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**Lite Change and Illness in A Group o! Women Religious in the Midwest from March 11 1978, through March 1, 1979**

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Life Change and Illness in A Group of Women  
Religious in the Midwest from March 1, 1978, through  
March 1, 1979

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## Table of Contents

Abstract	1
Chapter 1 "Stress"	2
Stress Defined	2
Evolution of the Stress Concept	7
The Laboratory Approach to the Concept of Nonspecificity	9
Syntoxic and catatoxic Responses	17
Raising the Body's Thermostat of Defense	20
The Relativity of Specificity in Disease and Treatment	22
The Impact of Life Change	25
Seriousness of Illness	28
Chapter 2 "Religious Life"	30
Changes in Religious Life	30
Sources of Stress in Ministry	32
Kenosis	34
Personal Identity	35
Celibacy	36
Unresolved Issues	36
Change and Illness in Women Religious	37
Chapter 3 "Current Research Project"	39
Chapter 4 "Method"	42
Subjects	42
Procedure	44

Results	46
Discussion of Results	48
Chapter 5 "Implications of this Study"	53
Stress Control	56
Unstressing the Mind	60
Unstressing the Emotions	62
Unstressing the Body	64
Psychological and Neurological Trends	66
Toward a Holistic Approach to Medicine	68
References	70
Figures	72
Tables	79
Appendices	89
Glossary of Stress Terms	94
Glossary of Religious Terms	99

### Abstract

Four hundred twenty-five women religious from one order, residing in the midwestern states of Minnesota, Illinois, Missouri, Texas and Louisiana, were mailed a questionnaire designed to determine the amount of stress experienced in one year, and the amount of illness suffered by those same persons during the same time period. Two hundred fourteen sisters responded to the questionnaire. Analysis of data by age groups revealed positive correlations between life stress and illness. Comparison of illness scores between older and younger sisters showed no significant differences. Young sisters tended to have high stress and illness scores, whereas older sisters had lower stress scores, but higher amounts of illness. The higher illness scores among older sisters seemed to be accounted for by an increase in the number of chronic, age-related illnesses, rather than a change in the incidence of acute illness. The greatest stressor reported by sisters of all ages was the lack of sufficient time- time for prayer, retreat, vacation, home visit, planning of ministry, personal renewal, friends, and self.

## Chapter 1 "Stress"

### Stress Defined

Recent research studies document the association between a person's life stress and change in ongoing adjustment with subsequent illness in the individual (Holmes 1967) (Wylers 1971). Until Anderson's study (1975), it was not known how the relation between stress and ongoing adjustment and subsequent illness applied to women living in religious life. This author investigated the relationship between amounts of life change, ongoing adjustment and illness experienced by women religious during the same year.

Stress has been defined as "the nonspecific response of the body to any demand made upon it" (Selye 1976). A demand is a request or a need. The notion being conveyed here is that change in the internal or external environment disturbs the balance of the body. An adjustment is necessary. That adjustment is what Selye terms "stress." Some examples are shivering when chilled, perspiring when hot, or drinking when thirsty. A football player intercepting a pass makes increased demands upon his musculature and cardio vascular system as he attempts to out run his pursuers into his endzone for a touchdown. His muscles will demand supplemental energy to continue running. His heart will beat more rapidly and strongly. His blood pressure will rise causing vessels to dilate, thus increasing the flow of blood to his muscles.

In each of the above examples, a demand was made upon the body. In-

Initially the demand is perceived as being general or nonspecific. Mechanisms alerting the brain help it to translate a general demand into some specific adaptive action.

An adaptive response is the attempt of the organism to return to a normal or balanced state. For example, shivering when chilled generates warmth for the organism. Perspiring when hot produces a cooling effect on the body. Drinking water or some other liquid when thirsty replaces fluids lost by the body.

The word "stress," like "success," or "failure" or "happiness," means different things to different people, so that defining it is extremely difficult even though it has become part of our daily vocabulary. Is stress a synonym for distress? Is it effort, fatigue, pain, fear, the need for concentration, the humiliation of censure, the loss of blood, or an unexpected great success which requires complete reformulation of one's life? The answer is yes and no. That is what makes defining stress so difficult. Every one of these conditions produces stress, but none of them can be singled out as being "it," since the word applies equally to all the examples given. How can stress be coped with if it cannot be defined? This chapter will try to explain what stress is.

When we say that someone is "experiencing stress," we mean that many situations are making demands upon an individual. These demands may be emotional, psychological, or physiological. Much of the stress experienced in the modern world today is caused by emotional and psychological

factors (Selye 1976). "Experiencing stress" usually means that an individual does not seem to be able to adequately manage all of the situations. The individual's body therefore, would not be able to maintain the steady level of existence required to remain healthy. Here is a hypothetical case. Close friends of Sister Zela say that she seems to be "experiencing stress." Zela is 38, has been in good health, and is principal in a lower middle class parochial school.

Zela is worried about her alcoholic mother who is refusing to admit to a drinking problem. Zela's father manages to be "away from home more and more." Zela is the youngest child. Because she happens to live in the same town as does her parents, and because she is "not burdened with raising a family" as are her sister and two brothers, Zela feels that it is her responsibility to encourage her mother to seek treatment. Recently Zela's best friend left religious life giving little explanation to Zela. She feels that had she given the friend more of her time and self the friend would not have left. Zela has also lost another close friend through a misunderstanding. Zela feels this keenly.

Though appreciated and supported by her community and by her superior, Zela finds being principal, teaching 3 history classes, and being available to faculty and to students too much for one person. She feels obligated to maintain the "high quality of education" that the school has "always offered." Because of inflation and the poor income of the families whose children attend the school, Zela realizes that hiring



another teacher would place an enormous financial burden on the parish. Zela feels "overworked." Most of her waking hours are spent in the office. She is there in the evenings and during much of the weekend because she cannot finish everything during the day. Zela has felt tense, irritable, and fatigued lately. She has not had a real vacation for some time. She would love to take several administrative courses to become a more effective principal. But when would she find the time in a summer already crowded with retreat, home visit, managing her school's 4 week summer school session, and two obligatory Province meetings for principals and elementary school personnel.

Zela has little time to relax, or to enjoy her sisters, her friends, or herself. Zela is concerned about her prayer. Much of the time is spent in warding off distractions and fatigue. She feels depressed. She cannot pinpoint the cause of the depression. She is not sure that she could discuss it with anyone. It's just an inner, gnawing feeling.

The school was broken into several times and valuable equipment was stolen. She worries about the school's lack of security. The other evening her purse was snatched as she walked home from school.

In the last few months Zela has experienced chest pains and some difficulty breathing. Though these ailments have passed, they occur more frequently and Zela wonders what causes it. Her superior and friends have urged her to take a week or so off, telling her that she looks tired and thin. Zela is probably a victim of stress. We will meet her

again later in the paper.

Although stress conveys a negative impression, stress can be pleasant or unpleasant. From the point of view of the stress-producing or stressor activity "it is immaterial whether the agent or situation faced is pleasant or unpleasant. What matters is the intensity of the demand for readjustment or adaptation. For example, a wife listening to the radio suffers a terrible shock when she hears that flight 926 from New York has crashed. Her husband was returning home on that flight. Several hours later her husband calls to assure her that he is all right. He explains that the business deal took longer than planned and so he was not able to make that flight. His wife is overjoyed. The specific results of the two events, sorrow and joy, are completely different. The emotions are opposed to one another. Yet their stressor effect- the nonspecific demand to readjust herself first to grief, then to joy are the same (Selye 1976).

It is difficult to see how essentially different things such as cold, heat, grief or joy can provoke an identical biochemical reaction in the body. Selye (1956) and Cannon (1929) demonstrated by highly objective quantitative biochemical determinations, that certain reactions are totally nonspecific and common to all types of exposure.

