day	= 6		
Over 1/hour	= 7		

	How frequently does it happen to you? 1	How stressful do you find it? 2
49. You have to work with a staff member who has become irritable		
50. A senior staff member questions your competence		
51. A junior staff member is disrespectful to you		
52. A senior staff member is rude to you		
53. You have a "personality clash" with a staff member		
54. You have to work with someone who hinders you		
55. You try to use your professional skills and initiative but are prevented from doing so		
56. Other hospital staff are unhelpful or obstructive with equipment or information		
57. Another staff member is inconsiderate in expecting you to help them at an inconvenient time		

There may be some events which you consider important, but which have not been included in this questionnaire. If so, please list them below and score them in columns 1-2 as for the above events.

	1	2

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SECTION C

Emotional reactions to work events.

In Section B you gave a stress rating to each of the listed events. In this section you are asked to be more specific and indicate the types of feeling you have in response to those events from Section B to which you gave a stress rating (Column 2, Section B) of 3 or 4.

NB. Complete this section only for those events from section B to which you gave a stress score of 3 or 4.

Column 1

In column 1 put the number of the Section B event.

Column 2

Adjacent to column 2 is a list of emotions. Into column 2 place the letter(s) corresponding to the emotion(s) which most nearly describe(s) what you feel in response to the event.

If you do not think that any of the given emotions can adequately describe what you feel, and wish to write some other emotion next to the event number, please do so.

<u>Column 1</u>.

Place number eg of section B event given stressfulness score of 3 or 4 into Column 1

Column 1	Column 2
67	i,j

<u>Column 2</u>.

Place letter(s) corresponding to emotion(s) you felt at time of event into Column 2.

Letter	Emotion
(a)	anger
(b)	annoyance
(c)	fear
(d)	anxiety
(e)	helplessness
(f)	frustration
(g)	sadness
(h)	grief
(i)	disgust
(j)	guilt
(k)	affection
(l)	pleasure
(m)	interest
(n)	excitement
(o)	relief
(p)	boredom
(q)	don't know, just feel bad.

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SECTION D
Job conditions

This section deals with job conditions which you may experience. Please fill the columns in as follows.

Column 1. Do you experience the job condition?
If yes place a tick in column 1
If no place a cross in column 1
If not applicable place NA in column 1

Column 2. (Score column 2 only for conditions ticked in column 1).
How stressful do you find the job condition to be?
Place the appropriate score in column 2

Stressfulness	Score
Not at all stressful	0
Slightly stressful	1
Moderately stressful	2
Very stressful	3
Extremely stressful	4

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SECTION D

Job conditions

Column 1

If yes tick
If no cross
If not applicable NA

Column 2

Not at all stressful = 0
Slightly stressful = 1
Moderately stressful = 2
Very stressful = 3
Extremely stressful = 4

		Do you experience the job condition?	How stressful do you find it?
		1	2
1.	Too many bosses		
2.	Uncertainty about the degree of authority you have		
3.	Being unclear of your responsibilities		
4.	Not being given enough authority		
5.	Too much control over your work		
6.	Inability to influence decisions		
7.	Lack of policies and guidelines		
8.	Unresponsive hospital hierarchy		
9.	Excessive bureaucracy		
10.	Not enough on-the-job guidance from experienced staff		
11.	Not enough formal training for your job		
12.	Inadequate preparation to deal with patient's emotions		
13.	Inadequate preparation to deal with emotions of patient's relatives		
14.	Not enough help in dealing with your own emotional reactions to work events		
15.	Inadequate continuing education		

Column 1
If yes tick
If no cross
If not applicable NA

Column 2
Not at all stressful = 0
Slightly stressful = 1
Moderately stressful = 2
Very stressful = 3
Extremely stressful = 4

		Do you experience the job condition?	How stressful do you find it?
		1	2
16.	Poor communication between staff		
17.	Lack of teamwork amongst staff		
18.	Conflict between staff members		
19.	Poor staff morale		
20.	Not enough opportunity to share experiences with other staff members		
21.	Unacceptability of expressing negative feelings to other staff members		
22.	Inadequate resources		
23.	Too great a work load for high quality work		
24.	Too many tasks not relevant to your speciality		
25.	Inadequate staffing		
26.	Inadequate equipment		
27.	Unpredictable staffing		
28.	Not knowing opportunities for promotion and advance		
29.	Lack of feedback on your performance from other staff		
30.	Work area overcrowded		
31.	Work area poorly designed		
32.	Work load too heavy		

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Column 1

If yes tick
If no cross
If not applicable NA

Column 2

Not at all stressful = 0
Slightly stressful = 1
Moderately stressful = 2
Very stressful = 3
Extremely stressful = 4

	Do you experience the job condition? 1	How stressful do you find it? 2
33. Work hours, shifts difficult to adjust to		
34. Repetitive and boring jobs		
35. Gloomy atmosphere		
36. Pay inadequate		
37. Insufficient recognition of the value of your work		
38. Unresponsive illnesses		
39. Your life away from work is disrupted by your job		
40. Having to work close to death and illness		
41. Depressed patients		

If there are any other job conditions which affect you please enter them below.

42.		
43.		
44.		

SECTION E

Sources of Satisfaction

In this section you are given a short list of events which may be sources of job satisfaction for you.

Column 1. Please indicate how frequently you experience the source of satisfaction by placing the appropriate score from the following scale into Column 1.

Frequency	Score
Does not happen to you at all	0
Happens to you less than once a month	1
Happens to you 1-3 times per month	2
Happens to you 1-3 times per week	3
Happens to you 4-6 times per week	4
Happens to you 1-4 times per day	5
Happens to you 5-8 times per day	6
Happens to you more than once per hour	7

Column 2. How satisfying or pleasing do you find the event to be?

Place the appropriate score from the following scale into Column 2.

Degree to which satisfying	Score
Not at all	0
Slightly	1
Moderately	2
Very	3
Extremely	4

SECTION E

Sources of Satisfaction

Column 1. Frequency

Not at all	= 0
Under 1/mo	= 1
1-3/month	= 2
1-3/week	= 3
4-6/week	= 4
1-4/day	= 5
5-8/day	= 6
Over 1/hr	= 7

Column 2. Degree to which satisfying

Not at all	= 0
Slightly	= 1
Moderately	= 2
Very	= 3
Extremely	= 4

	How frequently does it happen to you?	How much satisfaction does it give you?
	1	2
1. You notice a definite improvement in your patient's condition		
2. Your patient is in a cheerful mood.		
3. You succeed in raising a patient's level of optimism		
4. The patient is grateful to you for your work		
5. The patient's family expresses their appreciation		
6. Another staff member compliments you on your work		
7. You contribute to a significant decision regarding patient care		
8. You are able to apply your professional skill and initiative to your job		
9. An intellectually stimulating situation occurs		
10. You feel that you are developing a good relationship with a patient		
11. An event occurs which you feel has made a worthwhile contribution to your knowledge or skill		
12. The ward staff all cooperate and work effectively as a team		

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SECTION F
General

Please answer the following questions in the column provided.

In each case put the appropriate score into the column, or tick the appropriate alternative.

1. How do you feel at the end of a shift?
   For <u>each</u> of the feelings listed below indicate how frequently it is the way you feel at the end of a shift, by placing the score for each feeling into the column next to the feeling concerned.

Score	
never	0
occasionally	1
quite often	2
usually	3
always	4

	Feelings	
eg	well	3
	satisfied	
	dejected	
	angry	
	cheerful	
	drained	
	frustrated	
	wanted	
	tense	
	peaceful	
	confident	
	inadequate	
	useful	
	burdened	
	relieved	
	glad to have chosen job	
	wishing you could leave job	

2. Do you have someone in whom you feel you can confide and turn to for advice on coping at work?

Yes	
No	

If no: Do you wish that such a person was available to help with problems of

(a) work,

Yes	
No	

(b) life in general?

Yes	
No	

3. Is there someone with whom you have a close affectionate relationship?

Yes	
No	

If yes: Do you think it helps you appreciably to cope with any job stress you might have?

Yes	
No	

4. What is the general tone of your life outside hospital?

dreadful	
poor	
passable	
good	
wonderful	

5. If you had a completely free choice, which of the following alternatives would you choose?

(a) Stay in your present position	
(b) Transfer to another location in the same hospital	
(c) Transfer to another hospital but on a similar ward	
(d) Change to a different hospital and a different ward	
(e) Change your occupation completely	

6. Are you planning to leave your present position either because you dislike it or have found another you prefer

Yes	
No	

If yes, which alternative in question 5 applies. Place appropriate letter into column.

7.(a) On which ward did you work immediately prior to your present ward?

_____

(b) How did its stressfulness compare with that which you now experience on your present ward?

much less	
a little less	
about the same	
a little more	
much more	

8. In your experience, how do you rate the <u>overall</u> stressfulness of your present job?

not at all stressful	
slightly stressful	
moderately stressful	
very stressful	
extremely stressful	

9. Do you have strong religious beliefs which you feel help you cope with work?

Yes	
No	

10. Three major categories of role are given in the table below. By ticking the appropriate box please indicate for the (a)'s the extent to which you would like the role to be part of your job. That is, its importance to your ideal conception of your job, and for the (b)'s the extent to which you actually do have to carry out the role in your present job.

Thus, for each role tick one box for the ideal (a) and one for the actual (b) part the role plays in your job.

Role	Part which (a) you would like role to play, and (b) role does play in your job	Very small	Small	Moderate	Large	Very large
(1) Carrying out administrative routine so that the hospital functions effectively as an organisation	(a) ideal	☐	☐	☐	☐	☐
	(b) actual	☐	☐	☐	☐	☐
(2) Keeping up with advances in your field and applying them to decision making	(a) ideal	☐	☐	☐	☐	☐
	(b) actual	☐	☐	☐	☐	☐
(3) Keeping in close contact with patients and tending directly to their physical and emotional needs.	(a) ideal	☐	☐	☐	☐	☐
	(b) actual	☐	☐	☐	☐	☐

11. When your shift ends, to what extent do you continue to worry about your work problems while off the job?

not at all	
a little	
quite a lot	
a good deal	
nearly all the time	

12. What particular events, conditions, or other aspects of work do you find yourself worrying about when off the job?

13. What is your main reason for working in your present position?

14. What would you most like the hospital authorities to do that would improve your job satisfaction?
NB. Recommendations will be made on the basis of your answers to this question.

