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PSYCHOLOGICAL FACTORS IN DUODENAL ULCERATION

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A dissertation presented to the Faculty of Arts, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Arts in Clinical Psychology.

December, 1974.

DECLARATION

I hereby declare that this dissertation, which is being presented to the Faculty of Arts of the University of the Witwatersrand for the Degree of Master of Arts in Clinical Psychology is my own work and that it has not been incorporated in any thesis submitted for any degree at this or any other university.

N. Altman

Norma Altman

December 1974.

ABSTRACT

Duodenal ulceration is among the most frequently encountered psychosomatic disorders. It is a chronic disease characterized by remissions and exacerbations and as such readily lends itself to psychosomatic study.

The role of psychodynamics in the pathogenesis is emphasised by all investigators. The problem however remains one of clearly delineating the psychological factors which underlie this condition. In an experimental design for the evaluation of the role of psychological factors in duodenal ulceration Hurst and Katzen (1966) explored the role of psychological factors. The present study originates in the research design of these workers. This investigation was designed to define more clearly the psychogenesis of duodenal ulceration, and to examine the conscious and unconscious motivations of the patients by means of appropriate psychological techniques.

An extensive literature review indicated that many factors influence ulcer formation. The psychosomatic hypothesis is that psychic conflict leads to hypersecretion of acid and hypermobility of the stomach. It is hypothesized that these factors in association with present unknown organic components (constitutional, genetic and hormonal) combine to produce a chronic duodenal ulcer. Two main theories dominate the thinking about duodenal ulceration. The first maintains that a specific psychological conflict is the causative psychological factor. The second theory emphasises that anxiety, irrespective of source, is crucial to the development of duodenal ulceration.

The present study was designed to ascertain whether in fact there was a specific ulcer personality, and whether individuals with ulcers were more prone to anxiety. A group of patients with duodenal ulceration were compared with a control group. The groups were matched for age, sex, socio-economic status and educational level. The investigation involved the measurement of neuroticism and extraversion by means of a questionnaire, the measurement of anxiety by means of a second questionnaire, and the measurement of psychodynamic processes by means of a projective test. Information regarding personal background history was derived from a clinical schedule.

Statistical analyses were computed to ascertain whether there were significant differences between the ulcer and control groups, and between male and female ulcer patients and controls.

The data showed that the ulcer group had more passive, succorant and abasive needs than the control group; they were also less aggressive than the controls. The phantasies of the ulcer group were more restricted than those of the control group. They also displayed more Covert Anxiety and Ego Strength. They showed a trend towards unhappy marital relationships and as children were faddy about their food. The male and female ulcer patients were more passive than the male and female controls respectively. In addition the male ulcer group evidenced greater succorant needs. No significant differences were found on the dimensions of neuroticism and extraversion and Overt and Total Anxiety.

The results were discussed, and it was concluded that the ulcer group were distinguished from the control group in terms of their passive dependency as manifest in the projective test.

ACKNOWLEDGEMENTS

I would like to express my gratitude to the following people for the assistance which they have given me in the preparation of this dissertation:

Professor L.A. Hurst, Head of the Department of Psychiatry and Mental Hygiene, University of the Witwatersrand, for his supervision and helpful advice in the preparation of this dissertation. His enthusiasm in the initiation of this investigation was instrumental in stimulating my interest in the present study.

Mr. Michael Katzen, F.R.C.S. who helped in the selection of cases.

Dr. F.A. Verwey and Mrs. S. Gamsu who assisted with the statistical design and calculations which this research involved. Both were extremely helpful in their suggestions and guidance.

Mrs. Sheila Friedman for her encouragement and the valuable time she gave to assist with the interpretation of the TAT protocols.

Dr. A. Apter and his colleagues who assisted in administering some of the tests while they were fifth year medical students.

Professor J.W. Mann, Head of the Department of Psychology of the University of the Witwatersrand, whose encouragement gave me the impetus for continuing with this study.

Mrs. M. Nell for her unlimited patience and help with the preparation of this dissertation.

To all my friends who helped proof-read the text, and to my husband, Dr.H. Altman, for his invaluable assistance in the process of shaping and editing this work.

Finally, I would like to thank the patients who so willingly took part in this investigation, who taught me so very much, and without whose co-operation this research would not have been possible.

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CHAPTER 1 - INTRODUCTION

The Problem

This study focuses upon the exploration of the psychodynamics of patients with duodenal ulcer, a chronic disease, characterised by remissions and exacerbations.

The significance of the role of emotional factors in the causation of duodenal ulceration has been the subject of numerous investigations. A cursory glance at the voluminous literature indicates the tremendous amount of effort which has been expended in the study of the disease. Although new knowledge of physiological function and dysfunction and the techniques of psychological investigation become more sophisticated and exact, research workers and clinicians continue to search for "the cause" of the disease. What seems necessary and of immediate importance, is to bring together the body of accumulated knowledge and to reassess more accurately the role of emotional factors in duodenal ulceration.

Aim of Study

The work of Hurst and Katzen (1966) explored an experimental design for evaluation of the role of psychological factors in duodenal ulceration. The present study originates in the research design of these workers. In embarking upon their investigation they emphasised the need for a critical and rigorous scientific approach. They claimed that the field had for too long been cluttered by the analogical type of thinking characteristic of the psychoanalytic school. The variables selected for study by the research team included a full range of relevant factors.

They suggested that the following components be observed :

(a) An accurate assessment of the anatomical, physiological and pathological factors.

(b) A critical assessment of the role of the autonomic nervous system and humoral mechanisms in mediating psychogenic factors in the form of fear, anxiety, resentment and frustration.

(c) Statistical assessment of the degree of association of duodenal ulceration with the personality and temperament components or psychodynamic processes selected for study.

The writer will concentrate especially on the third area of investigation, although significant findings of other areas of study will also be taken into consideration.

The Psychosomatic Approach

Before discussing duodenal ulceration in particular, it is useful to look in general at psychosomatic medicine.

Numerous definitions of psychosomatic medicine have been given. The present investigator accepts Wittkower's appraisal that the most appropriate definition of psychosomatic medicine is that provided in the introductory statement in the Journal of Psychosomatic Medicine 1939 :

> "The endeavour to study in their interrelation, the psychological and physiological aspects of all normal and abnormal bodily functions and thus to integrate somatic therapy and psychotherapy." (Wittkower, 1969,p.500.)

This definition implies that psychosomatic medicine is not a speciality but an approach to, a way of looking at, biological phenomena; that

analogous to psychoanalysis, it is a field of research as well as a treatment procedure. It regards as its research area genetics, neuroanatomy, physiology and biochemistry. Physicians, irrespective of speciality, psychologists and social scientists can also make valuable contributions. Thus the field and scope of psychosomatic medicine is vast. Initially there was a single factor, single disease approach, but as the research in psychosomatic medicine broadened it became clear that all illness resulted from a multiplicity of factors involving the somatic and psychological processes of the individual in relationship to the environment. Thus psychosomatic medicine evolved from the specific consideration of a few diagnostic entities to a broad conceptual approach. An understanding of the development of this concept is essential both for diagnosis and for therapy.

Ideas regarding illness as a reaction to emotional conflict are as old as recorded history (Alexander, 1966) and are observed today among cultures that have retained their ancient traditions. An example of this is the Navaho Indian concept of illness, which views any maladjustment or dysfunction of the individual as representing a total disharmony in the life of the sufferer (Kluckhohn and Leighton, 1962). This disharmony is identified as occurring in three spheres: spiritual, somatic and social. It is of interest that they have devised a system of "specialization" in which there is a hierarchy of practitioners treating each of these spheres respectively. In western civilisation especially, the seventeenth century Cartesian philosophical distinction of the body and the mind as separate entities gave impetus to a similar dichotomy in eighteenth and nineteenth century medicine. This attitude was bolstered by the remarkable advances made during this period in the

identification and understanding of specific factors that were of major aetiological significance in enhancing specific somatic processes. As science and medicine became more defined during this period in specifying a single-cause-single-effect basis for all observable phenomena, those processes that did not lend themselves to such formulations were defined as functional illnesses. Until the present those disorders of behaviour, emotion, and thinking have fallen under this label, although many investigators of mental illness have always felt that eventually underlying or associated organic features would be discovered (Freud, 1938).

With the dramatic and rapid formulations of Freud and his colleagues in the late nineteenth century, especially as they related to hysteria and conversion reactions (Breuer and Freud, 1937), a peculiar paradox was introduced into medical thinking. Biologically oriented physicians discussed the physiology of obvious somatic and behavioural processes in psychological terms - that is, terms that did not always have apparent substance in biochemical or physiologic measurements. The psychological factors could not be easily measured, could only be vaguely seen or felt, and even more vaguely approximated in semantic formulations. These formulations seemed so idiosyncratic and specific to the individual that Breuer and Freud (1937) found it difficult to use them as models capable of generalized application. Yet the biologically trained analysts remained adamant in following the nineteenth century model of specific cause and specific effect in approaching illness states. Several of the early analysts turned their attention uncritically to the interaction of psychological states and somatic conditions. Groddeck (1961) and Deutsch (1962) had similar beliefs that all organic disease was an expression of unconscious conflict or

represented conversions, respectively.

A brief review of research into psychosomatic medicine during the past thirty years indicates that the main body of this research was carried out in the United States of America where in its early phases it was oriented to psychoanalytic theory. However, active psychosomatic groups have been formed in France, Great Britain, Italy, Germany and in Japan, but the main body of the research to be discussed has been carried out in North America. It is worthy of note that the acceptance of the psychosomatic view varies from country to country (Wittkower, 1969). It has been most readily accepted in the United States, and has gained ground in Japan - the Japanese psychosomatic society has by far the largest membership. The approach has met considerable resistance in Germany, it has a small but flourishing group in Great Britain and is rejected in the Soviet Union, where cortico-visceral medicine takes its place. Most of these groups are eclectic in their theoretical orientation. The exceptions are the French group which shows some bias in favour of psychoanalytic theory, and the British group which is observationally minded and opposes psychoanalytic theory (Mendelson and Mayer, 1961).

Extensive reviews by Wittkower and Lipowski (1966), Lipowski (1968), and Kimball (1970), trace the development of psychosomatic medicine over the last three decades. The above authors stress that psychosomatic medicine has undergone vast theoretical shifts during the last thirty years. One notes a shift away from clinical observation to laboratory research and from retrospective psychodynamic reconstructions to phenomenological description of behaviour in more or less clearly defined experimental situations. Methodology has focused on experimental

replication of psychological stress by a variety of means, and the study of various physiological variables has presumed indicators of such stress. Due to the fact that there has been a notable decline in theoretical speculation regarding psychological antecedents of somatic change and disease, predictive studies of psychosomatic relationships have been undertaken in several areas.

In general, psychosomatic medicine has continued to flourish as a science rather than as a largely undefined area of research. Sweeping generalisations regarding the nature and influence of psychological variables in the causation of bodily disease which characterised the earlier phase of psychosomatic medicine have been replaced by sober research design and low level hypotheses. It is found that while psychiatrists continue to contribute most of the relevant research, there is an increasing participation of psychologists and other scientists. The explanation for the shift in the composition of the investigators lies in the fact that the focus of interest has moved from clinical observations, which is largely the domain of psychiatrists, to basic research, the domain of psychologists. Concurrently, there has been a shift away from the investigation of causative factors by psychoanalysts, to psychophysiology, neurophysiology and neuroendocrinology, that is, the more accurate disciplines. The work of psychoanalysts receeded somewhat and non-psychiatric medical specialists, neurophysiologists and biochemists took on a greater share of the research.

Review of Theoretical Models

Comprehensive reviews have been written by Grinker (1953), Alexander (1950), Macleod et al. (1954) and numerous other authors. These authors have all presented adequate critical and historical reviews

of the most important models. The present study highlights some of the major trends and theoretical models of the last three decades.

The Neuro-Endocrine Hypothesis

Serious endeavours at inspecting the mechanism by which psychological expressions or conflicts are translated into somatic processes were not acknowledged formally until 1939 when the American Psychosomatic Society was founded. The founding of this Society represented an attempt to correlate biological processes with psychological concepts formulated to a large extent in psychoanalytic terms. Impetus for these attempts was stimulated by the work of Cannon (1929), on the physiological accompaniments of fear and rage. On the basis of detailed laboratory experiments, Cannon hypothesized that an organism responded to emergency situations with adaptive changes in the total physiological economy and that emotional states activated physiological functions that prepared the organism for the situation that these emotions signified. He suggested that the organism responded to fear and rage as though preparing for fight or flight by the inhibition of anabolic and storing functions of the body and the activation of catabolic ones that would release energy for the organism's response. The latter process Cannon observed, was largely mediated through the autonomic nervous system with the catabolic sequence precipitated by epinephrine, while the anabolic processes were stopped via parasympathetic inhibition. Later, Funkenstain, King and Drolette (1957) were able to demonstrate a correlation of the differential reactions of induced anger and anxiety in experimental subjects with the selective elaboration of norepinephrine or epinephrine, respectively. Whether the anger was directed inward (repressed) or outward (expressed) correlated with or determined whether

the individual would respond physiologically with an epinephrine or norepinephrine response.

The relationship of emotion to physiological processes was now clearly established. This has remained one of the most productive approaches within the psychosomatic tradition, and has been extended to an investigation of the responses of all hormonal systems to stresses and the associated emotions (Cleghorn and Graham, 1950; Hamburg and Adams, 1967; Mason, 1968). The aim of these workers was to arrive at a basic physiology and biochemistry of the emotions whereby illnesses characterized by organ responses mediated by these hormones might be understood. These workers observed specific responses secondary to specific environmental stresses. They felt, after Selye (1950), that the response, although it might be simultaneously adaptive for the organism in handling stress, might also lead to disease - diseases of adaption - by upsetting the internal balance of the body. In one way or another an organ system reaction once sensitized to respond to a stressful event might continue to do so with stereotyped and overused responses to similar, or even to different stress processes. Gellhorn (1967) has continued to consider disturbances in behaviour and somatic processes as largely mediated through the autonomic nervous system and essentially as alternating sympathetic and parasympathetic responses in relation to the emotions. The resulting behaviour of the individual depended on the effect of parasympathetic and sympathetic processes interacting on any level, peripheral or central, external or internal, to the central nervous system. This complex approach appreciated the cyclical or feedback processes of the body whereby a process once induced might in itself give rise to feelings or behaviour that in turn might give rise to further dysfunction.

Conversion

One of the earliest of the psychiatric or psychoanalytic excursions into the field of psychosomatic medicine was the attempt to review psycho-physiological disorders as conversion phenomena in which the symptoms symbolised the repressed feeling. Ferenczi (1926), for example, described what he considered to be the symbolic role of diarrhoea. Melanie Klein (1948) thought of psychosomatic phenomena as pregenital conversions. More recently Garma (1950) has defended the position that peptic ulcer was a symbolic expression of an internalized aggressive mother.

Personality Profile

The conversion theory, particularly in the United States has fallen into disrepute. Dunbar (1935) challenged this concept and attempted to demonstrate, as an alternative way of understanding psychosomatic illness, that certain diseases have a statistical correlation with certain specific personality types. For example, she outlined personality profiles for sufferers from peptic ulcers, migraine and many other illnesses. Although her theory is no longer given credence, personality studies of patients with various diseases are still very much a part of psychosomatic medicine. Friedman and Rosenman (1960) , on the basis of both retrospective and prospective studies, have identified a type A - personality that correlates with heart disease.

Conflict Situations and Specific Response

After Dunbar (1935) the most important contribution to psychomatic

theory came from Alexander (1950). While agreeing that psychosomatic disorders were not symbolic conversion phenomena, he contradicted her main thesis by stating flatly that "a mysterious and vague correlation in personality and disease does not exist" (Alexander, 1950). Alexander's study (Alexander and French, 1948) and studies of their colleagues, were most influential in fusing psychoanalytic concepts with organic dysfunction dur ig the 1950's. Studying the "Holy Seven Diseases", (Kimball, 1970) that is, hyperthyroidism, neurodermatitis, peptic ulcer, rheumatoid arthritis, essential hypertension, bronchial asthma, and ulcerative colitis, Alexander and his group (Alexander et al. 1968) moved away from a personality-specificity concept towards one of conflict-specificity. They concluded from their studies that it was not a personality type that was characteristic of a patient with a given disorder, but a typical conflict situation which could develop in individuals with varying personalities. Alexander felt that in each psychosomatic illness there was a nuclear emotional conflict which was chronically present. He felt that each conflict had a specific physiological accompaniment. Alexander (1950) emphasized that the psychosomatic disorder or "vegetative neurosis" as he often referred to it, was not an expression or symbolisation of an emotion, but was a physiological response of the organ to chronically present or periodically returning emotional states. He thus postulated the reverse of the classical causal sequence of disturbed structure resulting in disturbed function. He argued that it also happened that disturbed function resulted in disturbed structure.

A full exposition and evaluation of Alexander's theory will be dealt with in the review section of duodenal ulceration.

Protective Adaptive Response

Another significant contribution to psychosomatic theory was made by Wolff (1950). He postulated that the body reacted to stress with what he called a protective, adaptive response. He definitely dissociated himself from the "emotion acting on the body" language. He stated quite clearly that protective reactions were not chain reactions in which the individual first felt some emotions such as fear or hostility which then resulted in altered function of the gut or heart or some other organ, and ultimately in abnormal behaviour. He pointed out that altered feelings, bodily adjustments, and behaviour all occurred at the same time, and in varying relative amounts, and were all aspects of the individual's reaction to stress. In contrast to Dunbar (1935), who believed that it was the patient's personality which determined his response to stress, and to Alexander (1950), who stated that the response depended on a specific emotional conflict that was troubling the patient, Wolff (1950) felt that an individual responded somatically to stress and conflicts of many different kinds in a fashion that was consistent for him and which was determined on a hereditary basis. Furthermore, he believed that along with the bodily change, the patient also experienced an associated and consistent emotional feeling, tone or attitude. This caused his theory to bear some resemblance to Dunbar's concept of personality type. Wolff (1950) described what he referred to as ulcerative types, colitis types, migraine types, by which he meant individuals who reacted to stress with a particular constellation of bodily changes, feelings and attitudes.

There are at least four implications that can be drawn from this theory :

1. That an individual reacts to many different kinds of stress in a similar way
2. That the particular way the individual reacts to stress is similar to the way his family reacts
3. That an individual reacts to stress of many different kinds with a characteristic set of bodily changes, feelings and attitudes, and
4. The different people who react to stress with the same bodily changes must also react to stress with the same emotional attitude and feelings.

The Regression Concept

Alexander (1950) used the term "vegetative retreat" in speaking of a group of patients who, instead of actively facing stressful situations, withdrew into a type of behaviour and bodily functioning more appropriate to the period of childhood.

Physiological Regression

It was Michaels (1944) who first explicitly attempted to extend Freud's concept of regression to the field of physiology. He made reference to the use of the concept of regression in general psychiatry. After a brief survey of the various physiological systems of the body he concluded that it was indeed possible to regard psychosomatic illness as regressions to infantile modes of physiological functioning. The characteristic feature of this infantile mode of functioning was described as being a relatively greater reactivity to stimuli and a quantitatively more marked disturbance of homeostasis.

More recently the concept of physiological regression has been

most ardently defended by Margolin (1953), although Grinker (1953) too, appeared to subscribe to this hypothesis. Margolin felt not only that regression occurred in psychosomatic disorders, in both the physiological and psychological spheres, but also that a close correlation existed between the degree of regression in these two spheres. He implied that those patients who have the highest degree of tissue pathology also had the highest degree of psychotic substrata, and that those patients with the least tissue pathology had the least psychotic substrata.

Regressive Innervations

Szasz (1952) also made extensive use of the concept of regression to explain psychophysiological phenomena. He introduced the concept of regressive innervation which he defined as "an increased state of excitation of functionally specific parasympathetic pathways". Because the parasympathetic nervous system developed earlier than the sympathetic, Szasz argued that an increased state of excitation of a parasympathetic division was regressive and represented a retreat to adaptation of stress. He stated that Cannon over-emphasized the role of the sympathetic nervous system and paid too little attention to the parasympathetic. Szasz (1952) felt that "the majority of syndromes encountered in clinical medicine represented chronic and localised parasympathetic excitation". He included under diseases of aggressive innervation, hay fever, vasomotor rhinitis, common cold, asthma, peptic ulcer, diarrhoea, ulcerative colitis, coronary disease, urticaria and others.

Individual Specificity

Individual variation of autonomic reactivity in response to stress was studied among others by Sontag and Wallace (1934) and by

Bridger and Reiser (1959). Sontag and Wallace (1934) measured various parameters of foetal response including changes in heart rate in response to stimulation of the mother, and noted that differences existed between foetuses, and between different periods in the life of the same foetus in response to different stimuli. Bridger et al.(1965) noted that neonates differed as to the level at which a stimulus started to produce a response, the type of response produced, and the degree of response. They also demonstrated that a response pattern remained constant to the same stimulus on subsequent testing. These studies suggested the individual variation of the organism early in life and supported Alexander's (1966) "X-Factor" or constitutional basis for organ-system specificity and possible vulnerability in response to stress.

General Systems Theory

Grinker and Robbins (1954) investigated psychosomatic relationships for many years and on the basis of their experience came to emphasize a "field theory" in which they suggested that no one conceptual approach was ever appropriate for the whole explanation of a particular process but that specific aspects of a number of theories would help the physician ascertain and formulate what was going on with a particular individual at a particular time. In other words, Grinker stressed fitting the theory to the patient and his individual life situation and proceeding from there, rather than fitting the patient to the theory. His attention turned increasingly to the adaptive processes of the individual in response to emotions induced by stresses of various kinds. Adaptive processes were correlated with adrenal cortical activity by his group as well as by Cleghorn and Graham (1950), Hamburg and Adams (1967), Mason (1968), and others.

Object Loss, Affect State and Illness

Greene (1954, 1959), working with the Rochester Group during the early 1950's, shifted attention from personality and intrapsychic processes as single determinants relating to psychosomatic disease, and pioneered the development of looking at what was happening in the object world of the individual in terms of interpersonal and other object relationships. Also shifting his emphasis from the acceptable psychosomatic diseases of that era, he turned his attention to the improbable area of reticuloendothelial disease. Studying patients with lymphomas, leukaemias, and Hodgkin's disease, he demonstrated not only a similarity in premorbid personality factors in patients afflicted with these processes, but also the proximity of object loss to the onset of disease. Studying patients over the course of their illness he was able to correlate the onset with a real, threatened, or imminent loss; exacerbations with disruptions in crucial object relationships; accelerations at periods of major life change, such as the menopause and separations, and death with ultimate object loss.

Schmale (1958) extended Greene's (1954) observations by investigating the relationship of separation and depression to the onset of any illness. He found that a majority of hospitalised patients reported experiencing object loss, (real, threatened or imagined) and feelings of helplessness and hopelessness immediately preceding the onset of symptoms of illness. With Adamson and Schmale (1965) he also investigated psychiatrically hospitalized patients demonstrating a recent loss of a highly valued source of gratification and an emotional reaction of defeat or "giving up".

Engel and co-workers (1954, 1962), studying the phenomena of

disease and illness from the perspectives of physiological medicine, psychoanalysis,and behaviour, suggested that organisms reacted to unpleasant stimuli and situations with responses of either anxiety or depression-withdrawal (also called conservation-withdrawal). The conservation-withdrawal response was evoked when ego mechanisms failed and the ultimate "given up" state ensued. This was a physiologically hypoactive state in contrast to the "flight-fight hyperactive response and occurred either when the latter was depleted or whenthe response to an external stimulus was one of "freezing" or "standing still in one's tracks". Each of these systems when inappropriately or over-used might lead to Selye's "diseases of adaption" (1950).

On the basis of their researches over the past twenty-five years the Rochester group conceptualised a giving-up-given-up state (Engel and Schmale, 1967 and Engel, 1968), which they regarded as a frequent and nonspecific condition for the onset and exacerbation of both psychiatric and somatic disease.

Adaptation

Many investigators have recently turned their attention from aetiological relationships of psychic and somatic processes to a study of individuals' adaptation to illness and disease in the anticipation that more fruitful and pragmatic considerations for the treatment of the illness might be forthcoming (Romano, 1949). The adaptational studies have also cited behavioural and physiologic correlates of coping, and have attempted to distinguish between those processes which were beneficial and those that were maladaptive for the protection of the organism.

Specificity and Non-Specificity Theories

The above concepts fall into two basic types of theory, the one emphasizing specific psychic somatic connections and referred to as 'specificity theories' and the other emphasizing general factors and referred to as 'non-specificity theories'. In the first group specific psychological events caused specific psychosomatic disease. The workers in this field were greatly influenced by psychoanalytic theory and insight. Included in this group of workers are Dunbar (1950) and Alexander (1954). Another 'specific' approach derives from Freud's libido theory as applied to the etiology of conversion hysteria.

The non-specific theoretical approaches to psychosomatic medicine include the theories of Wolff(1950), Mahl (1950), Selye (1950), Grinker(1954) and various animal experimentalists such as Liddle (1950) and Gantt (1944). This group of theorists believes that the structure of a patient's personality and the nature of his conflict and psychological trauma have no direct bearing on the type of organic pathology he will develop. They assume that any kind of psychological stress may be associated with a pathogenic physiological concomitant leading to organic disease, the nature of which depends probably more on the physical than on the psychological make-up of the individual. In general, the work of this group is not rooted in psychoanalytic theory. Therefore, although the resulting formulation may suffer from a limited insight into some psychological complexities, they gain the advantage of being unhampered by unvalidated and often misleading assumptions.

Summary

In summary, a survey of the literature of the last thirty years demonstrates a decreasing preoccupation with single factors, either psychological or physical, in the causation of disease and increased interest in the multiple factors associated with illness, which has caused many investigators to study the environmental field of the individual who becomes ill. Thus, at this time the term psychosomatic medicine applies not to a discrete set of diseases but rather to an approach to illness which studies the interrelationships of the organic, the psychologic, and the social.

CHAPTER 2 - REVIEW OF THE LITERATURE ON DUODENAL ULCER

Definition

Peptic Ulcer is defined as "a circumscribed erosion of the mucous membrane of the stomach or duodenum mainly, but occasionally involving the lower end of the oesophagus or the margins of a gastro-jejunotomy, where these mucosal areas of the upper gastro-intestinal tract are exposed to acid-pepsin secretions" (Merck Manual, 1968, p.538).

Duodenal ulceration is regarded as a psychophysiological gastro-intestinal disorder.

This study is confined to the investigation of the role of psychological factors in duodenal ulceration.

Epidemiology

The fact that duodenal ulcer has a five per cent to ten per cent incidence (Sandweiss, 1951) in the general population makes this pathological entity a major medical problem. Peptic ulcer is considered to be a disease of civilisation; it is rarely seen among the natives of such areas as northern India or Java - Sumatra, or in the South African Bantus. Concomitantly, it is more prevalent in urban than rural areas, amongst men in the administrative and professional fields, and among high income groups in general but is by no means infrequent in lower socio-economic groups. The condition occurs more frequently in men than in women, the current ratio being approximately 4 to 1, (Freedman and Kaplan, 1967) with a continuing increase of incidence in men. This difference in incidence on a basis of sex will be discussed in detail in a later section.

The Psychosomatic Concept of Duodenal Ulcer

Aetiology

In 1932 Harvey Cushing said that a satisfactory, all-embracing explanation of acute and chronic ulceration of the stomach and duodenum was yet to be found. Even as late as 1956 Kaplan said the exact cause of peptic ulcer was not known. Since then however, various theories have been advanced to explain the causation of this disease. For the purposes of this study, theories which emphasize the role of psychological factors in the aetiology of duodenal ulcer are regarded as the most essential. Essentially, the psychosomatic hypothesis is that duodenal ulcer is produced as a result of various psychic stresses (Alexander, 1950; Wolf and Wolff, 1943), operating in association with various other factors, such as constitution (Alexander, 1950) which combine to produce physiological changes resulting in the development of duodenal ulcer. This concept is based upon the premise of Alexander (1950) that peptic ulcer has a "multicausal origin". As Alexander (1950) expressed it "local or general somatic factors as yet ill-defined must be assumed and only the co-existence of both kinds of factors, emotional and somatic, can account for ulcer formation". The relative proportion of somatic and emotional factors, in any case, may vary. Inherent in this concept, is the theoretical assumption that all disease is psychosomatic inevitably since emotion affects all physiological processes through the nervous system.