Stress is not something to be avoided. Complete freedom from stress is death (Selye 1956). That stress can be associated with pleasant or unpleasant experiences is illustrated in Figure 1. Notice that the physiological stress level is lowest during indifference but never goes down

to zero (zero would be death). Pleasant as well as unpleasant emotional arousal is accompanied by an increase in physiological stress (but

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Insert Figure 1 about here

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not necessarily in distress). Distress is harmful, unpleasant stress.

This same diagram could be used to show stress produced by different degrees of stimulation if the label "Extremely unpleasant" on the left were replaced by "Deprivation" (understimulation) and "Extremely pleasant" on the right by "Excess" (overstimulation). According to this hypothesis, deprivation or stimuli and excessive stimulation are both accompanied by an increase in stress, sometimes to the point of distress.

#### Evolution of the Stress Concept

The concept of stress is as old as history. At some point, it probably occurred to prehistoric man that the loss of vigor over the years, that the feelings of exhaustion resulting from hard labor, prolonged exposure to heat or cold, etc., must all have had something in common. Though he might not have always recognized the similarity of responses, eventually he must have recognized the times he exceeded the limits of what he could reasonably handle. Later individuals must have discovered that when they were faced with a prolonged and unaccustomed hardship, such as swimming in cold water, lifting rocks or going without food—their reactions followed a pattern: first the experience was difficult, then they got used to it. If the activity continued, they experienced

exhaustion and were not able to stand it any longer.

Early students of the stress concept failed to distinguish between distress which is always unpleasant, and the general concept of stress, which would include pleasant experiences of joy, fulfillment, and self-expression.

It was the French physiologist Claude Bernard who in the late 19th century, first pointed out clearly that the internal environment (the milieu intérieur) of a living organism must remain fairly constant, despite changes in its external environment. He realized that "It is a fixity of the milieu intérieur which is the condition of free and independent life." (Selye 1956)

About fifty years later Cannon suggested that "the coordinated physiological processes which maintain most of the steady states in the organism" should be called "homeostasis" (from the Greek homoiōs, meaning similar, and stasis, meaning position), the ability to stay the same, or static. Homeostasis might roughly be translated as "staying power" (Cannon 1953).

Everything inside the skin is the milieu intérieur- the internal environment. The skin tissue itself is part of this environment. A person's milieu intérieur is that person- or at least the environment in which lives all the person's cells. In order to maintain a healthy life, nothing within the person must be allowed to deviate far from the norm. If there is too much deviation, the person becomes sick and could

die.

As mentioned earlier, Cannon discovered that all living organisms seek a stable level of existence- homeostasis. Bernard's milieu intérieur- the environment in which all or a person's cells exist seeks this stable level or homeostasis also. A certain amount of stress is involved in maintaining homeostasis, just as stress and tension are involved in the design and construction of a bridge, a building, or a domed stadium. Deviation from homeostasis entails stress. The sun beating down on a person's skin (part of the milieu intérieur) will cause a rise in body temperature. the person will perspire in an effort to return to normal body temperature. If the person continues to remain exposed to the sun, the throat will become dry and the skin will burn. Homeostasis is upset. The body will demand adaptation- liquid to restore lost body fluids, a covering to protect the skin from the sun's rays. Continued deviation from homeostasis will lead to the person's becoming ill, and possibly dying.

#### The Laboratory Approach to the Concept of Nonspecificity

In 1926, as a second year medical student, Selye first came across the problem of a stereotyped response to any exacting demand made upon the body. He wondered why patient's suffering from the most diverse diseases had so many common symptoms. Selye noted that whether a person suffered from a severe blood loss, an infectious disease, or advanced cancer, that person lost appetite, muscular strength, and ambition to accomplish things. Selye noted that the individual lost weight and that

even the facial expression betrayed illness. He wondered what the basis was for what he termed "the syndrome of just being sick." He began to wonder how different stimuli could produce the same result.

In 1936 the problem presented itself again, this time under conditions more suited to laboratory analysis. Selye observed that in the course of his experiments in which rats were injected with various impure toxic gland preparations that, regardless of the tissue from which they were made or their hormone content, the injections produced a stereotyped syndrome characterized by enlargement and hyperactivity of the adrenal cortex, shrinkage (or atrophy) of the thymus gland and lymph nodes, and the appearance of gastrointestinal ulcers.

It became evident from animal experiments that the same set of organ changes caused by the glandular extracts could also be produced by cold, heat, infection, trauma, hemorrhage, nervous irritation, and other stimuli. Selye realized that he had an experimental replica of the syndrome of "just being sick," a model that could be quantitatively appraised. For example, now the effects of the most diverse agents could be compared in terms of the adrenal enlargement or thymus atrophy that they produced. Selye first described this reaction in 1936, as a "syndrome produced by various noxious agents" and subsequently became known as the general adaptation syndrome (G. A. S.) or the biological stress syndrome. its three stages- (1) the alarm reaction; (2) the stage of resistance; and (3) the stage of exhaustion are illustrated in figure 2.

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Insert Figure 2 about here

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Since 1936 a number of additional biochemical and structural changes of previously unknown origin have been traced to nonspecific stress. Among these, much attention has been given to changes in the chemical constituents of the body and to nervous reactions. Much progress has been made in the analysis of hormonal mediation of stress reactions. It is now generally recognized that the emergency discharge of adrenalin represents only one aspect of the acute phase of the initial alarm reaction to stressors. Equally important in the maintenance of homeostasis (the body's stability) is the hypothalamus-pituitary-adreno cortical axis, which probably is responsible for the development of many disease phenomena as well. This axis is a coordinated

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Insert Figure 3 about here

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system consisting of the hypothalamus (a brain region at the base of the skull) that is connected with the pituitary gland (hypophysis), which regulates adrenocortical activity. The stressor excites the hypothalamus (through pathways not yet fully identified), to produce a substance that stimulates the pituitary to discharge the hormone ACTH (for adreno-corticotrophic hormone) into the blood. ACTH in

turn induces the external, cortical portion of the adrenal to secrete corticoids. These elicit thymus shrinkage, simultaneously with many other changes, such as atrophy of the lymph nodes, inhibition of inflammatory reactions, and production of sugar. Another typical feature of the stress reaction is the development of peptic ulcers in the stomach and intestines. Their production is facilitated through an increased level of corticoids in the blood. The autonomic nervous system also plays a role in eliciting ulcers.

The history of the G.A.S. suggests that the key to real progress was the discovery of objective indices of stress, such as adrenal enlargement, thymus atrophy, and gastrointestinal ulcers. These signs were known to some physicians long before any knowledge of a nonspecific stress syndrome. In 1842, the British physician Curling described gastrointestinal ulcers in patients who suffered extensive skin burns. In 1867 a Vinneise surgeon Billroth reported similar findings after major surgical interventions complicated by infections. At that time there was no conceivable reason to connect these lesions with other organ changes that today would be regarded as parts of the stress syndrome. For example, organ changes were observed at the pasteur Institute in Paris, by Roux and Yersin, who noted that the adrenal glands of guinea pigs infected with diphtheria were often enlarged, bled, and hemorrhagic (from Selye 1974). None of these physicians knew about the work of the others.

The triphasic nature of the G.A.S. gave Selye the first indication



that the body's adaptability, or adaptation energy, might be finite. Animal experiments have shown that exposure to cold, muscular effort, hemorrhage, and other stressors can be withstood just so long. After the initial alarm reaction, the body becomes adapted and begins to resist, the length of the resistance period depending upon the body's innate adaptability and the stressor's intensity. Continued exposure to the stressor results in exhaustion.