15. If there are any other points that you would like to make please do so.

PATTERNS OF EXPERIENCE IN HOSPITAL SETTINGS

Booklet 2

Introduction: Booklet 2

Thank you for having completed the first part of this survey.

You will be pleased to hear that Booklet 2 is much easier than Booklet 1. However, it is just as important that the questions be answered conscientiously.

Booklet 1 dealt mainly with events and conditions in your occupation, and your reaction to them. Booklet 2 deals more with longer term or characteristic ways in which you interact with the world around you. It is important to match Booklets 1 and 2 for each of you because the ways in which people habitually deal with the world will be important in determining how they respond in their work setting. We can understand the effects of occupations on people only if such individual differences are taken into account. Similarly if we want to compare wards on some particular variable without individual differences distorting or masking real difference between settings, then we must know how they differ in the kinds of people making up their staff. Such chance differences are particularly important in a study such as this where the numbers of people involved are not large in statistical terms.

As with Booklet 1 all information will be treated confidentially, and the raw data unavailable to hospital staff. Although we are interested in individual differences who the individuals are is totally irrelevant and of no interest to us at all.

Booklet 2 contains several quick questionnaires. Some of the items may seem rather trivial or silly, but they have been widely used and well validated overseas and here so that they are worth answering correctly. Some items may seem redundant, but because the tests are carefully standardized it is not possible to take out repetitive items without altering their validity.

Do not be afraid to answer all questions accurately, as these types of standardized questionnaire are analysed by applying a formula which relates groups of items and numbers of yes vs. no answers. The specific meaning of each question asked is not

considered. For example, a hypothetical questionnaire may be interpreted as follows - less than 30% of items 1-25 answered NO, over 70% items 26-40 answered YES = strong tendency to withdraw rather than be aggressive.

Thank you again for your valuable cooperation in this research.

John Monro

QUESTIONNAIRE MATCHING CODE

Please enter your code in the space

_____

Have you made a note of it in case of a follow up questionnaire?

SECTION A

This is the General Health Questionnaire. It is a standard instrument designed as a measure of "general well-being". It takes only a few minutes to complete.

Directions

We would like to know if you have had any medical complaints, and how your health has been in general, over the past few weeks. Please answer all questions below simply by circling the answer which you think most nearly applies to you. Remember, we want to know about present or recent complaints, not those you had in the past.

1. Have you recently been able to concentrate on whatever you're doing?

Better than usual	Same as usual	Less than usual	Much less than usual

2. Have you recently lost much sleep over worry?

Not at all	No more than usual	Rather more than usual	Much more than usual

3. Have you recently felt that you are playing a useful part in things?

More so than usual	Same as usual	Less useful than usual	Much less useful

4. Have you recently felt capable of making decisions about things?

More so than usual	Same as usual	Less so than usual	Much less capable

5. Have you recently felt constantly under strain?

Not at all	No more than usual	Rather more than usual	Much more than usual

6. Have you recently felt that you couldn't overcome your difficulties?

Not at all	No more than usual	Rather more than usual	Much more than usual

7. Have you recently been able to enjoy your normal day-to-day activities?

More so than usual	Same as usual	Less so than usual	Much less than usual

8. Have you recently been able to face up to your problems?

More so than usual	Same as usual	Less able than usual	Much less able

9. Have you recently been feeling unhappy and depressed?

Not at all	No more than usual	Rather more than usual	Much more than usual

10. Have you recently been losing confidence in yourself?

Not at all	No more than usual	Rather more than usual	Much more than usual

11. Have you recently been thinking of yourself as a worthless person?

Not at all	No more than usual	Rather more than usual	Much more than usual

12. Have you recently been feeling reasonably happy, all things considered?

More so than usual	About same as usual	Less so than usual	Much less happy

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SECTION B

This is another standard questionnaire and it is made up of items regarding the way you behave, feel and act.

Please answer each question by putting a circle around the "YES" or the "NO" following the question. There are no right or wrong answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the questions.

PLEASE REMEMBER TO ANSWER EACH QUESTION

1. Do you have many different hobbies..... YES NO
2. Do you stop to think things over before doing anything? ..... YES NO
3. Does your mood often go up and down?..... YES NO
4. Have you ever taken the praise for something you knew someone else had really done?..... YES NO
5. Are you a talkative person?..... YES NO
6. Would being in debt worry you?..... YES NO
7. Do you ever feel "just miserable" for no reason?.. YES NO
8. Were you ever greedy by helping yourself to more than your share of anything?..... YES NO
9. Do you lock up your house carefully at night?..... YES NO
10. Are you rather lively?..... YES NO
11. Would it upset you a lot to see a child or an animal suffer?..... YES NO
12. Do you often worry about things you should not have done or said?..... YES NO
13. If you say you will do something, do you always keep your promise no matter how inconvenient it might be?..... YES NO
14. Can you usually let yourself go and enjoy yourself at a lively party?..... YES NO
15. Are you an irritable person?..... YES NO
16. Have you ever blamed someone for doing something you knew was really your fault?..... YES NO

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17. Do you enjoy meeting new people? ..... YES NO

18. Do you believe insurance schemes are a good idea.. YES NO

19. Are your feelings easily hurt?..... YES NO

20. Are <u>all</u> your habits good and desirable ones?..... YES NO

21. Do you tend to keep in the background on social occasions?..... YES NO

22. Would you take drugs which may have strange or dangerous effects?..... YES NO

23. Do you often feel "fed-up"?..... YES NO

24. Have you ever taken anything (even a pin or button) that belonged to someone else?..... YES NO

25. Do you like going out a lot?..... YES NO

26. Do you enjoy hurting people you love?..... YES NO

27. Are you often troubled about feelings of guilt?... YES NO

28. Do you sometimes talk about things you know nothing about?..... YES NO

29. Do you prefer reading to meeting people?..... YES NO

30. Do you have enemies who want to harm you?..... YES NO

31. Would you call yourself a nervous person?..... YES NO

32. Do you have many friends?..... YES NO

33. Do you enjoy practical jokes that can sometimes really hurt people?..... YES NO

34. Are you a worrier?..... YES NO

35. As a child did you do as you were told immediately and without grumbling?..... YES NO

36. Would you call yourself happy-go-lucky?..... YES NO

37. Do good manners and cleanliness matter much to you?..... YES NO

38. Do you worry about awful things that might happen? YES NO

39. Have you ever broken or lost something belonging to someone else?..... YES NO

40.	Do you usually take the initiative in making new friends?.....	YES	NO
41.	Would you call yourself tense or "highly-strung"?	YES	NO
42.	Are you mostly quiet when you are with other people?.....	YES	NO
43.	Do you think marriage is old-fashioned and should be done away with?.....	YES	NO
44.	Do you sometimes boast a little?.....	YES	NO
45.	Can you easily get some life into a rather dull party?.....	YES	NO
46.	Do people who drive carefully annoy you?.....	YES	NO
47.	Do you worry about your health?.....	YES	NO
48.	Have you ever said anything bad or nasty about anyone?.....	YES	NO
49.	Do you like telling jokes and funny stories to your friends?.....	YES	NO
50.	Do most things taste the same to you?.....	YES	NO
51.	As a child were you ever cheeky to your parents?.	YES	NO
52.	Do you like mixing with people?.....	YES	NO
53.	Does it worry you if you know there are mistakes in your work?.....	YES	NO
54.	Do you suffer from sleeplessness?.....	YES	NO
55.	Do you always wash before a meal?.....	YES	NO
56.	Do you nearly always have a "ready answer" when people talk to you?.....	YES	NO
57.	Do you like to arrive at appointments in plenty of time?.....	YES	NO
58.	Have you often felt listless and tired for no reason?.....	YES	NO
59.	Have you ever cheated at a game?.....	YES	NO
60.	Do you like doing things in which you have to act quickly?.....	YES	NO
61.	Is (or was) your mother a good woman?.....	YES	NO
62.	Do you often feel life is very dull?.....	YES	NO

63.	Have you ever taken advantage of someone?	YES	NO
64.	Do you often take on more activities than you have time for?.....	YES	NO
65.	Are there several people who keep trying to avoid you?.....	YES	NO
66.	Do you worry a lot about your looks?.....	YES	NO
67.	Do you think people spend too much time safeguarding their future with savings and insurances?.....	YES	NO
68.	Have you ever wished that you were dead?.....	YES	NO
69.	Would you dodge paying taxes if you were sure you could never be found out?.....	YES	NO
70.	Can you get a party going?.....	YES	NO
71.	Do you try not to be rude to people?.....	YES	NO
72.	Do you worry too long after an embarrassing experience?.....	YES	NO
73.	Have you ever insisted on having your own way?...	YES	NO
74.	When you catch a train do you often arrive at the last minute?.....	YES	NO
75.	Do you suffer from "nerves"?.....	YES	NO
76.	Do your friendships break up easily without it being your fault?.....	YES	NO
77.	Do you often feel lonely?.....	YES	NO
78.	Do you always practice what you preach?.....	YES	NO
79.	Do you sometimes like teasing animals?.....	YES	NO
80.	Are you easily hurt when people find fault with you or the work you do?.....	YES	NO
81.	Have you ever been late for an appointment or work?.....	YES	NO
82.	Do you like plenty of bustle and excitement around you?.....	YES	NO
83.	Would you like other people to be afraid of you?.	YES	NO
84.	Are you sometimes bubbling over with energy and sometimes very sluggish?.....	YES	NO

85. Do you sometimes put off until tomorrow what you ought to do today?..... YES NO

86. Do other people think of you as being very lively?..... YES NO

87. Do people tell you a lot of lies?..... YES NO

88. Are you touchy about some things?..... YES NO

89. Are you always willing to admit it when you have made a mistake?..... YES NO

90. Would you feel very sorry for an animal caught in a trap?..... YES NO

PLEASE CHECK TO SEE THAT YOU HAVE ANSWERED ALL THE QUESTIONS.