Kaplan (1956) has published evidence to support the psychosomatic hypothesis. He defined both the somatic factors and the psychic factors.

The somatic factors are : (a) that excessive hydrochloric acid

can produce ulcer; (b) hydrochloric acid secretion is affected by vagal activity, which in turn is regulated by cortical and hypothalamic activity; and (c) other organic factors, some well defined and some poorly defined, contribute to the pathogenesis of the ulcer. The psychic factors are :

(a) that certain psychodynamic conflicts, phenomena, and personality have been described to explain the psychogenic force behind the psychophysiological stimulation of the stomach.

(b) In addition it has been demonstrated that emotional stress can affect the secretion of acid in man, so as to produce superficial gastric ulceration. In animals acute ulcers have been produced by emotional stress.

Somatic Factors

There is clear evidence for the premise that duodenal ulcer is produced by an excessive secretion of hydrochloric acid and this has been effectively demonstrated.

Mann and Bollman (1932) demonstrated on animals that excessively high concentrates of acid produced ulcer. Varco et al. (1941) produced ulcers in animals by administering histamine in beeswax, which produced an excessive secretion of acid; this reaction to the histamine produced stomach ulceration. Furthermore, it is a well established fact that in the majority of patients with duodenal ulcer the volume, concentration and output of hydrochloric acid are increased, and the hyper-secretion persists continuously even in the absence of stimulation, such as food (Bloomfield, 1939). It is interesting to note the converse process,

that is, that decreased acid secretion by gastrectomy, vagotomy or antacids results in remision of the condition. In addition, to further support this point, it is important to note that duodenal ulcer does not occur in patients with complete lack of hydrochloric acid.

There is further support for the fact that hydrochloric acid secretion in the stomach is primarily and predominantly under the control of the nervous system and, more specifically, the vagus nerve, which is centrally and thalamically controlled.

Thus it is evident that gastric secretion in man is basically a neurogenic process. It follows then that ulceration which results from hypersecretion of hydorchloric acid is also a neurogenic process. It is commonly accepted that stimulation of the vagus nerve produces hypersecretion of acid, while sympathetic stimulation produces decreased secretion.

Cushing (1932) postulated a parasympathetic centre in the diencaphalon connected with the vagus nerve. He said that autonomic imbalance (as the result of intracranial surgery, severe head injury or emotional stress) and subsequent excessive activity of the centre caused hyperactivity of the vagus nerve (vagotonia) which in turn resulted in hypersecretion of hydrochloric acid, vascular spasm, and areas of necrosis, causing the devitalised mucosa to succumb to the acid juice, and thereby produce an ulcer.

Neurosurgeons and neurophysiologists have demonstrated surgically that the cerebral cortex, through its connections with the vagus nerve, plays a significant role in producing the secretion of hydrochloric acid. They suggest that stimulation of cortical area six can increase acid secretion (Watts and Fulton, 1934). Stimulation of this area increases

acidity and pepsin content. In man, Carpenter (1951) reported that area eleven of the cortex, if bilaterally ablated, might inhibit gastric function.

Other factors which may contribute to the development of duodenal ulcer must be considered. Among these is the role of pepsin. Even though the level of pepsin increases in peptic ulceration along with hydrochloric acid, and the pepsin greatly increases the digestive power of acid, it apparently is not the essential factor in ulcer formation because acid alone can produce an ulcer (Schiffrin and Warren, 1942).

There is no clear-cut evidence that there is a decrease in the mucus protective barrier (Glass and Boyd, 1950), or gastric atrophy (Palmer, 1951) or vascular changes (Doran, 1951), or gastritis (Palmer, 1951), or infection (Kirsner and Palmer, 1948), or nutritional or vitamin deficiency (Li and Freeman, 1946), therefore these factors will not be considered in any great detail. While some decrease in tissue resistance is possible and probable, this has yet to be conclusively demonstrated (Kirsner and Palmer, 1948). Alexander (1950) raised the possibility of a constitutional or acquired weakness of the stomach as being necessary for ulceration, in as much as all patients with a gastric neurosis or a chronic functional hypersecretion do not develop ulcers and some organic factors seem necessary to complete the picture. Alexander (1950) furthermore emphasized the role of chronic stimulation of the empty stomach as an aetiologic factor. He felt that the empty stomach of the ulcer patient is chronically exposed to excessive hydrochloric acid, and the stomach hypermotility in readiness for its receiving food due to excessive and chronic continuous psychic stimulation. This he felt could contribute to ulcer formation. He

quoted the work of Silbermann (1927) with sham feeding of dogs to support his thesis. .

In conclusion, and on the basis of the abovementioned evidence, the following may be postulated : various areas of the cerebral cortex stimulate the autonomic centre of Cushing (1932) in the diencephalon (probably the hypothalamus), which stimulates the vagal nuclei in the floor of the fourth ventricle in the medulla, which stimulate the vagus nerves to produce an increase of hydrochloric acid and hypertonicity of the stomach wall, which in association with certain unknown factors (constitutional, genetic etc.) produces an ulcer.

Psychic Factors

It has been known since ancient times that emotional factors have an effect on gastric function. Dunbar (1954) noted that "Hippocrates in 640 B.C. was said to have cured King Percidas of Macedonia of an organic symptom of his gastrointestinal tract by analysis of a dream".

The gastrointestinal tract has great meaning emotionally to the infant, and this importance is often carried into adult life; being fed and feeling secure and loved may be equated.

Beaumont (1833), during his study of the gastric functions of the stomach of Alexis St. Martin, noted that this function was affected by emotional stress. In 1857, Brinton wrote the first book on peptic ulcer, and noted that mental anxiety was frequently associated with ulcer. Davies and Wilson (1937) showed in their investigations that ulcer symptoms initially began after emotional stress in eighty per cent of cases.

Kaplan (1956) pointed out how essential it was to determine what type of personality is susceptible to the development of ulcer, and what type of stress or psycho-dynamic conflict is involved. Furthermore, is this personality, stress, or psycho-dynamic conflict, capable of producing hypermotility and ulceration of the stomach and duodenum ?

It now becomes necessary to look at the evidence which supports the specificity hypothesis. The earliest personality investigations of duodenal ulcer described personality types, that is, the overt behaviour of ulcer patients. Clinicians intuitively sensed that these patients were emotionally disturbed. What remained to be determined was whether there was anything in the manifest overt behaviour of these patients which was common to all, and if so, did it contribute to the genesis of their illness ?

Walter Alvarez (1930) described the ulcer personality type as keen, nervous, active and hard living. At about the same time, Cushing (1932) added "High strung and go-getter" to this conceptualisation. Draper and Touraine (1932), in calling attention to unconscious factors, noted that ulcer patients were emotionally "controlled". Moschowitz (1935) added hyper-irritability and hypersensitivity, and Sullivan and McKell (1950) emphasized the craving for affection and intense desire for superiority, to their characterological picture. Kapp, Rosenbaum and Romano (1947) concluded from their study of twenty men with ulcers, that their overt behavioural manifestations varied greatly. They felt that there was no overt overall ulcer personality, but that ulcer patients do have in common, a typical unconscious conflict which has varied behavioural manifestations ranging from openly dependent to very dominant behaviour.

In conclusion, it would seem then that there is no specific overt personality common to all ulcer patients except that most ulcer patients have emotional difficulties of some severity, and the personality is then that of an emotionally disturbed person.

There is clear evidence which points to the existence of a specific stress situation or psychodynamic conflict, conscious or unconscious, that might be capable of contributing to the development of an ulcer through an increase in secretion of hydrochloric acid. This will now be considered.

Historically, many attempts have been made to correlate psychological stress with physiological and pathophysiological changes in the stomach.

Beaumont in 1833 noted that fear and anger inhibited gastric secretion in Alexis St. Martin. In 1932 Draper and Tourain published some psychological observations on ulcer patients in whom they found chronic anxiety as a focal psychological problem. This anxiety resulted, they found, from the threat of an excessive feminine component in the personalities of their male patients.

From the period 1934 to 1950 Alexander's findings of repressed dependency strivings as the focal psychodynamic conflict in ulcer patients stood unchallenged, and was accepted by most workers in the field. (Alexander's work will be discussed later in more detail.)

Wittkower (1935) found that anxiety, resentment, and pleasure-producing experiences (suggested to experimental patients under hypnosis), effected gastric acid secretion.

Mittelmann and Wolff (1942), on the basis of experimental observations on a series of patients with and without ulcers, concluded that the effect of sustained emotions of anxiety, conflict, insecurity, resentment, guilt and helplessness was to increase hydrochloric acid secretion and peristalsis and was chronologically associated with the production of ulcer symptoms in their patients.

Wolf and Wolff (1943) some years later were able to demonstrate in their subject "Tom" specific changes in his gastric mucosa which they were able to examine directly during various emotional states. Tom was a man who,as a result of an operation, had an opening of the stomach onto his abdominal wall, that is, a gastrostomy. During a period of sadness which involved a feeling of withdrawal, "Tom's" gastric mucous membrane paled and peristalsis diminished. During anger, hostility and anxiety, there was an increase in the same function and engorgement and swelling of the mucosa making it vulnerable to traumata and, they concluded, laying the groundwork for the development of an ulcer.

Margolin (1950, 1951) psychoanalysed a 22 year old Negro girl with a large gastric fistula (much like Wolf and Wolff's "Tom"). His associates, Winkelstein et al.(1951) correlated Margolin's psychological findings with physiological studies which they performed on her stomach at the same time. Margolin emphasized the importance of taking into consideration unconscious mental functioning in evaluating the relationship between emotional stress and physiological dysfunction. Wolf and Wolff's work was in contrast to Margolin's, and dealt essentially with conscious material. Margolin found three types of gastric activity which he correlated with unconscious psychic processes, for example,

synchronised low activity of the stomach occurred when reaction formation was the dominant defence against a repressed impulse-seeking expression; synchronised high activity occurred when a repressed impulse was close to emerging into consciousness, and asynchronous, disassociated or random activity when the defence mechanism functioned well, so as to maintain the patient in a state of psychic equilibrium. They concluded that although the patient was consciously unaware of any emotional stimulation, there was unconscious stimulation, producing dissociated activity of the stomach.

Garma and his associates (1950) in South America have utilised various concepts of Melanie Klein (1948) in their interpretation of the psychodynamics involved in peptic ulcer formation.

Garma (1950) has symbolically interpreted the focal conflict of ulcer patients as the introjected mother, equated with food which is difficult to digest internally. The ulcer symbolically equals the bite of the mother. Garma's (1950) work in many ways correlates with the findings of Szasz et al.(1947) in that they feel, as does Garma (1950), that a major psychological factor in ulcer patients is oral aggression.

Mirsky (1948, 1952) and his associates have performed significant work with the plasma pepsinogen content of the blood and the uropepsin content of the urine. In as much as the pepsin secretion generally parallels gastric acid secretion, Mirsky (1952) had a good determinant (by measuring either plasma pepsinogen or uropepsin) of gastric secretory activity in response to emotional stress. Mirsky (1952) has confirmed Alexander's (1950) findings that gastric secretion increased with frustration of dependency needs. Furthermore, as the result of his studies with normal control patients, Mirsky (1952) found that some patients had hypersecretion of pepsinogen although they were to all intents

and purposes physically normal, without any symptoms or indications of ulcer being present. This led him to hypothesize that some individuals are born with a hypersecretory tendency and others with a hyposecretory tendency. He postulated that the inborn secretory activity of the stomach determined the infant's oral need, which in turn might affect the child's relationship with his mother, in that a hypersecretor with consequently very great needs might react to his mother as a rejecting mother because his innate excessive gastric activity creates associated excessive oral needs, which she is unable to meet. When such a person reaches adulthood and is exposed to stress associated with frustration of his dependency needs, he might respond to this frustration automatically through hypersecretion which if maintained over a prolonged period, might result in peptic ulcers.

To date, two main theories dominate the thinking about duodenal ulcer aetiology. These theories fall into the two broad categories that were mentioned in the previous chapter : specificity and non-specificity theories. The first of these developed by Alexander et al. (1934) proposes a specific psychological conflict as a causative factor, while the second theory, proposed by Mahl (1950), maintains that anxiety irrespective of source, is crucial to the development of peptic ulcer. Alexander (1934), on the basis of his psychoanalytic work with a small number of ulcer patients, concluded that the basic problem in ulcer patients was a conflict between their repressed unconscious passive receptive dependency needs, and their conscious ideas of independence. He postulated that the intense oral receptive drive in these patients and their inordinate desires for love, dependency, and to be taken care of, are frustrated by external reality, or rejected unconsciously by internal functions (the super ego), because of their incompatibility with aspirations of the patient's desire for

independence. These frustrated impulses arouse anxiety and find expression in regression to a desire to be fed. Together with this regression the gastric activity associated with being fed (hypersecretion, hypermotility and hyperemia of the stomach), can produce ulcer. There may result from this rejection of a patient's dependency needs a reactive oral regression. As a denial of his dependency needs, the patient may overcompensate by successeful achievement. This accounts for the often described picture of the ulcer patient as a successful business man with repressed dependency needs. Alexander (1950) in addition to his aforementioned psychodynamic formulation, postulated the existence of unknown organic factors which he called X-factors. The volume of research that has been generated from Alexander's (1950) specificity theory will be discussed more fully in a later section.

Mahl (1949, 1952) postulated the anxiety hypothesis of duodenal ulcer aetiology. Mahl (1949) has been greatly influenced by the learning theory of Dollard and Miller (1956). Mahl (1949, 1952) concluded on the basis of his experimental work with animals, and confirmed later with humans, that chronic anxiety or fear aroused by any stimulus could give rise to hyperacidity in a duodenal ulcer patient. Mahl (1952) emphasized that he was describing physiological changes associated with chronic and not acute anxiety. In fact, his findings indicated that in acute anxiety there was a decrease of stomach acidity. He noted that many authors before him had suggested chronic anxiety as a causative agent of ulcer on the basis of their clinical and experimental observations on patients and animals. For example, during the air raids in England during World War Two, the incidence of perforation of ulcers increased, and this activation of ulcer was interpreted by the authors as being associated with anxiety

(Stewart and Windsor, 1942). Gantt's dog, Nick, on whom various conditioned reflex experiments were performed, had an increase in hydrochloric acid with fear (Gantt,1944). Mittelmann and Wolff (1942) also found an increase in stomach acid with anxiety. In support of his anxiety hypothesis, Mahl (1950) cited Mittelmann and Wolff (1942).

Mahl (1949) noted the aforementioned studies (in addition to others) to support his findings which were essentially that chronic anxiety or fear (he does not differentiate between fear and anxiety) produced an increase in acid secretion in dogs in controlled experiments. Later Mahl (1952) extended his findings to monkeys, medical students under stress, and patients under psychotherapy. Mahl believed that it was not essential what the source of this anxiety was, that is, whether it was produced by environmental conditions or by internal ideational or affective stimuli - or external or internal conflictual situations. He felt it was not important whether these internal stimuli were conscious or unconscious, nor whether the anxiety was conscious or unconscious. He believed that hydrochloric acid secretion was an innate physiological accompaniment or response to chronic anxiety. In fact, Mahl pointed out that Cannon's emergency theory (1929) held true for acute anxiety only and not for chronic anxiety. Cannon (1929) postulated that in a dangerous situation requiring fight or flight there was an increase in sympathetic nervous system activity and a decrease in parasympathetic nervous (and therefore vagal) activity. Mahl (1950) emphasized that only in chronic anxiety was there an increase in vagal activity, as opposed to periods of acute anxiety where there would be a decrease in vagal functioning and a predominance of sympathetic functioning.

Alexander (1950) disagreed with Mahl's (1950) interpretation of ulcer pathogenesis. He felt that an individual in response to acute anxiety

might act aggressively producing sympathetic nervous activity with an increase in cardiac rate and a decrease of stomach acid as described by Cannon (1929). On the other hand, the ulcer patient, in response to anxiety aroused as a result of his passive dependent strivings being frustrated, regressed to the state of a helpless child turning to a mother for help. One of the first disturbances in the infant is hunger, which is reduced and satisfied by maternal feeding. Therefore the wish to be fed, to be taken care of and to be loved becomes a major response to stress in the ulcer patient. At these times when the ulcer patient is under stress and has this need to be fed and protected, his parasympathetic nervous system is more active than the sympathetic. The parasympathetic nervous system then via the vagus nerve, stimulates the hypersecretion of gastric acid as if the stomach was to receive food. Alexander (1950) thus felt that anxiety "triggers off" a variety of psychological chain reactions in an individual; the nature of the stimulus that arouses the anxiety (as well as other psychic factors) determines the varied type of psychological response that ensues. He believed that while the subject might be conscious only of anxiety, analysis of the psychological conflicts of the ulcer patient would reveal that there was a mobilization of the subject's wish to be taken care of, or fear of loss of a dependent relationship which in turn stimulates gastric activity. While Mahl (1950) does not dispute the fact that conflict over dependency yearnings might be a frequent cause of production of anxiety in ulcer patients, the "key" to the problem as viewed by Mahl (1950) is "chronic anxiety" and not "dependency". This chronic anxiety resulting from any cause or conflict, Mahl (1950) believed has an automatic innate accompaniment and result, namely in an increase in gastric hydrochloric acid. The ulcer patient, Mahl (1950) concluded, is thus subject to chronic anxiety

which is the reason he has an excessive secretion of gastric acid. Mahl felt that the physiological response occurs universally as a reaction to anxiety and did not attempt to explain the reason why one person develops ulcer and another does not when exposed to chronic anxiety.

It can be stated that in man emotional stress can produce an increase in gastric hydrochloric acid secretion, hypermotility, hyperemia, and superficial ulceration of the stomach wall. The focal conflict of duodenal ulcer, if any, has not been unequivocally defined. Alexander's (1950) theory of repressed frustrated dependency in association with Szazs' (1947) concept of associated oral aggression, and Mahl's (1950) concept of chronic anxiety as result of any type of psychodynamic conflict (not specifically "dependent") are the major hypotheses that have been developed to explain the psychic forces behind the development of duodenal ulcer. Thus it can be seen that a great deal of uncertainty exists in the area of aetiology, and an attempt must be directed towards refinement of existing concepts.

A Review of Studies on Duodenal Ulcer Related to the Specificity Hypothesis

Streitfeld (1954) suggested that it was pertinent to ask what the status of the "theory of specific emotional conflicts" is in the field of psychosomatic research. He pointed out that two decades had elapsed since Alexander's specificity theory was advanced, and innumerable studies, using a variety of methods, had been carried out on psychosomatic patients with the express purpose of ascertaining specific causative psychological factors.

Of all the psychosomatic disorders, peptic ulcer has probably received the longest and most intensive scrutiny. By the late middle

fifties approximately forty-five fairly systematic studies had appeared in the literature (Streitfeld, 1954).

Alexander's theory offers the promise of a parsimonious and predictive approach (Robbins, 1969). Furthermore the theory posits a limited set of variables which he claimed accounted for the occurrence of specific symptoms which then determined why people develop specific forms of psychosomatic illness. The theory however has been criticised as being an over-simplification of a complex problem. Specificity theories have been in vogue, but have never won complete acceptance (Robbins, 1969). He presented a very comprehensive survey of the research done in this field. He discussed the research which appeared after the publication of Alexander's book in 1950 on psychosomatic illness, and he covered the period from 1951-1965. One of the major questions he explored was how this theory had been borne out by research. He cited many of the studies and then discussed some of the difficulties encountered in doing research in this area.

This investigator will follow Robbins' (1969) outline and will include research that has been done after 1965 up to the present time. Robbins (1969) pointed out that he selected studies which were theoretically relevant and methodologically sound. It is beyond the scope of this investigation to discuss all the studies. Only those which are relevant to this research design will be discussed in detail.

Studies on the Oral Component in the Ulcer Patient's Personality

Alexander's view of the ulcer patient as having a strong oral component in his psychological make-up received support from studies by Baugh and Stanford (1964); Wolowitz (1967); Wolowitz and

Wagonfeld (1968); Weisman (1956). Baugh and Stanford administered the Rorschach test to patients with ulcers and twenty-five control patients; they reported a strong tendency for the ulcer group to give responses with 'passive oral content". They found that ulcer patients when frustrated regressed to their initial period of oral fixation. Wolowitz, (1967) and Wolowitz and Wagonfeld (1968) tested ulcer and non-ulcer groups on a Self Report Food Preference Inventory designed to reflect unconscious oral involvement. They found that the ulcer group showed significantly higher oral passive needs than the control group.

Weisman (1956), during the course of psychotherapy with six ulcer patients found that in all patients the ulcer conflict consisted of variations in the passive/active antinomy. The patient's ego defences included compliance and defiance; inhibition and suppression; and denial by word, act or phantasy. Depression was strikingly absent during ulcer exacerbations. "Ulcer symptoms recurred most often when the threat of depletion exceeded the promise of replenishment and the resultant angry protest was restrained" (Weisman, 1956, p.40).

Studies on Primary and Reactive Types

Alexander distinguished two ways in which the dependency needs of ulcer patients are handled. On the one hand, the individual may accept these needs and behave in a dependent passive fashion (Alexander, 1950) hoping for gratification. Such individuals are called primary types. On the other hand, the individual may repress these needs and show a reaction against them, displaying "an exaggerated aggressive, ambitious, depressed attitude" (Alexander, 1950). Such individuals are called reactive types. Alexander's conceptualization of primary and reactive ulcer types has given rise to a series of investigations. Blum and Kaufman

(1952) were able to distinguish primary from reactive types. Their method was based on responses to the Blacky test, which uncovered two opposite trends within the ulcer sample. Comparisons on the Blacky dimensions revealed the primary pattern to consist of a relative absence of conflicts centering around anal retentiveness, oedipal feelings, castration anxiety, along with an excessive concern for mothering and little conscious desire for strong masculine identification. The "reactive" pattern, closer to the popular conception of the ulcer personality, is characterized by repressed receptive longings, intense unresolved oedipal feelings, the conscious wish to emulate a dominant father figure, a pervasive sense of guilt, and a highly narcissistic approach to others.

Marquis et al.(1952) administered a battery of psychological tests to sixteen male ulcer patients. The tests included the Rorschach, Draw-A-Person Test, and the Blacky Pictures. Using Blum's criteria the ulcer patients were divided into two groups, the primary ulcer type and the reactive ulcer type. They were clearly differentiated with regard to their acceptance or denial of their dependency needs. The primary type, appeared to accept and recognise these needs and set about consciously to gratify them. On the basis of the findings of Blum and Kaufman (1952), and Marquis et al. (1953), Winter (1955) administered the Blacky pictures and the Rorschach to a larger group of ulcer patients. The group were of average intelligence and under forty-five years of age. Winter (1955) developed primary and reactive scales from items on the Blacky pictures. Further information was taken from Veterans' Administration records, that is, vocational rehabilitation and education. Winter (1955) concluded that a typical ulcer personality was not found

in all ulcer patients, but that the reactive and primary types were found. An interesting finding was that an important characteristic of the primary type was his inability to complete successfully a programme he had begun. The person with a high primary score did not finish high school. This, he concluded might reflect the low frustration tolerance and inability to persevere, which was typical of the primary pattern. Weiss and Emmerich (1962) investigated the hypothesis that primary ulcer patients exhibit strong dependency in both their phantasied and actual relationships, and as expected, they found that the ulcer patients had more dependency themes on the Thematic Apperception Test, and they exhibited greater group conformity than non-psychosomatics. Weiss and Emmerich (1962) selected ulcer patients from a low socio-economic group who would most likely belong to the primary type.

> "Obviously such persons have had limited opportunities to prepare for or enter these occupations in which strong mobility strivings are highly sanctioned." (Weiss and Emmerich, 1962, p.61).

They referred to Scodel (1953) who confirmed that the family background indirectly or even actively, discourages the internalization of status-seeking and achievement motives.

At the present time, the existence of a primary reactive dichotomy among ulcer patients needs more empirical verification. The validity of the Blacky method of selection has not been demonstrated. In fact, attempts to replicate Blum and Kaufman's (1952) original results have not been successful. Bernstein and Chase (1955) found that ulcer patients were no more likely to give oral erotic stories on the Blacky test than other groups of mixed psychosomatic or nonpsychosomatic patients. Pollie (1964) confirmed these findings.

Studies Related to the Passive Dependent Personality

The passivity and dependency of ulcer patients rather than a reactive pattern is the most frequent picture presented by research data. Studies by Cleveland and Fisher (1954) obtained body-image phantasies of ulcer and rheumatoid arthritis patients by means of the Rorschach and clinical interviews. The ulcer patients phantasized their body boundaries as weak and vulnerable. In a later study Cleveland and Fisher (1960) confirmed that the ulcer patient whose body boundary was weak, felt deprived, manipulated and manouevred. By exposing ulcer and arthritis patients to a loud noise, and recording heart rate and Galvanic Skin Response (GSR), they showed that ulcer patients reacted with an increased heart-rate. Williams and Krasnoff (1964) confirmed the hypothesis of Cleveland and Fisher, that is, that the patient with peptic ulcer could be differentiated from the patient with rheumatoid arthritis. On the basis of body image scores, these two groups would reflect unique physiological responses. Patients defined on the basis of body image scores would demonstrate physiological patterns parallel to those of the diagnostic groups, that is, ulcer patients gave significantly more Rorschach responses which refer to perceptions of indefinite boundaries than the rheumatoid arthritis group.

Weiss and Emmerich (1962) attempted to measure actual interpersonal dependency, assessed in the group conformity situation developed by Asch (1952). As expected the ulcer patients exhibited greater group conformity, and therefore dependency, than either of the control groups. These investigators also analysed responses to the TAT for evidence of dependency themes. They found that the ulcer group did not differ significantly from the mixed psychosomatic group, although both groups had higher dependency

scores than the non-psychosomatic group. This is an interesting study because it uses the techniques of social psychology. The failure of the TAT to differentiate between the ulcer and mixed psychosomatic group might have been due to the small numbers of cases in each group. Krasner (1953) compared a duodenal ulcer group with two control groups, a psychosomatic group and a non-psychosomatic control. A number of psychometric techniques were used including the Guilford-Martin Inventory. The ulcer group differed from the control groups in that they tended to be more shy, withdrawn, socially passive, flighty and jittery than the controls.

Scodel (1953) compared thirty-four duodenal ulcer patients with a control group of thirty-eight neurotic patients. He used several experimental procedures including the Level-of-Aspiration test and Complete-Versus-Incomplete tasks, and the MMPI. The results on the various tests showed the ulcer patients to be more passive and conforming than the neurotics. An item analysis of the MMPI confirmed the hypothesis that the ulcer patients, despite their overt passivity, perceived themselves as active, masculine and efficient to a greater extent than in the control group, presumably as a defence against their dependency. Marshall (1960) compared a group of ulcer patients with a control of non-psychosomatic patients. She expected the ulcer group to indicate that they were more aggressive, efficient and responsible, as these were defences against their dependency needs, and the defensive behaviour pattern proposed by Alexander (1950), but there were no significant differences between the groups on these variables. The ulcer group, however, did score higher than controls on a scale from the specially devised test battery. Scores indicated emotional inhibition and conformity. She concluded that dependency needs are defended against, yet partially

satisfied through acquiescence with formalised social demands.

Silverstone and Kissen (1968) investigated the parameter of field dependence in regard to psychosomatic patients. They investigated hypertension and duodenal ulceration as being most likely to give contrasting results when measured for field dependence. Field dependence correlates with measures of passive dependency, and they reported that the ulcer patients were more field dependent (and passive) than the hypertensive patients who were field independent and compulsive.

Although most of the reported research indicates that ulcer patients tend to be passive and dependent, there are several studies which do not report this to be the case. Wilner (1955) - quoted by Robbins (1969) - compared an ulcer group with a chronically ill non-ulcer group, as well as a group without chronic illness, and found that the ulcer group did not have greater dependency scores. The groups were tested on the MMPI. Streitfeld (1954) compared a group of ulcer patients with a control group comprising patients with psychosomatic illnesses other than duodenal ulcer; two tests were used, the Blacky and the Rorschach. Streitfeld (1954) found that the two groups did not differ on measures of oral dependency, but the ulcer group gave significantly more oral aggressive responses. He concluded that duodenal ulcer patients do not differ from other psychosomatic cases with regard to frustration in the gratification of their oral dependent needs; nor do they differ in the kind of overt personality they present to the world. Where they do differ is in their tendency to react with strong oral aggressive wishes to the frustrations of their oral-dependent needs.