Precisely what is lost is still not known, except that the loss is not merely caloric energy, since food intake is normal during the stage of resistance. Given the normal food intake, one would think that once adaptation has occurred, and energy is amply available, resistance should go on for an indefinite time period. Just as any inanimate machine gradually wears out, even with sufficient fuel, so does the human machine sooner or later become the victim of constant wear and tear (Selye 1974).

To date there is no precise scientific method for measuring adaptation energy (the energy necessary to acquire and maintain adaptation apart from caloric requirements). Experiments with laboratory animals offer rather convincing evidence that the capacity for adaptation is finite. The reserves of adaptation energy could be compared to an inherited fortune from which withdrawals can be made, but there is no proof that additional deposits can be made. Caloric intake maintains

our energy level. When in a state of homeostasis, the energy is held in reserve. When a demand is made upon the body, e.g., shivering to keep warm, energy is used to return the organism to a state of homeostasis.

According to Selye's theory of adaptation, energy, living organisms are finite. The energy supply seems to last just so long. As the organism ages, the energy supply seems to become used up. The organism dies when the energy supply is used up (Selye 1976).

Cannon, in his classic book The Wisdom of the Body (1953), summarized his life work on the distinct mechanisms which maintain the normalcy of sugar, protein, fat, calcium, oxygen, and temperature of the blood, as well as many other individual specific adaptive mechanisms. Cannon laid the basis for a systematic analysis of the separate adaptive phenomena indispensable for the maintenance of life under special conditions. Cannon never touched on the role of the pituitary or the adrenal cortex: hence, it would have been difficult for him to explore the possible existence of nonspecific adaptive reactions that could play a part in coping with virtually any kind of demand.

One important link was still missing: the link connecting all these scattered observations on different agents and different results as merely individual manifestations of a single co-ordinated syndrome. How could the same reaction produce different lesions? There were two obstacles in the way of formulating the concept of a single stereotyped

response to stress:

1. Qualitatively different stimuli of equal toxicity (or stressor potency) do not necessarily elicit exactly the same syndrome in different people.
2. Even the same degree of stress, induced by the same stimulus, may produce different lesions in different individuals (Selye 1977).

It took a number of years to show that qualitatively distinct stimuli differ only in their specific actions. Their nonspecific stressor effects are essentially the same.

The fact that the same stressor may cause different lesions in different individuals has been traced to "conditioning factors" that can selectively enhance or inhibit one or the other stress effect. Thus conditioning may be internal (genetic predisposition, age or sex) or external (treatment with certain hormones, drugs or dietary factors). Under the influence of such conditioning factors (which determine sensitivity), a normally well-tolerated degree of stress can become pathogenic and cause "diseases of adaptation," selectively affecting the predisposed body area.

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Insert Figure 4 about here

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As figure 4 illustrates, every agent possesses both stressor and specific effects. The former are nonspecific by definition, being common

to diverse stimuli, whereas the latter are variable and characteristic of each individual agent. The response does not depend exclusively upon these two actions of the stimulus: the reactivity of the target also plays a role and this can be modified by numerous internal or external conditioning factors. It is clear that, since all stressors have some specific effects, they cannot always elicit exactly the same response. Even the same stimulus will act differently in different individuals, depending upon the internal and external conditioning factors which determine how each will react (Selye 1975).

The concept of conditioning, as briefly discussed above, and the hypothesis that certain diseases are caused by "derailments" of the G.A.S. mechanism, have clarified the relations between physiology and pathology of stress in numerous fields.

As has been explained, any kind of activity sets the stress mechanism in motion, though it will largely depend upon the accidental conditioning factors whether the heart, the kidney, the gastrointestinal tract, or the brain will suffer most. In the body, as in a chain, the weakest link breaks down under stress although all parts are equally exposed to it. Medical evidence has documented this.

Obviously, every disease causes a certain amount of stress, since it imposes demands for adaptation upon the organism. In turn, stress plays some role in the development of every disease. Its effects for better or for worse, are added to the specific changes characteristic of the disease

in question. This is the reason why the effect of stress may be curative (various forms of shock therapy or occupational therapy) or damaging, depending upon whether the biochemical reactions characteristic of stress (for example, stress hormones or nervous reactions to stress) combat or accentuate the trouble. Some diseases in which stress plays a particularly important role are high blood pressure, cardiac accidents, gastric or duodenal ulcers (the "stress ulcers"), and various types of mental disturbances.

#### Syntoxic and Catatonic Responses

Selye's biochemical analysis of the stress syndrome showed that homeostasis depends mainly upon two types of reactions: syntoxic (from the Greek syn meaning together) and catatonic (from the Greek cata meaning against). Apparently, in order to resist different toxic stressors, the body can regulate its reactions through chemical messengers and nervous stimuli which either pacify or incite to fight. The syntoxic stimuli act as tissue tranquilizers, creating a state of passive tolerance which allows a kind of symbiosis, or peaceful coexistence with aggressors. The catatonic agents cause chemical changes mainly through the production of destructive enzymes, which actively attack the disease producer (pathogen), usually by accelerating its degradation within the body.

It has been presumed that, during the course of evolution, living beings have learned to defend themselves against all kinds of assaults (whether arising in the body or coming from its environment) through

two basic mechanisms which help us put up with aggressors (syntoxic) or destroy them (catatoxic) (Cannon 1929). Among the most effective syntoxic hormones are the corticoids. Of this group, the best known members are the anti-inflammatory corticoids, such as cortisone and its artificial synthetic derivatives, which inhibit inflammation and many essentially defensive reactions. These syntoxic hormones are being effectively used in the treatment of diseases in which inflammation itself is the predominant cause of trouble, (for example, certain types of inflammation of the joints, eyes, and respiratory passages). They also have a marked inhibitory effect on the immunologic rejection of grafted foreign tissues (a heart transplant, or a kidney transplant).

Why would it be advantageous to inhibit inflammation or the rejection of foreign grafts, since both phenomena are essentially useful defense reactions? The main purpose of inflammation is to localize irritants (for example, microbes) by placing a barricade of inflammatory tissue around them. This prevents their spread into the blood, which could lead to blood poisoning and death. However, suppressing the basic defense reaction is an advantage when a foreign agent is in itself innocuous but acts as an agent provocateur, causing trouble only by inciting inflammation. In this case, inflammation itself is what is experienced as a disease. Hence, for many people who suffer from hay fever or extreme inflammatory swelling after an insect sting, suppression of defensive inflammation is essentially a cure. This is because the in-

vading stressor agent is not in itself dangerous or likely to spread and kill. In the case of grafts, it may even be lifesaving.

Direct pathogens cause disease irrespective of the body's reaction, whereas indirect pathogens produce damage only through the exaggerated and purposeless defensive responses they provoke. For example, a person accidentally exposes his hand to a strong acid, alkali, or boiling water. Damage will occur irrespective of his reactions, because these are direct pathogens. Direct pathogens would cause damage to the body of a dead person who obviously could not offer any vital defense reaction. On the other hand, most common inflammatory irritants, including allergens, are essentially indirect pathogens, which do not themselves cause disease, but are damaging because they stimulate an inopportune and harmful fight against what is innocuous.

During the course of evolution, immunologic reactions, which led to destruction of microbes, grafts, and other foreign tissues, undoubtedly developed as useful protective mechanisms against potentially dangerous foreign materials. But, as in the case of many allergens, heart transplants etc., the attack against the foreign agent is unnecessary or harmful. In such a case, we can do better than Nature by suppressing this hostility.

Yet when the aggressor is dangerous, the defensive reaction should not be suppressed. On the contrary, one must attempt to increase it

above the normal level. This can be done by the use of catatoxic substances, which carry the chemical order for the tissues to attack the invaders even more actively than would normally be the case.