SECTION C

This is a standard questionnaire made up of a number of statements which people have used to describe themselves. It has two parts.

Part 1 (questions 1-20) is concerned with how you feel at this moment, that is, at the time you are answering the questionnaire.

Part 2 (questions 21-40) deals with how you generally feel.

Part 1. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel right now, that is, at this moment. 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 your present feelings best.

		Not at all	Somewhat	Moderately so	Very much so
eg	I feel detached	1	(2)	3	4
1.	I feel calm.....	1	2	3	4
2.	I feel secure.....	1	2	3	4
3.	I am tense.....	1	2	3	4
4.	I am regretful.....	1	2	3	4
5.	I feel at ease.....	1	2	3	4
6.	I feel upset.....	1	2	3	4
7.	I am presently worrying over possible misfortunes.....	1	2	3	4
8.	I feel rested.....	1	2	3	4
9.	I feel anxious.....	1	2	3	4
10.	I feel comfortable.....	1	2	3	4
11.	I feel self-confident.....	1	2	3	4

		Not at all	Somewhat	Moderately so	Very much so
12.	I feel nervous.....	1	2	3	4
13.	I am jittery.....	1	2	3	4
14.	I feel "high strung".....	1	2	3	4
15.	I am relaxed.....	1	2	3	4
16.	I feel content.....	1	2	3	4
17.	I am worried.....	1	2	3	4
18.	I feel over-excited and "rattled".....	1	2	3	4
19.	I feel joyful.....	1	2	3	4
20.	I feel pleasant.....	1	2	3	4

Part 2. Read each statement and then circle the appropriate number 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
21.	I feel pleasant.....	1	2	3	4
22.	I tire quickly.....	1	2	3	4
23.	I feel like crying.....	1	2	3	4
24.	I wish I could be as happy as others seem to be.....	1	2	3	4
25.	I am losing out on things because I can't make up my mind soon enough.....	1	2	3	4

12

		Almost never	Sometimes	Often	Almost always
26.	I feel rested.....	1	2	3	4
27.	I am "calm, cool and collected".....	1	2	3	4
28.	I feel that difficulties are piling up so that I cannot overcome them.....	1	2	3	4
29.	I worry too much over something that really doesn't matter.....	1	2	3	4
30.	I am happy.....	1	2	3	4
31.	I am inclined to take things hard.....	1	2	3	4
32.	I lack self-confidence.....	1	2	3	4
33.	I feel secure.....	1	2	3	4
34.	I try to avoid facing a crisis or difficulty.....	1	2	3	4
35.	I feel blue.....	1	2	3	4
36.	I am content.....	1	2	3	4
37.	Some unimportant thought runs through my mind and bothers me.....	1	2	3	4
38.	I take disappointments so keenly that I can't put them out of my mind.....	1	2	3	4
39.	I am a steady person.....	1	2	3	4
40.	I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4

13

SECTION D

A series of statements is given below.

If the statement describes how you usually feel circle the letter L in the column "Like me".
If the statement does not describe how you usually feel circle the letter U in the column "Unlike me".

There are no right or wrong answers.

		Like me(L)	Unlike me(U
eg	I usually overeat	(L)	U
1.	I often wish I were someone else	L	U
2.	I find it very hard to talk in front of a group	L	U
3.	There are lots of things about myself I'd change if I could	L	U
4.	I can make up my mind without too much trouble	L	U
5.	I'm a lot of fun to be with	L	U
6.	I get upset easily at home	L	U
7.	It takes me a long time to get used to anything new	L	U
8.	I'm popular with people my own age	L	U
9.	My family expects too much of me	L	U
10.	My family usually consider my feelings	L	U
11.	I give in very easily	L	U
12.	It's pretty tough to be me	L	U
13.	Things are all mixed up in my life	L	U
14.	Other people usually follow my ideas	L	U
15.	I have a low opinion of myself	L	U
16.	There are many times when I'd like to leave home	L	U
17.	I often feel upset about the work that I do	L	U

		Like me(L)	Unlike me
18.	I'm not as nice looking as most people	L	U
19.	If I have something to say, I usually say it	L	U
20.	My family understands me	L	U
21.	Most people are better liked than I am	L	U
22.	I usually feel as if my family is pushing me	L	U
23.	I often get discouraged at what I am doing	L	U
24.	Things usually don't bother me	L	U
25.	I can't be depended upon	L	U
26.	I seldom worry about anything	L	U
27.	I'm proud of my work	L	U
28.	I'm often sorry for the things I do	L	U
29.	I'm not doing as well at work as I'd like to	L	U
30.	My superiors make me feel I'm not good enough	L	U
31.	I'm a failure	L	U
32.	I get easily upset when I'm criticized	L	U

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SECTION E

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1	0	I do not feel sad
	1	I feel sad
	2	I am sad all the time and I can't snap out of it
	3	I am so sad or unhappy that I can't stand it
2	0	I am not particularly discouraged about the future
	1	I feel discouraged about the future
	2	I feel I have nothing to look forward to
	3	I feel that the future is hopeless and that things cannot improve
3	0	I do not feel like a failure
	1	I feel I have failed more than the average person
	2	As I look back on my life, all I can see is a lot of failures
	3	I feel I am a complete failure as a person
4	0	I get as much satisfaction out of things as I used to
	1	I don't enjoy things the way I used to
	2	I don't get real satisfaction out of anything anymore
	3	I am dissatisfied or bored with everything
5	0	I don't feel particularly guilty
	1	I feel guilty a good part of the time
	2	I feel quite guilty most of the time
	3	I feel guilty all of the time

6	0	I don't feel I am being punished
	1	I feel I may be punished
	2	I expect to be punished
	3	I feel I am being punished
7	0	I don't feel disappointed in myself
	1	I am disappointed in myself
	2	I am disgusted with myself
	3	I hate myself
8	0	I don't feel I am any worse than anybody else
	1	I am critical of myself for my weaknesses or mistakes
	2	I blame myself all the time for my faults
	3	I blame myself for everything bad that happens
9	0	I don't have any thoughts of killing myself
	1	I have thoughts of killing myself, but I would not carry them out
	2	I would like to kill myself
	3	I would kill myself if I had the chance
10	0	I don't cry anymore than usual
	1	I cry more now than I used to
	2	I cry all the time now
	3	I used to be able to cry, but now I can't cry even though I want to
11	0	I am no more irritated now than I ever am
	1	I get annoyed or irritated more easily than I used to
	2	I feel irritated all the time now
	3	I don't get irritated at all by the things that used to irritate me
12	0	I have not lost interest in other people
	1	I am less interested in other people than I used to be
	2	I have lost most of my interest in other people
	3	I have lost all of my interest in other people

17

13	0	I make decisions about as well as I ever could
	1	I put off making decisions more than I used to
	2	I have greater difficulty in making decisions than before
	3	I can't make decisions at all anymore
14	0	I don't feel I look any worse than I used to
	1	I am worried that I am looking old or unattractive
	2	I feel that there are permanent changes in my appearance that make me look unattractive
	3	I believe that I look ugly
15	0	I can work about as well as before
	1	It takes an extra effort to get started at doing something
	2	I have to push myself very hard to do anything
	3	I can't do any work at all
16	0	I can sleep as well as usual
	1	I don't sleep as well as I used to
	2	I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
	3	I wake up several hours earlier than I used to and cannot get back to sleep
17	0	I don't get more tired than usual
	1	I get tired more easily than I used to
	2	I get tired from doing almost anything
	3	I am too tired to do anything
18	0	My appetite is no worse than usual
	1	My appetite is not as good as it used to be
	2	My appetite is much worse now
	3	I have no appetite at all anymore
19	0	I haven't lost much weight, if any lately
	1	I have lost more than 5 pounds
	2	I have lost more than 10 pounds
	3	I have lost more than 15 pounds

I am purposely trying to lose weight by eating less. Yes___No___

20
0 I am no more worried about my health than usual
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation
2 I am very worried about physical problems and it's hard to think of much else
3 I am so worried about my physical problems, that I cannot think about anything else

21
0 I have not noticed any recent change in my interest in sex
1 I am less interested in sex than I used to be
2 I am much less interested in sex now
3 I have lost interest in sex completely

19

SECTION F

Given below are 32 pairs of statements. For every pair, please indicate the alternative with which you agree, or most nearly agree. Do this by circling the appropriate letter to the right of the alternative with which you agree.

eg

a. These days you just have to accept that a certain proportion of shop goods will be unsound (a)

b. One has a right to demand proper service if it is paid for b

1.a Children get into trouble because their parents punish them too much a

b The trouble with most children nowadays is that their parents are too easy with them b

2.a Many of the unhappy things in people's lives are partly due to bad luck a

b People's misfortunes result from the mistakes they make b

3.a One of the major reasons why we have wars is because people don't take enough interest in politics a

b There will always be wars, no matter how hard people try to prevent them b

4.a In the long run people get the respect they deserve in this world a

b Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries b

5.a The idea that teachers are unfair to students is nonsense a

b Most students don't realise the extent to which their grades are influenced by accidental happenings b

6.a Without the right breaks one cannot be an effective leader a

b Capable people who fail to become leaders have not taken advantage of their opportunities b

7.a	No matter how hard you try some people just don't like you	a
b	People who can't get others to like them don't understand how to get along with others	b
8.a	Heredity plays the major role in determining one's personality	a
b	It is one's experiences in life which determine what one is like	b
9.a	I have often found that what is going to happen will happen	a
b	Trusting to fate has never turned out as well for me as making a decision to take a definite course of action	b
10.a	In the case of the well prepared student there is rarely if ever such a thing as an unfair test	a
b	Many times exam questions tend to be so unrelated to course work that studying is really useless	b
11.a	Becoming a success is a matter of hard work, luck has little or nothing to do with it	a
b	Getting a good job depends mainly on being in the right place at the right time	b
12.a	The average citizen can have an influence in government decisions	a
b	This world is run by the few people in power, and there is not much the little guy can do about it	b
13.a	When I make plans, I am almost certain that I can make them work	a
b	It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow	b
14.a	There are certain people who are just no good	a
b	There is some good in everybody	b
15.a	In my case getting what I want has little or nothing to do with luck	a
b	Many times we might just as well decide what to do by flipping a coin	b