Rothstein and Cohen (1958) compared ulcer patients with several control groups (a mixed psychosomatic group, a normal group, a

psychoneurotic group and a group of schizophrenics). The ulcer group had higher dependency and hostility scores than the normal but were no higher than the mixed psychosomatics. Rothstein and Cohen (1958) interpreted the results as inconsistent with the theory that dependency and hostility conflicts are specific to the genesis of ulcers.

Predictive Studies

The aforementioned researches have been made on the strength of psychodynamic observations. In line with the advances in psychosomatic medicine and with the emphasis on predictive studies, Alexander et al. (1968) explored the possibility of predicting the clinical diagnosis in seven psychosomatic patterns, and Graham et al. (1962) predicted clinical disease on the basis of the disease-typical attitudes. In later research, Alexander showed that in fifty-one per cent of the cases investigated, the analysts in the research group were correct in their diagnosis of the patient's illness on the basis of formulations. The investigators point out that in addition to these patterns three sets of circumstances should obtain for the disease to manifest itself; firstly, presumed innate physiological predisposition; secondly, an early life situation in which a core psychological configuration develops which renders the individual particularly vulnerable to the stresses of certain basic conflicts; and thirdly, a disease onset situation triggering or exacerbating these basic conflicts to which the individual is particularly vulnerable.

Using a similar method, Graham et al. (1962) tested by prediction the validity of their specificity-of-attitude hypothesis. In a previous study Grace and Graham (1952) had identified certain attitudes in patients associated with the diseases from which they suffered. They identified eighteen attitudes. Judges were asked to match these with the eighteen

diseases which were presented. Just as in the study of Alexander et al. (1968), these investigators were able to predict with accuracy the attitude which eventually accompanied the presenting disease.

An early predictive study by Weiner et al. (1957) presented a classical test of the specificity hypothesis. On the basis of the known biological predisposition to duodenal ulcer, that is high pepsinogen rate, and the known associated psychological predisposition described by Alexander (1968), as "the frustration of dependent desires originally oral in character", they predicted which of a group of army recruits would develop an ulcer in the setting of basic training.

Investigators using identical twins (Pilot et al. 1957, 1963; Pollock and Pilot, 1970), reported that they were able to predict the approximate set of circumstances which led to the development of ulcer morbidity in a previously illness-free twin. These genetic studies offer opportunities to explore the explanatory power of general and specificity hypotheses concerning illness.

A recent predictive study on 280 men from a university health service was begun in 1940 (Valiant and McArthur, 1972). Each man was studied by internists, anthropologists, physiologists and psychiatrists. The physical and mental health of the subjects were prospectively studied from age twenty years to fifty years of age. Ninety-four men were randomly chosen for follow-up study. Over the years ten men required medical attention for ulcer, five for colitis, ten for hypertension, sixteen for chronic muscular skeletal complaints and eleven for allergy and/or asthma. The subjects with psychomatic illness were found to have had ten or more psychiatric interviews during this period. They also had oral character traits (e.g. passivity, dependence self-doubt), had suffered

inadequate childhood rearing, and showed an involvement and concern with bodily health and hypochondriacal attitudes.

Evaluation of Specificity Studies

Before assessing the studies and the evidence for or against specificity theory, it is worthwhile to take some evidence from other lines of investigation that bear on the problem. This evidence comes from studies by Buck and Hobbs (1959), Browning and Houseworth (1953), Badal et al.(1957), and Rees (1953).

Buck and Hobbs (1959) inquired as to whether an individual with one type of psychosomatic illness - that is, arthritis, would tend to have another type of psychosomatic illness for example hypertension. They examined the medical records of five per cent of subscribers to a medical care scheme. The records covered virtually all the physicians who had attended the illnesses of its subscribers. The findings showed that there was an excess of individuals with two psychosomatic disorders, for example allergy and gastro-intestinal disorders. Buck and Hobbs (1959) concluded that the results lend no support to the belief that psychosomatic disorders tend to be restricted to one bodily system within a given individual. There is no evidence of organ or system specificity, but rather a tendency for psychosomatic illness to be diffuse in its manifestations within the individual. They suggest that multiple psychosomatic disorders occur significantly more often than would be expected on the basis of pure coincidence.

Browning and Houseworth (1953) were interested in the development of new symptoms following successful treatment of psychogenic conditions. They compared cases with duodenal ulcer treated by gastrectomy with cases

of duodenal ulcer treated medically. The method of investigation was an interview conducted one year after surgical or medical treatment. The surgical group showed a decrease in ulcer symptoms but an increase in some other psychosomatic symptoms, for example, hypertension, and a considerable increase in neurotic symptoms, for example hysteria, phobias, obsessions. The medical group showed no decrease in ulcer symptoms, and also showed some increase in psychosomatic and neurotic symptoms but not as much as the surgically treated group. The investigators admit that a shortcoming of the study was that no data were collected prior to surgery and there could have been inaccurate recall on the part of the patients. The medical group reported a somewhat higher incidence of pretreatment psychosomatic and neurotic symptoms. Both Badal et al. (1957) and Rees (1953) report results which tend to support the findings of Browning and Houseworth (1953). These studies used clinical observations for assessing neurotic symptoms. The criteria used in making these judgements were in some cases not adequately specified. Despite some methodological weakness - Badal et al.(1957) did not use a control group - these studies suggest that the personality patterns involved can produce a variety of psychosomatic complaints. This now raises some questions about specificity theory.

Two further studies investigated the role of specificity in duodenal ulcer. These were by Philip and Cay(1971) and Apter and Hurst (1973). The former examined a large group of patients in the gastro-intestinal unit of a general hospital in Edinburgh. The medical as well as the patients' psychosocial history was taken. Several psychological tests were administered including the Symptom Sign Inventory and the Sixteen Personality Factor Questionnaire. The clinical assessment of the patients revealed that atleast some degree of psychiatric morbidity was present in two-thirds of the patients. Duodenal ulcer patients did not

have more psychopathology than those with other illnesses. The psychological testing indicated that while patients were more self involved than average they did not otherwise differ from the population at large. The authors concluded that there was no evidence for an ulcer personality.

Apter and Hurst (1973) investigated the personality of patients with duodenal ulcer. They investigated thirty patients suffering from duodenal ulceration in the in-patient surgical ward of the Johannesburg General Hospital, and compared them with thirty controls who had surgical conditions of comparable severity at the same hospital. Fifty medical out-patient cases of duodenal ulcers and matched controls were also assessed in Israel. Two psychological tests were employed, the Maudsley Personality Inventory and the IPAT Anxiety Scale. A psychiatric history was obtained from the South African Group only, on a modified version of the Maudsley psychiatric interview in schedule form (L.A. Hurst). The investigators found no significant differences in overall anxiety on the IPAT test in the South African experimental and control groups, nor between the Israeli experimental and control groups. On the MPI there were no significant differences between the South African duodenal group and control group, nor were there any differences between the two groups in Israel. In the discussion of the results the investigators commented on the overall similarity of the two groups which is "emphasized by the similarity of results obtained in the two very different settings". They concluded that their study supports recent views of psychosomatic illness as a reaction to stress independent of 'static' personality traits or specific emotional conflict.

The above studies raised doubts concerning the specificity theory.

Some studies quoted confirmed the specificity hypothesis and these require closer examination.

Roth (1955) critically surveyed the literature on duodenal ulcer and pointed out the shortcomings of the studies investigated. He criticized the methodology of the early studies for these reasons :

1. No distinction was made between patients who had gastric ulcer and patients who had duodenal ulcer. (Notable exceptions Wretmark 1953; and Hamilton, 1950).

2. No distinction was made between men and women ulcer patients in the groups studied (exceptions Draper and McGraw, 1927; Gainsborough and Salter, 1946).

3. Generalizations were drawn from a specific social class, instead of a representative population.

4. Many of the studies failed to have a control group.

5. They failed to spend enough time interviewing and observing patients, since the length of the time of the interview would increase the validity of conclusions about the patient's personality (Hamilton, 1950; Wretmark, 1953).

6. There was a lack of statistical analysis to determine the significance of the findings.

7. Interview studies were not designed in such a way as to prevent the interviewer from distinguishing between the experimental and control groups, so that the interviewer's unconscious bias operated. Roth suggested the use of tape recorded interviews where information that could lead to identification should be

deleted.

8. There was no whole personality nor feature of personality that was agreed upon by as many as a third of the investigators. The fact that they did agree on some of the features (conflict over passivity, presence of meticulousness and anxiety) could be due to a defect in the technique. Since most investigators had reviewed prior studies they had an expectation of what they might find. It seems that many of the psychiatrists who did the studies were acquainted with the work of Alexander (1934). Furthermore twelve of twenty reported cases in psychoanalysis were treated by therapists who had worked in Alexander's clinic. They all found the conflict described by Alexander (1950). However, Pickford (1948) and Garma (1951, 1953) who analysed seven of the cases did not find the same conflict that Alexander (1950) had suggested. They had not worked for Alexander.

In a critical evaluation of the studies on specificity Robbins (1969) delineated further difficulties in the areas of :

(a) The methods of study.

(b) The problem of selecting control groups.

(c) The difficulty of interpreting a cause - effect relationship.

(a) Methods of study

In studying the relationship of personality and disease, what is ideally required is a personality measure that is clinically rich and does not oversimplify the problem, yet at the same time obtains quantification that allows for a precise testing of the hypothesis. The discipline of personality measurement is still in an early stage of development and there

are few instruments which do justice to the above requirements. Pervin (1970) pointed out "each technique of assessment tends to give a glimpse of human behaviour, and that no one test gives or can hope to give a picture of the total personality of each individual". As a consequence, studies relating personality to disease have serious limitations for they are dependent upon the available techniques.

The approaches that have been used to date may be classified into three types :

(a) case study

(b) studies using self-report measures of personality

(c) studies employing experimental techniques to measure personality.

The literature contains many case reports where attempts are made to correlate crucial events in the life of an individual with the onset or exacerbations of the disease (Castelnuovo-Tedesco 1962). Although such studies provide insight into how the illness is related to developmental features in the patient's life, they are limited in that they are not useful for testing hypotheses.

Studies using self report and experimental techniques measure only whether there is a relation between the presence or absence of the diseases and personality measures. The method used in self report studies are mainly interviews and psychometric techniques. The most frequently used tests have been the MMPI (Scodel, 1953), the Rorschach (Baugh and Stanford, 1964), TAT (Weiss and Emmerich, 1962) and Blacky Test (Winter 1955).

As mentioned the tests have their limitations and caution should be exercised in regarding the test results as being conclusive (Robbins,1969).

Furthermore, as Roth (1955) has pointed out, the studies do not delete information that may inform the tester to which group the ulcer patient belongs. The groups should also be interviewed by a worker who has not diagnosed the cases. The investigators failed on the whole to report such measures.

(b) The Problem of Selecting Control Groups

Research has been conducted by comparing patients with ulcers with some other group of persons on a personality measure. The diversity of the control groups used, makes comparisons between studies very difficult. The control groups used have been non-ulcer controls that were selected from either a normal population (Pollie, 1964) or from other types of psychosomatic patients (Cleveland and Fisher, 1954), or from a group of mixed psychosomatic cases (Bernstein and Chase, 1955), persons with non-psychogenic illness such as pneumonia (Thaler et al. 1957), neurotics (Scodel,1953), or even psychotics (Rothstein and Cohen, 1958).

A further difficulty is the selection of a suitable control group. Comparison with a single control group does not necessarily provide the answer, as this comparison may not show up the characteristics of the ulcer group. A group of "mixed psychosomatic" patients is a nebulous standard, too heterogeneous within a study and too variable between studies to form a satisfactory basis for measurement. A possible answer to this dilemma would be a fairly large-scale effort to obtain comparable information on various disease categories, using standardized personality tests. There have been some efforts along these lines, for example Wiener (1952) administered the MMPI to eight groups of patients with different diseases, and Thaler et al. (1957) used projective

techniques on five groups of patients with different diseases.

Thus it is clear that more comprehensive research is needed to obtain baseline data on how a variety of patient groups compare in terms of standardized measures. Until such data are available, it is very difficult to interpret the many comparisons already undertaken in the literature between two or three specific clinical groups.

(c) The Difficulty of Interpreting a Cause-Effect Relationship

The studies investigated have all considered whether psychological factors cause or contribute to the development of an illness. Studies have also been carried out to ascertain what effects physical illnesses have on personality (Barker et al. 1953). The best way to establish cause and effect in this area would be a series of prospective studies. Such studies however are rare (notable exceptions Weiner et al. 1957; Valiant and MacArthur 1972).

Lacking such prospective studies, a second approach is to study the psychological effects of physical illness and conditions believed to be non-psychogenic in origin. Such conditions might include diseases like pneumonia, or disabilities caused by accident or war. If such conditions were followed by high levels of anxiety, dependency or other disturbances of affect, then one must be very cautious not to attribute a causal role to the personality of ulcer patients when indeed a similar emotional picture can be found in non-ulcer patients.

There have been a number of studies which do indicate that psychological disturbances may be caused by diseases and debilitating conditions (Hurst and Apter, 1973; Motto, 1968; Bendien 1963). Treatment or anticipated treatment for a non-psychological illness can

compound the psychological effects of the illness itself. Kissen (1964) found that cancer patients who had surgery scored higher on the Maudsley Neuroticism score than cancer patients who had not had surgery.

It does seem from the above evidence that there are as yet no clear parameters for assigning cause and effect to correlations obtained between personality and the presence of disease. Anxiety, depression, and hypochondriacal tendencies may follow a disease as well as cause one. The need for prospective studies seems clear.

Non-Specificity Approaches to Duodenal Ulcer

Many investigators object to the lack of validation of the intellectually attractive specificity theories, and find the psychoanalytic theories too confining. These investigators have researched the psychological factors in duodenal ulcer without an explicit theoretical standpoint. These theorists fall into the broad category of non-specificity theorists and include, as mentioned in the previous section, Wolff (1950), Mahl (1952), Selye (1950). The non-specificity studies which are to be discussed, focus on the common psychogenic factor in all psychosomatic patients and also include animal studies. In addition, studies which demonstrate sound methodology but are not confined to a particular theoretical background are reviewed.

Ruesch (1948) called attention to the fact that certain personality traits were common to all patients suffering from psychosomatic disorders, and that the personality structure of these patients as well as their social techniques pointed to a rather primitive level of psychological organisation. He found as evidence for their immaturity that psychotherapeutic procedures commonly employed in the treatment of psychoneuroses had to be

modified in order to facilitate their rehabilitation. He identified the common denominator in all these patients as related to faulty or arrested maturation, and somatic manifestations were recognised as constituting means of infantile self-expression. He contrasted the personality structure of the mature person to that of the infantile personality, in that the mature persons have at their disposal suitable techniques for interpersonal relations and have mastered problems of communication in terms of self-expression and self-extension, thus availing themselves of expressive signs which are derived from the somatic sphere, from action and from verbal symbolisation. The infantile person, however, does not possess the necessary techniques for social interaction and communication and hence his life experiences cannot be integrated, and satisfactory interpersonal communication is limited. He added "signs used for self-expression originate in the somatic sphere or are related to action, and interpersonal relations on the level of verbal symbolization are rudimentary or non-existent" (Ruesch, 1948).

A year later an important publication by MacLean (1949) suggested that the psychological manifestations of patients with psychological diseases were related to the function of the rhinencephalon. MacLean (1949) made the clinical observation that the patient with a psychosomatic disease had "an apparent intellectual inability to verbalize his emotional feelings", with the result that "instead of finding expression and discharge in the symbolic use of words and appropriate behaviour (they) might be conceived as being translated into a kind of organ language". These clinical observations were not taken up until some years later. It was not until the early 1960's when Marty and de M'Uzan (1963) and Marty, de M'Uzan and David (1963) summarized their clinical experience with psychosomatic patients in France, that attention was focused on the phenomenological aspects of the mentation

of patients with psychological disorders. Marty and de M'Uzan (1963) made the striking observation that psychosomatic patients were apparently incapable of producing ordinary phantasies which through their imagery symbolise and express drive tensions. They found that the thought content of these patients was mundane, restricted in time, unimaginative, and tied to reality and utilization. To this latter kind of mentation the authors gave the name "pensee operatoire". Sifneos (1967) reported similar findings on his observations of patients with psychosomatic disorders. He found that this group showed a marked difficulty in finding appropriate words to describe how they feel. Their vocabulary is limited and they give the impression that they do not understand the meaning of the word.

Nemiah and Sifneos (1970),influenced by the observations of Marty and de M'Uzan (1963) and Sifneos (1967), re-examined the protocols of the patients in the Sifneos (1967) study.

The protocols were re-examined with a view to determining the nature of the patients' thought content and expression of affects. The protocols revealed in sixteen of twenty cases a marked difficulty in expressing verbally or describing their feelings, and an absence or striking diminution of phantasy, and the frequent kind of mental content delineated called the "pensee operatoire". The authors felt that the explanation for these phenomena is not as yet clear, but offer as suggestions that, in psychological terms the ego defences utilized are reaction formation and repression to keep affects from reacting on conscious awareness. In developmental terms it is a disturbance in the early learning process. They suggested an individual has failed to develop the usual connections between the words and emotions, with a

consequent deficit in the capacity to discern the qualities of emotions or to express them verbally or in phantasy. In neurophysiological terms, they postulate a lack of connection and communication between the limbic system (the substrate of emotion) and the neocortex (underlying the capacity for critical evaluation and for the creation of complex systems of association). The authors suggest that further investigation aimed at testing these hypotheses will determine their validity. They feel that the too-ready explanation of disturbance of affective expression in psychosomatic patients as due to specific psychic defence mechanisms has prevented most investigators from more closely defining the phenomenological characteristics of that disturbance.

A study by Bonami and Rime (1972) on psychosomatic patients revealed restricted phantasy activity on projective tests. These authors reported that the responses of patients were as stereotyped as that type of response that Marty and de M'Uzan (1963) and David (1963) had noted.

Poser and Lee (1963) administered five TAT cards to thirty ulcer patients, thirty patients with ulcerative colitis, and a group of thirty controls. The significant differences between the groups were that the ulcer patients had high achievement needs, a lack of creative imagination, and a reluctance to relate to their social group. The ulcerative colitis patients exhibited passive, compliant attitudes and avoided stressful situations. An interesting finding was that there was low projective output in the psychosomatic groups - the protocols were much shorter than the control groups - and furthermore the control group showed a greater degree of spontaneity. The control group showed less hesitation in using induced content, that is, material that does not specifically follow from the facts of the picture. These results added objective validity to the clinical impressions of many other investigators.

As mentioned previously Mahl studied gastric secretion in dogs and monkeys (Mahl, 1949, 1952) and concluded that only chronic fear produced increased secretion and motility. A direct experimental attempt to evaluate in monkeys the effect on the stomach and duodenum of chronic stimulation applied to the visceral brain stem was performed by French et al. (1957), and they found that ulceration in animals varied according to areas stimulated, the animals that developed ulcers had received excitation of currents to a low midline axis in the hypothalamus.

Numerous studies on rats have fou[illegible]t ulcers can be experimentally produced (Ader, 1963, 196[illegible] and Broadhurst, 1964, 1965; Essman and Frisone 1966; Sines,1961). All the studies, except those of Ader's, refer to gastric ulcer, and although one may assume the conditions that produced gastric ulcer would produce duodenal ulcer, this has still to be experimentally demonstrated. Further it is uncertain how one can relate these experiments to ulceration in human subjects. Ader (1962) comments on recent studies which have shown it possible to induce gastric lesions in the rat, but he says such results do not imply any equation of immobilisation in rats with "stress" in humans,or that ulcers produced in the rats' stomachs are the same as duodenal ulcer in man.

The two studies which will now be reviewed demonstrate sound methodology but are not confined to a particular theoretical background.

Kanter and Hazelton (1964) compared a group of young male patients with duodenal ulcers with a hospital non-psychosomatic control group. The authors used two questionnaires, the Maudsley Personality Inventory (MPI) and the Maudsley Medical Questionnaire (MMQ), and the TAT for the purpose of measuring the difference between the two groups. The results on the MPI showed clearly that ulcer patients had higher neuroticism

scores, and lower extraversion scores than the non-ulcer group. The TAT failed to support the hypothesis that the ulcer group were more mother-dependent in phantasy than the control group. This study was well controlled, the sample well selected for age and homogeneity, and the tests were administered by testers who did not know to which group the patient belonged. The TAT was independently rated by three investigators and scored by a weighted formula.

The study by Cohen et al.(1961) investigated aspects of duodenal ulcer that they had investigated on three different occasions. The authors commented that there had been an amassing of data about a limited number of specific factors in individual studies, but they have remained relatively unintegrated from the experimental point of view, and hence there was little data to support the empirically developed concepts that duodenal ulcer has a psychosomatic dysfunction. The investigators devised an experimental design that permitted the testing of a hypothesis of the interaction of psychological, gastric, physiological and neuro-humoral factors in the development of duodenal ulcers. The results reconfirmed the correlations previously noted in three types of studies. These studies investigated :

(1) Whether the levels of adrenaline and noradrenaline excreted in a patient's urine correlates with the degree of aggressivity and anxiety expressed on specific psychological test measures.

(2) Whether specific psychological characteristics could distinguish between ulcer and non-ulcer patients.

(3) Whether the ratio and level of urinary catechol amines might be a reflection of autonomic imbalance and were associated with duodenal ulcers.

Thus, the work is helpful in the understanding of the processes underlying the relationship between psychological and physiological factors in the aetiology of duodenal ulcer.

Duodenal Ulcer in Women

Since it was indicated that the incidence of duodenal ulceration among women is lower than among men, this concluding section covers research on duodenal ulceration in women.

Studies conducted prior to 1900 demonstrated without exception that duodenal ulcer occurred more frequently in women. About 1910 the sex incidence became equal, and since 1910 there has been a progressive rise in the incidence of peptic ulcer among men, and a decrease in its incidence among women, despite the fact that the overall incidence of duodenal ulcer has remained approximately the same.

Some authors (Halliday, 1946; Ruesch, 1948; Mittelman and Wolff, 1942; Ivy, 1950) have attributed this phenomenon to sociological and cultural factors. For example in the nineteenth century, the men were better able to express both their aggressive and their dependent impulses; they could be active at work and simultaneously cared for by their wives at home. In contrast, women could satisfy their dependency needs in the home but were socially blocked from expressing their aggressive and independent impulses. After the turn of the century however, men were subject to increased social and economic pressures that frustrated their aggressive drives and the mobilisation of their dependent wishes. On the other hand, women could express many competitive, independent impulses that had formerly been considered taboo. Mirsky's (1948) observation that approximately three men for each woman in the healthy population

have a concentration of pepsinogen in the serum which exceeds the mean of the population with duodenal ulcer, lends emphasis to the importance of social and cultural factors. It is unlikely that there has been a sudden shift in the genetic aspect of ulcer that would account for the change in sex incidence. Rather it must be explained on the basis of psychological and sociological variables (Freedman et al., 1972).

There are some studies that have looked specifically at ulceration in women. Studies on women with duodenal ulcer find varying degrees of anxiety and character disorder (Rosenbaum et al., 1951; Cohen et al., 1956; Pilot et al.,1967). Rosenbaum et al., (1951) found that in contrast to a group of male ulcer patients, all the women exhibited rather severe overt personality disorders. The study findings revealed that the majority of these female patients had been rejected by their mothers and had turned to their fathers for support. Ulcer symptoms were precipitated when the supportive figure failed them. Cohen et al. (1956) demonstrated that gynaecological surgery,especially sterilizing procedures, was followed by significant increase in duodenal ulceration.

Pilot et al.(1967) investigated groups of women of different ages with histories of duodenal ulcer. They noted that the older women were more susceptible to the development of new ulcer disease than the younger women. This supports the evidence which suggests the existence of protective mechanisms operating in young women (Ivy et al.,1950; Sandweiss, 1951). When ulcers do occur in young women, they could be due to the loss of a "protective factor" or a special aggressive force. This, they suggested, is rather a point of view than an objective fact. Similarly the remission of an ulcer during pregnancy may be explained by a hormonal hypothesis, or may be considered as associated with psychological

changes, especially the changes in a woman's attitude towards herself (Spiro et al., 1959) or even more simple an explanation might be the influence of change of diet during pregnancy.

Conclusion

There is little doubt that many factors influence ulcer formation. The above review shows just how extensive is the literature on duodenal ulceration. The psychosomatic aetiology has been discussed above. Essentially this hypothesis can be summarised by stating that psychic conflict leads to stimulation of the vagus nerve, which results in hypersecretion of hydrochloric acid and hypermotility of the stomach. It is hypothesized that these factors in association with presently unknown organic components(constitutional, genetic, hormonal) combine to produce a chronic duodenal ulcer. The associated features such as irregular meals and constitutional factors of alteration in acid and mucus production which correlate with blood groupings, are beyond the scope of this study. However these factors play an important part in the aetiology of acute and chronic duodenal ulceration. Further supportive evidence for this statement comes from genetics. Fodor and Urcan (1966) noted that the possession of two genes, singly or together, greatly increases the risk of developing a duodenal ulcer. This then confirms the existence of a constitutional predisposition to the disease.

The two main theories that dominate the thinking about duodenal ulceration were discussed. Firstly Alexander (1950) proposed a specific psychological conflict as the causative psychological factor, while the second theory proposed by Mahl (1950), maintained that anxiety, irrespective of source, is crucial to the development of duodenal ulcer.

The specificity theory has given rise to a great body of research, and the findings, in spite of the diversity of controls, indicate that ulcer patients can indeed be distinguished from the control group. Alexander (1950) distinguished two ways in which the dependency needs of ulcer patients can be handled. On the one hand,there is the individual who accepts these needs and behaves in a dependent, passive fashion, hoping for gratification. This he referred to as a primary type. On the other hand, there is the individual who represses these needs and shows a reaction against them by displaying ambitious independent attitudes. These individuals are called reactive types. Many of the studies which were reviewed confirmed Alexander's findings. These studies found that the predominant characteristic of the ulcer patients was their dependency. The best designed studies were those that were prospective in design.

Furthermore, it emerges that a vast and diverse ulcer population has been studied but findings are still in need of fuller systematization so that the pathogenesis of duodenal ulcer needs further clarification.

The survey of the literature has indicated that findings are conflicting, and that the aetiological controversies have not been adequately dealt with. Nevertheless the role of psychodynamics in the pathogenesis of duodenal ulceration is emphasized by all investigators. The problem however, remains one of clearly delineating the psychological factors which underlie the condition. Thus the need for the present study is clearly indicated. In view of this a rationale for this study can readily be established :

(a) to define more clearly the psychogenesis of duodenal ulceration
(b) to examine the conscious and unconscious motivations of the patients by means of appropriate psychometric techniques.

CHAPTER 3 - THE INVESTIGATION

This chapter will be concerned with a description of the experimental and control groups. The measuring instruments will be discussed and evaluated. The testing procedure will be described, and finally the hypotheses will be stated.

Description of Sample

Experimental Group

The initial sample consisted of forty-one patients who were randomly selected from a series of patients diagnosed as suffering from duodenal ulceration. The patients had all been admitted to the professorial surgical wards of a provincial general hospital complex which is attached to a university medical school.

The criteria for selection were rigorous. The selected cases all had absolute proof of duodenal ulceration. The diagnosis had been established either by barium meal or at laparotomy, and in most instances both criteria were met. Care was taken to eliminate from the survey patients who, apart from duodenal ulceration, had other illnesses (for example, alcoholism or overt psychosis) which might complicate the psychological picture. Four patients were immediately eliminated because of previous psychiatric histories. Of these, two patients had undergone treatment at a mental hospital over an extended period of time, and the other two stated that they had attended a psychiatric out-patient clinic. Another three patients had to be excluded because they mentioned the nature of their illness in their protocols on the projective psychological instrument. This exclusion was necessary because the patients identified

the group to which they belonged, thus defeating the criterion of independent rating by blind analysis. A further four cases had to be rejected either because they had a language difficulty, or they were of too low an educational level, or a combination of both.