#### Raising the Body's Thermostat of Defense

Selye's research revealed that homeostasis largely depends upon the appropriate production of syntoxic and catatoxic agents by the body in response to potential pathogens which threaten the "fixity" of the milieu intérieur and hence, of survival. It is possible to improve upon these remedies of Nature by synthesizing them (or similar more effective substances) and adjusting their balance in the body to meet its requirements. In other words, in all such instances, benefit depends either upon the appropriate spontaneous production of these substances by the body or (when the body mechanism is faulty) upon corrective administration of similar defensive compounds by a doctor.

Normally, a natural mechanism is usually adequate to maintain a normal state of resistance: but, when faced with unusually heavy demands, ordinary homeostasis is not enough. The "thermostat of defense" must be raised to a higher level. Selye proposed the term "heterostasis" (heteros, meaning other: stasis, meaning position) as the establishment of a new steady state by treatment with agents which stimulate the physiological adaptive mechanisms through the development of normally dormant defensive tissue reactions. In both homeostasis and in heterostasis, the milieu intérieur participates actively.

The production of natural protective agents can be stimulated, for



introduction of catatoxic or syntoxic enzymes, or by immunization with bacterial products which increase the manufacture by the body of serological antibodies against infections (for example, by vaccination).

In homeostatic defense, the potential pathogen (which threatens the fixity of the milieu intérieur) automatically sets into motion usually adequate catatoxic or syntoxic mechanisms: when these fail to suffice, such natural catatoxic or syntoxic agents can also be administered ready-prepared by a doctor. Heterostasis depends upon treatment with artificial remedies which have no direct curative action, but which can teach the body to produce unusually high amounts of its own natural catatoxic or syntoxic agents so as to achieve fixity of the milieu intérieur, despite abnormally high demands that could not be met without outside help.

The most salient difference between homeostasis and heterostasis is that the former maintains a normal steady state by physiological means, whereas the latter "resets the thermostat" of resistance of a heightened capacity for defense by artificial intervention from the outside. Figure 5 shows this.

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Insert Figure 5 about here

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Heterostasis teaches the body, by chemical or non-chemical treatment, how to raise the production of its own natural non-specific (multipurpose)

remedies. Each type of "intellectual teaching," or planned and enforced physical training, also raises resistance from the homeostatic to the heterostatic level, through outside interventions. For example, jogging, regular exercise, proper diet and sufficient rest are examples of heterostasis.

Heterostasis differs essentially from treatment with drugs (antibiotics, antacids, antidotes, and pain killers). Drugs act directly and specifically on the body rather than strengthening the body's natural nonspecific defenses. In treatment with drugs, the milieu intérieur is passive.

#### The Relativity of Specificity in Disease and Treatment

Selye characterized stress as a "nonspecific response," in his definition of the term. In discussing the historical development of the concept, Selye emphasized that specific homeostatic mechanisms for the maintenance of blood sugar, temperature, pulse rate, blood pressure, and so on, had been the life long study of Cannon and his students. Specific remedies against various diseases had been known for a number of years. Selye's work was concerned mainly with the nonspecific response of the body to any demand made upon it- the stereotyped reaction to whatever type of adaptive process is required.

Analysis of the biochemical mechanisms of non-specific homeostasis showed that these non-specific homeostatic responses depended primarily on the automatic adjustment of the manufacture by the body of "stress

hormones," through feedback mechanisms which adjust supply to demand. As has been explained, heterostasis only helps the body reset these feedback mechanisms to a higher level through interventions from the outside. Thus, the body's own normally dormant capacities for producing defensive compounds are raised to levels far above those required for resistance to commonly encountered demands.

The defensive hormones (particularly the syntoxic corticoids and the chemically related catatoxic hormone derivatives, such as PCN [Pregnenalone-16 $\alpha$ -carbonitrile] ) share the property of increasing resistance to a great many potentially pathogenic agents. They are non-specific, multipurpose remedies, but only for the particular variety of agents against which they can protect. Nothing is completely nonspecific: there is no such thing as a cure-all. It must be clearly understood, therefore, that specificity and nonspecificity, both in disease and in treatment, are relative concepts.

In speaking about stress in relation to homeostasis, heterostasis, and the diseases of adaptation, Selye emphasizes the nonspecific element because of its broad implications. Heterostasis, as already discussed, awakens or stimulates the body's ability to produce immunologic antibodies. The majority of these antibodies are highly specific, but some are more or less nonspecific in offering protection against various diseases. The production of all or them, though, depends on homeostatic feedback mechanisms, since the demand itself stimulates the manufacture

of the particular required curative compound. Through heterostasis, one can also induce the production of protective antibodies in animals, but if the resulting products are then injected into patients who need them, the results is not heterostasis, but drug therapy, as is treatment with antibiotics, antidotes, cardiac stimulants, and other remedies of varying degrees of specificity.

we have discussed how the same hormone or reaction can produce different lesions through concurrent treatment with "conditioning agents," which direct the stimulus to act in qualitatively different ways and on different organs. It is this close intertwining of the specific and nonspecific that represents the largest conceptual hurdle to a full understanding of modern concepts about stress and distress. The main point to understand is that heterostasis, in the sense in which it is discussed in this paper, represents an excellent example of how to teach the body to raise its resistance and how to adapt, using clearly identifiable chemical instructors (Selye 1975).

This discussion furnishes a tangible objective basis for discussions to come, which will attempt to show a correlation between stress and illness in human beings. In other words, the laws of self-preservation, as exemplified by the chemical feedback mechanisms regulating resistance to nonspecific stress (and to some specific agent), are inherent in the subcellular structure of all living organisms and therefore, furnishes natural guidelines for behavior in our daily lives as long as our bodies

are able to maintain a homeostatic state. Stress ensues when this state of balance is upset.

### The Impact of Life Change

Wolff (1968) began studies of the onset of illness in the 1930's at Cornell University Medical College and New York Hospital. During the course of his work, he discovered convincing evidence that common, every day events played a role in the etiology of a host of diseases including many never previously considered "psychosomatic,"- colds, skin disorders, tuberculosis, for example. In interviews with thousands of patients, Wolff and his colleagues, among them Holmes, learned that visits by mother-in-law frequently preceded the onset of common colds.

In a continuation of these studies, Holmes and other researchers (1962) interviewed many hundreds of tuberculosis patients between 1949, and 1962. In nearly every case examined, the researchers found that victims of tuberculosis had experienced increasing life change before falling ill. These changes included jail terms, financial problems, marital separations, job changes, personal injury, and changes in residence. They also discovered that the precipitating changes were not always negative. Positive changes such as outstanding personal achievement, vacations, births of children appeared significant as well. The person's homeostatic level had apparently been upset. Many ordinary daily events seemed to trigger illness- mortgages, job changes, changes in financial situations. Many changes occurring at one time, whether

positive or negative, sometimes were too much for some persons to adapt to. Failure to adapt could result in illness. The above observations led, in time, to the collaboration between Holmes and Rahe, a neuropsychiatric researcher with the United States Navy. Holmes, Rahe and their colleagues (1964) assembled a list of life change events that had evolved from the tuberculosis studies. Thousands of persons from all walks of life in the United States, Japan and Western Europe were asked to rank these events in terms of the amount of stress they caused. Incredibly, in all countries, regardless of age, income, occupation, sex, religion, or education, there was widespread agreement among people as to which life changes they considered most stressful, for example, death of a spouse, divorce, personal illness or injury and being fired, and which were relatively less stressful, such as vacation, Christmas, and minor violations of the law. Using this data, Holmes and Rahe (1964) assigned numerical scores (for example, 50 to marriage as being pleasantly stressful, or 11 to minor violations of the law, as causing relatively little stress) to each of the life change events. Would accumulative life changes affect a person's health? They conducted a second study in 1966, to determine if this was the case.