16.a Who gets to be the boss often depends on who was lucky enough to be in the right place first a

b Getting people to do the right thing depends upon ability, luck has little or nothing to do with it b

17.a As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control a

b By taking an active part in political and social affairs the people can control world events b

18.a Most people don't realise the extent to which their lives are controlled by accidental happenings a

b There really is no such thing as "luck" b

19.a One should always be willing to admit mistakes a

b It is usually best to cover up one's mistakes b

20.a It is hard to know whether or not a person really likes you a

b How many friends you have depends on how nice a person you are b

21.a In the long run the bad things that happen to us are balanced by the good ones a

b Most misfortunes are the result of lack of ability, ignorance, laziness, or all three b

22.a With enough effort we can wipe out political corruption. a

b It is difficult for people to have much control over the things politicians do in office b

23.a Sometimes I can't understand how teachers arrive at the grades they give a

b There is a direct connection between how hard I study and the grades I get b

24.a A good leader expects people to decide for themselves what they should do a

b A good leader makes it clear to everybody what their jobs are b

25.a Many times I feel that I have little influence over the things that happen to me a

b It is impossible for me to believe that chance or luck plays an important role in my life b

26.a People are lonely because they don't try to be friendly a

b There's not much use in trying too hard to please people, if they like you, they like you b

27.a There is too much emphasis on athletics in high school a

b Team sports are an excellent way to build character b

28.a What happens to me is my own doing a

b Sometimes I feel that I don't have enough control over the direction my life is taking b

29.a Most of the time I can't understand why politicians behave the way they do a

b In the long run the people are responsible for bad government on a national as well as on a local level b

30.a How a patient progresses depends mainly on their makeup and on the nature of their illness, and much less on the quality of health care they receive a

b The quality of care I give can markedly improve a patient's condition b

31.a A patient's mental outlook is mainly a product of their personality and their condition, and there's little I can do to change it a

b Through my occupation I am able to significantly improve a person's mental outlook b

32.a There is no way that I can significantly influence patient-care decisions so that if I don't agree with some aspect I should just put up with it and get on with the job a

b If I don't agree with some aspect of patient care it's worth making it known as such feedback can influence relevant decisions b

APPENDIX B

Raw data matrices, means and standard deviations for frequency of events and for stressfulness of events and job conditions.

TABLE B1 EVENT FREQUENCY: ITEM BY RESPONDENT
RAW DATA MATRIX.

ITEMS (1-57)

W*

1 01071400032110200302102220112324202220221312322032022000 0
1 14262431222145533213213423232233214231112422410332123224 3
1 32351211332112401612122101011204102210111212610332010211 1
1 01161321211112300211112022010212103022332301420000000002 0
1 23173452442142523312111111111111121322111221131121111112 35
1 04455444222132433212112311111101223020223322420332022243 3
1 02261310012112311311113120011223333110111311311220001211 0
1 34264111143322224222113332121222214161433412441661303421 5
1 55475434332232633222112322222214315321332322421231111323 5
1 12251122122111312211112212110102114221211201212221011121 4
1 23264231001112412011111112111112212111111111121222001211 2
1 21154121001113112212111311121112134122112532411111011013 2
1 23251232012121213212111121000101104111210200212121011101 1
1 53175311222112110302122002011224101121111202400131111225 2
1 04352050012021303503112000111222100100001101350005005036 4
1 33171030512121600311113302021112204152223411430430023133 5

2 04371331012022431322211100110123004111211201320221020001 3
2 02051022522222521222223311211224100220225512321330020003 5
2 32161221123111311323211100000212201111111111122111100100 2
2 05171510002011201122111100010114000011116311222350112203 1
2 23061210101002200002100111010111000000003200001220230322 2
2 25365331223353513224222222121313124522223412341555145114 5
2 55375432203252224444222111033223200331013333344330004403 4
2 04361512054131101324224021010436015134523414541421256000 0
2 02121302002113123111211331023220123254337323332402101110 12
2 24472120122232322322112211032302344562623413443443033111 6
2 33263332132122111212112222111022211232112340233122111121 12

3 32275731434410501717104300001215003570665555660144011511 4
3 22152211222110101212212101012221012501112123211210001001
3 21163211313111211316112211111212122302113123311100000000
3 05474432322211321123125412111535105770331614453211212310 5
3 35352221214253424116122200012224206170331212442131011233 1
3 01264314424101312324122102011221031623123114202310011111
3 31252012333232411336312221010124004210432311432111010001 5
3 11153430333221201323222111010212002260111201321111000112 1
3 55574343333131423424113221111222125331233222441333021123 3
3 10151000001011210112110001000101000250311111121110000001 1
3 05574221234543415737212311011416306373222314633211011113 1

4 02222327332121321712111100111122101120112211222110111122 1
4 14355332233122322423222111111323222231112222321111011211 2
4 03075324623325530731210100221323312010431312221120012233 3
4 43362333433222322622211210121223213221222212312221111112 3
4 02351313312011301311111100111214201011111102212320011000 2
4 33455326533132422433323101021444215210323322221321012331 3
4 12245533434232323522212211121322204212322222423221121312 2
4 21262112142122632523311100221345014341634321430120001110 1
4 74576231123322210303225000111333212160101111430111000144 2
4 43454234222122411422220211212122102010112211312210111102 2

5 31271313322111211212112210021213202011112311312111211212 1
5 02352322311222302211111111001111340000001111130101100010 01
5 55474336533233523322111110011213215322223211311111121101 1
5 22241223332111201411111110111112101111101111201121111101 1
5 21111212322011301201211001101122201000321101310010100101 1
5 01341134421010212412211200100122001011522312420110000100 0
5 33161611211111412202211100111225302011221213511121111111 2
5 02361221252212312401443100110345202000311301320110001010 1

6 22151352222112213222112121021112202221211211211211111112 4
6 34352431122123411112111220111222300121122211220112121323 4
6 43353222233110502212113332111213103130211211321000000213 1
6 36265001122332221444101110000121000366552202660000000000 0
6 01471010052031510213111311111112205170512222310141122121 0

7 03371534452232211223123211111223334661655512252221211012 5
7 03151100222012101122111200011121302131545313330210000120 1
7 24474541133242531322123111033305415171234323362353323322 4
7 55376332353233424523223221222224002230322222321221101013 3
7 34372451233234434432233430213344261455343233433613133225
7 13572232002242542253212322112301215771536527272342214253 4

*=WARD; 1=SURG1, 2=GMED, 3=ONCOL, 4=ICU, 5=CCU, 6=SURG2, 7=WMED

RESPONDENTS

TABLE B2 EVENT STRESSFULNESS: ITEM BY RESPONDENT
RAW DATA MATRIX.

ITEMS (1-57)

W*

1 0103100002331020020340322033234130413044222221202404200000
1 0222223123343223123022333233343222302144312301002323322231
1 2332123122442320324242130201220140403044314114034301034222
1 0112011012331130024443303202023230402133220122000000000010
1 0232212223441111133444432123333132211222311212111111211222
1 0222112212332222232333332223220232302023322222012201222221
1 0123011002231121224233222002323323333044322222212000221110
1 1222221222222122332222222233232223332213322322213231032212
1 1221122113331212232332222322232322223322222222232222322
1 2231101212222023222222312132020123311123210221211201212121
1 1132222300342334304433434244323342424234233234223002233222
1 1121121200232233223224323233333233322234112213212403303222
1 0332112304342244434444333300020340423244030032313403320223
1 2122111112222133020112100101111110211112200110011122111131
1 0222003001201110120022100033311120010000110121000400403433
1 0203102013420130033444220102233430321244322223020004322223

2 0231133103201133001021210012022000411233100101000102000001
2 0102102223223232133222332222223220012033322222222200300023
2 1122112112331131122334220000004440312234211111111140010001
2 0232011000103310333202010003012000003333412223413011110331
2 0102011000000002000001001120101110000000011000011101202311
2 1441122102122222324224222224422222243222243222224442442224
2 0412020000001400203022104204004222400443310042400000000040
2 0323021203122240143231104404034212422233222113232234400000
2 0111201002212112422342220323303233233323333332023033202 2
2 0224102012221131132223211102210122221233321323223303332 14
2 2334234444344444444243224244044134433244420344433444244 44

3 1322112002111010223220010000412200401044222111012403332 22
3 0122112212212020222123220202222220311022212111111200020 01
3 2331223113231122222223221132223212222033222233211000000 00
3 0234222134344233224234133323223220422034222233322422232 02
3 1344122324213234333224330002234230412033323333223403233 32
3 0222111002220212223323210102123120121111211101000100111 10
3 3221102312211131222103332102033200301033323221213404000 33
3 1221013012221330222121212202022100311033220223112300022 32
3 2323122113121232202132232232223222301122222223133302112 22
3 1011000000201113022023000100010100012011222222111100000 011
3 0233112113312221223234331103232330423233333333322202332 33

4 0220111001101112212122220022222110211033322212111011223 21
4 0232112112230123313123333322233222312234213214100101122 33
4 0202123212220232033124020023323231202033323233321002223 33
4 2432112223341343332243433042333233322144223222222412212 22
4 0110001214203320324223110032323330204022310222144001300 01
4 1232222112322232312133210303344432342044333322242403433 23
4 0241213214342223234234223443123240321123221111113422232 33
4 0121201011212311111002110021200000122011011211010000121 01
4 1112113001111123020222100022212122211010222112011200023 30
4 1221101113211220222132022221223110201012111111210011110 11

5 2323232243231124444313223003434330403333224324333433424 22
5 0231012223222110223222443043333230000002222220202300020 02
5 2242113324443334333223322002212122221122111221113212230 11
5 1333112102243420223233223043224220223320432310412411330 34
5 2120000112201110230112200330122110200001223021100001000 021
5 0010102111101012111111110010011100101011211111011000000 00
5 1122122123222212220232220022312110302123222112112422322 22
5 0232234104332434140434422242243224220222202330110001010 1