A final sample of thirty duodenal ulcer patients consisted of nineteen females and eleven males, with a mean age of 39,85 years. The mean age of the males was 40,9 years, and the mean age of the females was 38,8 years. For males the age range was 21 to 70 years and for females 18 to 65 years. It was decided also to include only subjects with at least a Standard Six educational level as this was needed to complete efficiently the psychometric procedures used in this study. In this sample the educational attainments of the subjects ranged from Standard Six to Standard Ten. The socio-economic level of the group was relatively homogeneous, i.e. lower middle class (using occupational criteria).

All cases had to have been resident in this hospital for a period of between two and eight weeks in order to be included in this sample.

Control Group

The control group was drawn from the surgical in-patients at the same hospital. This group was matched with the experimental subjects for sex, age, educational level and socio-economic variables. The control group consisted of thirty patients.

The control group was judged by an experienced surgeon to have diseases of comparative severity. The patients were selected for inclusion in the control group because they were non-duodenal ulcer patients who had undergone a comparably severe surgical procedure and who were exposed to

similar environmental conditions were the experimental group. They all had to be hospitalised in the same hospital for between two and eight weeks in order to be included in the sample.

The advantage of an in-patient control group lay in their ready accessibility to the investigator as well as in their similarity to the experimental group in terms of sex, age, and socio-economic variables. (For details see Appendix).

The Measuring Instruments

Three psychological tests were administered: The IPAT Anxiety Scale; the Maudsley Personality Inventory (MPi), and the Thematic Apperception Test (TAT). A Psychiatric Questionnaire was also used.

The IPAT Anxiety Scale

Introduction

From a survey of the literature, the importance of the role of anxiety in the duodenal ulcer patient has been stressed. In selecting the best and most comprehensive tool for the assessment of this anxiety factor, the IPAT Anxiety Scale devised by Raymond B. Cattell (1957) was adopted. Cattell's clinical psychological ideology was a restrained psychoanalytical one, and his use of statistical techniques of the factor analysis type resulted in the emergence of independent variables of personality and temperament, which were valuable for precise computations in correlational studies.

Description of the IPAT

The test is contained in the inside pages of a four page test booklet. The front cover is used for identifying information and instruction, the back cover for recording responses and comments.

Responses are arranged so that left - right position preferences cannot affect the anxiety score. High score keyed responses are somewhat more frequently agreeing ("yes", "true") rather than disagreeing ("no", "false"). This adds to the validity of the score, since acquiescence (i.e. tendency to agree) has been established empirically as in itself being an expression of anxiety (Cattell, 1957). In the present study the IPAT anxiety scale will be used (Cattell, 1957). It is unfortunate that at the time of the present investigation the IPAT anxiety scale as revised in 1968 by the National Bureau of Education and Social Research had not yet been published. The questionnaire consists of forty items trichotomously scored. It yields the following kinds of scores :

(1) A single total anxiety score based on all forty items.

(2) A breakdown into overt anxiety score and covert anxiety score.

(3) A breakdown of total anxiety score into the following five components of anxiety:

(a) Self Sentiment Development - the degree of motivation to integrate behaviour about an approved, conscious self-sentiment, and socially approved standards.

(b) Ego Strength - the capacity immediately to control and express excited drives or unsatisfied needs in a suitably realistic way.

(c) Protension or Paranoid Trend - reflecting the contribution of social insecurity (paralleled by the development of paranoid defences) to anxiety.

(d) Guilt Proneness - represents depressive anxiety guilt, reflected in a feeling of unworthiness, anxiety and d[illegible]ession with proneness to all kinds of guilt feelings.

(e) Ergic Tension - represents the degree to which anxiety is generated by excited drives and unsatisfied needs of all kinds, including sex drive excitation, need for recognition and situational fear.

Validity

Anxiety is best measured by tests which are difficult to fake, that is, projective tests and physiological tests. The inadequacy of the questionnaire method as a clinical measuring device has frequently come to be severely criticised (Scheir, 1958). The effectiveness of the IPAT scale has, however, been convincingly demonstrated.

For Cattell, the scientific validation of the total anxiety score rested upon the demonstrated correlations of the primary factor score with what he had identified as the "general anxiety factor". Six separate researches covering a total population of over one thousand subjects witnessed the unique determination and replication of this validity (Cattell and Scheir, 1961,) They found a correlation of 0,92 between the total anxiety score of the IPAT and the "general anxiety factor".

Cattell has also found external validation for the test (Cattell and Scheir, 1961).

Further validation comes from a recent well controlled study (Hartlage, 1972). It explored anxiety in non-psychotic, hospitalised adolescents. Overt behavioural measures of anxiety were electrically recorded, anxiety ratings were assigned by ward staff and the IPAT and Holtzman Inkblot techniques were administered. Of these four measures

by far the largest correlation occurred between the IPAT and the Holtzman. The author concludes that

> ... formal tests of anxiety correlate better with each other than with ... measures of discrete behavioural events that are thought to be indicative of anxiety. (Hartlage, 1972, p.1147)

Despite the proliferation of anxiety measures since the IPAT was first made available in 1957, its usefulness in the clinical situation is still being demonstrated.

The Maudsley Personality Inventory

Introduction

The claims concerning the nature of the "ulcer personality" are diverse and impressionistic. It was decided that when using the MPI this investigation would limit itself to seeking a correlation between duodenal ulceration and the two personality variables of neuroticism and extraversion/introversion as measured in the Maudsley Personality Inventory, hereafter referred to as MPI, of H.J. Eysenck (1959). These dimensions of personality are derived also, as in the case of the Cattell (1957) variables just described, by factorial analysis and have the advantages of objectivity and comprehensiveness as personality traits. They can be used as a basis for comparison with an extensive range of studies in other allied fields. This is evident from the wide currency of Eysenck's work and writings.

Description of the Test

Instructions for subjects are printed on each copy of the MPI. The MPI is remarkably free from items concerned with physical symptoms. It consists of forty-eight questions. There are two scales, one containing

twenty-four items and measuring neuroticism-stability, and another scale, also containing twenty-four items, to measure introversion-extraversion. Each item may be answered "Yes", "No", or "?". The appropriate "Yes" or "No" scores two points and each "?" one point. The maximum score on Neuroticism and on Extraversion is therefore forty-eight points each.

Development of the Scale

In 1940, Eysenck (1947) completed a study in which seven hundred neurotic soldiers were rated by psychiatrists on thirty-nine traits. An analysis of the relationships among these ratings suggested two main factors - a general factor of neuroticism and a factor distinguishing between patients with affective or dysthymic symptoms (such as anxiety, depression and apathy), and patients with hysterical symptoms (such as conversion symptoms, hypochondriasis, and bad work history). The latter factor was found to be closely related to Carl Jung's introversion-extraversion dichotomy. It is important to note, however, that Eysenck's discovery of this dimension of personality was based on statistical techniques rather than clinical intuition. Also, the dimension was viewed as representing a continuum rather than a dichotomy - people could have more or less of this trait rather than be an introvert or an extravert.

As his research and theory evolved, Eysenck started to develop other tests for these two dimensions and to seek relationships between scores on these two dimensions and other behaviour. Other personality scales were used in this research, and two appeared to show a particular correspondence with his theoretical position - the C (cycloid emotionality) and R (rhathymia) scales of the Guilford-Martin test. For example,

neurotics were found to score higher on the C scale than did normals, and hysterics were found to score higher on the R scale than did depressives and obsessional neurotics. These data fit well with Eysenck's 1947 findings. A study of conditioning by Franks (1956) found support for some of Eysenck's theoretical assumptions about the conditionability of extraverted neurotics (hysterics, character disorders) as opposed to introverted neurotics (anxiety states, depressives, obsessionals), and a relationship between scores on the R scale and conditionability. Eysenck then developed a questionnaire of 261 items including the C and R scales, other personality scales, and the Maudsley Medical Questionnaire (used in 1947). The 261-item questionnaire was given to 200 male and 200 female normal subjects, most of them in the twenty-five to thirty years age range and about half of whom had some university education. A factor analysis of responses to these items resulted in the selection of forty-eight items for MPI, twenty-four items each to measure the dimensions of neuroticism and extraversion. Thus an original study and factor analysis led to the definition of two dimensions. The behavioural correlates of scores on the dimensions were determined and a factor analysis of a large pool of items resulted in the development of a forty-eight item scale to measure the N (neuroticism) and E (extraversion) dimensions of personality.

The description of Eysenck's Extraversion/Introversion factor (E) and Neuroticism factor (N) is as follows :

With regard to E the picture resembles but is not identical with Jung's extraversion :

> The typical extravert is sociable, likes parties, has many friends, needs to have people to talk to, and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change; he is carefree, easy-going, optimistic, and likes to laugh and be merry. He prefers to keep moving and doing things, tends to be aggressive and lose his temper quickly; altogether his feelings are not kept under tight control, and he is not always a reliable person.
>
> The typical introvert is a quiet, retiring sort of person; introspective, fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead, 'looks before he leaps' and distrusts the impulse of the moment. He does not like excitement, takes matters of everyday life with proper seriousness and likes a well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards. (Eysenck and Eysenck, 1963, p.52).

(N) or Neuroticism in Eysenck's system should be thought of as a general dimension of personality, which he sometimes labels emotionality. As Eysenck and Eysenck (1963) stress, it is very similar to the dimension as described by countless other writers since Woodworth published his Personal Data Sheet and Taylor (1953) her Manifest Anxiety Scale. The Neuroticism high (N) scores are indicative of neurotic tendencies within the individual. Eysenck (1953) defined neuroticism as referring to the general emotional lability of a person, his emotional over-responsiveness and his proneness to neurotic breakdown under stress.

Reliability and Validity of MPI

Eysenck placed emphasis on the objective analysis of responses to the questionnaires, and the relationships found between scores on the questionnaire and other aspects of behaviour. In using a questionnaire, Eysenck (1957) said he was not concerned with truthful self-revelation,

but with the "objective fact that a person puts a mark on one part of the paper rather than another".

Emphasis was given to the tests having high reliability. The split half reliability was quite high for both N and E scales. The MPI had been tested for reliability on many samples, and the reliability coefficients for the extraversion scale were all above 0,75, and for the neuroticism scale between 0,85 and 0,90. The reliabilities of the scale were high for a personality inventory and compared favourably with the reliability of cognitive tests such as Stanford-Binet and Wechsler Intelligence Tests.

Insofar as validity is concerned, there were numerous factor analytic confirmations of the dimensions measured by the MPI. Bendig (1959) considered the factorial composition of a number of measures of neuroticism and anxiety, and his results confirmed the existence of two independent factors which he termed emotional and extraversion-introversion. Other studies supporting the two-dimensional personality scheme were carried out by Hilderbrand (1953), Eysenck (1959) and Bendig (1959). The MPI scales have been shown to correlate highly with other scales which claim to measure such dimensions, extraversion-introversion and neuroticism.

Eysenck (1957) gives the correlations with the scales of other inventories as follows :

> N (neuroticism) correlates with the Heron (1956) and Cattell (1957) neuroticism scales, the Guilford C scale (1949) and the Taylor Manifest Anxiety Scale (1953).
>
> E (extraversion and introversion) correlates with the Heron and Cattell Extraversion Scales (1957), the Guilford R Scale (1949), the Minnesota Sociability Scale (Evans, 1941) and

negatively with the Taylor (1953) Scale.

Eysenck (1959) commented that while differences did exist with regard to age, sex and class, they were too slight to warrant separate norms. Although correlations with sex had been negligible in all studies, there was a slight tendency for women to score on the average about one point higher than men on both the E and N scales.

The general approbation given to the MPI is succinctly stated by Jensen

> By all criteria of excellence in test development the MPI is an impressive achievement ... Probably no other psychological test - certainly no other inventory - rivals it in psychological rationale ... All in all, it seems safe to say that no other personality test is based upon a body of psychological theory so far-reaching and so diligently and ably researched as is the MPI. (Jensen, 1965, pp.288-289).

The Thematic Apperception Test

Introduction

Whereas the two foregoing tests fall into the category generally labelled objective, the Thematic Apperception Test (hereafter referred to as the TAT) falls into the class known as projective.

It was considered necessary to include a test which could elicit the more subtle psychodynamic processes underlying psychopathology since most of the literature on duodenal ulcers has stressed the importance of inner conflicts (e.g. Alexander, 1950; Rosenbaum, 1954).

It was Freud (1896) who first enquired systematically into the hidden motivations and genetic determinants of mental life and it is these that projective methods seek to uncover. In a paper "On the

Defense Neuropsychoses" (cited in The International Psychoanalytic Library) he stated explicitly that projection is a process of ascribing one's own drives, feelings, and sentiments to other people or to the outside world or a defensive process that permits one to be unaware of these "undesirable" phenomena in oneself. While the concept of projection seems to have originated from the psychoses and neuroses it is not limited to the purpose of defence but also exists where there are no conflicts.

Frank (1958) incorporated this view of Freud's into his own elaboration of projective methods in which he confirmed that personality must be conceived as emerging from prior experience in a cultural field and operating as a dynamic process. Frank described "how each individual receives and responds to this cultural patterning and to parental care, rearing and training will be revealed in his idiomatic perception and his individualised way of thinking, acting and feeling, as disclosed by projective tests" (Frank, 1958, p.48).

Wide use has been made of this process of projection in the projective techniques which include the TAT, the Rorschach, the Blacky Picture Test and Sentence Completion. The basic procedure in the use of these tests is that the subject is confronted with a number of ambiguous stimuli and then asked to respond to these stimuli. It is assumed that the subject projects his own needs, such as achievement, blame avoidance and personal and impersonal pressure (such as acquisition or death) and that these will appear as responses to the ambiguous stimuli.

From among the projective techniques the TAT was selected. The reasons for the choice of the TAT will be briefly discussed.

The TAT ranks with the Rorschach test in popularity, though these

tests can hardly be considered competitive or mutually exclusive techniques. The Rorschach is invaluable as a form, perceptanalytic technique. The TAT supplies the content. It gives primarily, and more so than any other test in use at present, the actual dynamics of interpersonal relationships. It gives basic data on the subject's relationship to male or female authority figures, to contemporaries of both sexes, and frequently it reveals the genesis of conflict in terms of family relations. The TAT may not clearly indicate the intensity of fears, but it indicates the nature of them and shows the hierarchy of needs and the structures of the compromise between id, ego and superego.

Henry (1956) described the TAT as a method of studying social and psychological aspects of personality. He added that stories given by a subject are essentially phantasies which spring from the imagination. These are however controlled phantasies, in that the subject must respond to the stimulus of the picture, but the content and form of the phantasy are unstructured by outside stimuli, and are dependent on the subject's feelings, emotions and habitual ways of thinking.

Bellak (1950, p.185) described the TAT as "a means of investigating dynamics of personality as found in interpersonal relations, and in the meaningful interpretation of the environment. In telling stories about pictures, subjects presumably reveal their personal, individual apperception of purposely ambiguous stimuli". Bellak (1950, p.186) further stated "it is regarded as a projective test in that the stories which subjects tell about each of the pictures are considered to be projections - that is descriptions of feelings and sentiments, needs or drives of the individual, which are elicited by the stimulus material of the pictures. According to the projective hypothesis, the mechanism of projection is utilised by the ego as a defence against unacceptable

forces, and is, in part, at least, unconscious". It thus provides information about the conscious and unconscious phantasy life of a person, his wishes, needs, attitudes towards others and towards himself.

Description of Materials used in the TAT

The TAT as originally developed consists of thirty pictures, variously designed to be appropriate to the sex and age of the subject. The present TAT pictures are the third set to be in use (Murray, 1943).

There are eleven pictures which were designed for both sexes and all ages; seven pictures designed for boys under fourteen and males over fourteen (marked BM); seven designed for girls under fourteen and females over fourteen (marked GF); one each designed for boys and girls (marked BG), for boys (B), for girls (G), for males over fourteen (M), and for females over fourteen (F).

The pictures are divided into two series, those of the second series being generally more ambiguous and/or bizarre than those of the first series.

TAT Interpretation

The original technique used by Murray and his co-workers (1943) depended on an analysis of the stories by the need-press method. Every sentence was analysed as the needs of the hero and the environmental forces (press) he is exposed to. Each need and press received a weighted score. A rank-order system of the needs and presses could then be tabulated. At the same time the hierarchical relationships of the needs to each other was investigated with such concepts of Murray's as need-conflict and need-subsidation and need-fusion. The need-press scheme of the

interpretation still has many advantages for use in experiments in which detail is most important and time is not limited.

A great number of other methods for TAT interpretation have been introduced, among the best known being those of Rapeport, Rotter and Wyatt (cited by Bellak, 1959).

Interpretations of the TAT for the Present Study

In the present study the investigator followed the experimental design of Poser and Lee (1963). They evaluated the TAT protocols by a "need" analysis and by a thematic analysis. The "need" variables were selected from the list compiled by Murray (1943), preference being given to those "needs" which seemed relevant to the personality differences between the experimental and control groups - a duodenal ulcer group, an ulcerative colitis group, and a group of healthy controls.

For the present study five need variables which were considered pertinent were chosen, and the frequency of the needs were tabulated. The following "needs" were selected from Murray's list (1943) :

(1) Achievement (Murray refers to this as n Achievement) - "To work at something important with energy and persistence. To strive to accomplish something creditable. To get ahead in business, to persuade or lead a group, to create something. Ambition manifested in action".

(2) Passivity (Murray refers to this as n Passivity) - "To enjoy quietude, relaxation, sleep. To feel tired or lazy after very little effort. To enjoy passive contemplation of the reception of sensuous impressions. To yield to others out of apathy and inertia".

(3) Abasement (Murray refers to this as n Abasement) - "To submit to coercion or restraint in order to avoid blame, punishment, pain or death. To suffer a disagreeable press (insult, injury, defeat) without opposition. To confess, apologise, promise to do better, atone, reform. To resign himself passively to scarcely bearable conditions. Masochism".

(4) Succorance (Murray refers to this as n Succorance) - To ask, or depend on someone else for encouragement, forgiveness, support, protection, care. To enjoy receiving sympathy, nourishment or useful gifts. To feel lonely in solitude, homesick in a strange place, helpless in a crisis."

(5) Aggression (Murray refers to this as n Aggression) -

(a) Emotional and Verbal -"To hate (whether or not the feeling is expressed in words). To get angry. To engage in a verbal quarrel; to curse, criticize, belittle, reprove, blame, ridicule. To excite aggression against another by public criticism."

(b) Physical, Social -"To fight or kill in self-defence or in defence of a loved object. To avenge an unprovoked insult. To fight for his country or for a good cause. To punish an offence. To pursue, catch or imprison a criminal or enemy."

(c) Physical, Asocial -"To hold-up, attack, injure or kill a human being unlawfully. To initiate a fight without due cause. To avenge an injury with excessive brutality. To fight against legally constituted authorities. To fight against his own country. Sadism."

(d) Destruction -"To attack or kill an animal. To break, smash, burn or destroy a physical object". (Murray, 1943, p.9).

From the review of the literature, two types of ulcer personality were differentiated, the primary type and the reactive type. Alexander

(1950) distinguished two ways in which the dependency needs of ulcer patients were handled - the primary type (those individuals who accept these needs and behave in a dependent passive fashion, hoping for gratification), and the reactive type (those individuals who may repress these needs and show a reaction against them displaying an "exaggerated, aggressive, ambitious independent attitude" Alexander, 1950). Studies were designed to investigate Alexander's conceptualisation of the two types of ulcer personality (Blum and Kaufman, 1962; Marquis et al., 1957; Winter, 1955; Weiss and Emmerich, 1962).

There is also some evidence that patients from the lower socio-economic group tend to have primary type personality characteristics (Scodel, 1953; Winter, 1955), since it is known that this group have had limited opportunities to prepare for, or enter into those occupations in which strong social mobility strivings are highly sanctioned. Furthermore this lower or lower-middle class background fosters and encourages satisfaction with non-striving occupational pursuits. It is also believed that their family backgrounds indirectly or even actively discourage the internalization of status-seeking and achievement motives (Scodel, 1953).

In the present study the sample consists of patients of lower and lower-middle class membership. None of the patients have professional or semi-professional positions; a high percentage of the sample were skilled or semi-skilled workers. It seems reasonable to assume that by selecting ulcer patients from the lower socio-economic levels most of the sample would consist of the primary and not the reactive type.

From the numerous studies which were investigated and mentioned in Chapter 2, the passivity of the ulcer personality is the most characteristic picture presented.

It has been noted that ulcer patients tend to repress or deny feelings of aggression, particularly in regard to "aggression and orality" (Baugh and Stanford, 1964). Thaler et al.(1962) reported that hostility is for the most part ego alien in the patient with duodenal ulcer and when mobilised is handled through the mechanism of repression, denial and turning against the self.

Thus the ulcer group would be expected to be passive and dependent and these trends would be reflected in the n Passivity, n Abasement and n Succorance. In a study to measure dependency phantasy, succorance was chosen

> as it clearly reflects the kinds of phantasies that have been attributed to the Primary Type ulcer pattern. (Weiss and Emmerich, 1962, p.61)

The n Aggression was selected with the expectation that the duodenal ulcer group would deny or r[illegible] aggressive responses, and n Achievement was chosen to see whether they would conform to the primary pattern. It was expected that the control group would have higher aggressive and achievement needs than the ulcer group.

Studies by Nemiah and Sifneos (1970) and by Bonami and Rime (1972) noted that protocols of patients with psychosomatic disorders displayed a striking absence of phantasy. Poser and Lee (1964) found that the ulcer group lacked creative imagination. This was based on the manifest content and formal aspects of the protocols and this is a finding which corresponds with the work of Nemiah and Sifneos (1970) and Bonami and Rime (1972). Poser and Lee (1964) also reported that the ulcer group protocols had terse and incomplete endings as compared with the control group. Another observation that they made is that the most striking difference was the control group's greater productivity of responses (Poser and Lee, 1964).

This was measured by the rough criterion of total number of typewritten lines. In addition to producing stories of greater length, the control group complied more closely with the test instructions and showed less hesitation in using "induced content", that is, material that does not specifically follow from the facts of the picture. In this group a greater degree of spontaneity was noted.

In the light of the above studies the investigator added the following categories to be rated:

(a) Stories that have terse and incomplete endings.

(b) Stories that are mainly descriptive, that is, pictures are merely described, and very little "induced content" is added.

(c) Length of stories, that is, a rough count by number of lines per story. An average protocol has about thirty-six lines. Anything over fifty-two is long and under twenty-five short (Poser and Lee, 1964).

Choice of TAT Cards for Present Study

Five pictures were selected. The major criterion for selection was their suitability for both male and female subjects, and Card 3 BM was included as it "belongs among the most useful" (Bellak, 1959, p.207). From the eleven pictures designed for both sexes and all ages, pictures 1, 2, 4 and 15 were selected for the following reasons:

Picture 1 - A young boy is contemplating a violin which rests on a table in front of him.

This card frequently brings out the achievement motivation. It also elicits attitudes towards parental figures, and highlights the conflict between rebellion against, and compliance with authority.

Picture 2 - Country scene; in the foreground is a young woman with books in her hand; in the background a man working in the fields and an older woman is looking on.

This card is concerned with family relationships involving three persons and the way in which these relationships are perceived. It is also concerned with the challenge of a number of people together, and valuable information may be gleaned regarding the relationship of younger to older individuals and of male to female, and in eliciting responses toward inter-personal interaction, toward parent and child relationship and toward heterosexual relationship; passive or assertive feelings are also revealed.

Picture 4 - A woman is clutching the shoulders of a man whose face and body are averted as if he were trying to pull away from her.

This card was included to elicit attitudes to marital partners; a great variety of needs are demonstrated in regard to male-female relationships. Further the male attitude to the role of the woman is often shown - she may appear as protective or demanding and dependent. Similarly the woman's attitude to men who may have been aggressive toward her may be elicited. In many instances the woman is most often seen as the moral being who is offering advice to the more impulsive and irrational man.

Picture 15 - A gaunt man with clenched hands is standing among gravestones.

This card is among the pictures of the second series. It is a bizarre picture and as such presents an image to the subject in which reality elements are distorted rather than merely seldom encountered - elements which are "unreal". This picture is useful in estimating the facility with whith the individual can deal with the unusual and startling, as well as in presenting an opportunity for irregular or pathological thought content to be expressed. Feelings of sadness, death and hostility are most frequently elicited.

Picture 3 BM - On the floor against a couch is a huddled form of a boy with his head bowed on his right arm. Beside him on the floor is a revolver.

This card was included to get an idea of the way in which aggression is handled, and if the aggression is excessive or within normal limits. Most males see the huddled figure as a man; if it is seen by men as a female figure, possible latent homosexuality should be borne in mind. Many authors have commented on the duodenal ulcer patient as having feminine identification.

Scoring on the TAT

The present investigator was assisted in the rating of the TAT cards by a clinical psychologist who has great experience and knowledge of the TAT. The analysis was carried out after the sixty protocols had been rearranged in random order to eliminate bias. The frequency with which each "need" occurred as well as the length of the story, description of story and stories with terse endings were recorded.

The TAT was independently rated after blind analysis by two other clinical psychologists. Complete agreement occurred in 87 per cent of the ratings ($p < 0,01$; $n = 60$), while agreement in the remaining instances was reached after discussion.

This method while imposing a somewhat artificial stereotyping on the material, nevertheless justifies itself by enabling the investigator to deal with a mass of thematic material without loss of continuity.

As an illustration of the method of scoring, Fig. 1 gives the scores of the protocol of subject fourteen. His profile showed a strong tendency to produce descriptive stories (four out of five) and also stories that were terse and incomplete (four our of five). Succorance was the most common need (three out of five stories). Agression was absent in all five stories.

	1	2	3 BM	4	15
n Abasement			1		
n Achievement	1				
n Aggression					
n Passivity	1				
n Succorance		1	1	1	
Descriptive story	1	1	1		1
Terse and incomplete end		1	1	1	1
Length of story, that is, number of lines	10	8	8	6	4

Figure 1 - Matrix for scoring TAT protocols.

All sixty protocols were scored in a similar way.

The sixty subjects were separated into Experimental and Control Groups and the sexes were separated.

Each need and the three additional variables were categorized. Each subject was given a frequency score (i.e. total obtained from all five stories) in all needs and three additional variables. Thus this frequency table enabled the investigator to calculate means and standard deviations for all needs and three additional variables as well. The t test could then be applied to see if significant differences existed between experimental and control groups in all needs as well as in the three additional variables.

In the following section examples of the needs and the three variables and other pertinent aspects of the subjects' protocols are given.

n. Abasement - Picture 1 (Ulcer subject)

Subject - "The boy is supposed to be playing the violin. He doesn't seem too enthusiastic. He would rather be doing something else. In fact he would rather not play, but he is afraid that his parents will punish him if he doesn't play. He is forced to play every day. He does so because he will be punished if he doesn't obey "

n. Achievement - Picture 1 (Ulcer subject)

Subject : "The way I see it a little boy is looking at the instrument. He has that look of wanting to play it. He longs to be a great violinist. He thinks to himself 'I must play and practise hard to become the greatest violinist'."

Examiner : "Outcome ?"

Subject : "He is so ambitious, and he does become a great violinist ."

n. Aggression - Picture 4 (Control subject)

Subject : "Well, it rather looks as if she has been insulted by some man. The man called her a street girl. The husband wants to get stuck into him. She is holding him, because she is afraid he will get injured. He is damn cross. She is trying to persuade him not to injure the man ."

Examiner : "Outcome ?"

Subject : "She manages to calm him down and eventually he listens to her ."

n. Passivity - Picture 2 (Ulcer subject)

Subject : "This is a family on a farm - it is a pastoral scene, and everything is peaceful. The mother is standing on the right and looking at the scenery, at the restfulness of it. The daughter has come from school and is looking for a spot near a stream to go and relax."

Examiner : "Outcome ?"