In a large project, Holmes and Rahe (1967) began compiling life-change scores (indicating how many life changes patients had experienced in a given period of time) and medical histories for thousands of persons.

In the United States and Japan, regardless of walk of life, or life-style, the same striking pattern was present: those persons with high life change scores were more likely than their fellows to be ill in the following year. The "Social Readjustment Rating Scale" or "Life Change Scale" was published by Holmes and his colleagues in 1967. Since 1967, it has been retested numerous times in the United States, Western Eur-

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Insert Table 1 about here

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ope, and Japan (1967, 1969). The results are always the same. "Too much life change over a short period of time initiates illness, and the greater the amount of life change, the more serious the illness" (Holmes, Masuda 1967).

The "Social Adjustment Rating Scale" has been used by many persons to monitor amounts of life change. In using the scale, remember to factor in the number of times you have experienced the life events during the year or two time period you are working with. If you have changed your residence 3 times in two years you have accumulated 60 points (3 X 20) for that life event. Two vacations during the same time period would be 26 points (2 X 16) for that event.

All life changes are not necessarily bad. Many of life's changes cannot be escaped, nor should they be. "Change is the spice of life" wrote Selye in 1956. The key is to pace the number of changes (in so far

as is possible) you allow to happen in a year or two.

Holmes (1976) found that the higher an incident's life-change score within a period of twenty-four months, the greater was the likelihood of an illness onset. Among persons with over 450 life change units within a two year period, about 90 percent will become ill in the near future. With 300 units of stress, the illness rate will drop to 66 percent. With 150 units of stress about 33 percent will become ill. Obviously then, the higher one's present life change unit score, the more cautious one should be in taking on more life changes. That is crucial. Holmes (1967) discovered that the higher the life-change score, the more serious would be the illness contracted. One might not be able to avoid the 200 units that could precipitate a cold; but let that person's life-change score reach 500 or 600, and instead of a minor cold, the individual may develop pneumonia, an ulcer, experience a heart attack or become involved in a serious accident (Holmes 1967).

#### Seriousness of Illness

In 1971, Wyler, Masuda and Holmes published another paper related to life change. This paper was titled "Magnitude of Life Events and Seriousness of Illness." Earlier these same researchers had devised a "Seriousness of Illness Rating Scale" (1970). One hundred twenty-six illnesses were ranked by both physicians and laymen as to how "serious" they felt the illnesses to be. Peptic ulcers were assigned a value of 500. In terms of prognosis, duration, threat to life, degree of disability, and discomfort, test participants were asked to rate the illnesses using



peptic ulcers as a guide.

When all the data was collected, the combined rankings (least serious to

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Insert Table 2 about here

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most serious) looked like this:

Using the "Seriousness of Illness Rating Scale," Wyler (1970) investigated the relationship between the quantity of life change that patients underwent during the two years before the onset of their illness, and the seriousness of that illness. The sample represented 42 diseases experienced by 232 patients. There was a positive relationship between the magnitude of life change and the seriousness of illness. For the three time periods of 6 months, 1 year and 2 years prior to illness onset the correlation was 0.382, 0.321 and 0.356 respectively. When the diseases were separated into acute and chronic categories only the latter showed a highly significant positive correlation ( $r_s = 0.648$ ) in all time periods, while the former, contrastingly did not (Wyler 1971).

## Chapter 2 "Religious Life"

Changes in Religious Life

The Ecumenical Council- Vatican II (1962-1965) promulgated the "Decree on the Appropriate Renewal of the Religious Life" (1965). This document mandated all religious groups, men and women without exception to "return to their roots," (the spirit of their founders or foundresses).<sup>1</sup> Each group was mandated to renew their life in the "light of the Gospels," and the needs of the Church in today's world.

"The appropriate renewal of religious life involves two simultaneous processes: (1) a continuous return to the sources of all Christian life and to the original inspiration behind a given community and (2) an adjustment of the community to the changed conditions of the times. It is according to the following principles that such renewal should go forward under the influence of the Holy Spirit and the guidance of the Church:

a) Since the fundamental norm of religious life is a following of Christ as proposed by the gospel, such is to be regarded by all communities as their supreme law.

b) It serves the best interests of the Church for Communities to have their own special character and purpose. Therefore loyal recognition and safekeeping should be accorded to the spirit of the founders as also to all particular goals and wholesome traditions.

1. Founder/foundress: A religious leader who starts a group of religious persons under the inspiration of the Holy Spirit.

which constitute the heritage of each community.

c) All communities should participate in the life of the Church. According to its individual character, each should make its own and foster in every possible way the enterprises and objectives of the Church in such fields as these: the spiritual, liturgical, doctrinal, pastoral, ecumenical, missionary, and social.

d) Communities should promote among their members a suitable awareness of contemporary human conditions and of the needs of the Church. For if the members can combine the burning zeal of an apostle with wise judgements, made in the light of faith, concerning the circumstances of the modern world, they will be able to come to the aid of men more effectively.

e) ...the fact must honestly be faced that even the most desirable changes made on behalf of contemporary needs will fail of their purpose unless a renewal of spirit guides them. Indeed such an interior renewal must always be accorded the leading role even in the promotion of exterior works. ...

{3) The manner of living, praying, and working should be suitably adapted to the physical and psychological conditions of today's religious and also, to the extent required by the nature of each Community, to the needs of the apostolate, the requirements of a given culture, the social and economic circumstances anywhere; but especially in missionary territories.

The way in which communities are governed should also be re-examined in the light of these same standards. For this reason

Constitutions, directives, custom books, books of prayers and ceremonies, and similar compilations are to be suitable revised and brought into harmony with the documents of this synod. This task will require the suppression of outmoded regulations.

(4) Successful renewal and proper adaptation cannot be achieved unless every member of a community cooperates. ... In decisions which involve the future of an institute as a whole, superiors should in appropriate manner consult members and give them a hearing."

Quoted from "Documents of Vatican II" (1965)

The above quotation from the Vatican documents sets the background for the type of renewal that religious groups were mandated to make.

#### Sources of Stress in Ministry

Therapists working with religious men and women report that much of the stress experienced by religious today might stem from the fact that they lack a truly spiritual view of life. Some religious believe, but often they do not relate to the essentials of that belief- the rhythm of incarnation, death and resurrection manifesting itself in history- to the world in which they live. Believing (for some persons) has been a prescribed activity, something under the heading of acceptance of what is presented, rather than a dangerous and active commitment of themselves to life. Much of theology has been intellectual speculation. The best willed individuals raised and formed in a tradition that restricted the very opportunities essential for the development of a rich stable spirit-

uality- intimate contact with human life- have been handicapped and compromised in their quest for growth.

Perhaps the most cruel stress for many religious has been the fact that conformity was valued more highly than individuality. Untold damage has been done to many individuals who forced themselves to "fit the mold" in an attempt to conform to traditions. Once the "old-fashioned staples" of a proper spiritual life- the performance of one's spiritual exercises in glorious and peaceful isolation- were questioned, many persons simply stopped performing them. This was not so much a sign of collapsing faith as much as it was a sign of the inadequacy of certain highly intellectualized and personal spiritual styles. These exercises, routinely performed, no longer sustained many persons who had discovered that they were called to live in a world that was frequently turbulent and seldom predictable.

It is not the fault of religious for having willingly accepted their spiritual formation. Nor should they be criticized in their search for new sources of inner strength. The religious woman today finds herself as uncertain as the people she serves about how to deal with the demands and the difficulties of living in today's world. Many religious women might be lacking in some of the advantages that lay women seem to have. Religious women do not always have the emotional roots which offer not only a support system, but indispensable relationships which allow a person to glimpse the sacramental significance of the human experience.