6 1232012213031134322134133203323230313223223223212222212 21
6 2112001003111101021001110012001110011212220010000212222 11
6 2222112212233020233233322222333230333033333332000000232
6 1122200111222212114110000000011000000012100111000000000 00
6 0134003003101010022223221132213220201012313212013423322 20

7 0323224114243444333120224412312244300444213113110001202 22
7 1322100011302330223133310002232020211133222211011000012 01
7 1333123011112123313132111103210121341433121212233333333 22
7 1231211222222322332142123233422100312023323223212332203 33
7 1444224124234434344224434404122223412344442132234444444 44
7 3233213100334342222233343242220331223423332321143123122 2

*=WARD;1=SURG1,2=GMED,3=ONCOL,4=ICU,5=CCU,6=SURG2,7=WMED

RESPONDENTS

TABLE B3 MEANS(M) AND STANDARD DEVIATIONS(SD) OF FREQUENCY SCORES FOR TEN EVENTS MOST FREQUENT OVER ALL WARDS

	WARD							
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	ALL
(2) M	2.81	3.54	2.54	2.70	2.13	3.20	3.67	2.90
SD	1.22	1.21	2.01	0.95	1.36	1.92	0.81	1.46
(4) M	5.94	5.91	5.91	5.20	5.00	5.60	6.67	5.74
SD	0.85	1.45	0.94	1.47	2.00	0.89	0.81	1.28
(6) M	2.56	2.81	2.64	2.80	2.75	1.80	3.33	2.69
SD	1.46	1.54	1.96	1.03	1.49	1.79	1.63	1.52
(15) M	3.38	2.64	3.09	3.60	3.00	3.60	3.50	3.22
SD	1.59	1.50	1.22	1.17	1.07	1.52	1.64	1.38
(18) M	2.63	2.18	3.18	4.80	2.88	2.20	2.83	2.99
SD	1.36	1.17	2.14	1.48	0.99	1.10	1.47	1.63
(32) M	2.44	2.82	3.18	4.80	2.88	2.20	2.83	2.99
SD	1.09	1.47	1.66	0.99	1.25	0.71	1.67	1.30
(35) M	3.00	2.00	3.36	2.60	1.75	2.00	4.00	2.70
SD	1.32	1.95	2.01	1.35	1.49	2.12	1.67	1.74
(37) M	2.13	2.27	5.18	2.20	0.75	4.00	5.00	2.89
SD	1.50	1.68	2.04	1.69	0.71	2.35	1.90	2.20
(42) M	2.75	3.09	2.91	2.10	2.00	2.00	3.50	2.66
SD	1.23	1.22	1.45	0.74	0.93	0.00	1.22	1.16
(45) M	3.50	2.81	3.81	2.90	3.25	3.20	2.67	3.22
SD	1.03	1.25	1.40	0.88	0.89	1.64	0.51	1.14

TABLE B4 MEANS(M) AND STANDARD DEVIATIONS(SD) FOR STRESS SCORES ON THE TEN EVENTS MOST STRESSFULL OVER ALL WARDS

	WARD							
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	ALL
(3) M	2.00	1.91	2.36	2.10	2.50	2.20	2.83	2.21
SD	0.96	1.30	0.81	1.20	0.93	0.84	0.75	1.01
(10) M	2.06	1.73	2.45	2.30	2.75	2.40	2.00	2.21
SD	1.06	1.49	1.13	1.16	1.04	0.89	1.67	1.20
(15) M	2.25	2.36	2.18	2.20	1.75	1.40	3.00	2.19
SD	0.86	1.29	0.87	0.92	0.89	1.14	0.89	1.00
(19) M	2.50	2.45	2.55	2.30	1.75	2.40	2.83	2.40
SD	1.46	1.21	0.69	1.25	1.67	1.14	0.76	1.22
(21) M	2.94	2.18	2.18	2.30	2.00	1.80	2.83	2.39
SD	1.00	1.08	0.87	1.06	0.93	1.30	0.75	1.03
(22) M	2.69	2.36	2.73	2.80	2.50	2.20	2.33	2.57
SD	1.08	1.36	1.27	0.79	0.93	1.64	1.37	1.14
(31) M	2.00	2.36	2.45	2.60	2.75	2.20	1.33	2.27
SD	1.41	1.57	1.04	1.08	1.17	1.10	1.03	1.26
(35) M	2.94	2.55	2.82	2.30	2.25	1.60	2.83	2.57
SD	1.06	1.75	1.33	0.67	1.39	1.52	0.75	1.23
(39) M	2.88	2.82	2.55	2.40	1.63	1.60	3.00	2.51
SD	1.20	1.08	0.93	1.17	0.92	0.89	0.89	1.12
(40) M	3.19	2.73	2.64	2.60	1.88	2.40	3.33	2.73
SD	1.11	1.10	1.03	1.35	0.99	0.55	0.52	1.10

TABLE B5 JOB CONDITIONS: ITEM BY RESPONDENT
RAW DATA MATRIX

W*	ITEMS (1-41)
1	00000201000220000200003032210002000123012
1	20020003200330033230323122002203122122012
1	00000001100002010200203000000000000002321
1	20000002120000020000003041200004000000123
1	11100103301233021111204143213103310013332
1	22220202200221022320003030203203210020222
1	00000002100000022230004032000013110002123
1	02002000000232322222233322012231111222222
1	20010202200002122200013232110002210222222
1	02222003300223023222003232303003000232012
1	22000202003232223211313332001103322113433
1	00220301100000030002002002001103232130 22
1	20200002234220000200003240000003400123323
1	00000000000000011000002121101002010001000
1	00000000000000000000000020301000000120000
1	01022202200000022000004302002003000011032
2	01000003000000010200013131000110000002000
2	22330002200030030220033233002333002102332
2	10000112201220021110001111111011000001121
2	00000023220000222210200103202020202000222
2	00100012220000023200001221000000012000001
2	00000000020000040430003020020013002030212
2	10000024400000040440000024404220020040300
2	02000000000003200202302011003002000000000
2	02000000002322100000000000000012000001232
2	20120202002330000320304242300203200220322
2	40030043044334030403344243404344030034243
3	02220003200000024300003042403034100010202
3	00000000002000000000000020200000000000012
3	00000230200000020303003230000000200002033
3	00000002000001132100204343301113401213242
3	00000201100000222200303220302002400200332
3	00000202100112022112101100001000010002111
3	01000002230223300300324244202004420403423
3	01022003000000000100002020201002000101011
3	20020202221222023220003441002003210002023
3	00000003300000000000000223020000200012001 1
3	02022222332331321120013232301113212023222
4	00000002200000000000003030011000000012111
4	20200320022210112100003022001002000002312
4	20000033302304302002202030302000000304032
4	00000002000221000220003222122022100032 33
4	02200003330003000330000000033000000002022
4	00000103322024020322404140403001000001020
4	10001024320220120033024042002320410323411
4	00000010101010000001001010100100000200001
4	00020203300000000000003030001000000110022
4	22001200100000020210000020001000000111010
5	03200003230002033330000030000000200000222
5	02000004333330000000000000202000310000322
5	00000202232220000201023232201002321102000
5	20000000120000000320303330302003320320411
5	00000011102110000000000000000010200002311
5	00000001110000100111000010001000000011011
5	00000000001002100000100000001000000000111
5	00000001122000100100000000001000210010231
6	11000002210330020000002232200003000120102
6	00000202200000000120002120102002210200300
6	00000003200000000000003032200002200003322
6	00000200000220000100012033300010000201011
6	01200003311112211001004040010004200213421
7	10000023040003020020004040303032000021222
7	00002220020000030011023000002032232002011
7	34320244313423034440032244402333223032313
7	30000000322320040232423443423443010243022
7	34340334444323344342234243423444443342433
7	11000022200020023340123143222243223422003

RESPONDENTS

*=WARD; 1=SURG1, 2=GMED, 3=ONCOL, 4=ICU
5=CCU, 6=SURG2, 7=WMED.

TABLE B6 MEANS(M) AND STANDARD DEVIATIONS(SD) FOR STRESS SCORES OF TEN JOB CONDITIONS MOST STRESSFULL OVER ALL WARDS

	WARD							
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	ALL
(8) M	1.63	1.91	1.82	2.00	1.50	2.00	2.17	1.82
SD	1.02	1.38	1.08	1.49	1.41	1.22	1.83	1.27
(9) M	1.25	1.09	1.45	1.90	1.38	1.80	2.00	1.48
SD	1.06	1.38	1.13	1.29	0.92	1.10	1.67	1.20
(18) M	1.38	2.36	1.55	1.10	1.25	0.40	2.00	1.49
SD	1.02	1.29	1.13	1.29	1.28	0.55	1.67	1.26
(23) M	2.88	1.91	2.55	2.30	0.75	2.60	3.17	2.33
SD	0.96	1.58	1.21	1.49	1.39	0.89	0.75	1.38
(25) M	2.44	2.00	2.82	2.40	1.25	3.00	3.33	2.40
SD	1.36	1.41	1.25	1.26	1.49	0.71	1.63	1.40
(32) M	2.31	1.64	2.09	0.50	0.63	2.20	2.83	1.73
SD	1.25	1.50	1.51	0.85	1.19	1.48	0.75	1.44
(38) M	1.81	0.91	1.45	1.80	0.63	2.20	2.83	1.73
SD	1.11	1.30	1.29	1.32	0.92	1.52	0.63	1.22
(39) M	1.31	1.64	1.27	1.00	1.88	2.20	1.50	1.46
SD	1.40	1.21	1.42	1.49	1.46	1.64	1.76	1.42
(40) M	1.75	1.55	1.82	1.60	1.38	1.00	1.50	1.58
SD	0.93	1.44	1.17	0.97	0.92	1.00	1.05	1.06
(41) M	1.94	1.36	2.00	1.40	1.13	1.20	2.33	1.66
SD	0.93	1.03	0.77	0.97	0.64	0.84	0.82	0.93