Subject : "This is their daily life; they wait for the father and they go home, a quiet farm life, and go to bed early."

n. Succorance - Picture 4 (Ulcer subject)

Subject : "This woman is pleading with the man not to leave her. *She is asking his forgiveness - she has done* something wrong. She wants him, and needs him, she says she cannot go on without his love. She begs him to stay and look after her; she cannot bear to be alone."

Examiner : "Outcome ?"

Subject : "She goes on pleading with him."

The following story illustrates the additional categories mentioned previously, that is, stories with terse and incomplete endings, mainly descriptive stories and the length of the story.

Picture 1 - (Female Ulcer subject)

Subject : "A boy is studying the violin. He looks bored stiff. He is sitting at a bare table, with a bow next to the violin. He can't play the violin."

Examiner : "What led up to the boy sitting there ?"

Subject : "Can't imagine how he got there."

Examiner : "Outcome ?"

Subject : "He can't play. That is all."

The following story told by a control subject illustrates the ability to comply more closely with the test instructions, less hesitation in the use of induced content, and the ability to complete a story with high projective output, in other words, a longer story.

Picture 1 - (Female Control subject)

Subject : "This boy seems to be thinking very seriously about the violin. He wonders whether he will master it. He feels puzzled and perplexed. However, being young he may not have much difficulty - so much easier to learn if you are young. He seems to be asking himself questions. 'Am I going to make a success of it or not ?' Being young he will persevere. He thinks to himself 'Even if I cannot be a great musician I'll learn to play and enjoy it'".

Other interesting responses of ulcer subjects were noted, that is their responses to card 3 BM and card 15.

(a) Responses of the male ulcer subjects to picture 3 BM. Twelve out of the nineteen subjects saw the figure as a female and four were uncertain of the sex. In the control group seven of the nineteen saw the figure as a female, and three subjects were uncertain of the sex. This indicates the tendency of the male ulcer subject to harbour latent feminine passive needs. (Baugh and Stanford, 1964).

(b) The "gun" in this picture was not recognised by sixteen of the nineteen ulcer subjects as compared with nine of

the nineteen controls who did not recognise it. This omission indicates that the subject has to repress latent aggressiveness by denying the presence of the gun (Bellak, 1959). The figure in this picture is often depicted as helpless and hopeless.

The following examples illustrate the above points :

Picture 3 BM - (Male Ulcer subject)

Subject : "A young woman seems as if she is exhausted - terribly upset and crying her heart out, she has given up all hope."

Examiner :"What has upset her ?"

Subject : "Bad news, her parents have collapsed and left her."

Examiner :"Outcome ?"

Subject : "She has had enough - she continues to cry her heart out."

Picture 3 BM - (Male Control subject)

Subject : "Looks like a man, is that a revolver ? Yet, it is - I can't say whether he will commit suicide. He has thought of suicide, but thought better of it A love affair has gone wrong,a woman has left him. But he will turn to someone to talk about it and he'll feel so relieved he won't think of her anymore."

(c) The ulcer group had difficulty in dealing with the "bizarre" content of Picture 15. The unusual and

startling nature of the card caused long pauses and the stories were mainly descriptive with very short endings, and the themes reflected helplessness. Two examples follow.

Picture 15 - (Female Ulcer subject)

Subject : "This has got me stumped ... a man in a graveyard - standing next to the grave of somebody he has lost. He is upset and can't get over it."

Picture 15 - (Female Control subject)

Subject : "I see a graveyard. At night when everything is quiet there are people like this man, who come to rob graves. In the daytime he has no personality. He is a Jekyll and Hyde character. He waits to find the grave of a rich person. But there are no inscriptions. He looks so perplexed. He is going to open a grave with the weapon in his hand."

In summary the ulcer subjects have needs of greater passivity, abasement and succorance than the control subjects, and they are less aggressive and less achieving than the control subjects.

The ulcer subjects tend to have shorter protocols. Their stories are unimaginative and rarely go beyond embellished descriptions of what the picture actually shows. They often choose the most obvious story suggested by the picture. The stories are told in short terse sentences and conclusions are abrupt or completely omitted.

Lack of imagination leads this group to pay attention to detail, which is merely described without being incorporated in the story. Their greatest difficulty occurred with the less structured pictures, that is, 3 BM and 15.

The control group protocols were above average length, that is, upward of thirty-six lines. These subjects were able to use their imagination more freely and were not so tied to the stimulus material. The stories had happy endings and the tone was generally more cheerful. A wider range of themes was dealt with, and the progression from the opening, through the middle, to the outcome of the story was clear-cut and without indecision. Where details were mentioned, the story was modified to account for them.

Reliability and Validity

Holt (1952) says that the TAT is not a test in the same sense as an intelligence test, in that the usual procedures for reliability and validity cannot be applied to the TAT. It may be analysed in a great variety of ways, which could serve as the basis for inferences about a great number of personal characteristics. The reliability of scoring, as shown by the agreement of different scorers or interpreters working with the same protocol, has demonstrated that the simpler and grosser the scoring scheme the easier it is to obtain reliability. Validity of any set of statements based on the TAT must be a function of at least the following factors :

(a) Ability and experience of the interpreter.

(b) The system of scoring and interpretation used.

(c) The particular kind of statements, predictions or rating required from the interpreter.

Holt (1952) stated that studies have shown that with competent interpreters using a variety of analytic techniques, the TAT may form the basis of valid inferences about a wide variety of personality traits and abilities (Henry, 1947), and factors of personal history (Combs, 1946; Markmann, 1943). It may lead to valid predictions of leadership ability in officer candidates (Murray and Stein, 1943), or of psychotherapeutic ability in psychiatric candidates. The TAT results have been found to agree well with the results of psychoanalytic investigation, other tests, and a variety of sources for case data (Harrison, 1940; Henry, 1947; Morgan and Murray, 1935 (cited in Holt, 1952)).

The Psychiatric Questionnaire

The psychiatric questionnaire is an abbreviated form of the standard scheme of psychiatric examination used in the Johannesburg and Tara Hospitals. The items in the questionnaire are designed to investigate background history, early development and family and social relationships.

The Testing Procedure

The two questionnaires, the MPI and the IPAT, and the psychiatric questionnaire were administered by medical students and the present investigator. The medical students were part of the research design (Hurst and Katzen, 1966) mentioned in Chapter 1. The TAT was given by the present investigator only.

Each patient was seen by a surgeon prior to investigation, and assessed clinically. The subjects were not questioned if an operation was pending lest this interfere with the psychological assessment. If the patients had undergone surgery they were questioned only when fully convalescent. If the patient was on sedation, this was stopped a day before and also during the period of investigation.

The patients were tested by the investigator and medical students during the morning. This was considered the optimal time because the subjects were not unduly tired and hospital routine was not disturbed. The TAT was always administered the day following the administration of the MPI and IPAT tests. This procedure was adopted because the time involved for total testing would be excessive for the subject.

All subjects were asked whether they would participate in a research programme which, it was hoped, would yield information regarding their illness and which might be of value in the treatment of their disease. All the subjects were willing to co-operate.

The psychiatric questionnaire was administered first, as subjects usually welcome an opportunity to discuss themselves. The questions were answered spontaneously and very little prompting was needed.

After the completion of the psychiatric questionnaire the investigator read the instructions on the IPAT form to the subject, and the subject was then left alone to complete it. After the IPAT was completed, the MPI was given to the subjects and the instructions were read by the investigator. On both occasions the investigator was close at hand but did not assist with the completion of the questionnaires, even when the subjects verbally expressed their indecision.

The TAT was presented on the following day. The five cards, numbered 1, 2, 3 BM, 4 and 15 that had been selected, were presented. The cards were shown separately and in the same order, starting with number 1 and ending with number 15. Each subject was asked to study the card and to tell a story about it. They were asked to state their feelings about the people on the cards, to describe events leading up to the situation shown, and to give the outcome. Responses were taken down verbatim by the present investigator and any significant behaviour, such as a long pause, stammering, card refusal or obvious anxiety or tension, was noted. Any questions asked by the tester were also written down, as well as any requests to elaborate or continue with the story.

Statement of Hypotheses

In general, the principles outlined by Ferguson (1966) and Siegel (1956), were followed in the formulation of precise hypotheses. The following terminology was adopted in the present study.

Null Hypothesis - H_0

The null hypothesis states that no difference exists between the population means M_1 (Control Group) and M_2 (Ulcer Group). In all calculations, the arithmetical difference between pairs of means are calculated, so that $\bar{X}_1$ does not necessarily denote the mean of the same group throughout.

Thus $H_0 : M_1 - M_2 = 0$ or, to put it differently, $M_1 = M_2$. That is, the two samples are drawn from populations having the same mean.

The Alternative Hypothesis - H_1

The null hypothesis is normally formulated for the express purpose

of being rejected, in which case the alternative (H_1) is accepted. The latter is the operational statement

$$H_1 = M_1 - M_2 \neq 0$$

(the population means are not equal) arising from the experimenter's research hypothesis (Siegel, 1956). Thus H_1 amounts to the statement that if H_0 is rejected, then H_1 is true.

The Research Hypothesis

This is the prediction based on the theory to be tested. In the present study, the theory is that -

(a) psychosomatic illness results from certain mental states (tension, frustration, anxiety);

(b) these mental states are reflected in observable behaviour;

(c) by means of psychological measurements these mental states can be quantified;

(d) consequently it is hypothesised that it will be possible to show that the means of the ulcer group differ significantly from the means of the control group on the tests used.

As will be shown in Chapter 4, the usual practical procedure for testing the research hypothesis statistically is by means of the null hypothesis. Consequently, in the formal statement below of the hypotheses to be tested in the present study, the null form is implied throughout but even when the alternative hypothesis H_1 is stated, this enables one to indicate at the same time the predicted direction of the difference.

The formal statement of the hypotheses to be tested in the present study is made in terms of the personality dimensions as assessed by the different measuring instruments used.

Maudsley Personality Inventory

Hypothesis 1

(a) Neuroticism

The level of neuroticism will be higher in the ulcer group than in the control group (one-tailed test).

(b) Extraversion

A difference in average extraversion scores of ulcer and control groups is predicted, but the direction of the difference cannot be anticipated, and a two-tailed test will be made.

If ulcers result from the prolonged physiological effects of an emotion such as anxiety, ulcer patients should be less extraverted than controls (Sainsbury, 1966; Kanter and Hazelton, 1964). However, Eysenck (1959) predicted that psychosomatic subjects would be more extraverted as the somatic disorders in the patients are viewed as hysterical or conversion symptoms.

IPAT Anxiety Scale

Hypothesis 2

On all the personality dimensions measured by this test the ulcer group will have higher mean scores than the control group.

The TAT

Hypothesis 3

(a) The ulcer group will be higher in abasement needs than the control group.

(b) The control group will show higher achievement.

(c) The ulcer group will be less aggressive than the control group.

(d) The ulcer group will be more passive than the control group.

(e) The ulcer group will be higher in succorance than the control group.

Hypothesis 4

(a) In the ulcer group there will be a significantly higher number of terse stories than in the control group.

(b) In the ulcer group there will be more descriptive stories, that is, stories which follow the facts of the picture and lack imagination, than in the control group.

(c) In the ulcer group there will be a significantly higher number of shorter stories than in the control group.

The Clinical Questionnaire

Hypothesis 5

(a) The ulcer group will be more faddy about food than the control group.

(b) The ulcer group will have more initiative than the control group.

(c) In the areas of work and marital history, there will be differences between the ulcer and control groups.

(d) The ulcer group will be more dependent and attached to their families than the control group.

Sex Differences

Hypothesis 6

The null hypothesis H_0 is that no differences in the mean scores of male and female groups would be found. Thus two-tailed tests throughout are indicated.

In the following chapter, the results of the investigation and an analysis of the data will be presented.

CHAPTER 4 - STATISTICAL ANALYSIS AND RESULTS

General Discussion

In testing the null hypothesis, the first step is to decide on an appropriate statistical test.

In the present study, it is assumed that the measurements represent interval variables (as defined by Ferguson, 1966, p.13) which implies that such parameters as means and standard deviations can be calculated and that parametric statistical tests such as the t-test and the chi square (x^2) test can be applied. In all these analyses raw data were compared.

In the second part of the analysis, and as a check on the results of the parametric tests, a multivariate technique (discriminant analysis) and a non-parametric statistical test (the Kruskal-Wallis one-way analysis of variance by ranks) were applied to the data.

The second step in testing the null hypothesis is to ask : What is the probability of obtaining a difference equal to or greater than the observed difference, if one were to draw random samples from populations where the null hypothesis is assumed to be true ?

The third step is to reason as follows : The bigger the observed difference between any two means, the smaller will be the probability (p) of such a difference arising from sampling variations or errors. Therefore, if the latter is deemed improbable, rejection of the null hypothesis is indicated and the researcher would conclude that the alternative hypothesis could be accepted. In other words, his research hypothesis is verified.

The fourth step is to decide what level of significance will

be stipulated. This is to some extent arbitrary, but a probability of one per cent or less ($p \leq 0,01$) is usually regarded as indicating a significant difference. On the other hand, it is not unusual to regard a probability of five per cent or less ($p \leq 0,05$) as significant. However, a probability greater than five per cent is not as a rule regarded as denoting a significant difference.

In the present investigation a probability of five per cent or less is regarded as indicating a significant difference between the ulcer group and the control group, that is, a difference which could not result from sampling variations.

The critical level at five per cent confidence limit is 3,84.

The critical level at one per cent confidence limit is 6,64.

Finally, the researcher has to decide whether his aim is merely

(a) to determine that the means differ significantly regardless of the direction of the difference, implying that he has no idea which group should have the higher mean, or

(b) to show that the difference between the means is in the predicted direction.

In behavioural science research it is probably more often than not the case that the investigator is able to specify the alternative hypothesis H_1 in either of the following forms :

(a) $H_1 : U_1 - U_2 > 0$, where, for instance, the ulcer group has a significantly higher mean score than the control group; or

(b) $H_1 : U_1 - U_2 < 0$, where the ulcer group has a significantly lower mean than the control group.

For N = 30, the critical values of t for one-tailed and two-tailed tests respectively are as follows (Ferguson, 1966, p.406) :

Table 1 - Critical Values of t for One-tailed and Two-tailed Tests

One -tailed		Two-tailed	
p = 0,05	p = 0,01	p = 0,05	p = 0,01
t = 1,697	t = 2,457	t = 2,042	t = 2,750

In the present study, one-tailed t-tests are used where appropriate, as indicated in the tables of results (given below).

Method and Procedure

A test for independent groups was done to ascertain if any significant differences existed between ulcer and control groups on the MPI, the IPAT and the TAT. For large samples, that is, N_1 and $N_2 > 50$ we use this formula, as set out by Ferguson (1966, p.167) :

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}}$$

where $\bar{X}_1$ = Mean of ulcer group

$\bar{X}_2$ = Mean of control group

s_1^2 = Variance of ulcer group

s_2^2 = Variance of control group

N_1 = Number in ulcer group

N_2 = Number in control group.

The means differ significantly at the five per cent level for a two-tailed test if $t > 2,00$. The means differ significantly at the one per cent level for a two-tailed test if $t > 2,66$. For a one-tailed test, the means differ at five per cent level if $t > 1,67$, and the means differ significantly at one per cent level if $t > 2,390$.

The X^2 test was done when considering information obtained from the clinical questionnaire. The test depends on observed frequencies. The expected frequencies are calculated. The formula (Ferguson, 1966, p. 193) is :

$$X^2 = \Sigma \frac{(o - e)^2}{e}$$

o = observed frequency

e = expected frequency

df = 1

Results of Statistical Analysis

Table 2 - Comparison of Ulcer and Control Groups on the Maudsley Personality Inventory

Variable	Group	Mean ($\bar{X}$)	Variance (S^2)	t	p
Neuroticism	Ulcer	23,3	133		
	Control	21,13	94,7	$0,8^{+}$	$> 0,05$
Extraversion	Ulcer	26,89	55		
	Control	24,9	85	$0,91^{++}$	$> 0,05$

\+ one-tailed test ++ two-tailed test

Hypothesis 1(Table 2)

(a) The level of neuroticism will be higher in the ulcer group than in the control group.

(b) A difference in average extraversion scores of ulcer and control groups is predicted, but the direction of the difference cannot be anticipated.

From the results in Table 2 there is no significant difference between the neuroticism scores obtained by the ulcer and control groups; nor is there a significant difference between the two groups in terms of extraversion.

Table 3 - Comparison of Ulcer and Control Groups on the IPAT Variables

Variable	Group	$\bar{X}$	S^2	t^+	p
(a) Covert Anxiety	Ulcer	16	40		
	Control	12,9	28	2,06	< 0,05
(b) Overt Anxiety	Ulcer	16,6	45		
	Control	15,36	56,7	0,8	> 0,05
(d) Total Anxiety	Ulcer	34,06	94		
	Control	30,86	146	1,16	> 0,05
(d) Self-Sentiment Development	Ulcer	5,9	7,3		
	Control	4,8	7,7	1,6	> 0,05
(e) Ego Strength	Ulcer	5,16	3,2		
	Control	3,90	6,2	2,3	< 0,02
(f) Protension or Paranoid Trend	Ulcer	3,83	5,3		
	Control	3,60	3,5	0,4	> 0,05
(g) Guilt Proneness	Ulcer	8,7	15		
	Control	8,1	15	0,6	> 0,05
(h) Ergic Tension	Ulcer	9,23	15,7		
	Control	7,16	20,7	1,88	> 0,05

+ one-tailed test

Hypothesis 2 (Table 3)

It is predicted that on all the personality dimensions measured by this test the ulcer group will have higher mean scores than the control group.

From the results in Table 3, the ulcer group was significantly higher than the control group on Covert Anxiety and Ego Strength. The ulcer group has greater Covert Anxiety and Ego Strength than the control group. There is no significant difference between the ulcer and control groups on Total Anxiety, Overt Anxiety, Self-Sentiment Development, Protension or Paranoid Trend and Guilt-Proneness. There was a trend to significance on Ergic Tension, which indicates that the ulcer group is more prone to emotionality, tension and irritability.

This hypothesis was partially upheld.

Table 4 - Comparison of Ulcer and Control Groups on TAT Categories

Variable	Group	$\bar{X}$	S^2	t^+	p
(a) Abasement	Ulcer	0,63	0,4		
	Control	0,3	0,2	2,3	< 0,05
(b) Achievement	Ulcer	0,6	0,3		
	Control	0,53	0,6	0,4	> 0,05
(c) Aggression	Ulcer	0,4	0,44		
	Control	1,83	0,35	8,9	< 0,001
(d) Passivity	Ulcer	1,010	0,7		
	Control	0,066	0,064	6,2	< 0,001
(e) Succorance	Ulcer	1,233	1,08		
	Control	0,266	0,202	4,9	< 0,001
(f) Terse Story	Ulcer	3,63	0,65		
	Control	1,33	0,59	12	< 0,001
(g) Descriptive	Ulcer	3,2	0,8		
	Control	1,0	0,62	10,9	< 0,001
(h) Length of Story	Ulcer	7,67	2,69		
	Control	9,66	1,93	4,9	< 0,001

+ one-tailed test

Hypothesis 3 (Table 4)

(a) The ulcer group will be higher in abasement needs than the control group.

(b) The control group will show higher achievement.

(c) The ulcer group will be less aggressive than the control group.

(d) The ulcer group will be more passive than the control group.

(e) The ulcer group will be higher in succorant needs than the control group.

The ulcer group had more abasive, passive and succorant needs than the control group. The ulcer group was less aggressive than the control group. There is no difference in achievement between the ulcer and control groups.

All these hypotheses were upheld, except for hypothesis 3(b).

Hypothesis 4 (Table 4)

(a) In the ulcer group there will be a significantly higher number of terse stories than in the control group.

(b) In the ulcer group there will be more descriptive stories, that is, stories which follow the facts of the picture, and more lack of imagination, than in the control group.

(c) In the ulcer group there will be a significantly higher number of shorter stories than in the control group.

The ulcer group told significantly more descriptive stories, with terse and incomplete endings and short endings. These hypotheses were upheld.

Hypothesis 3 (Table 4)

(a) The ulcer group will be higher in abasement needs than the control group.

(b) The control group will show higher achievement.

(c) The ulcer group will be less aggressive than the control group.

(d) The ulcer group will be more passive than the control group.

(e) The ulcer group will be higher in succorant needs than the control group.

The ulcer group had more abasive, passive and succorant needs than the control group. The ulcer group was less aggressive than the control group. There is no difference in achievement between the ulcer and control groups.

All these hypotheses were upheld, except for hypothesis 3(b).

Hypothesis 4 (Table 4)

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(b) In the ulcer group there will be more descriptive stories, that is stories which follow the facts of the picture, and more lack of imagination, than in the control group.

(c) In the ulcer group there will be a significantly higher number of shorter stories than in the control group.

The ulcer group told significantly more descriptive stories, with terse and incomplete endings and short endings. These hypotheses were upheld.

Table 5 - Frequencies of Ulcer and Control Groups with respect to Items on the Clinical Questionnaire

	Ulcer	Per cent	Control	Per cent	χ^2	p
1) Food faddiness as a child	14	46,66	8	26,66	5,54	<0,05
2) Unhappy work history	5	16,66	3	10	1,66	>0,05
3) Unhappy marital history	11	36,66	7	23,33	2,98	0,1
4) Attachment to family	28	93,3	23	76,6	1,66	>0,05
5) Dependency on family	12	40	10	33,3	0,62	>0,05
6) Initiative lacking	6	20	7	23,33	0,12	>0,05

Hypothesis 5 (Table 5)

(a) The ulcer group would have been more faddy about their food as children than the control group would have been.

(b) The ulcer group will lack initiative to a significantly greater degree than the control group.

(c) In the areas of work and marital histories there will be differences between the ulcer and control groups.

For all the categories in which the questionnaire responses are classified (shown above) the ulcer group will have higher frequencies.

The hypothesis was partially upheld. The ulcer group tended to be

more faddy about their food as children. There was a trend to significance on the marital history items, with the ulcer group being more prone to unhappiness. There were no differences between the two groups with reference to the remaining items.

Table 6.1 - Comparison of Ulcer and Control and Male and Female Groups on the MPI

Variable	Group		$\bar{x}$	s^2	t	p
Neuroticism	Control Group	Male	21,8	132	0,6	>0,05
		Female	19,8	148,7		
	Ulcer Group	Male	22,4	94	0,8	>0,05
		Female	24,8	99,4		
	Male Group	Control	21,8	132	0,15	>0,05
		Ulcer	22,4	94		
	Female Group	Control	19,8	148,7	1,06	>0,05
		Ulcer	24,8	99,4		
Extraversion	Control Group	Male	26,0	97	1,4	>0,05
		Female	22,8	57,1		
	Ulcer Group	Male	26,4	56	0,3	>0,05
		Female	25,7	62,3		
	Male Group	Control	26,0	97	0,1	>0,05
		Ulcer	26,4	56		
	Female Group	Control	22,8	57,1	0,9	>0,05
		Ulcer	25,7	62,3		

more faddy about their food as children. There was a trend to significance on the marital history items, with the ulcer group being more prone to unhappiness. There were no differences between the two groups with reference to the remaining items.

Table 6.1 - Comparison of Ulcer and Control and Male and Female Groups on the MPI

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		Female	19,8	148,7		
	Ulcer Group	Male	22,4	94	0,8	>0,05
		Female	24,8	99,4		
	Male Group	Control	21,8	132	0,15	>0,05
		Ulcer	22,4	94		
	Female Group	Control	19,8	148,7	1,06	>0,05
		Ulcer	24,8	99,4		
Extraversion	Control Group	Male	26,0	97	1,4	>0,05
		Female	22,8	57,1		
	Ulcer Group	Male	26,4	56	0,3	>0,05
		Female	25,7	62,3		
	Male Group	Control	26,0	97	0,1	>0,05
		Ulcer	26,4	56		
	Female Group	Control	22,8	57,1	0,9	>0,05
		Ulcer	25,7	62,3		

Table 6.2 - Comparison of Ulcer and Control and Male and Female Groups on the IPAT

Variable	Group		$\bar{X}$	s^2	t	p
Covert Anxiety	Control Group	Male	13,2	36,7	0,4	>0,05
		Female	12,4	16,5		
	Ulcer Group	Male	14,8	38,8	0,7	>0,05
		Female	16,4	20,5		
	Male Group	Control	13,2	36,7	0,9	>0,05
		Ulcer	14,8	38,8		
	Female Group	Control	12,4	16,5	2,2	>0,05
		Ulcer	16,4	20,5		
Overt Anxiety	Control Group	Male	14,4	53,4	0,9	>0,05
		Female	17,1	62,7		
	Ulcer Group	Male	15,84	44,0	0,7	>0,05
		Female	18,0	46,4		
	Male Group	Control	14,4	53,4	0,8	>0,05
		Ulcer	15,84	44,0		
	Female Group	Control	17,1	62,7	0,3	>0,05
		Ulcer	18,0	46,4		
Total Anxiety	Control Group	Male	30,1	183	0,4	>0,05
		Female	32,1	101,6		
	Ulcer Group	Male	32,4	100	1,2	>0,05
		Female	36,8	88		
	Male Group	Control	30,1	183	0,6	>0,05
		Ulcer	32,4	100		
	Female Group	Control	32,1	101,6	1,16	>0,05
		Ulcer	36,8	88		

Table 6.2 contd.

Variable	Group		$\bar{X}$	S^2	t	p
Self-Sentiment Development	Control Group	Male	4,8	7,7	0,1	>0,05
		Female	4,9	7,5		
	Ulcer Group	Male	6,3	5,1	0,5	>0,05
		Female	5,63	12,05		
	Male Group	Control	4,8	7,7	1,8	>0,05
		Ulcer	6,3	5,1		
	Female Group	Control	4,9	7,5	0,7	>0,05
		Ulcer	5,63	12,05		
Ego Strength	Control Group	Male	3,9	6,0	0,48	>0,05
		Female	4,45	5,87		
	Ulcer Group	Male	4,63	3,9	0,6	>0,05
		Female	5,0	2,0		
	Male Group	Control	3,9	6,0	1,0	>0,05
		Ulcer	4,63	3,9		
	Female Group	Control	4,45	5,87	0,7	>0,05
		Ulcer	5,0	2,0		
Protension or Paranoid Trend	Control Group	Male	4,4	11,3	1,01	>0,05
		Female	3,45	2,45		
	Ulcer Group	Male	3,4	4,4	1,02	>0,05
		Female	4,5	7,85		
	Male Group	Control	4,4	11,3	1,1	>0,05
		Ulcer	3,4	4,4		
	Female Group	Control	3,45	2,45	1,1	>0,05
		Ulcer	4,5	7,85		

Table 6.2 contd.

Variable	Group		$\bar{X}$	S^2	t	p
Guilt Proneness	Control Group	Male	8,4	15,8	0,5	>0,05
		Female	7,7	14,4		
	Ulcer Group	Male	10,5	19,4	0,5	>0,05
		Female	9,8	10,6		
	Male Group	Control	8,4	15,8	1,6	>0,05
		Ulcer	10,5	19,4		
	Female Group	Control	7,7	14,4	1,4	>0,05
		Ulcer	9,8	10,6		
Ergic Tension	Control Group	Male	7,0	17,6	0,4	>0,05
		Female	7,7	28,93		
	Ulcer Group	Male	8,0	14,3	1,6	>0,05
		Female	10,4	19,4		
	Male Group	Control	7,0	17,6	0,8	>0,05
		Ulcer	8,0	14,3		
	Female Group	Control	7,7	28,93	1,4	>0,05
		Ulcer	10,4	19,4		

Table 6.3 - Comparison of Ulcer and Control and Male and Female Groups on the TAT

Variable	Group		$\bar{X}$	s^2	t	p
Length of Stories	Control Group	Male	11,10	0,84	3,3	<0,05
		Female	9,98	0,83		
	Ulcer Group	Male	8,60	2,6	2,27	<0,05
		Female	7,85	0,90		
	Male Group	Control	11,10	0,84	6,1	<0,05
		Ulcer	8,60	2,60		
	Female Group	Control	9,98	0,83	5,6	<0,05
		Ulcer	7,85	0,90		

Hypothesis 6 (Tables 6.1, 6.2, 6.3)

The null hypothesis H_0 is that no differences in the mean scores of male and female groups would be found. Thus two-tailed tests throughout are indicated.