While the realm of intimacy has been over-played, it is possible

that the systematic exclusion of close relationships, except with other women, has been a source of stress for many religious women. It should be noted that the spiritual formation of religious men and women of other faiths also emphasized a spirituality removed from the world. This has caused stress for many clergy members, who, while free to marry, experience conflict over the antagonism between emotions and intellect, spirit and flesh. It has been thought and accepted by many religious groups that to be spiritual, one had to be other worldly: the stress of trying to be so has always been enormous.

#### Kenosis

A possible source of stress stems from the nature of ministry. Few religious who have given themselves to the human situation that constitutes ministry are strangers to the concept of Kenosis. Kenosis is a Greek word used to describe Christ's emptying of Himself for others (Phil. 2:6-11). This is the essence of the call to ministry and the living and dying that are part of the daily effort of understanding and healing, of encouraging the young and burying the dead, of facing with hope the "loose ends" and injustices of life. This is the basis for identification with Jesus. The price paid by religious who take their ministry seriously is enormous, and rewarding.

It is small wonder that some religious are weary and discouraged by rules and guide lines that seem outmoded, and far from the Gospel and the needs of the Church today. Just saying "yes" to the absurdity of these rules and guidelines each day can be a profound experience and

a source of growth in faith and in redemptive strength. A more integrated spirituality is needed by many religious if they are going to bear the stress of being religious in season and out. Such persons need understanding and encouragement to seek and find the truth of the Gospels in the truth of their lives.

### Personal Identity

Self-inquiry and rightful concern should be a part of a person's spiritual and personal growth. A serious source of stress- one that eats at the heart of the daily existence of many religious is the question of personal identity. It is this author's belief that the question of personal identity must sooner or later be faced and answered if the person is to experience a sense of meaning, a sense of worth and purpose. "Who am I?" "Where am I going?" "Why am I here?" are profound moral questions. On the answers to these questions the religious person builds a life of spirituality, a sense of purpose and significance. One can hardly build a moral life on a personality that has not glimpsed its own flawed truth, its own need for redemption. No lasting base for faith or hope or love can be set in the unexamined structures of the self. Great is the suffering, and intense is the stress experienced by the religious who has never assumed full responsibility for the moral shape of her life. For many such individuals ministry is a vicarious sort of professional commitment, a following of the instructions of others, a borrowing of breath, and words from others. The word of the Spirit can only proceed from a true, if imperfect self.

## Celibacy

Celibacy is only one aspect of ministry, but a much publicized one at that. For a few religious celibacy is a condition of life to which a person under stress will adjust to in a variety of ways. The search for meaning in the celibate life is a powerful source of spiritual growth. The lack of evidence for a truly human exploration of celibacy is an indication of the failure of many religious men and women to take themselves seriously. Celibacy is accepted by many simply because it is the law. These persons echo sterile and intellectualized rationalizations that have no resonance in their beings.

Persons in any walk of life can learn from those who take the celibate ideal seriously. Celibacy, as lived by Jesus, is an attitude of heart that is essential to loving service in any state or walk of life. Celibacy is much more than just a question of not marrying. Celibacy is a call to profile a deeper self. It is a call not to use anyone, not to manipulate anyone for selfish ends. Celibacy attempts to break down the conditions we set on our personal relationships. It is a respect for the other as gift or mystery. It is a receptivity to all the faces of the human condition. Celibacy is a challenge to remain true to one's beliefs in the daily round of sacramental encounters with others. Celibacy is a challenge to take others seriously because we take ourselves seriously.

## Unresolved Issues

It was clear that any candidate for the papacy in 1978 had to promise



that he would reinforce traditional teachings of the Church on every question touching human sexuality. It seems that the bishops of the world want no more speculation and no more questioning of the Church's stand on marriage, divorce, birth control, or celibacy. Neither do they want anyone railing the question of fulness of ministry for women (ordination). The sign of this deep abiding conflict is the dramatic unwillingness of Church authorities to allow any more potentially disruptive discussion of these questions. While this might make sense from an administrative point of view, it solves nothing. It creates an impacted difficulty. The official Church does not want to face these questions any more than it wants to examine homosexuality, or any other real but largely suppressed issue. So, these difficulties abide and are intensified by the determination of Church officials to "close the book" on this dimension of existence (Kennedy 1979). Closing the book on some dimensions of existence might relieve tension for Church officials who shape the Church's policy and attitude on these issues. It adds to the stress of religious who come face to face with these issues in their ministry. Refusing to examine issues because they are controversial creates, rather than solves problems.

#### Change and Illness in Women Religious

Anderson (1975) conducted a study to investigate whether a positive relationship existed between the total adjustment necessary in one year of a sister's life and her likelihood of developing illness in the next year.

Sister Anderson modified Holmes and Rahe's "Social Readjustment Rating Scale" (1964) to fit the life style of women religious. Her scale of 46 items was called "The Social Readjustment Rating Scale for Women in Religious Life" (1975). Table 3 presents the Anderson scale.

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Insert Table 3 about here

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Each item was assigned its numerical rank for average magnitude of stress experienced by the 360 sisters in Anderson's randomly selected population. The scale was devised by totaling the numerical figures given by each of the 210 religious tested for each event and calculating the arithmetic mean score for each event and then dividing by 10. This method was used by Holmes in the original scale.

A self administered questionnaire was mailed to 982 women in three religious communities on the East Coast. Anderson asked each sister to check the life events she had experienced in one year and the illnesses she experienced in the following year. Anderson used Wyler's "Seriousness of Illness Rating Scale" (1968) to measure illness. Three hundred eighty questionnaires were returned in Anderson's project. Her study showed a positive relationship between the amount of life change units a sister experienced in one year of life, and the occurrence of illness the following year. Anderson's study also revealed that the greater the number of life change units, the more severe the illness would be.

### Chapter 3 "Current Research Project"

Anderson's study (1975) sparked this author's interest in further researching stress and illness in women religious.

The hypothesis for this study was: that there would be a positive correlation between the number of life changes a sister had experienced in one year, and the amount of illness she would suffer in the same time period. A self report method was used in this study.

For this study the author modified the Holme's and Rahe "Social Re-adjustment Rating Scale" (1967). Some items on the scale were not applicable to women religious e. g. death of a spouse, marital separation, divorce etc.. Items like these were dropped from the scale. Anderson's "Social Readjustment Rating Scale for Women in Religious Life" (1975) was also modified. Anderson's scale was devised in the early 1970's, a time when many religious groups were just beginning to change. Items such as "major change in amount of freedom permitted by rule/ custom," "major change in religious rule and constitution," "trouble between convents or convent and larger community" were not applicable to the group of women religious with which this author was working. This author was interested in pinpointing specific areas of stress. For example, "lack of sufficient time for retreat, vacation, home visit, and personal renewal," "lack of sufficient time for leisure, recreation or self on a weekly or daily basis," "insufficient time to enjoy community members or friends," and "insufficient time to prepare for ministry," are four life change experiences rather than just one or two.

The scale used in this study had 62 life change items, an increase of 50 percent compared with Holme's or Anderson's scale which had 43 and 46 items respectively. Participants in this study could have higher stress scores than Holme's or Anderson's subjects. This fact was taken into account.

Events included in this scale were positive experiences, such as close personal relationships, vacation, great personal achievement, as well as negative experiences such as the loss of a close personal friend through death or misunderstanding, being fired, or suffering a major illness or injury.

Wyler's "Seriousness of Illness Rating Scale" (1968) was modified to a list of 53 illnesses. Some items, e. g. "frostbite," "sharkbite," and "abortion," were not applicable to the group under study. It was felt that the less threatening the illness list, the more willing participants would be to disclose illness.