TABLE B7 INDIVIDUAL SCORES ON STANDARDIZED TESTS

INDIV.	* EPQ.E	EPQ.N	STAI X2	SELF ESTEEM	LOCUS OF CONTROL	GHQ	STAI X1	BECK
1	14	10	33	27	17	4	33	0
2	10	10	33	30	15	10	24	2
3	14	8	32	29	6	10	32	0
4	13	11	35	25	4	3	25	4
5	13	17	39	20	14	10	26	3
6	11	12	44	18	16	15	32	4
7	11	18	47	12	9	12	42	2
8	19	13	38	28	5	15	32	3
9	21	8	37	22	10	9	35	2
10	15	17	44	19	17	15	42	9
11	16	16	48	23	14	14	34	2
12	14	13	34	17	14	10	25	5
13	10	16	43	19	19	13	38	8
14	9	10	39	22	10	9	36	6
15	14	7	35	28	12	12	26	0
16	10	12	35	24	6	10	32	4
17	19	0	29	29	7	5	28	0
18	11	8	39	26	14	6	25	0
19	11	7	36	22	11	9	38	1
20	20	10	26	30	5	7	22	1
21	12	9	39	24	17	12	41	4
22	16	18	42	24	9	13	35	4
23	17	14	29	26	13	10	23	4
24	14	8	29	26	9	14	30	5
25	14	9	29	28	15	6	28	0
26	10	20	51	16	14	14	30	7
27	5	18	48	24	15	9	36	9
28	11	9	32	22	12	12	34	7
29	12	5	28	28	12	6	27	0
30	15	7	37	29	4	6	30	0
31	8	18	46	20	11	17	37	8
32	15	7	47	20	8	16	47	11
33	14	9	38	25	13	9	27	3
34	17	19	46	18	12	9	33	6
35	18	9	38	27	16	8	35	4
36	13	9	37	25	11	4	28	3
37	16	3	30	27	3	6	38	1
38	15	6	28	27	11	4	22	1

(Continued)

TABLE B7 (Continued)

39	9	12	38	25	15	11	27	13
40	8	7	28	26	5	4	34	2
41	19	6	34	27	13	7	40	3
42	11	10	47	23	16	11	31	6
43	13	15	52	14	19	14	37	8
44	15	16	45	17	16	13	28	7
45	10	12	39	23	13	7	25	8
46	11	5	32	27	7	8	35	6
47	14	3	43	31	13	7	34	0
48	18	20	45	22	18	13	41	8
49	17	15	52	19	11	19	32	13
50	2	17	52	13	15	13	44	11
51	14	12	33	26	14	8	27	4
52	19	11	39	29	8	9	39	1
53	14	9	35	20	11	6	25	2
54	15	8	29	30	7	9	25	4
55	9	11	33	23	14	11	31	2
56	15	10	36	23	13	5	30	1
57	11	14	44	26	13	9	36	4
58	6	5	29	28	12	7	32	1
59	19	8	33	28	10	10	27	2
60	16	9	32	29	17	5	34	0
61	14	20	44	0	20	21	46	4
62	14	13	45	22	12	12	37	12
63	15	6	40	22	8	8	29	5
64	17	17	38	22	9	34	62	22
65	6	17	35	22	9	14	55	12
66	19	21	51	16	9	11	41	6
67	5	21	53	18	18	19	36	17

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* SURG1=1-16,GMED=17-27,ONCOL=28-38,ICU=39-48,
CCU=49-56,SURG2=57-61,WMED=62-67.

APPENDIX C

Miscellaneous tables and figures.

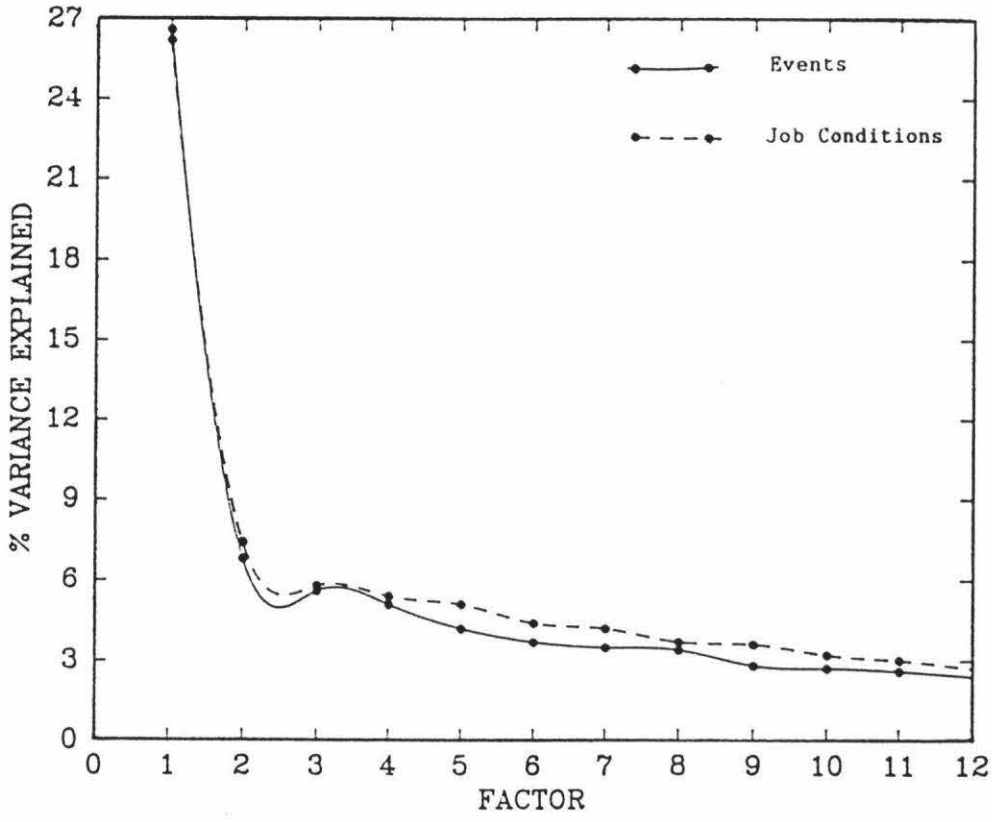

FIGURE C1 — PRINCIPAL COMPONENTS ANALYSIS OF STRESSFULNESS OF EVENTS AND JOB CONDITIONS: PERCENTAGE OF VARIANCE EXPLAINED BY FIRST TWELVE UNROTATED FACTORS

TABLE C1 MODERATOR VARIABLES: COEFFICIENTS OF CORRELATION (PEARSONS r) BETWEEN MODERATOR LEVELS AND STRESS MEASURES

MODERATOR VARIABLE	QUESTION NUMBER	STRESS INDEX a 1	2	3	4	5	6
NURSE CATEGORY #	A(1)	-.014	.03	-.004	-.056	.095	.186
TIME ON PRESENT WARD##	A(3)	-.189	-.218	-.146	-.002	-.041	.140
AGE	A(5)	-.160	-.073	-.206	-.095	.128	.077
EXPERIENCE IN OCCUPATION	A(6)	-.281*	-.297*	-.280*	-.139	.023	-.005
AVAILABILITY OF CONFIDANT	F(2)	-.151	.104	.234	-.015	.163	.125
AFFECTIONATE RELATIONSHIP	F(3)	.051	-.043	.069	-.098	.063	.119
TONE OF LIFE	F(4)	-.128	-.159	-.210	.013	-.308*	-.41***
RELIGOUS FAITH	F(9)	.011	.133	-.080	-.078	-.005	-.013
ROLE CONFLICT	F(10)	-.011	.213	.160	.125	.196	.117

Three categories; staff nurse,enrolled nurse, charge nurse.
Coded 1 = 1-3mo., 2 = 4-6mo., 3 = 7-12mo., 4 = over 12mo.
* p<.05
*** p<.001
a Stress indices defined beneath TABLE 11

TABLE C2 JOB CONDITIONS:NUMBERS ON EACH WARD EXPERIENCING EACH JOB CONDITION

ITEM	WARD							SUM	% OF TOTAL
	SURG1 n=16	GMED n=11	ONCOL n=11	ICU n=10	CCU n=8	SURG2 n=5	WMED n=8		
1	7	5	1	4	1	1	5	24	36
2	6	4	4	2	2	2	3	23	34
3	6	3	1	2	1	1	2	16	24
4	6	3	4	1	0	0	0	16	24
5	3	0	3	2	0	0	1	9	13
6	7	2	5	4	1	2	3	24	36
7	0	5	2	4	1	0	5	17	67
8	13	8	9	7	6	4	4	51	76*
9	11	5	8	8	7	4	4	47	70*
10	2	4	3	4	6	2	5	26	38
11	3	4	3	4	6	1	3	24	36
12	8	4	4	5	3	3	3	30	45
13	8	5	5	5	3	3	4	33	49
14	7	3	5	5	2	1	3	26	39
15	4	4	4	3	3	1	1	20	30
16	13	8	7	4	1	2	6	41	61
17	10	3	6	2	2	1	3	27	40
18	11	10	9	5	6	2	4	47	70*
19	7	6	3	6	3	1	6	32	48
20	6	2	2	4	2	1	3	20	30
21	5	5	4	2	2	0	3	21	31
22	4	3	2	1	1	1	5	17	25
23	15	8	10	8	2	5	6	54	81*
24	9	7	8	3	2	2	4	35	52
25	13	9	10	9	4	5	5	55	82*
26	12	9	5	4	1	3	4	38	57
27	9	5	8	4	4	4	5	39	58
28	3	2	1	3	0	1	3	13	19
29	9	6	8	9	7	2	6	47	70
30	6	7	2	3	0	0	4	22	33
31	3	8	3	1	1	1	6	23	34
32	13	7	8	3	2	4	6	43	64*
33	9	2	7	2	6	3	4	33	49
34	9	4	5	2	4	1	5	30	45
35	4	5	2	0	1	0	4	16	24
36	10	3	6	6	2	4	3	34	51
37	12	6	4	5	3	2	5	37	55
38	13	6	7	8	3	4	6	47	70*
39	9	10	6	4	6	4	3	42	63*
40	14	9	11	10	7	4	5	60	90*
41	14	9	11	10	7	5	6	62	93*

* Item amongst top ten on stressfulness.