This hypothesis was partially upheld.

There are no differences between the sexes with reference to the MPI and IPAT with the exception of covert anxiety in which female ulcer patients scored higher than the female control group. In the TAT there is no difference in the need achievement score. Male ulcer patients are less aggressive and more abasive than male controls. Male ulcer patients are more succorant than both male controls and female ulcer patients. While both ulcer groups are more passive than both control groups, the two ulcer groups do not differ. Ulcer patients give more

terse and descriptive stories than do the control groups while male ulcer patients score higher than female ulcer patients. While ulcer patients give shorter stories with no sex differences, male controls give longer stories than do female controls (Tables 7.1 - 7.7).

Table 7.1 - Comparison of Male and Female Groups on TAT Need Category - Achievement

		Observed Frequencies Control	Ulcer	X^2	p
Male		9	12	0,002	>0,05
Female		7	9	0,16	>0,05
	X^2	0,250	0,42		
	p	>0,05	>0,05		

Table 7.2 - Comparison of Male and Female Groups on TAT Need Category - Aggression

		Observed Frequencies Control	Ulcer	X^2	p
Male		38	5	23,8	<0,05
Female		17	7	3,38	>0,05
	X^2	7,2	0,32		
	p	<0,01	>0,05		

Table 7.3 - Comparison of Male and Female Groups on TAT Need Category - Passivity

		Observed Frequencies Control	Ulcer	X^2	p
Male		1	21	16,4	<0,05
Female		1	10	5,6	<0,05
	X^2	0	3,90		
	p	>0,05	<0,5		

Table 7.4 - Comparison of Male and Female Groups on TAT Need Category - Succorance

	Observed Frequencies Control	Ulcer	X^2	p
Male	4	28	16,52	<0,05
Female	4	10	1,78	>0,05
X^2	0	8,52		
p	>0,05	<0,05		

Table 7.5 - Comparison of Male and Female Groups on TAT Need Category - Abasement

	Observed Frequencies Control	Ulcer	X^2	p
Male	6	17	4,34	<0,05
Female	3	8	1,4	>0,05
X^2	1,0	3,2		
p	>0,05	>0,05		

Table 7.6 - Comparison of Male and Female Groups on Terseness of TAT Stories

	Observed Frequencies Control	Ulcer	X^2	p
Male	22	72	25,4	<0,05
Female	15	37	8,6	<0,05
X^2	1,32	11,2		
p	>0,05	< 0,05		

Table 7.7 - Comparison of Male and Female Groups on Descriptiveness of Stories

	Observed Frequencies Control	Ulcer	χ^2	p
Male	18	65	25,4	<0,05
Female	12	31	5,8	<0,05
χ^2	1,2	11,2		
p	>0,05	< 0,05		

In both the discriminant analysis and the Kruskal-Wallis test and the null hypothesis H_0 is :

(a) The two samples, control group and ulcer group, are drawn from the same or identical populations; or

(b) the two samples, ulcer group and control group, do not differ with respect to the means of the measurements obtained, in this case Neuroticism, Extraversion, Covert Anxiety and Overt Anxiety.

For the discriminant analysis and the Kruskal-Wallis test, only the IPAT scores, namely Overt Anxiety and Covert Anxiety, were used as being more reliable than the trait scores. These two sets of scores, together with Neuroticism and Extraversion were used in these tests. Since the measurements represent self-assessment, it could be argued that the calculation of means and standard deviations is not justified. In such a case, a statistical test which can take the place of the t - test is preferable.

Such a test, comparable in power to the t -test is the Kruskal-Wallis one-way analysis of Variance by ranks. It determines whether the k independent samples are from different populations.

The technique tests the null hypothesis H_0 that the x samples come from the same or identical populations with respect to test means. The test assumes that the measurements have an underlying continuous distribution, and it requires at least ordinal measurements, that is, data which will enable one to place subjects in a rank order. The statistic H, calculated in the Kruskal-Wallis test, is distributed as X^2, with degrees of freedom, df = x - 1.

In the present analysis, the values of H obtained and the associated probabilities, are given below. It is quite clear that the null hypothesis is not rejected for any of the four variables tested. In other words, there are no significant differences between the two samples or it can be concluded with confidence that the two samples are drawn from the same population.

Table 8 - Kruskal-Wallis H Values obtained when comparing Ulcer and Control Groups for Neuroticism, Extraversion, Covert Anxiety and Overt Anxiety

Variable	H	df	p
Neuroticism	0,483	1	>0,50
Extraversion	0,803	1	>0,70
Covert Anxiety	2,939	1	>0,05
Overt Anxiety	0,676	1	>0,30

Table 9 - Summary of Hypotheses 1 to 5

Hypothesis	Group	Variable	Significance
1(a)	Ulcer and Control	Neuroticism	NS [+]
1(b)	Ulcer and Control	Extraversion	NS
2	Ulcer and Control	Overt Anxiety	NS
2	Ulcer and Control	Covert Anxiety	S [++]
2	Ulcer and Control	Total Anxiety	NS
2	Ulcer and Control	Self-Sentiment Development	NS
2	Ulcer and Control	Ego Strength	S
2	Ulcer and Control	Protension Parameter Trend	NS
2	Ulcer and Control	Guilt Proneness	NS
2	Ulcer and Control	Ergic Tension	NS
3	Ulcer and Control	Abasement	S
3	Ulcer and Control	Achievement	NS
3	Ulcer and Control	Aggression	S
3	Ulcer and Control	Passivity	S
3	Ulcer and Control	Succorance	S
4	Ulcer and Control	Descriptive Story	S
4	Ulcer and Control	Length of Story	S
4	Ulcer and Control	Terse & Incomplete Endings	S
5	Ulcer and Control	Food faddiness as child	S
5	Ulcer and Control	Unhappy work history	NS
5	Ulcer and Control	Unhappy marital history	Trend ulcer > control
5	Ulcer and Control	Dependency on family	NS
5	Ulcer and Control	Lack of initiative	NS

+ NS = not significant

++ S = significant

CHAPTER 5 - DISCUSSION OF RESULTS, CRITICISM OF STUDY AND SUGGESTIONS FOR FUTURE RESEARCH

DISCUSSION OF THE RESULTS

From the results it would appear that a projective technique is the best measure available for differentiating between the ulcer and the control group. Nevertheless it is important to examine all the findings and to attempt an explanation of the similarities between the two groups. These similarities may, in part, be the result of the samples which were eventually available. In this investigation it was decided to exclude as controls all patients who may have had any other diseases which might cloud the psychological aspect for example, alcoholism or overt psychosis.

It was hoped to select the control group from patients who had undergone minor surgery. Unfortunately with the limited time available it was not possible to find the required number of cases that could be matched for age and sex. Cases of severity comparable to duodenal ulceration were more numerous than minor surgical patients. These factors complicated the investigation and increased the number of variables that had been anticipated as likely to interfere with the findings. These Hurst and Katzen had enumerated as -

"1. The average hospital patient is of a low income group with often a large amount of economic and domestic stress which may load the results.

2. An identical control group is most difficult to find particularly as there may be no proof that any of them have not at some time suffered from duodenal ulcer. It would be impractical to investigate them fully but it is hoped that a large sample would eliminate this factor.

> 3. There is always the important realisation that any emotional or personality abnormalities detected might well be the result of chronic duodenal ulceration and not in fact the cause." (Hurst and Katzen 1966, p73).

Taking into account these comments, the findings of the present study will be examined and discussed. First, the findings on the MPI will be compared with the results of this test in other studies. Next the IPAT data will be discussed, followed by the TAT findings and those derived from the clinical questionnaire.

The MPI

The dimensions of neuroticism and extraversion (hereafter referred to as (N) and (E)) were measured by means of the MPI. No significant differences were found to exist between the ulcer group and the control group on these two dimensions.

In the present investigation the mean (N) for the ulcer group was 23 and for the control group the mean was 21. Eysenck (1959) gave the mean for (N) in "Normals (English)" as 19,89. Support for findings in the present study were those reported by Sainsbury (1960) and Franks and Leigh (1959). The latter compared a group of asthmatics, and a normal group on the MPI. They found no significant differnce in the mean (N) scores between the two groups. Sainsbury compared groups of out-patients on the MPI; the groups were diagnosed as psychosomatic, possibly psychosomatic and a normal control. The patients in both the psychosomatic and possibly psychosomatic groups had significantly higher scores for(N) than the control group. However, when the psychosomatic group was broken down into the twenty-two illnesses that comprised the group, the ulcer group did not differ significantly from the control group. There was contrary evidence from the study of Kanter and Hazelton (1964). The ulcer group of their study had a significantly higher (N)

score than the control group. The mean (N) for the ulcer group was 30 and the mean (N) for the control group was 24,4.

In relation to the (E) scores, Eysenck (1959) gave the mean (E) for "Normals (English)" as 24,91. His psychosomatic group had a mean score of 25,35. In the present study the mean of the ulcer group was 26,89 and the mean of the control group was 24,9. Sainsbury (1960) reported a similar finding on the dimension of (E) in his study among an ulcer group and a control group, although when he compared the (E) scores of the total psychosomatic group with the control group, he found a significant difference between the two groups. Franks and Leigh (1959) reported that there was no statistical significance in (E) scores between the asthma and the control groups.

The personality of the psychosomatic patient is described by combining the (N) score and the (E) score. Kanter and Hazelton (1964) and Sainsbury (1960) (referring to the total psychosomatic group) reported their groups as neurotic introverts or "dysthymics" as defined by Eysenck (1957), that is, they have high (N) scores and low (E) scores. Eysenck (1959) found his group of psychosomatic patients to be similar to hysterics, that is, high (N) scores and high (E) scores.

In summary then, the present study together with Sainsbury (1960) (ulcer group) and Franks and Leigh (1959), found no statistical difference between the experimental and control group on the dimensions of (N) and (E). Kanter and Hazelton (1964) and Sainsbury (1960) (total psychosomatic group) did find a statistical difference between the experimental and control group on dimensions of (N) and (E). They found that both experimental groups had significantly higher (N) scores than the controls and significantly lower (E) scores, thus concluding that ulcer patients

and psychosomatic patients are dysthymic. Sainsbury (1960) suggested that the symptoms of the dysthymic patient were likely to be associated with anxiety or depression and the consequent disturbance of physiological function. Eysenck found his psychosomatic patients to be similar to hysterics, that is, a group that is extraverted and is associated with hysteria and conversion symptoms, as opposed to the dysthymic group which is associated with anxiety and depression.

It should be noted that the findings of the investigators just discussed are very difficult to compare since they have drawn on different universes for their samples. The present study investigated in-patients, Eysenck (1959) also investigated in-patients, but Sainsbury (1960) investigated out-patients, while Kanter and Hazelton (1964) used out-patients and in-patients - the control group being in-patients and the ulcer group volunteer out-patients.

The type of sample must to some extent influence the results of an investigation. Silverstone and Kissen (1968) quoted Gordon (1953) who compared a group of ulcer patients with a control group, and found the ulcer group to be statistically more field dependent, whereas in Silverstone and Kissen's (1968) study there was no statistical difference between the ulcer and control group, both groups being out-patients. They suggested that the contrary finding could be explained since there was a difference in sampling, and because Gordon's study consisted of ulcer patients from a hospital clinic and the control group were non-hospitalized volunteers. Karp (1963) found that in two groups of diabetics the group that was treated in a hospital clinic was more field dependent than those treated in private practice.

These findings, related to the populations from which samples are drawn, raise further questions concerned with motivation for participating in such investigations, for attendance at clinics - other than for unequivocal physical symptoms,and with reasons for hospitalization. In view of these factors, the absence or presence of differences between the two groups can neither be explained with the data available on this study, nor be meaningfully compared with the findings of the above studies.

The IPAT

The IPAT is a clinical measure of anxiety. It comprises a Total Anxiety score, a breakdown into Overt and Covert Anxiety scores, and an analysis of five distinct contributory anxiety components.

In this investigation no significant differences were found in the scores on Total Anxiety, on Overt Anxiety, nor on the contributory components, Self-Sentiment Development, Protension or Paranoid Trend, Guilt Proneness and Ergic Tension. The significant differences were on the Covert Anxiety scores and on the contributory component of Ego Strength.

Anxiety states give rise to defences. In the psychosomatic patient these anxieties "left the person vulnerable to severe physiologic dysfunction and tissue damage instead of evoking neurotic defences or psychotic withdrawal" (Lidz, 1959, p.648). This is consistent with Cattell's (1957) definition of Covert Anxiety as a state which is not consciously displayed. "Further some individuals express their anxiety reactions to situational difficulties through psychosomatic symptoms" (Noyes and Kolb, 1963, p381).

Ego Strength indicates the capacity to control and express ergic

tensions in a realistic manner. The differences in scores between the two groups reflect increased anxiety among the ulcer patients, who, as outlined in the discussion on Covert Anxiety,are prone to mechanisms expressed through physiological symptoms. Therefore it would appear that Covert Anxiety and absence of Ego Strength reinforce the anxiety level of the ulcer patients.

However, in terms of the other factors of the IPAT there is no significant difference between the two groups. Since the expectation was that the ulcer patients would have a higher anxiety score, and since this has only partially been demonstrated, it is necessary to examine the possible causes of this similarity between the groups.

The investigator considers that this may be attributed both to the hospital environment and to the fact that the illnesses of the control group were of comparable severity with that of the ulcer patients. Both these factors are capable of inducing considerable levels of anxiety among persons who may not be suffering from psychosomatic conditions. While this contention refers more specifically to the findings on the IPAT questionnaire, it also has relevance for the absence of differences on the MPI.

There have been a number of studies which indicate that psychological disturbances may be caused by disease and disability conditions (Bendien, 1963; Coppen and Metcalfe, 1963; Kissen,1964; Thaler et al. (1957),

The findings of Kissen (1964) are pertinent to this investigation. He suggested from his study that it was important to take into consideration the emotional environment of the subject. He pointed out that a healthy individual interviewed at home by non-medical personnel might conceivably respond differently to the items on a questionnaire than an ill person

interviewed by a doctor in a hospital.

Kissen (1964) basing his conclusions on the findings from a shortened form of the MPI, hypothesized that the patients in surgical wards would have higher (N) scores than patients in medical wards but the crude (N) scores did not show this. Kissen argued that the possibility could not be ruled out that the responses obtained in each ward might be influenced by its emotional atmosphere which reflected such factors as the personality of the hospital staff. The emotional atmosphere of the ward might also reflect the negative influences of one or two patients who happened to be in the wards.

The implications of Kissen's findings indicated that not only environment but also attitudes may interfere with the measuring instruments. Supporting this view Bendien (1963), using a modified Hebrew version of Heron's Two-Part Personality Measure, found that out-patients produced much higher (N) scores than in-patients in Israel. His explanation for these results was that inventories purporting to measure (N), were actually measuring the patient's wish to complain. Therefore, the attitude of the patient was an important variable. Bendien felt that the out-patients were trying very hard to convince the doctor of their need for such attention and if possible, to obtain hospitalization.

Evidence from Kissen, Bendien, together with Coppen and Metcalfe (1963) and Lucente and Fleck (1972) showed that patients were affected by the following factors : the trauma of surgery, the trauma of illness itself, the attitudes to being in the hospital ward, the atmosphere of the hospital ward and the personalities of the hospital staff. It seemed then that such factors could have influenced both the ulcer and control

groups and could account for the lack of differences between the two groups in terms of the anxiety dimension.

The TAT

It was decided initially to include a test that would elicit the more subtle psychodynamic processes underlying personality. The TAT was chosen for this purpose. By the very nature of the TAT pictures basic data were obtained on the subjects' relationships to male and female authority figures, to contemporaries of both sexes, and to family relationships. The TAT may not indicate the intensity of fears as clearly as does the Rorschach, but it tells more about their nature and content.

The findings on the TAT showed the ulcer patients as a group to be more passive, succorant and abasive than the control group. Their phantasies were more restricted than those of the control group, as revealed by the type of stories told. The control group on the other hand was more aggressive than the ulcer group. There was no significant difference in achievement between the two groups.

When the male and female ulcer patients were compared with the male and female controls the following results were obtained on the need categories :

Aggression - The male ulcer group was significantly less aggressive than the male control group. Within the control group the males were significantly more aggressive than the females.

Abasement - The male ulcer group tended to have higher abasement needs than the control group.

Achievement - There was no significant difference between the two groups.

Passivity - Both the male and female ulcer groups had significantly higher passivity needs than the control group. There were no sex differences between the ulcer and control groups.

Succorance - The male ulcer group had significantly more succorant needs than the male controls. Within the ulcer group the males had higher succorant needs than the females. Within the control group they did not differ.

In addition the results of the other three variables on the TAT were ;

Terseness of stories - Both the male and female ulcer groups told significantly more terse stories than did the control group. Within the ulcer group the males told more terse stories than the females.

Descriptive stories - Both the males and females of the ulcer group told significantly more descriptive stories than their control counterparts. Within the ulcer group the males told significantly more descriptive stories than the females.

Length of stories - The male ulcer group told significantly shorter stories than the control male group. No differences were found between the sexes in the ulcer group.

Thus the male ulcer group emerges as having more abasive, passive and succorant needs when this group is compared with the male controls. Within the ulcer group the males have more succorant needs, told stories which had more terse endings, and told more descriptive and shorter stories

than the females.

Thus the male ulcer patient emerges as an individual with succorant, abasive, passive needs and restricted phantasy.

The female ulcer group have higher passivity needs than the female control group. Further they told more descriptive and terse stories than the female controls.

Epidemiological findings have revealed a difference in the incidence of duodenal ulceration between males and females with a ratio of four to one. The findings in the present study support the cultural and sociological interpretations for the changing patterns of incidence between males and females since the beginning of the century (Vide, Chapter 2). Since western culture values achievement and encourages striving and competitive drives, the male within this culture finds difficulty in handling his dependency needs. The succorant, passive, non-aggressive, abasive male is not the accepted modal personality in this culture. It would appear that he attempts to handle this situation through the manifestation of physical symptoms which are acceptable and could satisfy certain of his needs for care and dependence. This interpretation is reinforced by the finding that the ulcer patients in this study are "primary" ulcer types, that is, men who are passive - dependent and who meet the frustrations in their environment through the ulcer condition.

At the same time, while the contemporary environment allows females greater freedom in handling their dependency needs, it also is more accepting of passivity among women. The culture requirements and the female ulcer personality are not at variance to the same degree as are the male ulcer patients. However, the women do experience

environmental pressures which contribute to their condition. In this low economic group the female has frequently to bear the burdens and stresses mentioned by Hurst and Katzen (1966). Further, if she needs to work, this may create conflict with her basically passive needs.

The interesting observation relates to the fact that the male ulcer patient's needs diverge so markedly from those of the non-ulcer patient, and that these needs are not those which can be easily satisfied within this envoronment.

In comparing these findings to the MPI and IPAT it does seem that the TAT is able to tap the deeper layers of the basic personality of the ulcer patient independently of immediate environmental influences. The (N) and (E) scores, and the scores of anxiety of the control group seem related to their illness and their reaction to the hospital environment. By contrast the TAT is able to reveal the nature of the personality and to tap the deeper layers of anxiety. The Covert Anxiety and Ego Strength on the IPAT are confirmed by the findings of the TAT.

The Covert Anxiety is the anxiety not consciously displayed, while Ego Strength indicates a lack of control of the id impulses which further heightens the patient's anxiety. These findings are consistent with the TAT analysis which emphasizes the latent aspects of the personality. In terms of this interpretation one would have expected the MPI to show the ulcer patient to be dysthemic, that is, more introverted and anxious than the control group. However, the findings revealed no such differences, while the TAT did differentiate between the two groups. This may, in part, be due to the fact that the MPI while indicating the presence or absence of (N) and (E) does not measure intensity. In view of the problems surrounding the samples - in this and other studies, the need may be for

an instrument which not only isolates a dimension but indicates the degree of intensity.

The Clinical Questionnaire

The results of the Clinical Questionnaire showed that the ulcer group had a tendency to food faddiness as children. This finding was in the expected direction. Sandler and Dare (1972) suggested that psychosomatic symptoms, insofar as they have a psychologic element, may represent an attempt to fulfil an unconscious wish to relate to an object in a particular way. This wish they say could be reflected in disturbances of eating in which the relationship to food becomes the concrete expression of some inner wished-for relationship to an important figure in childhood. Van Wirdum and Weber (1961) investigated a group of ulcer patients, neurotics and normals, to see whether psychological factors do play a role in the aetiology of duodenal ulceration. The attitude to food was studied in the three groups and a questionnaire was administered. They found that the ulcer group had many more food aversions, food preferences and ambivalent attitudes than the neurotic and control groups. The results of the present study with regard to food faddiness support these findings.

There was a trend to significance in the marital history items, with the ulcer group being more prone to marital unhappiness. The survey of the literature indicates that ulcer patients have difficulty in relating to others, and are passive and dependent in their needs (Poser and Lee, 1964). This trend is in line with the evidence in the literature, and reinforces the findings on passivity and succorance in the TAT. However, since marital relationships reflect the needs of both partners, passivity and dependence may be the basis of a satisfactory

relationship (Pollock and Pilot, 1970).

There were no significant trends on the other items, that is unhappy work history, attachment to family, dependency on family and lack of initiative. From the survey of the literature and the findings on the TAT, positive findings on these items were expected. However, there is the possibility of subjective interpretations on the part of the investigator. In the present study this danger was exaggerated by the fact that there were several testers involved in the research project, and therefore the results were even more liable to distortion. Furthermore, the effects of situational factors could have influenced the findings. Abernethy (1954) found different responses to the same test under varying social situations. In the present investigation the patients may have responded differently in a hospital situation than elsewhere. They may also have wished to impress the tester. Davids and Pidner (1958) found that direct measures of personality are likely to be distorted by conditions under which subjects feel a need to create a favourable impression.

Since the clinical questionnaire is a somewhat rough gauge of the subjects personal history, possibly more meaningful information would have been obtained from a clinical interview.

CRITICISM OF THE STUDY

The research design of the present study has limitations with regard to sample selection, measuring instruments and testing procedures. It is necessary to assess the results of the study in the light of these limitations and the consequent distortions in the findings.

Sample Selection

A major criticism of the sampling in the present investigation relates to the total experimental design. The control group should have been drawn from a normal population. A preferable design would have included a group of normals, at least one other psychosomatic group and a psychoneurotic group. The psychosomatic group would have made possible a comparison with the ulcer group before the results of the study were interpreted as support for the theory of psychological specificity in ulcer disorders. The psychoneurotic group would have made possible the isolation of any neurotic tendencies in the ulcer group.

There are further limitations to the present design. Firstly, the sample of this investigation is not a representative one, since the hospital patients are drawn mainly from the lower and lower-middle class groups, that is from semi-skilled and unskilled workers in the population. Their educational level ranged from standard six to standard ten and clustered at the lower end. Secondly, although the ulcer and control groups were matched in respect of age, sex, socio-economic status, education and occupation, the influence of these variables in the findings cannot be excluded. Only exact one-for-one matching would reduce the influence of these factors. Thirdly, the patients in both groups of the current investigation were drawn from hospitalized patients. Such a group is representative of neither the general ulcer nor non-ulcer populations. Sample selection should preferably have included both hospitalized and non-hospitalized patients.

Finally, the two groups consisted of both surgical and non-surgical patients. It can be assumed that a surgical procedure causes anxiety. Kissen (1964) found that a group of patients who had had surgery obtained

higher (N) scores on the MPI than the patients who did not undergo surgery. A further complicating factor was that patients were interviewed at different stages of their treatment; some patients were interviewed pre-operatively and other patients were interviewed post-operatively.

Thus the disadvantages in the use of such a selected sample refer to the lack of heterogeneity in its composition, to the inclusion of only hospitalized patients, and to the use of both surgical and non-surgical subjects. These factors make comparisons difficult with other surveys. There is a need for samples drawn from varying occupations and from different educational levels and from hospitalized and non-hospitalized patients. These would provide a range of sub-groups which would facilitate inter- and intragroup comparison.

The Measuring Instruments

Self report questionnaires such as the MPI and the IPAT have been criticized on the grounds that the individuals tested are not overtly aware of their own feelings, that they are often unconsciously defensive and that they consciously fake responses to the questionnaires. Moreover, as these tests are inventories they are susceptible to the dangers inherent in these techniques : These dangers relate to subjects giving (a) socially desirable responses, (b) responses to qualities of the items rather than to the content of the items. This tendency, defined as response style, is to respond consistently in one direction, and (c) acquiescent responses, that is, a tendency to agree or disagree with test items regardless of content. When Eysenck (1959) and Cattell (1959) devised their inventories they attempted to deal with these problems, in that they encouraged the subjects to answer honestly. The MPI is

described as being free of response set (Jensen, 1965), and the items of the IPAT scales were chosen so that each scale has an equal number of "yes" and "no" responses. In spite of these efforts, the problems mentioned would appear to enter into some aspects of each test and to distort the psychological meaning of the items involved. It is partly for these reasons that both Eysenck and Cattel encourage the use of objective experimental tests along with the use of questionnaires (Pervin, 1970).

Criticism of the MPI centers mainly on the question of whether scores on two dimensions can adequately describe a personality.

"It is hard to believe that a two-dimensional test measures all of personality, no matter how significant the dimensions may be" (Pervin, 1970, p.119). It has been pointed out that not all studies with the MPI have resulted in positive findings. McGuire et al. (1963) reported a study that did not confirm Eysenck's hypothesis and they concluded that the test could not be of value in the individual case. The applicability of the IPAT to the individual has also been queried (Cronbach, 1960). A further criticism of psychometric tests is that they may not give an adequate and meaningful description of the complexity of personality and they are clearly inadequate in testing psychoanalytic theory.

However in spite of the disadvantages mentioned, structured self-report inventories have the advantage of being explicit, easy to administer, easy to score in a straightforward way, and are suitable for quantitative analysis.

The other measuring instrument the TAT, is subject to the pitfalls

of all projective tests. Some of the pitfalls are more general ones such as reliability and validity, others are more specific and related to the experimental design such as quality of the tester and the conditions under which the test is administered.

In assessing the data it is difficult to apply the usual methods of determining the reliability and validity of a projective test. While the material provided by a projective test is rich in content and many interpretations may be made, these interpretations can be subject to error. The reliability of a projective technique is best checked by having a number of trained investigators making interpretations. In the present study two independent raters checked the data to minimize errors of this nature. However this eliminated only one source of chance factor, and it did not provide a check on the problem of whether the interpretations would vary on repeated tests.

In most cases the data of projective tests are analysed qualitatively and as such are not subject to rigorous statistical analysis. In the present investigation the data was quantified and statistical checks were made. However the scoring technique was not a sophisticated one and was subject to some error in rating. In each protocol the need categories and the three other variables (length of stories, descriptive stories and stories with terse and incomplete endings) were rated by frequency of occurrence. Possibly greater accuracy would have been obtained by using Murray's (1943) rating method, that is, rating each "need" on a five point scale.

In regard to the validation of projective tests, the usual methods of correspondence with other criteria and internal consistency have to be modified. In the present investigation only one projective test was utilized and so it was not possible to check this against another

projective test. The TAT was compared with the findings on the MPI, IPAT and the Clinical Questionnaire. Although there was some support for the findings on the IPAT and the Clinical Questionnaire, a major problem was to compare the findings of very differently constructed tests, designed to measure different aspects of personality. A further criticism is that the score of the various tests administered were not correlated.

In the present study the TAT was administered primarily to elicit information that would show the characteristics of the ulcer group, and thus distinguish the two groups. It would have been useful to have analysed several protocols qualitatively for each group. This material would have provided further insight into the personality of the ulcer patient. This additional information would thus make the comparisons between the other tests more meaningful.

Furthermore only a limited number of cards were selected owing to the difficulty of testing in a hospital situation.

The choice of cards was restricted in that only those cards that were suitable for both sexes were selected. As a result there was some limitations of the data obtained from the cards. Other investigators (Marshall, 1960; Marquis et al. 1957; Scodel,1950; and Weiss and Emmerich, 1962) focusing on ulcer patients used cards which were more centered on dependency and were useful in eliciting responses not only of dependency but also of passivity and succorance. However, while the inclusion of some of these cards would have enriched the material obtained from the TAT in this study, these other researchers were handling only male samples and were not as constrained in their choice of cards

suitable for both sexes.