Anderson's study (1975) used a time interval of one year in measuring life change units and illness. In his study Wyler (1967) found that the highest stress and illness probability occurred in the last 6 months of the study. To further test Wyler's hypothesis that large amounts of life change in a short time can precipitate illness, this author investigated the relationship between the number of life change units a sister experienced in one year's time, and the amount of illness experienced by that sister during the same time period. Participants checked their life change units and their illnesses in the period of March 1, 1978 through

March 1, 1979.

A pilot study was conducted on the West Coast in April of 1979. Questionnaires identical to the one in this study were mailed individually to 16 sisters residing in California. Twelve sisters returned completed questionnaires. There was a significant positive relationship between the amount of experienced stress and illness during the time period of March 1, 1978, through March 1, 1979. A Spearman rank order analysis of that data yielded  $\rho = .90, p < .01$ . (Mangelsdorf, 1979).

Results of this study will be shared with the Provincial Team and with the members of the participating Province.

... were involved in the project. The population ... of Minnesota, Illinois, Missouri, Texas, and Louisiana. Forty percent of the active sisters were in a family situation. Ten percent of the active sisters were in other situations. Forty percent of the participating sisters were ...

Each of the sisters were mailed a personal letter explaining the project. Participation in the project was voluntary. Included with the letter were questionnaires listing life change events, and a list of

## Chapter 4 Method

Subjects

Subjects in this group were women religious belonging to a large, world wide order. These women ranged in age from 30 through 97. Age breakdown is represented below:

Age	Participants	Median Age	Q
30-39	29	33	3.0
40-49	29	44	2.1
50-59	24	54	2.5
60-69	52	65	2.1
70-79	44	73	2.0
80-89	32	83	2.0
90-99	4	95	3.5

Twenty-seven communities were involved in the project. The communities varied in size and were located in the mid-western states of Minnesota, Illinois, Missouri, Texas, and Louisiana. Forty percent of the active sisters were in a teaching ministry. Ten percent of the active sisters were in other ministries. Fifty percent of the participating sisters were semi-active or retired.

Procedure

Each of 425 sisters were bulk mailed a personal letter explaining the project. Participation in the project was voluntary. Included with the letter was a questionnaire listing 63 life change events, and a list of

illness.

Participants were instructed to check the life change events they had experienced from March 1, 1978, through March 1, 1979. After checking the life change events, participants were asked to rate on a scale of from 1-100 the amount of stress experienced for each item checked. In the questionnaire stress was defined as the "wear and tear on the body that results from daily living" (Selye 1975). Holmes (1964) and Anderson (1975) had given their participants definitions of stress comparable to the one used in this study.

Holmes (1964) had arbitrarily assigned a score of 50 to marriage on his "Social Readjustment Rating Scale." Neither Anderson nor this author arbitrarily assigned a number to any life event in their scales. It was briefly explained that stress could be positive or negative depending upon the life change event. The stress rating scale was described as follows: 1-25 indicated little stress. 26-50 indicated some stress. 51-76 meant a good deal of stress, and 76-100 indicated very much stress.

Included with the letter and the questionnaire was a list of 53 illnesses. Participants were asked to check (✓) the illnesses they had experienced during the same time period as the life change events, March 1, 1978, through March 1, 1979. Chronic illnesses were indicated by an (x). The Wyler "Seriousness of Illness Scale" (1967) was not used by the participants to determine how serious their illnesses were. Each sister indicated her present age. A two week time period was allowed for completing and

returning the questionnaires. Questionnaires were returned by bulk mail to Lindenwood College. Two hundred twenty questionnaires were returned, 6 of which were not completed. Fifty percent of the questionnaires were completed and returned.

### results

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Insert Table 4 about here

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Table 4 indicates the mean units of stress and the mean units of stress and the mean number of illnesses for each sister in each age group. Spearman rank order correlations (Spearman rank relies on the rank order of the scores rather than on the actual size of the score) were determined for each age group. There was a significant relationship between stress and illness at each age level.

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Insert Figure 6 about here

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Figure 6 is a bar graph presenting stress averages and illness averages for each age group. The illnesses are broken down into acute and chronic. In the questionnaire participants had indicated acute illnesses with a (✓) and chronic illnesses with an (x). Illness scores were totaled for each participant, and divided by the number of participants in that group.



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Insert Table 6 about here

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Table 6 is a further breakdown of the data presented in the bar graph in Figure 6. Table 6 breaks down the stress and illness scores as follows: Column one displays age groups and the number of participants in the total group. Columns two and three show the number of persons with stress scores above 1000, and the number of illnesses suffered by those participants. Column 4 shows the number of sisters with stress scores between 500 and 1000, and the average number of illnesses suffered by those sisters. Column 5 shows the number of sisters with stress scores 500 or below and the amount of illness suffered by those sisters.

Inspection of the data suggested that stress scores declined with age. Therefore the total group of 214 participants was divided into two groups- 30-59 year olds and 60-99 year olds. There were 82 thirty to fifty-nine year olds, and 112 sixty to ninety-nine year olds. A t test was done on the two groups to determine whether difference between stress and illness in the two groups were significant. No significant difference was found in the illness scores of the two groups ( $t(212) = 6.11, p > .05$ ). However, there was a significance between the stress scores of the two groups ( $t(212) = 3.33, p < .001$ ). Since there are no differences in illness scores between the younger and the older sisters, but there are differences

in stress scores, perhaps there is no true relationship between stress and illness and the obscured correlations within age groups is due to some third factor which is playing a larger role in the young than in the old. Such a third factor could be some weakness in the design of the questionnaire, inaccuracy of reporting, or the failure of memory associated with age.

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Insert Figure 7 about here

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Figure 7 shows the same data as Figure 6, the mean stress and illness scores for each of the age groups. The graph illustrates the high, mean stress scores for the sisters in their 30's, 40's and 50's.

Nineteen sisters had stress scores of 1000 or above. The mean illness score for this group (using Wyler's "Seriousness of Illness Rating Scale," 1968) was 2234.

Illness scores were also rated for the 19 participants with the lowest stress scores. The mean illness score for this group was 1510. Forty percent of the sisters having low stress scores were over 60. Their illness scores tended to be higher than sisters in lower age brackets with low stress scores. Age would probably be a factor for the 60 year olds and older with high illness scores. The numerous chronic illnesses reported by the elderly sisters were probably more age related than stress related.

Acute illnesses reported by sisters in all age groups were severe acute when measured on the Wyler Scale (1968). For younger sisters having high stress scores, numerous acute illnesses might indicate poor coping skills. Severe acute illnesses reported by older and less stressed sisters could probably be age related.

Further studies are needed in the area of life change and illness in women religious.

Table 5 indicates total group response to the questionnaire. The

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Insert Table 5 about here

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number in the left hand corner of the page indicates life change items ranked from most stressful to least stressful. The life change event is then stated. The first number in the right hand column of the page is the mean stress score. This score was obtained by totaling the scores for that item checked by participants who'd experienced it. That number was divided by the number of participants who had checked it. The number in the extreme right hand column indicates the number of persons who indicated the item as being stressful.

In the event that two or more "life change events" received identical majorities, rank was determined by the number of participants who had experienced the event. In the case where two "life change events" received an identical majority score, and an identical number of participants had checked the items, rank was determined by the seriousness of the

life event. For example, if "vacation" and "major personal illness or injury" each received a score of 48, and if 40 participants checked each event, "major personal illness or injury" was ranked ahead of "vacation" since suffering a major illness or injury is more serious than taking a vacation. Holmes and Rahe (1967) and Anderson (1975) used this method to rank their "life change events."