TABLE C3 JOB CONDITIONS RANKED IN ORDER OF PERCENTAGE OF RESPONDENTS EXPERIENCING THEM

RANK	ITEM	% EXPERIENCING CONDITION	MEAN STRESSFULNESS
1	41	93	1.66
2	40	90	1.58
3	25	82	2.40
4	23	81	2.33
5	8	76	1.82
6=	9	70	1.48
6=	18	70	1.49
6=	29	70	1.28
6=	38	70	1.45
10	32	64	1.73

ITEM

(41) Depressed patients.
(40) Having to work close to death and illness.
(25) Inadequate staffing.
(23) Too great a work load for high quality work.
(8) Unresponsive hospital hierarchy.
(9) Excessive bureaucracy.
(18) Conflict between staff members.
(29) Lack of feedback on your performance from other staff.
(38) Unresponsive illnesses.
(32) Work load too heavy.

TABLE C4 MEANS WHERE SIGNIFICANT DIFFERENCES INDICATED IN ONEWAY ANOVA OF FEELINGS AT SHIFT END BY WARD (TABLE 16).

	WARD						
FEELING	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED
ANGRY	1.07	1.00	1.27	1.10	1.00	0.60	1.33 ns
DRAINED	2.13	2.64	2.36	2.30	1.75	3.40	2.83 ns
SATISFIED	2.20	2.45	2.36	2.60	2.75	2.20	1.50 ns

ns - means not significantly different (p>.05,Scheffé).

TABLE C5 OVERALL STRESSFULNESS OF JOB:
NUMBERS ON EACH WARD GIVING EACH STRESSFULNESS RATING #

HOW STRESSFUL OVERALL?	WARD *								
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	SUM	%TOTAL
NOT AT ALL	0	1	0	0	0	0	0	0	1.5
SLIGHTLY	2	2	3	2	4	1	1	15	22.5
MODERATELY	11	6	6	4	1	2	2	31	46
VERY	2	2	2	4	2	2	2	16	24
EXTREMELY	1	0	0	0	1	0	2	4	6

Section F, question 8.
* Wards did not differ significantly (oneway ANOVA) in ratings (Mean = 3.10, F(6,60)=1.041, p=.408).

TABLE C6 TONE OF LIFE: NUMBERS ON EACH WARD AT EACH TONE-OF-LIFE LEVEL #

TONE OF LIFE	WARD								
	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	SUM	%TOTAL
DREADFUL	0	0	0	0	0	0	0	0	0
POOR	0	0	0	0	0	0	0	0	0
PASSABLE	2	0	1	1	2	0	1	7	11
GOOD	11	9	9	8	6	2	4	49	73
WONDERFUL	3	2	1	1	0	3	1	11	16

Section F, question 4.

TABLE C7

INFORMATIONAL SOCIAL SUPPORT: NUMBERS WHO REGARD AS AVAILABLE ADVICE ON COPING AT WORK #

		WARD								
		SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	SUM	%TOTAL
(A)Regard such advice as available?	YES	16	9	9	9	7	4	5	59	88
	NO	0	2	2	1	1	1	1	8	12
(B)If NO in (A)- Wish it was avialable?	YES	-	1	2	1	1	1	0		
	NO	-	0	0	0	0	0	1		

Section F, question 2.

TABLE C8 EMOTIONAL SOCIAL SUPPORT: (A) NUMBERS HAVING A CLOSE INTERPERSONAL RELATIONSHIP, AND (B) NUMBERS REGARDING IT AS HELPFUL IN COPING AT WORK #

		WARD								
		SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	SUM	%TOTAL
(A)Have such a relationship?	YES	13	11	11	10	8	4	5	62	92.5
	NO	3	0	0	0	0	1	1	5	7.5
(B)If YES in(A)- Does it help you cope at work?	YES	13	10	9	10	6	4	5	57	93.5
	NO	0	1	1	0	2	0	0	4	6.5

Section F,question 3.

TABLE C9 PERSONALITY TESTS: MEANS AND ONEWAY ANALYSES OF VARIANCE BY WARD

	WARD								
TEST	SURG1	GMED	ONCOL	ICU	CCU	SURG2	WMED	MEAN	F(6,60)*
EPQ.E	13.4	13.6	14.0	12.8	13.1	13.2	12.7	13.3	0.11
EPQ.N	12.4	11.0	9.2	10.6	11.6	11.2	15.8	11.5	1.38
STAI.X2	38.5	36.1	37.0	40.3	38.6	36.4	43.7	38.5	0.97
SELF ESTEEM	17.9	19.9	18.9	18.9	17.9	17.6	15.8	23.2	0.67
LOCUS CONTROL	11.8	11.7	10.3	13.5	11.6	14.4	10.8	11.9	0.93

* $p<.05$ at Fcrit=2.25.

TABLE C10 MAJOR ASPECTS OF JOB WHERE DESIRE FOR IMPROVEMENT EXPRESSED: NUMBERS OF RESPONSES IN EACH CATEGORY #

ASPECT OF JOB *	WARD							SUM (n=67)	%TOTAL
	SURG1 (n=16)	GMED (n=11)	ONCOL (n=11)	ICU (n=10)	CCU (n=8)	SURG2 (n=5)	WMED (n=6)		
COMMUNICATION[c]	13	8	6	2	5	2	2	38	57
STAFFING LEVELS	7	4	2	4	2	1	2	22	33
ROSTERING[r]	5	3	1	4	5	1	0	19	28
INSERVICE EDUCATION	1	0	2	2	3	1	0	9	13
PLACEMENT	2	2	0	0	1	2	0	7	10
TASK RELEVENCE	5	0	1	0	0	1	0	7	10

* A large number of other specific suggestions were made and are included in Appendix D, where all comments are given in full.
c - Includes contact, feedback, approachability, and involvement in decision making.
r - Includes the obtaining of leave.
- Section F, question 14. Numbers do not necessarily indicate the extent of the problem but only the extent to which it was commented on.

APPENDIX D

Responses to question F(14), Booklet 1:

"What would you most like the hospital authorities to do that would improve your job satisfaction?"

SURGICAL 1

(1) More staff to enable more time with patients discussing their problems and getting to know them better.

(2) Better communication.

(3) Employ someone else to do the tasks which require no skills eg scrubbing, serving teas, and so release me to do my patient oriented tasks.

(4) Be more aware of what our job entails at ward level. Realise the stress involved, and the workload, ie make sure we are adequately staffed. This gives the nurses extra time to talk to the patients, which is so important.

(5) Sometimes I think the hospital doesn't treat nurses as individuals. There are lots of little things that the hierarchy do that I think upset us, and I don't think they always consider our feelings.
Improve rostering, as working 7 days in a row takes too much out of us. I'd rather work 5 days in a row any day.
Also, we are due off at 11 pm, on pm shift but in 12 days I came off at 11 pm only once, I am often there to 11.30-11.45 pm. One duty 1 out of 5 nurses managed to get off for tea and no one got off for supper, so 4 of us worked from 2.30 pm to 11.30 pm without a break, no one ever finds out about the extra a nurse puts in.
Increase positive feedback from other staff. Encouragement for fellow workers means a lot, but instead we spend the majority of times hearing winges from patients and told about the mistakes we have made the day before - rather offputting.

(6) -

(7) Involve nursing staff more in decision-making that directly or indirectly affects them.

(8) Regular (3-6 months) meetings with the more junior (trained) staff and listen to their grumbles.
For the more senior ward staff, regular inservice programmes.
Increased staff in all areas, so patients can have more time spent with them, and better use made of facilities i.e. occupational therapy, physio etc.
More inservice training to be given to Doctors and more senior house officers or Registrars available to help the junior medical staff. At present the more senior ward staff (Charge nurse or her deputy) often have to tell the junior Doctors their job, check all their prescription charting, while the nursing aspect is being neglected. I'm thinking of Clinical Assistants who are often given much more responsibility than they are actually trained for.

Also relieve nurses of all non nursing tasks (as done in some hospitals) so that they can spend more time doing actual nursing, and spend more time with their patients rather than hurrying through their nursing jobs to give out morning tea and clean the sluice room.
ie Giving out of fluids. Am and pm teas, preparing kitchen for meals, collecting menus etc, does not require a nurse to do and could be done more efficiently by another person.
Scrubbing bowls and bedpans also does not require a nurse, also tidying linen cupboards, bathrooms, lounge, etc.
These jobs could be allocated to "aides" or alternatively the domestic staff take over the cleaning responsibilities, while other staff do kitchen duties. This works well in another hospital, the staff are called "kitchen hostesses" and are responsible to the Dietary Department.

(9) Improve wages - $314 for Mon-Fri 7am-3.30pm is basic minimum wage.
More staff for the ward.

(10) Give more positive reinforcement, compliments. Be more approachable and to make communication with them more easily.
Have superiors especially eg Principal nurse visit more frequently, both nursing staff and patients. Recognise the staffing problem in some work areas.

(11) Enforce decent and acceptable rosters for nurses to live as normal a life as possible.
Do away with trivial but time consuming tasks that could be done by someone else ie morning/afternoon teas, menus.
Safe and sufficient staffing.
Staff numbers are often insufficient which makes lists unsafe, time spent with patients is unsatisfactory and at times even basic cares are pushed to be done.

(12) Continuity in registered staff so that the patients and staff can gain as much as possible from each other without the continual changes of nursing staff.
Recreational days, instead of 6 weeks notice, should have a shorter time in which to notify the appropriate people - it is not always known 6 weeks in advance that you might require a sudden day off.

(13) Increase staffing on wards.

(14) Decrease the amount of administration.
Improve some departments so that they run effectively and communicate better with the wards.
Maintain a safe level of staffing.
Consider some degree of glide time for senior staff.

(15) A little gratitude and thanks now and then.

(16) Employ more nursing staff so that all the wards are adequately staffed and that the threat of having to relinquish one of us in Ward 29 (just because we're all registered) virtually every day, and sometimes every duty, is no longer a problem.
There is no job satisfaction in being sent to another ward where you are only another pair of hands to get the workload finished.

GENERAL MEDICAL

(1) Employ more staff. When we are short staffed accidents occur, people are not given the care they should receive. It becomes dangerous, frightening and terribly frustrating and embarrassing at times e.g. when somebody wets the bed they say 'Well I did ring the bell, but nobody came and I couldn't hold on any longer!' Or when relatives ask you to do something the patient was too frightened to ask for (eg a drink of water) because they knew you were probably too busy.