Finally, a major criticism of the present study was that the investigator knew the identity of both groups before administering the TAT and was therefore biased. However, in part, this bias was corrected by the inclusion of two independent raters who interpreted the protocols by blind analysis.

In regard to the Clinical Questionnaire and the method of interview there is the possibility of bias and the danger of subjective, impressionistic interpretations on the part of the investigator. In the present study with several different testers there was even more possibility of biased recording. The Clinical Questionnaire is useful in gathering factual information regarding a subject's personal background and history. There is, however, the tendency to give responses that are untrue, and to report flattering self-estimations (Pervin and Lilly, 1967). A clinical interview of at least one hour would be more likely to yield meaningful data.

Testing Procedure

A serious flaw in the study was that the present investigator and the research students knew which group of patients they were investigating. This knowledge might have influenced the relationships which were established with the subjects.

A further criticism is that in both the ulcer and the control groups there were surgical and non-surgical cases, and that among the surgical patients some were tested pre-operatively and some post-operatively. It would have been preferable to test both groups post-operatively and

when fully convalescent.

Since it has been established that patients are more anxious after surgery (Kissen, 1964), it would have been preferable to have a homogeneous group of either surgical or non-surgical patients.

SUGGESTIONS FOR FURTHER RESEARCH

From the review of the literature, general criticism of the study and discussion of theoretical concepts, it appears that the most satisfactory research study in this field would firstly be prospective in design. Secondly, it would employ psychological measures that would test all facets of personality. In addition, a carefully controlled sample representative of the total population is essential. Finally, the study should be so designed that data are collected and analyzed "blind".

In the first place the prospective method of research is most suitable in the investigation of psychological factors in duodenal ulceration. Since anxiety and depression may result from an illness as well as precede it, it would be useful to follow over a period of time, the various stages of the illness in the ulcer patient. However, it is important that the follow-up be a complete one, and in this regard the study by Valiant and McArthur (1972) is an excellent example.

Secondly, with regard to the measuring instruments used for the assessment of the ulcer group, it must be stated that the psychometric tests were not sufficiently refined. Greater emphasis should be placed on the use of projective and objective tests. Ideally research of this nature requires a comprehensive battery of highly refined psychological

tests. Also interviews of a psychotherapeutic nature would yield a great deal of information to the trained clinician.

Thirdly, a carefully controlled sample representative of the population is essential for research of this nature. This would mean a sample selected from different educational levels, occupations and socio-economic groups. This sample would enable comparisons to be made with other surveys as well as between group and in-group comparisons. A study of the literature indicates that most of the research did not achieve a satisfactory level of group matching. Although many of the investigations did match for age, sex and socio-economic status, matching in pairs was not done (Kanter and Hazelton, 1964, are a notable exception). In relation to the control group, at least one other group with a psychosomatic disorder should be included, before evidence of findings can be interpreted as supporting the theory of psychological specificity in somatic disorder. In addition, it would be useful to include a group of psychoneurotics, so that a common core of neuroticism could be excluded. Further, a normal control group that is representative of the general population should be included to eliminate any anxiety that is related to illness.

With regard to the research procedure, the groups should not be known to the investigators, since such knowledge may influence the testing procedure, the direction of the interview and the analysis of the data.

It would therefore appear that due to sampling inadequacies, to problems of measurement and of test procedure, the findings in the present study may only be viewed in a tentative manner. The suggestions for future research indicate an experimental design which should allow for more definitive results and interpretations.

APPENDIX

APPENDIX

Personal Details of Ulcer Group

Subjects	Sex	Age	Occupation	Marital Status	Educational Level- Std	Occupational Level
1	M	41	Artisan	Single	6	9
2	M	46	Salesman	Divorced	10	7
3	M	30	Bookkeeper	Single	10	5
4	M	28	Armature Winder	Married	8	8
5	F	39	Office Worker (Clerical)	Married	8	5
6	F	53	Caterer	Divorced	6	9
7	F	34	Dispatch Clerk	Married	6	9
8	F	18	Telephonist	Single	8	8
9	F	28	Receptionist	Married	8	8
10	F	65	Music Teacher	Married	8	7
11	M	49	Horticulturist	Single	10	6
12	M	45	Bricklayer	Married	6	8
13	M	47	Bus Driver	Married	6	10
14	M	45	Farmer	Married	10	6
15	M	36	Security Officer	Single	7	8
16	M	37	Paint hop	Married	7	8
17	M	48	Appr[illegible] IPA	Divorced	8	8
18	M	43	C.N.A. Store	Married	7	8
19	M	62	Property Agent	Divorced	10	5
20	M	21	Bricklayer	Single	8	8
21	M	28	Bar Steward	Single	8	8
22	F	51	Typist	Married	8	5
23	F	45	Factory Worker	Married	7	8
24	F	22	Factory Worker	Married	8	8
25	M	30	Air Cond.Engineer	Married	10	6
26	M	44	Salesman	Married	10	5
27	M	70	Electrician	Married	8	8
28	M	27	Teacher (Music)	Single	8	5
29	F	30	Office Worker	Married	9	5
30	F	42	Saleslady	Married	8	7

Personal Details of Control Group

Subjects	Sex	Age	Marital Status	Occupation	Educational Level Std.	Occupational Level
1	M	39	Married	Blacksmith	6	9
2	F	65	Divorced	Dressmaker	7	9
3	M	62	Married	Storekeeper	8	7
4	M	42	Married	Man.Jeweller	8	9
5	M	25	Married	P.O. Clerk	8	8
6	M	43	Single	Ass.Hotel Manager	8	5
7	M	42	Divorced	Bricklayer	10	9
8	F	54	Married	Housewife	8	7
9	F	44	Married	Office Worker	8	5
10	F	46	Married	Secretary	8	5
11	F	39	Married	Saleslady	8	7
12	M	23	Married	Caterer	10	7
13.	F	31	Married	Housewife	6	9
14	M	23	Single	Meter Operator	7	9
15	M	47	Married	Apperentice	8	9
16	M	48	Married	Clerk	10	5
17	M	47	Single	Hairdresser	8	8
18	M	55	Single	Salesman	6	7
19	F	20	Single	Secretary	10	5
20	M	22	Single	Clerk	9	5
21	M	50	Married	Salesman	7	7
22	M	65	Divorced	Miner	8	9
23	M	26	Single	Hairdresser	7	8
24	M	24	Single	Lithographer	8	8
25	F	17	Single	Typist	8	5
26	M	44	Married	Traveller	10	7
27	F	46	Married	Factory Worker	8	8
28	F	43	Married	Tel.Operator	8	8
29	M	68	Widower	Electrician	10	8
30	F	21	Divorced	Typist	8	5

VOCATIONAL GUIDANCE CENTRE

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Johannesburg

P.O. Box 31635
Braamfontein. Tvl.

HIERARCHY OF OCCUPATIONS

Occupational Category	Examples	Qualifications required
1. Academic, Scientific, research	Professor, lecturer, research worker	Masters degree, doctorate
2. The Professions	Teacher, doctor, minister, advocate, attorney, accountant, psychologist, actuary, engineer, surveyor	Diploma or university degree or both
3. Executive and managerial occupations, proprietors	Managing directors, executives, managers, owners	Std. 10 to University degree
4. Administrative and supervisory occupations	Senior officials in government service, in commerce and industry. Departmental head, chief clark, foreman, supervisor.	Std. 10 to university degree
5. Clerical Occupations	Office workers, secretaries, typists, bookkeepers	Std. 8 to Std.10 Commercial diploma
6. Technical Occupations	Scientific and Laboratory technicians, and radio, electro-technical, chemical, engineering and other technicians	Std. 10, Diploma
7. Marketing and Sales Occupations	Counter sales staff, sales representatives, travelling salesmen, agents and property and insurance salesmen	None to Std. 10
8. Skilled Occupations	Qualified artisans, hairdressers, beauticians	Std. 7 to Std 10 Apprenticeship
9. Semi-skilled Occupations	Operators, process workers	Std.6
10. Unskilled Occupations	Labourers, packers, cleaners, carriers	None

Clinical Questionnaire

Confidential

Ref.No. :

Department of Psychiatry and Mental Hygiene

University of the Witwatersrand

Psychological Factors in Duodenal Ulceration

Name :_____

Address :_____

Hospital Reference No.:_____

Date of Interview :_____

Language of Interview :_____

Home Language :_____

Interviewer : _____

Interpreter :_____

Edited :_____

Coded :_____

Checked :_____

INITIAL INVESTIGATION

Complaints : (or reason for admission) and their duration.

History of Present Complaint/s

Detailed coherent account, in chronological order, of the illness from the earliest time at which a change was noticed until admission to hospital. Give date which will permit the sequence of various symptoms to be dated approximately.

Satisfaction or reasons for dissatisfaction :

Menstrual History

Psychic changes : Irritability -

Depression -

Date of last period :

Climacteric symptoms :

Marital History :

Compatibility : How happy :

Chronological list of miscarriages ;

No.	Stage of Pregnancy	No.	Stage of Pregnancy

Habits :

	Amount Taken	
	Earlier	Recently
Alcohol		
Tobacco		
Drugs		

Appetite and Diet

Sleep : (Insomnia or other disturbances) - Initial _____ Interrupted _____ Early Waking

Medical History - (of more serious type and not related to peptic ulcer) -

Type of Illness	Date	Duration

Neurotic Symptoms in Childhood (to be particularised)

Night terrors:

Walking in sleep :

Tantrums ;

Wetting the bed :

Thumb sucking :

Nail biting :

Faddiness about food ;

Stammering ;

Fear states :

Model child :

School

Age of beginning and finishing ; _____Years _____Years

Standard reached ;

Special abilities or disabilities :

Hobbies and interests:

Relationship to school mates:
(Nicknames) :

Occupations (In full detail): (Age of starting work :

Jobs held	Dates	Jobs held	Dates

Satisfaction in work ;

Present economic circumstances:

Ambition :

Operations :

Type	Date	Period of hospitalisation and/or treatment

Accidents :

Type	Date

Previous Mental Illness (Only if patient gives evidence at present)

Symptom of attack	Date	Duration	Name of Hospital or O.P.D.

Personality Before Illness

Social Relations - To Family : Attachment
Dependence

To Friends : Membership of : Groups
Clubs
Societies

To Work and Workmates :

Functioned as : Leader _____ Follower _____ Organizer _____

Behaviour : Aggressive _____ Submissive _____ Adjustable _____

Mood : Despondent _____ Average _____ Cheerful _____ Anxious _____

Satisfied _____ Self-depreciative _____ Over-confident _____

Fluctuating:_____ Stable _____

Controlled :_____ Demonstrative_____

Character : Suspicious_____Not suspicious_____

Aggressive _____Not aggressive_____

Ego-centric_____Not ego-centric_____

Sensitive _____Not sensitive_____

Rigid_____Not rigid_____

Energy : Initiative : Lacking_____Present_____

Decisiveness : Absent_____Present_____

Energy Output :Low _____High_____ Fluctuating_____

Intelligence : (See Field Notes)

Normal _____Backward_____

Certifiably Mentally Defective

High Grade Mental Defect | Low Grade Mental Defect

Intelligence Questions :

1. Educational level

_____

2. Career - vocational standard

_____

Insight and Judgement (See Field Notes)

Insight : Present_____Partially Present_____

Absent _____

Judgement : Good_____Bad_____

MAUDSLEY PERSONALITY INVENTORY

(Copyright © 1959 H.J.Eysenck)

NAME : _____ CHRISTIAN NAMES : _____

AGE : _____ SEX: _____ OCCUPATION : _____

N = E = ? =

Instructions

Here are some questions regarding the way you behave, feel and act. After each question there is a "Yes", a "?" and a "No".

Try and decide whether "Yes" or "No" represents your usual way of acting or feeling; then put a circle round the "Yes" or "No". If you find it absolutely impossible to decide, put a circle round the "?", but do not use this answer except very occasionally. Work quickly, and don't spend too much time over any question; we want your first reaction, not a long drawn-out thought process ! The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any questions. Now go ahead, work quickly, and remember to answer every question. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave.

1. Are you happiest when you get involved in some project that calls for rapid action ? Yes ? No

2. Do you sometimes feel happy, sometimes depressed, without any apparent reason ? Yes ? No

3. Does your mind often wander while you are trying to concentrate ? Yes ? No

4. Do you usually take the initiative in making new friends ? Yes ? No

5. Are you inclined to be quick and sure in your actions ? Yes ? No

6. Are you frequently "lost in thought" even when supposed to be taking part in conversation ? Yes ? No

7. Are you sometimes bubbling over with energy and sometimes very sluggish ? Yes ? No

8. Would you rate yourself as a lively individual? Yes ? No

9. Would you be very unhappy if you were prevented from making numerous social contacts ? Yes ? No

10. Are you inclined to be moody ? Yes ? No

11. Do you have frequent ups and downs in mood, either with or without apparent cause ? Yes ? No

12. Do you prefer action to planning for action ? Yes ? No

13. Are your daydreams frequently about things that can never come true ? Yes ? No

14.	Are you inclined to keep in the background on social occasions ?	Yes ??	No
15.	Are you inclined to ponder over your past ?	Yes ?	No
16.	Is it difficult to "lose yourself" even at a lively party ?	Yes ?	No
17.	Do you ever feel "just miserable" for no good reason at all ?	Yes ?	No
18.	Are you inclined to be overconscientious ?	Yes ?	No
19.	Do you often find that you have made up your mind too late ?	Yes ?	No
20.	Do you like to mix socially with people ?	Yes ?	No
21.	Have you often lost sleep over your worries ?	Yes ?	No
22.	Are you inclined to limit your acquaintances to a select few ?	Yes ?	No
23.	Are you often troubled about feelings of guilt ?	Yes ?	No
24.	Do you ever take your work as if it were a matter of life or death	Yes ?	No
25.	Are your feelings rather easily hurt ?	Yes ?	No
26.	Do you like to have many social engagements ?	Yes ?	No
27.	Would you rate yourself as a tense or "highly-strung" individual ?	Yes ?	No
28.	Do you generally prefer to take the lead in group activities ?	Yes ?	No
29.	*Do you often experience periods of loneliness ?*	Yes ?	No
30.	Are you inclined to be shy in the presence of the opposite sex ?	Yes ?	No
31.	Do you like to indulge in a reverie (day-dreaming) ?	Yes ?	No
32.	Do you nearly always have a "ready answer" for remarkes directed at you ?	Yes ?	No
33.	Do you spend much time in thinking over good times you have had in the past ?	Yes ?	No
34.	Would you rate yourself as a happy-go-lucky individual ?	Yes ?	No
35.	Have you often felt listless and tired for no good reason ?	Yes ?	No
36.	Are you inclined to keep quiet when out in a social group ?	Yes ?	No
37.	After a critical moment is over, do you usually think of something you should have done but failed to do ?	Yes ?	No
38.	Can you usually let yourself go and have a hilariously good time at a gay party ?	Yes ?	No
39.	Do ideas run through your head so that you cannot sleep ?	Yes ?	No

40. Do you like work that requires considerable attention ? Yes ? No

41. Have you ever been bothered by having a useless thought come into your mind repeatedly ? Yes ? No

42. Are you inclined to take your work casually, th_ is as a matter of course ? Yes ? No

43. Are you touchy on various subjects ? Yes ? No

44. Do other people regard you as a lively individual ? Yes ? No

45. Do you feel disgruntled ? Yes ? No

46. Would you rate yourself as a talkative individual ? Yes ? No

47. Do you have periods of such great restlessness that you cannot sit long in a chair ? Yes ? No

48. Do you like to play pranks upon others ? Yes ? No

Published by University of London Press Ltd., and printed in Great Britain by Chigwell Press Ltd., Buckhurst Hill, Essex.

IPAT SELF ANALYSIS FORM

NAME_____ TODAY'S DATE_____
First Middle Last

SEX_____ AGE_____ OTHER FACTS_____
(Write M or F) (Nearest Year) (Address, Occupation, etc., as interested)

CONFIDENTIAL

Inside this booklet you will find forty questions, dealing with difficulties that most people experience at one time or another. It will help a lot in self-understanding if you check Yes, No, etc., to each, frankly and truthfully, to describe any problems you may have.

Start with the two simple examples just below, for practice. As you see, each inquiry is actually put in the form of a sentence. By putting a cross, X, in one of the three boxes on the right you show how it applies to you. Make your marks now.

	Yes	Occasionally	No
1. I enjoy walking	☐	☐	☐

A middle box is provided for when you cannot definitely say Yes or No. But use it as little as possible.

	A	In between	B
2. I would rather spend an evening: (A) talking to people, (B) at a movie	☐	☐	☐

About half the items inside end in A and B choices like this. It is always on the right. Remember, use the "In between" or "Uncertain" box only if you cannot possibly decide on A or B.

Now:

1. Make sure you have put your name, and whatever else the examiner asks, in the place at the top of this page.
2. Never pass over an item but give some answer to every single one. Your answers will be entirely confidential.
3. Do not spend time pondering. Answer each immediately, the way you want to at this moment (not last week, or usually). You may have answered questions like this before; but answer them as you feel now.

Most people finish in five minutes; some, in ten. Hand in this form as soon as you are through with it, unless told to do otherwise. As soon as the examiner signals or tells you to, turn the page and begin.

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1957-63 EDITION: First Printing, 1957, Second Printing, 1957, Third Printing, 1958, Fourth Printing, 1959, Fifth Printing, 1961, Sixth Printing, 1963

	A			Do not write in this column
1. I find that my interests, in people and amusements, tend to change fairly rapidly	Yes ☐	In between ☐	False ☐	
2. If people think poorly of me I can still go on quite serenely in my own mind	Yes ☐	In between ☐	False ☐	
3. I like to wait till I am sure that what I am saying is correct, before I put forward an argument	Yes ☐	In between ☐	No ☐	(-)
4. I am inclined to let my actions get swayed by feelings of jealousy	Sometimes ☐	Seldom ☐	Never ☐	
5. If I had my life to live over again I would: (A) plan very differently, (B) want it the same	A ☐	In between ☐	B ☐	
6. I admire my parents in all important matters	Yes ☐	In between ☐	No ☐	(-)
7. I find it hard to "take 'no' for an answer", even when I know what I ask is impossible	Yes ☐	In between ☐	False ☐	
8. I doubt the honesty of people who are more friendly than I would naturally expect them to be	Yes ☐	In between ☐	False ☐	L
9. In demanding and enforcing obedience my parents (or guardians) were: (A) always very reasonable, (B) often unreasonable	A ☐	In between ☐	B ☐	
10. I need my friends more than they seem to need me	Rarely ☐	Sometimes ☐	Often ☐	
11. I feel sure that I could "pull myself together" to deal with an emergency	Always ☐	Often ☐	Seldom ☐	
12. As a child I was afraid of the dark	Often ☐	Sometimes ☐	Never ☐	O
13. People sometimes tell me that I show my excitement in voice and manner too obviously	Yes ☐	Uncertain ☐	No ☐	
14. If people take advantage of my friendliness I: (A) soon forget and forgive, (B) resent it and hold it against them	A ☐	In between ☐	B ☐	
15. I find myself upset rather than helped by the kind of personal criticism that many people make	Often ☐	Occasionally ☐	Never ☐	
16. Often I get angry with people too quickly	Yes ☐	In between ☐	False ☐	
17. I feel restless as if I want something but do not know what	Very often ☐	Occasionally ☐	Often ☐	
18. I sometimes doubt whether people I am talking to are really interested in what I am saying	Yes ☐	In between ☐	False ☐	C
19. I have always been free from any vague feelings of ill-health, such as obscure pains, digestive upsets, awareness of heart action, etc.	Yes ☐	Uncertain ☐	False ☐	
20. In discussion with some people, I get so annoyed that I can hardly trust myself to speak	Sometimes ☐	Rarely ☐	Never ☐	

CONTINUE ON NEXT PAGE.

A Score

B

				Do not write in this column.
21. Through getting tense I use up more energy than most people in getting things done	Yes ☐	Uncertain ☐	False ☐	
22. I make a point of not being absent-minded or forgetful of details	Yes ☐	Uncertain ☐	False ☐	
23. However difficult and unpleasant the obstacles, I always stick to my original intentions	Yes ☐	In between ☐	No ☐	(5-)
24. I tend to get over-excited and "rattled" in upsetting situations	Yes ☐	In between ☐	No ☐	
25. I occasionally have vivid dreams that disturb my sleep	Yes ☐	In between ☐	No ☐	
26. I always have enough energy when faced with difficulties	Yes ☐	In between ☐	No ☐	(5-)
27. I *sometimes* feel compelled to count things for no particular purpose	Yes ☐	Uncertain ☐	False ☐	
28. Most people are a little queer mentally, though they do not like to admit it	True ☐	Uncertain ☐	False ☐	
29. If I make an awkward social mistake I can soon forget it	Yes ☐	In between ☐	No ☐	
30. I feel grouchy and just do not want to see people: (A) occasionally, (B) rather often	A ☐	In between ☐	B ☐	
31. I am brought almost to tears by having things go wrong	Never ☐	Very rarely ☐	Rarely true ☐	
32. In the midst of social groups I am nevertheless sometimes overcome by feelings of loneliness and worthlessness	Yes ☐	In between ☐	No ☐	
33. I wake in the night and, through worry, have some difficulty in sleeping again	Often ☐	Sometimes ☐	Never ☐	0
34. My spirits generally stay high no matter how many troubles I meet	Yes ☐	In between ☐	No ☐	
35. I *sometimes* get feelings of guilt or remorse over quite small matters	Yes ☐	In between ☐	No ☐	
36. My nerves get on edge so that certain sounds, e.g., a screechy hinge, are unbearable and give me the shivers	Often ☐	Sometimes ☐	Never ☐	
37. If something badly upsets me I generally calm down again quite quickly	True ☐	Uncertain ☐	False ☐	
38. I tend to tremble or perspire when I think of a difficult task ahead	Yes ☐	In between ☐	No ☐	0
39. I usually fall asleep quickly, in a few minutes, when I go to bed	Yes ☐	In between ☐	No ☐	
40. I *sometimes* get in a state of tension or turmoil as I think over my recent concerns and interests	True ☐	Uncertain ☐	False ☐	

STOP HERE. BE SURE YOU HAVE ANSWERED EVERY QUESTION. B Score

Name_____ Sex_____ Age_____ Date_____ Examiner_____

Raw Scores	A Score (Covert, Indir.)_____ (p. 2 score) B Score (Overt, manifest, sympt.)_____ (p. 2 score) Q_3(-)_____, C(-)_____, L _____, O_____, Q_4_____ Overt-Covert Ratio $\left(\frac{B}{A}\right)$ _____	TOTAL RAW SCORE_____ (A + B)
Stens:	Q_3(-)_____, C(-)_____, L _____, O_____, Q_4_____	TOTAL STANDARD STEN SCORE (from Table 2)

Standard Score Deciles (Tenth)	Qualitative Observations:	Standard Score Stens (Tenth)
10		10
9	Diagnostic Summary:	9
8		8
7		7
6		6
5		5
4		4
3		3
2		2
1		1
0		

(This column normally used only when Decile was preferred to sten.)

REFERENCES

Abernethy, E.M. The effect of sorority pressures on the results of a self-inventory. J.Soc.Psychol, 1954, 40, 177-183.

Adamson, J.E. and Schmale, A.H. Object loss, giving up, and the onset of psychiatric disease. Psychosom.Med., 1965, 27, 557-576.

Ader, R. Plasma pepsinogen level as a predictor of susceptibility to gastric erosions in the rat. Psychosom.Med., 1963, 25, 221-232.

_____ Behavioral and physiological rhythms and the Development of Gastric erosions in the rat. Psychosom.Med., 1967, 29 345-353.

Alexander, F. The influence of psychologic factors upon gastrointestinal disturbances, a symposium. General principles, objectives, and preliminary results. Psychoanal. Quart., 1934, 3,501.

_____ Psychosomatic Medicine - Its Principles and Applications. London: George Allen and Unwin, Ltd. 1950.

Alexander, F. and French T.M. Studies in Psychosomatic Medicine. New York: Ronald Press Co., 1948.

Alexander,F.G. and Selesnick, S.T. The psychomatic approach in medicine. The History of Psychiatry. New York : Harper and Row, 1966, 388-401.

Alexander, F., French, T.M. and Pollack, G.H. (Eds.) Psychosomatic Specificity. Chicago : University of Chicago Press, 1968.

Alvarez, W.C. Nervous Indigestion. New York : Paul B. Hoeber, Inc., 1930.

Apter, A. and Hurst, L.A. Personality and peptic ulcer. S.Afr.Med.J., 1973, 47, 2131-2133.

Asch, S.E. Studies of independence and conformity : 1. A minority of one against a unanimous majority. Psychol.Monogr., 1956, 70, No. 416, 1-70.

Badal, D.W., Dricol, T.E. and Maultsby, M. The role of the symptom in psychosomatic disease - changes following removal of a symptom by extrapsychic means. Amer.J.Psychiat., 1957, 113, 1081-1088.

Barker, R.G., Wright, B.A. Meyerson, L. and Gonick, M.R. Adjustment to Physical Handicap and Illness : A Survey of the Social Psychology of Physique and Disability. New York: Soc.Sci.Res.Counc., 1953.

Baugh, V.S. and Stanford, G.A. Psychological factors in ulcer patients. Dis.Nerv.Sys., 1964, 25, 553-557.

Beaumont, W. Experiments and Observations on the Gastric Juice and the Physiology of Digestion. Plattsburgh : E.P. Allen, 1833.

Bellak, L. On the problems of the concept of projection. In: Abt and Bellak (Eds.) Projective Psychology. New York : Grove Press, 1950.

Bendian, J. The value of questionnaires testing the dimensions of neuroticism and extraversion in psychosomatic research. J. Psychosom. Res., 1963, 7, 1-10.

Bendig, A.W. Score reliability of dichotomous and trichotomous item responses in the Maudsley Personality Inventory. J.consult.Psychol., 1959, 23, 181-185.

Bernstein, L. and Chase, P.H. The discriminative ability of the Blacky pictures with ulcer patients. J.consult.Psychol., 1955, 19, 377-380.

Bloomfield, A.L. The problem of gastric hyper-acidity. Am.J.Dig.Dis., 1939, 6, 700.

Blum, G.S. and Kaufman, J.B. Two patterns of personality dynamics in male peptic ulcer patients as suggested by responses to the Blacky Pictures. J.clin.Psychol., 1952, 8, 273-278.

Bonami, M., et Rime, B. Approche Exploratoire de la Personnalite pre-coroncienne par analyse standerd see de donnees projectives thematiques. J.Psychosom. Res., 1972, 16 103-113.

Breuer, J. and Freud, S. The psychic mechanisms of hysterical phenomena. Studies in Hysteria. Nervous and Mental Disease Monograph Series #61. New York : Nervous and Mental Disease Publishing Co., 1937.

Bridger, W.H. and Reiser, M.F. Psychophysiologic studies of the neonate : an approach towards the methodological and theoretical problems involved. Psychosom.Med., 1959, 21, 265-276.

Bridger, W.H., Birns, B.M. and Blank, M. A comparison of behavioral ratings and heart rate measurements in human neonates. Psychosom.Med., 1965, 27, 123-134.

Browning, J.S. and Houseworth, J.H. Development of new symptoms following medical and surgical treatment for duodenal ulcers. Psychosom.Med., 1953, 15, 328-336.

Buck, C. and Hobbs, G.E. The problem of specificity in psychosomatic illness. J. Psychosom. Res., 1959, 3, 227-233.

Cannon, W.B. Bodily Changes in Pain, Hunger, Fear and Rage. New York: Appleton and Co., 1929.

Carpenter, M. The influence of frontal topectomy upon gastric secretion. J.nerv.ment.Dis., 1951, 113, 52.

Castelnuovo-Tedesco, P. Emotional antecedents of perforation of ulcers of the stomach and duodenum. Psychosom.Med., 1962, 24, 398-410.

Cattell, R.B. Second-order personality factors in the questionnaire realm. J.consult.Psychol., 1956, 20, 411-418.

_____ Personality and Motivation Structure and Measurement. New York : World Book, 1957.

_____ Handbook for the I.P.A.T. Anxiety Scale. Champaign, Ill. (1602 Coronado Dr.) : Inst. for Pers. and Abil. Testing, 1957.

Cattell, R.B. and Scheier, I.H. The Meaning and Measurement of Neuroticism and Anxiety. New York : Ronald Press, 1961.

Cleghorn, R.A. and Graham, B.F. Studies of adrenal cortical activity in psychoneurotic subjects. Amer.J.Psychiat., 1950, 106, 668-672.

Cleveland, S.E. and Fisher, S. Behavior and unconscious fantasies of patients with rheumatoid arthritis. Psychosom.Med., 1954, 16, 327-333.

Cleveland, S.E. and Fisher, S. A comparison of psychological and physiolcgical reactivity in ulcer and rheumatoid arthritis groups. Psychosom.Med., 1960, 22, 283-289.

Cohen, S.I., Silverman, A.J. and Magnusson, F. New psychophysiological correlates in women with peptic ulcer. Amer.J.Psychiat. 1956, 112, 1025.

Cohen, S.I., Silverman,A.J., Waddell, W. and Zuidema, G.D. Urinary catechol amine levels, gastric secretion and specific psychological factors in ulcer and non-ulcer patients. J.Psychosom.Res., 1961, 5, 90-115.

Coppen, A.J. and Metcalfe, M. A study measuring the effect of hospitalisation in hospital patients. Brit.Med.J., 1963, 2, 18-24.

Cronbach, L.J. Essentials of Psychological Testing. New York: Harper and Row, 1960.

Cushing, H. Peptic ulcer and the interbrain. Surg., Gynec. Obstet., 1932, 55, 1.

Davids,A. and Pildner, H. Comparison of direct and projective methods of personality assessment under differing conditions of motivation. Psychol. Monogr., 1958, 72 (11, Whole No. 464).

Davies, T.D. and Wilson, A.T. Observations on the life history of chronic peptic ulcer. Lancet, 1937, 2, 1953.

Descartes, R. The Discourse and Method and Metaphysical Meditations of René Descartes, translated by Rawlings, G. London : Walter Scott, 125-141.

Deutsch, F., Thompson, D.,and Pinderhughes, C. Body, Mind and the Sensory Gateways. Basel and New York : S. Karger, 1962.

Dollard, J. and Miller, N.E. Personality and Psychotherapy. New York : McGraw-Hill Co., 1950.

Doran, F.S. Etiology of chronic gastric ulcer (observations on the blood supply of the human gastric mucosa with a note on the arteriovenous shunt). Lancet, 1951, 260, 199.

Draper, G. and McGraw, R.B. Studies in human constitution : V. The Psychological Panel. Am.J.M.Sc., 1927, 174, 299-313.

Draper, G. and Tourain, G. The man - environment and peptic ulcer. Arch.Int.Med., 1932, 49, 616.

Dunbar, F. Emotions and Bodily Changes. New York: Columbia Univ. Press, 1935.

Dunbar, F. Emotions and Bodily Change. New York : Columbia University Press, 1954.

Engel, G.L. Selection of clinical material in psychosomatic medicine. Psychosom.Med. 1954, 16, 368.

_____ Psychological Development in Health and Disease. Philadelphia : W.B. Saunders Co., 1962.

_____ A life setting conducive to illness. The giving up-given up complex. Bull. Menninger Clin. 1968, 32, 355-365.

Engel, G.L., and Schmale, A.H.Jr. Psychoanalytic theory of somatic disorder : conversion, specificity and the disease onset situation. J.Am.psychoanal.Ass. 1967, 15, 344-365.

Essman, W.B. and Frisone, J.D. Isolation-induced facilitation of gastric ulcerogenesis in mice. J.Psychosom.Res., 1966, 10, 183-188.

Eysenck, H.J. Dimensions of Personality. London ; Kegan Paul, 1947.

_____ Sense and Nonsense in Psychology. Great Britain : Penguin, 1957.

_____ Manual of the Maudsley Personality Inventory. London : University of London Press, 1959.

Eysenck, S.B.G. and Eysenck, H.J. The validity of questionnaires and rating assessments of extraversion and neuroticism and their factorial validity. Brit.J.Psychol., 1963, 54, 51-62.

Ferenczi, S. Further Contribution to the Theory and Technique of Psycho-analysis. London : Hogarth, 1926.

Ferguson, G.A. Statistical Analysis in Psychology and Education. New York : McGraw-Hill, 1966.

Fodor, O., and Urcan, S. Roum.Med.Int. 1966, 3, 301.

Frank, L.K. Projective Methods. Illinois : Charles C. Thomas, 1948.

Franks, C.M. Conditioning and personality : A study of normal and neurotic subjects. J.abnorm.soc.Psychoc., 1966, 52, 143-150.

Franks, C.M. and Leigh, D. The theoretical and experimental application of a conditioning model to a consideration of bronchial asthma in man. J.Psychosom.Res., 1959, 4, 88-98.

Freedman, A.M. and Kaplan, H.I. Comprehensive Textbook of Psychiatry. Baltimore : Williams and Wilkins, 1967.

Freedman, A.M., Kaplan, H.I. and Sadock, B.J. Modern Synopsis of Psychiatry. Baltimore : Williams and Wilkins, 1972.

Friedman, M. and Rosenman, R.H. Overt Behavior Pattern in Coronary Disease : Detection of Overt Behavior Pattern A in Patients by a New Psychophysiological Procedure. J.Amer.Med.Ass. 1960, 173, 1320.

French, John, Porter, Robert W., Cavnaugh, Edward B., and Longmire, A.B., Experimental gastroduodenal lesions induced by stimulation of the brain. Psychosom.Med., 1957, 19, 209-219.

Freud, S. Neuropsychoses. International Psychoanalytic Library. London :Hogarth Press, Vol.1, 1940.

_____ Collected Papers (ed. by Strachey, J.) New York. Basic Books, 1959.

Funkenstein, D.H., King, S.H. and Drolette, M. Mastery of Stress. Harvard Univ. Press, 1957.

Gainsborough, H. and Salter, E. A study of peptic ulcer. Brit.M.J., 1946, 2, 253-258.

Gantt, W.H. Experimental Basis for Neurotic Behavior : Origin and development of artificially produced disturbances of behavior in dogs. New York : Paul Hoeber, 1944.

Eysenck, S.B.G. and Eysenck, H.J. The validity of questionnaires and rating assessments of extraversion and neuroticism and their factorial validity. Brit.J.Psychol., 1963, 54, 51-62.

Ferenczi, S. Further Contribution to the Theory and Technique of Psycho-analysis. London : Hogarth, 1926.

Ferguson, G.A. Statistical Analysis in Psychology and Education. New York : McGraw-Hill, 1966.

Fodor, O., and Urcan, S. Roum.Med.Int. 1966, 3, 301.

Frank, L.K. Projective Methods. Illinois : Charles C. Thomas, 1948.

Franks, C.M. Conditioning and personality : A study of normal and neurotic subjects. J.abnorm.soc.Psychoc. , 1966, 52, 143-150.

Franks, C.M. and Leigh, D. The theoretical and experimental application of a conditioning model to a consideration of bronchial asthma in man. J.Psychosom.Res., 1959, 4, 88-98.

Freedman, A.M. and Kaplan, H.I. Comprehensive Textbook of Psychiatry. Baltimore : Williams and Wilkins, 1967.

Freedman, A.M., Kaplan, H.I. and Sadock, B.J. Modern Synopsis of Psychiatry. Baltimore : Williams and Wilkins, 1972.

Friedman, M. and Rosenman, R.H. Overt Behavior Pattern in Coronary Disease : Detection of Overt Behavior Pattern A in Patients by a New Psychophysiological Procedure. J.Amer.Med.Ass. 1960, 173, 1320.

French, John, Porter, Robert W., Cavnaugh, Edward B., and Longmire, A.B., Experimental gastroduodenal lesions induced by stimulation of the brain. Psychosom.Med., 1957, 19, 209-219.

Freud, S. Neuropsychoses. International Psychoanalytic Library. London :Hogarth Press, Vol.1, 1940.

_____ Collected Papers (ed. by Strachey, J.) New York. Basic Books, 1959.

Funkenstein, D.H., King, S.H. and Drolette, M. Mastery of Stress. Harvard Univ. Press, 1957.

Gainsborough, H. and Salter, E. A study of peptic ulcer. Brit.M.J., 1946, 2, 253-258.

Gantt, W.H. Experimental Basis for Neurotic Behavior : Origin and development of artificially produced disturbances of behavior in dogs. New York : Paul Hoeber, 1944.

Garma, A. *On the pathogenesis of peptic ulcer.* Internat.J. Psychoanal., 1950, 31, 53 72.

Garma, A., Baranger, W., Bisi, J.C. and Figueras,A. The internalized mother as harmful food in peptic ulcer patients. Internat.J.Psychoanal., 1953, 34, 102-110.

Geilhorn, E. The tuning of the nervous system : physiological foundations and implications for behavior. Perspec.Biol.Med., 1967, 10, 559-591.

Glass, G.B.J. and Boyd, L. A study of the alleged deficiency of gastric mucin in the stomach of humans with peptic ulcer. Gastroenterology, 1950, 16, 697.

Grace, W.J. and Graham, D.T. Relationship of specific attitudes and emotions to certain bodily diseases. Psychosom.Med., 1952, 14, 243-251.

Graham, D.T., Lundy, R.M., Benjamin, L.S., Kabler, J.D., Lewis, W.C., Kunish, N.O. and Graham, F.K. Specific attitudes in initial interviews with patients having psychosomatic disenses. Psychosom.Med., 1962, 24, 257-266.

Greene, W.A. Jnr. Psychological factors and reticuloendothelial disease. I. Preliminary observations on a group of males with lymphomas and leukemias. Psychosom.Med., 1954, 16, 220-230.

Greene, W.A., Jnr. Some perspectives for observing and interpreting biopsychologic relations and doctor-patient relations. Perspect.Biol.Med., 1959, 2, 453-472.

Grinker, R.R. Psychosomatic Research. New York : Norton, 1953.

Grinker, R.R. and Robbins, F.P. Psychosomatic Case Book. New York : Blakiston Co., 1954. 31-38.

Groddeck, G. The Book of the It. New York : The New American Library, 1961.

Guilford, J.P. and Zimmerman, W.S. The Guilford-Zimmerman Temperament Survey. Los Angeles : Sheridon Supply Co., 1949.

Halliday, J.S. Epidemiology of psychosomatic affections. Lancet, 1946, 2, 185.

Hamburg, D.A. and Adams, J.E. A perspective on coping behavior. Arch.Gen.Psychiat., 1967, 17, 277-284.

Hamilton, M. The personality of dyspeptics with special reference to gastric and duodenal ulcer. Brit.J.med.Psychol., 1950, 23, 182-198.

Hartlage, L.C. Common approaches to the measurement of anxiety. Am.J.Psychiat., 1972, 128, 1145-1147.

Henry, W.F. The Analysis of Fantasy. New York : John Wiley and Sons, 1956.

Heron, A. The effect of real-life motivation on questionnaire response. J.Appl.Psychol., 1956, 47, 243-251.

Hildebrand, H.P. A factorial study of introversion-extraversion. Brit.J. Physiol., 1957, 28, 200-209.

Holt, R.R. The Thematic Apperception Test. In H.H. Anderson and G.L. Anderson (Eds.) An Introduction to Projective Techniques. New-York : Prentice-Hall, 1951.

Hurst, L.A. and Katzen, M. Experimenta design for evaluation of the role of psychological factors in duodenal ulceration. Leeah, 1966, 36, 70-74.

Ivy, A.C., Grossman, M.I. and Bachrach, W.H. Peptic Ulcer. Philadelphia : Blakiston, 1950.

Jensen, A.R. Review of the Maudsley Personality Inventory. In O.K. Buros (Ed.) Sixth Mental Measurements Yearbook. New Jersey : Gryphon, 1965.

Kanter, V.D. and Hazelton, J.E. An attempt to measure some aspects of personality in young men with duodenal ulcer by means of questionnaires and a projective test. J.Psychosom.Res., 1964, 8, 297-309.

Kaplan, H. The psychosomatic concept of peptic ulcer. J. nerv.and ment.Dis., 1956, 123, 93-109.

Kapp, F.T., Rosenbaum, M. and Romano, J. Psychological factors in men with peptic ulcer. Am.J.Psychiat., 1947, 103, 700.

Karp, S.A., Poster, D. and Goodman, A. Differentiation in alcoholic women. J.Personality, 1963, 3, 386-393.

Kessel, N. and Munro,A. Epidemiological studies in psychosomatic medicine. J.Psychosom.Res., 1964, 8, 67.

Kimball, C.P. Conceptual Developments in Psychosomatic Medicine : 1939-1969. Ann.Intern.Med., 1970, 73, 307-316.

Kirsner, J. and Palmer, W.L. The present management of peptic ulcer. Illinois M.J., 1948, 94, 357.

Kissen, D.M. The influence of some environmental factors on personality inventory scores in psychosomatic research. J.Psychosom.Res., 1964, 8, 145-149.

Klein, Melanie. Contributions to Psychoanalysis. London: Hogarth, 1948.

Kluckhohn, C. and Leighton, D. The Navaho. New York : Anchor Books, Doubleday and Co., 1962.

Krasner, L. Personality differences between patients classified as psychosomatic and non-psychosomatic. J.abnorm.soc.Psychol., 1953, 48, 190-198.

Leary, T. and Coffey, H.S. Interpersonal diagnosis : Some problems of methodology and validation. J.abnorm.soc.Psychol., 1955, 50, 110-124.

Li, T. and Freeman, S. The frequency of peptic ulcer in protein deficient dogs. Gastroenterology, 1946, 6, 140.

Liddle, H. The role of vigilance in the development of animal neuroses. in Anxiety. Edited by P. Hoch and J. Zubin. New York : Grune and Stratton, 1950.

Lidz, T. General concepts of psychosomatic medicine. In. S.Arieti (Ed.) American Handbook of Psychiatry, Vol. 1, New York : Basic Books, 1959.

Lipowski, Z.L. Review of Consultation, Psychiatry and Psychomatic Medicine III. Theoretical Issues. Psychosom. Med., 1968, 30, 395.

Lucente, F. and Fleck, S. A study of hospitalization and anxiety in 408 medical and surgical patients. Psychosom.Med., 1972, 34, 304-312.

MacLean, P.D. Psychosomatic disease and the "visceral brain". Psychosom.Med., 1949, 11, 338.

Macleod, A.W., Wittkower, E.D. and Margolin, S.G. Basic Concepts of Psychosomatic Medicine. In Wittkower, E.D. and Cleghorn, R.A. (Eds.) Recent Developments in Psychosomatic Medicine. Philadelphia : Lippincott, 1954.

Mahl, G.F. Effects of chronic fear on the gastric secretion of hydrochloric acid in dogs. Psychosom.Med., 1949, 11, 30.

_____ Anxiety, hydrochloric acid secretion and peptic ulcer etiology. Psychosom.Med., 1950, 14, 158.

_____ Relationship between acute and chronic fear and the gastric acidity and blood sugar level in the Macaca mulatto monkeys. Psychosom.Med., 1952, 14, 182.

Mann, F.C. and Bollman, J.L. Experimentally produced peptic ulcer; development and treatment. J.A.M.A., 1932, 99, 1576.

Margolin, S. The behavior of the stomach during psychoanalysis. Psychoanal.Quart., 1951, 20, 349.

_____ Genetic and Dynamic Psychophysiological Determinants of Pathophysiological Processes. In Deutsch, F. (Ed.) The Psychosomatic Concept in Psychoanalysis. New York: Internat.Univ.Press, 1953.

Margolin, S et al. Variations of gastric functions during conscious and unconscious conflict states. In Life Stress and Bodily Disease. Association for Research in Nervous and Mental Disease, Proceedings. Baltimore : The Williams and Wilkins Co., 1950.

Marquis, D.P, Sinnett, E.R. and Winter, W.P. A psychological study of peptic ulcer patients. J.clin.Psychol., 1952, 8, 266-272.

Marshall, S. Personality correlates of peptic ulcer patients. J.consult.Psychol., 1960, 26, 61-64.

Marty, P. and de M'Uzan, M. 'La "Pensée operatoire". Rev.Franc. Psychanal., 1963, 127, Suppl. 1345.

Marty, P., du M'Uzan, M., and David, C., L'investigation psychosomatique. 1963. Paris : Presses Universitaires de France.

Mason, J.W. The scope of psychoendocrine research. Psychosom.Med. 1968, 30, 5, Part 2. 565-575.

McGuire, R.J., Mowbray, R.M. and Vallance, R.C. The Maudsley Personality Inventory used with psychiatric in-patients. Brit.J.Psychol, 1963, 54, 157-166.

Mendelson, M., and Meyer, E. Counter-transference problems of the liaison psychiatrist. Psychosom. Med. 1961, 23, 115.

Mendelson, J.H., Kubansky, P.E.,and Leiderman, P.H., Physiological and Psychological Aspects of Sensory Deprivation - A case analysis. In Sensory Deprivation by P. Solomon et al. (eds.), pp. 91-113, Harvard University Press, Cambridge, 1961.

Merck Manual, The,1966. Published by Merck Sharp and Dohme Research Laboratories. 538.

Michaels, J.J. A psychiatric adventure in comparative pathophysiology of the infant and adult. J.nerv.ment.Dis., 1944, 100, 49.

Mikhail, A.A. and Broadhurst, P.L. Stomach ulceration and emotionality in selected strains of rats. J.Psychom.Res., 1965, 8, 477-479.

Mirsky, I.A. Physiologic, psychologic and social determinants in the etiology of duodenal ulcer. Am.J.Dig.Dis.,1958, 3, 285.

Mirsky, I.A., Block, S., Osher, S. and Broh-Kahn, R.H. Uro-pepsin excretion by man. I. The source, assay and properties of uro-pepsin. J.Clin.Invest., 1948, 17, 818.

Mirsky, I.A., Fetterman, P., Kaplan, S. and Broh-Kahn, R.H. Blood plasma pepsinogen. J.Lab and Clin.Med., 1952, 40, 17.

Mittelmann, B. and Wolff, H.G. Emotions and gastroduodenal function : experimental studies on patients with gastritis, duodenitis, and peptic ulcer. Psychosom. Med., 1942, 4, 5.

Moschowitz, E. The psychogenic origin of organic disease. N.Engl.J.Med., 1935, 212, 605.

Motto, J.J. The MMPI performance of veterans with organic and psychiatric disabilities. J.consult.Psychol., 1958, 22, 304.

Murray, H.A. Thematic Apperception Test Manual. United States of America : Harvard College, 1943.

Nemiah, J.C. and Sifneos, P.E. Affect and fantasy in patients with psychosomatic disorders. In O.W. Hill (Ed.) Modern Trends in Psychosomatic Medicine 2. London : Butterworths, 1970.

Noyes, A.P. and Kolb, L.C. Modern Clinic Psychiatry. Philadelphia : Saunders, 1963.

Palmer, E.D. On the morphologic state of the gastric mucosa in the duodenal ulcer patient. Gastroenterology, 1961, 18, 8.

Pervin, L.A. Personality. Theory, Assessment and Research. New York : John Wiley and Sons, Inc., 1970.

Pervin, L.A. and Lilly, R.S. Social desirability and self-ideal self on the semantic differential. Educ. and Psychol. Measurement, 1967, 27, 845-853.

Philip, A.E. and Cay, E.L. Psychiatric symptoms and personality traits in patients suffering from gastro-intestinal illness. J.Psychosom.Res., 1971, 16, 47-51.

Pickford, R.W. Initiation and avoidance of a duodenal ulcer. Psychoanalyt.Rev., 1952, 39, 53-68.

Pilot, M., Lewkowki, L., Spiro, H.M. and Schafer, R. Duodenal ulcer in one of identical twins. Psychosom.Med.,1957, 21 586-596.

Pilot, M.L., Rubin, J., Schafer, R. and Spiro H.M. Duodenal ulcer in one of identical twins : a follow-up study. Psychosom.Med., 1963, 25, 285-291.

Pilot, M.L., Muggia, A. and Spiro, H.M. Duodenal ulcer in women, Psychosom.Med., 1967, 29, 6, 586-597.

Pollie, D.M. A projective study of conflict and defense in peptic ulcers and bronchial asthma. J.Project.Techn. and Personal. Assessment, 1964, 28, 67-77.

Pollock, G.H. and Pilot, M. Psychosomatic specificity hypothesis testing. Bull. Menninger Clin.,1970, 34, 85-88.

Poser, E.G. and Lee, S.G. Thematic content associated with two gastrointestinal disorders. Psychosom.Med., 1963, 25, 162-173.

Rees, L. Psychosomatic aspects of vagotomy. J.ment.Sci., 1953, 99, 505-512.

Robbins, P.R. Personality and psychosomatic illness : a selective review of research. Genet.Psychol. Monogr., 1969, 80, 51-90.

Romano, J. (editor) Adaptation. Ithaca : Cornell Univ. Press, 1949.

Rosenbaum, M. Psychosomatic aspects of patients with peptic ulcers. In E.D. Wittkower and R.A. Cleghorn (Eds.) Recent Developments in Psychosomatic Medicine. London : Sir Isaac Pitman and Sons, 1954.

Rosenbaum,M., Reiser, M., and Higgins, J. Setting therapeutic goals in psychosomatic medicine. Proc.Assoc.Res.Nerv.Ment.Dis. 1951.

Roth, H.P. The peptic ulcer personality. Arch.Int.Med., 1955, 96, 32-43.

Rothstein, C. and Cohen, I.S. Hostility and dependency conflicts in peptic ulcer patients. Psychol. Rep., 1958, 4, 555-558.

Ruesch, J. The infantile personality. Psychosom.Med., 1948, 10, 134-144.

Sandler, J. and Dare, C. The psychoanalytic concept of orality. J.Psychosom. Res, 1970, 14, 211-222.

Sainsbury, P. Psychosomatic disorders and neurosis in out-patients attending a general hospital. J.Psychosom.Res., 1960, 4, 261-273.

Sandweiss, D.J. (Ed.) Peptic Ulcer. Philadelphia : W.B. Saunders Co., 1951.

Scheier, I.H. What is an "objective" test ? Psychological Reports, 1958, 4, 147-157.

Schiffrin, M.J. and Warren, A.A. Some factors concerned in the production of experimental ulceration of the gastro-intestinal tract in cats. Am.J.Dig.Dis., 1942, 9, 205.

Schmale, A.H. Jnr. Relationship of separation and depression to disease. 1. A report on a hospitalized medical population. Psychosom.Med., 1958, 20, 259-277.

Scodel, A. Passivity in a Class of peptic ulcer patients. Psychol. Monogr., 1953, 67, No. 360, 1-15.

Selye, H. The Physiology and Pathology of Exposure to Stress. Montreal : Acta, Inc. 1950.

Siegel, S. Nonparametric Statistics. New York : McGraw-Hill, 1956.

Sifneos, P.E. Clinical observations on some patients suffering from a variety of psychosomati diseases. Acta Med.Psychosom., 1967, 11-16.

Silbermann, I.S. Experimentelle Magen-duodenal ulcus-erzeugung durch Sheinfuettern nach Pavlov. Zentralbl.f.Chir., 1927, 54, 2385.

Silverstone, S. and Kissin B. Field dependence in essential hypertension and peptic ulcer. J.Psychosom.Res., 1968, 12, 157-161.

Sines,J.O. Behavioral correlates of genetically enhanced susceptibility to stomach lesion development. J.Psychosom.Res., 1961, 5, 120-126.

Sontag, L.W. and Wallace, R.F. Preliminary report of the Fels Fund. Study of fetal activity. Amer.J.Dis.Child., 1934, 48, 1050-1057.

Spiro, H.M. Schwartz, R.D. and Pilot, M.L. Peptic ulcer in pregnancy. Amer.J.Dig.Dis., 1959, 4, 289.

Stewart, D.N. and Winsor, D.M. de R. Incidence of perforated peptic ulcer : Effect of heavy air-raids. Lancet, 1942, 242, 259.

Streitfeld, H.S. Specificity of peptic ulcer to intense oral conflicts. Psychosom.Med., 1954, 16, 315-326.

Sullivan, A. and McKell, T. Personality in Peptic Ulcer. Springfield, Illinois : C.C. Thomas, 1950.

Szasz, T.S. Psychoanalysis and the autonomic nervous system. Psychoanalyt.Rev., 1952, 39, 115.

Szasz, T., Levin, E., Kirsner, J. and Palmer, W. The role of hostility in the pathogenesis of peptic ulcer; theoretical considerations with the report of a case. Psychosom.Med. 1947, 9, 331.

Taylor, J. A personality study of manifest anxiety. J.abnorm.soc. Psychol., 1953, 48, 285-290.

Thaler, M., Weiner,H. and Reiser, M.F. Exploration of the doctor-patient relationship through projective techniques. Psychosom.Med., 1957, 19, 228-239.

Valiant, G.E. and McArthur, C.C. What kinds of men do not get psychosomatic illness ? Psychosom.Med., 1972, 34, No.5, 476.

Van Wirdum, P. and Weber, A. The occurrence of food preferences and aversions in groups of patients with peptic ulcer, asthma and neurosis. J.Psychosom.Res., 1961, 5, 280-286.

Varco, R.L., Code, C.F., Walpole, S.H. and Wangensteen, O.H. Duodenal ulcer formation in the dog by intramuscular injections of a histamine - beeswax mixture. Am.J.Physiol., 1947, 133, 475.

Watts, J.W. and Fulton, J.F. Intussusception : studies in intestinal motility. N.Eng.J.Med., 1934, 210, 883.

Weiner,H., Thaler, M. Reiser, M.F., and Mirsky, I.A. Etiology of duodenal ulcer. I. Relation of specific psychological characteristics to rate of gastric secretion (serum pepsinogen). Psychosom.Med., 1957, 19, 228-239.

Weisman, A.D. A study of the psycho-dynamics of duodenal ulcer exacerbations. Psychosom.Med.,1956, 18, 1-41.

Weiss,P. and Emmerich,W. Dependency fantasy and group conformity in ulcer patients. J.consult.Psychol., 1962, 26, 61-64.

Wiener, D.N. Personality characteristics of selected disability groups. Genet.Psychol.Monogr.,1952, 45, 175-255.

Williams, R.L. and Krasnoff, A.G. Body image and physiological patterns in patients with peptic ulcer and rheumatoid arthritis. Psychosom.Med., 1964, 24, 701-709.

Winkelstein,A, Margolin, S.G., Kaufman, M.R., Hollander, F.,Orringer,D., Janowitz, H. and Levy, M. Psychophysiologic studies on a female patient with a large gastric fistula. Rev.Gastroenterology, 1951, 18, 1507.

Winter, W.D. Two personality patterns in peptic ulcer patients. J.Project.Techn., 1955, 19, 332-344

Wittkower, E.D. Studies on the influence of emotions on the functions of the organs. J.ment.Sci.,1935, 81, 533.

Wittkower, E.D. A Global Survey of Psychosomatic Medicine. Int.J.Psychiat., 1969, 7, 499-516.

Wittkower, E.D. and Lipowski, Z.J. Recent developments in psychosomatic medicine. Psychosom.Med., 1956, 28, 722-737.

Wolf, S. and Wolff, H. Human Gastric Function. London : Oxford University Press, 1943.

Wolff, H.S. Life stress and bodily disease : A formulation. Proceedings of the Association for Research in Nervous and Mental Diseases. Baltimore, Ind. : Williams and Wilkins, 1950, 29.

Wolowitz, H.M. Oral involvement in peptic ulcer. J.consul. ychol., 1967, 31, 418-419.

Wolowitz, H.M. and Wagonfeld,S. Oral derivatives in the food preferences of peptic ulcer patients : An experimental test.of Alexander's psychoanalytic hypothesis. J.nerv.ment.Dis., 1968, 146, No. 1, 18-23.

Wretmark, G. Mental and psychosomatic morbidity in peptic ulcer families. J. Psychosom.Res., 1960, 5, 21-31.

Author Altman Norma
Name of thesis Psychological factors in duodenal ulceration. 1974

PUBLISHER:
University of the Witwatersrand, Johannesburg
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