(2) Newly registered nurses should be if possible placed in wards that they want to work in. The hospital would have better run wards and more contented nurses.
Fewer 7 day stretches, especially morning duties.
More weekends off.
More staff in wards.

(3) Putting registered staff in wards where they would prefer to go rather than where the administration wants us, which is usually exactly the opposite to what we request.

(4) Become more aware of the needs of the staff (not just the patients).
Allow single annual leave days to be taken and not be so rigid in the rules concerning annual leave (you don't know 6 weeks in advance if you're going to feel lousy).
Be more approachable and reasonable when dealing with staff grievances. Nurses being basically a non-militant group are often fobbed off or walked all over.
Set up a liaison group of hierarchy and a cross section of students, staff nurses, charge nurses within the hospital to meet at regular intervals to discuss any issues. For e.g. the introduction of sandals in summer (which has been brought up every year by various people and squashed without any discussion). Staff should be given an opportunity to vote (without pressure or repercussions) on these issues.

(5) Allow staff to work in the areas they want to. Overcome the problem of having to do night duty. In general - better duty rosters and less hassle obtaining annual leave.
It would also help if the hospital hierarchy were more pleasant in their manner and more approachable and helpful when seeing them regarding work matters.
In some areas staffing is inadequate. Staff get little or no choice as to the areas they work in, and irrespective of seniority or experience are "used" to work in areas they don't enjoy, merely to maintain adequate levels of staffing.

(6) Give individual recognition.

(7) Treated us as individuals with the right to get what wards and choice of wards we want.
Enable us to wear name badges with Christian names on.
Senior staff picking less on small stupid things when they can't find fault.
A little praise now and then. Recognition from supervisors.

(8) More staff - at least 6-7 nurses on each duty maybe 6- for pm duty.
Redecorate ward - new lino, bright colours - make ward atmosphere pleasant - another shower?
Office for us to work in as our office is too small even for report.

(9) -

(10) Not require work stretches of more than 6 days as 7 days stretches are too taxing.
Not have afternoon duties before, and morning duties after days off as it hinders travel.
That senior staff like supervisors to principal nurses be more friendly and approachable.

(11) -

ONCOLOGY

(1) Better communication and interaction between various hospital departments.

(2) -

(3) Lighten the work load so we can give full nursing cares.

(4) Reduce staff shortages.
Acknowledge overtime hours worked.
Provide necessities for the ward, for both patient and staff.
(Patient for added comfort, physical and emotional)
(And staff - to make working conditions easier).

(5) Decentralise authority structure so that ward staff have more say in ward management, policy and patient care.
Study day once a month organised by Inservice Ed. so that theory and clinical skills appropriate to work area kept fresh.
Area supervisors with recent relevant experience so that can be asked for advice on patient care.
References and books available in a Nurses' library on emotional and spiritual support of patients and family. All available books are very disease-oriented.

(6) Be more open and ready to accept change.

(7) -

(8) More regular visits by the higher authorities so that they are able to observe and understand for themselves how the ward is working and so that they become less authoritarian figures and more approachable as part of the team that works within a ward.

9) Be more fair, consistent and loyal to staff. Nursing staff often get very little support from the hospital hierarchy. The hierarchy needs to be more broad-minded and prepared to listen to suggestions put forward by members of the nursing staff, including students.

(10) Be more aware that each ward differs in some degree and spend more time talking and listening to what the staff have to say. They may even make a friend or two. I for one would not know the medical superintendent if I fell over him, and I know of nurses who have spent 3½ years in the hospital before they meet the principal nurse. The Hospital authorities sure need a good Public Relations Officer as far as the nursing staff go.

(11) Provide much more continuing education after registration. My biggest frustration is that I feel that I've advanced so little since I've registered. As well as forgetting most of my training. I feel we are not encouraged to work things out for ourself, and when we do think we know what is causing particular symptoms etc. the doctors often don't want to listen.

INTENSIVE CARE

(1) Provide more detailed discussion of patients conditions for night staff.

(2) Have a doctor allocated specifically to the unit 24 hrs/day.

(3) Be a little more accepting of proposals put forward for change, instead of just squashing them in the early stages.
Set the stage for more interaction between hierarchy and staff.
The Nurses Association helps a little but we need a more internal type panel, to voice thoughts, ideas for change etc.
Review the hours of work and the length of days some of us have to work. Why so erratic, it doesn't help work by being exhausted.

(4) Change rosters, so that we don't have to work 7 day stretches. 4 days on, 2 days off would be ideal.
Full time rostered medical staff in the intensive care unit would be very supportive.

(5) Reassess shift times as it is impossible to get off pm shifts at 11 pm. Improve feedback, be it positive or negative, which will improve my standard of nursing care.

(6) Improve the roster which is at present in use.
Reassess duty commencement times due to not finishing work on time on many duties.
Have a skilled teaching person to spend time with nursing staff on Inservice Educational matters.
Improve staffing numbers which at times are inadequate, causing both mentally and physically strained staff on duty.
Reassess availability of taking holidays when nurse wants to rather than when it's suitable to the hierarchy.

(7) Ensure staffing levels are good every day and over all 3 duties, particularly night duty. This involves more careful planning by supervisors of previous shift so extra staff can be called on, as well as extra rostered staff on night duty.
More inservice training involving films, lectures (given by invited lecturers outside hospital field as well as in) particularly on subjects of communication, psychology, counselling as well as new products, new ideas etc.

(8) Make available a person/s to relieve me so that I have more time to teach.
Larger 'pool staff' so that when the unit is very busy, full time staff are not working under constant pressure.
Maybe a technician to look after the machinery used in this unit.

(9) More adequate staffing.
Recognition of abilities in decision making - some responsibility given and others taken away.
To be more supportive of decisions made.
Encouragement when changes are wanting to be made.

(10) Reduced working week - less 7 day stretches i.e. never work more than 5 days at a time.

CORONARY CARE

(1) Make sure there are always well-qualified people around and available especially in the 'acute' areas.
Increase staff numbers.
Stop moving people from wards or units as soon as they become settled and more useful.
More effort by the senior nurses i.e. principal nurse etc. to alleviate the strong feeling of them and us between nursing staff and the nursing hierarchy, ie supervisors and above, which exists in this hospital.

(2) Provide resource material i.e. copies of drugs commonly used and the important points related to them.
I find a great deal of the time I spend studying, wasted going through numerous textbooks and am always unsure of what is relevant.

(3) In C.C.U. we don't actually have any say in making up of roster - we just have to "accept" it and do changes amongst ourselves for special days we want off.
Sometimes roster system is made very inflexible by key supervisors - creates bad feelings.
Very little positive reinforcement from hierarchy for a "job well done".

(4) Somehow improve the shift roster and numbers of staff,
Strive for better recognition of what nurses do and therefore achieve pay relativity with other professions.
Make the places like cafeterias more relaxing and not as regulated as other areas i.e. should be like getting away from work in your breaks as the general public can.
Have a more approachable attitude, so that staff can feel they can approach with any request and expect a fair consideration.

(5) Be more tolerant to roster requests for days off or specific duties.

(6) Ensure that S/N who work in this area have worked as S/N in wards, and are well adjusted prior to transferring to CCU.
A test or exercise similar to this should be carried out regularly on staff to see who is and who is not coping satisfactorily, who is under more stress than normal, and to relieve them if under extreme stress.
Encourage more frequent holidays.
Clinical instruction - theory, proper procedures enforced and more adequate supervision.
More senior staff nurses kept on, and not transferred when they have become really confident i.e. after 1 year.
On the job tuition from Doctors.
Group discussions amongst staff to iron out problems i.e. with administration, amongst themselves,
Suggestion of more support for patients and their relatives.
Discussion of critical situations that have occurred and to assess the situations on things that were wrong, good, what should have been done, to be done etc, i.e. cardiac arrests.

(7) More clinical (General Inservice) education.
More access and encouragement to attend nationwide courses and study days.
Give less (ie 2-3 wks) than 6 wks notice for annual leave requests.
When work level can be predicted for days ahead as "very quiet" - opportunity to take annual leave or LWOP by S/N's.

(8) Work 5 days on, 2 days off, on a regular basis.
More access to the authorities.

SURGICAL 2

(1) Better allocation of staff.
Increased wages.
More up to date equipment.

(2) More staff to lessen workload.
Be less bound by regulations to allow freer communication at all levels rather than hierarchial system.

(3) Leave me where I am!

(4) Provide facilities in the ward for relatives of seriously ill or dying patients e.g. padded chairs.
Bring nursing back to basics, and to become a more professional body and with each individual knowing their role and working to their level of knowledge.
Bring in a standard system of charting of records throughout the hospital.
More constructive communication between day and night staff.

(5) Ensure that holidays are given fairly e.g. I have worked every Christmas for the last 3 years and find I have to again this year as I did not "get in quick enouch" for this Xmas and only one staff nurse can be off at a time.
Increase availability of part-time work.

WOMENS MEDICAL

(1) Improve staffing levels, particularly on Thursday and Friday evenings.
Opportunity for 5-10 minutes "time out" when situations become so stressful that one feels one is going to "go under".
More feedback from other staff - not only negative, some constructive criticism and some positive feedback would help a great deal.

(2) -

(3) Recognition of hard work, reliability, punctuality, competence etc.
Not to be treated all the same.
If your "work" is better <u>overall</u> then you should have priority over other nurses that are late, always sick (known sickees), rude, disrespectful etc.

(4) Remove difficulty of trying to get something done fairly quickly in a large administration set-up.
Changing staff rosters, ordering new or replacement equipment.

(5) Increase wages. I consider it to be poorly paid work considering stress, hard physical work, responsibility and shift work.
Employ more staff. I did generally enjoy nursing, but due to the staff shortage pattern that has developed recently, I am seriously considering resignation.
Employ more approachable senior staff.

(6) Provide a brand new ward with modern up to date equipment and cheerful spacious surrounds.
Plenty of toilets and showers for commode.
Adequate bell systems.
A.M.B.U. lifts - to save staff back pain.
Good food in cafe.