In this study, "being fired," and "being assigned to a ministry for which the individual had no attraction" received the highest stress scores- 82, and 80 respectively. A total of 19 persons checked both items. Many sisters in all age groups reported insufficient time for such things as prayer, friends, preparation for ministry, and self as being stressful. One hundred fifty-five persons indicated time management is some form as being stressful. The item receiving the lowest stress score was "days missed due to illness or injury." The author noted that positive life changes such as vacation, support of community and colleagues, enjoyment of present ministry, received low stress scores. This group seemed to perceive stress as being something mostly unpleasant or harmful.

#### Discussion of Results

This study seems to confirm Hqlme's (1967) and Anderson's (1975) hypothesis that many life changes experienced in a short period of time- one or two years, may precipitate illness in some persons.

Holmes (1967) and Anderson (1975) used two year time intervals in their studies. In another study, Holmes (1964) found that incidents of life

change increases and illness onset tended to occur toward the end of the reporting period. As life changes accumulated the possibility of illness onset increased. This author used a one year time period for rating both life change experiences and illness. The mean stress score for the total group was high. The mean illness score for the entire group was also high. Half of the participants in this study were 60 or older. High illness rates for this group, and a high illness score for the total group might be explained by age. Illness scores were derived by assigning 5 to each acute illness and 10 to each chronic illness. It would seem that whenever a large amount of life change is experienced in a short time period, the resulting stress in ongoing adaptation to the change is likely to precipitate illness in some persons.

The findings of this study revealed that many persons experienced a lot of life changes. These persons are also experiencing illness. This may be due to inadequate coping strategies.

Anderson (1975) used the Wyler scale (1968) to rate the seriousness of illness of her participants. In doing this for the 19 highest stress scores, this author noted that many of the illnesses experienced were severe acute illnesses according to Wyler's scale (1968). Acute illnesses reported in this study included anemia 312, depression 344, arthritis 468, kidney stones 499, chest pain 609, and stroke 774.

This finding of severe acute illness in sisters with high stress scores is consistent with Holmes' (1964) hypothesis that many life changes in a

short time span can precipitate serious illness. The 30-69 year olds in this study had relatively high stress scores. Many sisters having high stress scores reported that they had suffered from 3 to 7 or more acute illnesses. This could provide further evidence for Holmes (1964) finding.

Butler (1977) states that as the body ages, an individual tends to accumulate chronic illnesses. In the 70-97 year olds the number of acute illnesses remained about the same as the chronic illnesses. Further research is needed in this area.

Anderson (1975) noted a decrease in the number of illnesses reported by the older sisters in her study. In this study, reported illnesses increased with age. Neither study documented the accuracy of report. Dissimilar findings of reported illness in the elderly indicate a need for further research in this area.

Lower stress scores for older sisters in both the Anderson study and this study may be due to a difference in experiencing and reporting life change events and their effects. Also, older sisters tend to be more settled into a life-style, ministry, and in some cases, residence. They tend to hold more to tradition, and so change more slowly than do their younger counterparts.

Younger sisters, on the other hand, are less settled in residence. They are changing ministries more readily, and may be more easily influenced by changes and trends in the Church. They may be much more

prone to make numerous life changes over a short period of time. They may therefore, be more vulnerable to illness.

In this study the element of time seemed to be a major stressor. Some sisters in all age groups seemed not to have sufficient time for themselves, for friends, for leisure on a daily or weekly basis, for vacation, home visit, or personal renewal. A number of sisters indicated not enough time to adequately prepare for their ministry on a daily or weekly basis. It would be interesting to study the "time pressure" felt by religious, and the "time pressure" experienced by lay women.

"Stress is the wear and tear on the body resulting from daily life" (Selye 1976). This was the definition of stress given to the participants in this study. Lack of sufficient time for self, others, leisure, can cause much stress. Individuals may feel they must accomplish everything they've taken upon themselves, and so discover that 24 hours is not sufficient time to carry out all the tasks they've taken on. Fatigue and frustration may result. Resistance to stressors becomes low. Homeostasis within the milieu intérieur is continually disturbed. Illness may easily result.

In spite of the fact that it was pointed out that stress could be either positive or negative depending upon the event, many sisters in this study seemed to think of stress as only being negative. Notes and

comments in the questionnaire to the author indicated this attitude.

Many sisters noted that they did not check vacation, support of community and colleagues, friends, and close personal relationships because they were pleasant or enjoyable.

they are experiencing. It is possible that in a specific time period like the one used for this study, March 1, 1978, through March 1, 1979, that some sisters were "in the process" of adapting to some of their life changes. If given more time, and no more life changes, some sisters might eventually cope well with the life change they now find stressful. Some of the stress may be responsible for the high illness scores.

Religious superiors ought to be aware of the amount of change a sister has experienced, and how well she has adapted, before initiating more change.

Earlier in this paper we met Julia, a hypothetical case of a stressed religious woman. Let us consider some of the life changes that she is adjusting to: (See Table 5)

- |  |    |
|--|----|
| 1. Change in relationship w/ family (alcoholic mother)                                 | 23 |
| 2. Loss of a friend through misunderstanding, and loss of a friend from religious life | 23 |
| 3. Lack of time to prepare for classes, and to be available as principal               | 24 |
| 4. Victim of a crisis  | 24 |
| 5. Inefficient time to enjoy community or friends                                      | 25 |



## Chapter 5 "Implications of This Study"

This study revealed a group of women religious experiencing many life change events. The amount of stress reported by the group would indicate that many sisters coping skills are not adequate to the changes they are experiencing. It is possible that in a specific time period like the one used for this study, March 1, 1978, through March 1, 1979, that some sisters were "in the process" of adapting to some of their life changes. If given more time, and no more life changes, some sisters might eventually cope well with the life change they now find stressful. Much of the stress may be responsible for the high illness scores.

Religious superiors ought to be aware of the amount of change a sister has experienced, and how well she has adapted, before initiating more change.

Earlier in this paper we met Zela, a hypothetical case of a stressed religious woman. Let us consider some of the life changes that she is adjusting to: (See Table 5)

- |  |     |
|--|-----|
| 1. Change in relationship to family (alcoholic mother)   | 53  |
| 2. Loss of a friend through misunderstanding, and loss of<br>a friend from religious life 2 X 61 | 132 |
| 3. Lack of time to prepare for classes, and to be available<br>as principal                      | 58  |
| 4. Victim of a crime   | 54  |
| 5. Insufficient time to enjoy community or friends   | 51  |

6. Lack of sufficient time for vacation or personal renewal	48
7. Place of work vandalized	48
8. Lack of sufficient leisure time for self	44
9. Lack of sufficient time for prayer or relaxation	46
10. Experience of support by school personnel	29
11. Experience of support within community	28

Zela has a total stress score of 581 (using the "Social Readjustment Scale for Women Religious") (1979, Table 5). She has experienced periods of depression and chest pain along with shortness of breath. It is probable that the depression, chest pains and shortness of breath could be caused by the 11 life change experiences she is coping with. Should more changes be taken on by Zela, or if superiors add more responsibilities, or suggest changes, the physical symptoms she's experiencing probably would become more severe. Moving Zela to another community would also be unwise. Some situations might be remedied, e. g., she could have more time to plan for her ministry, her new school might have a better security system, and the neighborhood that she would be moving into might be safer. She would still have to "cope" with her alcoholic mother. She would still feel the loss of her two close friends. New changes would be added. When a sister moves, she does not take the members of her old community with her, She is being asked to adjust to anywhere from 4 to 40 or more new sisters. She must adjust to a new place of ministry, to new personnel in that ministry, and to a new

environment. Zela's stress score, in her present situation, is 581. Should she be subjected to additional change, her stress score would probably go higher.

Zela should be encouraged to discuss the life changes she is currently experiencing with her superior and with her provincial. A good deal of Zela's stress could be alleviated by hiring someone to relieve her of the three classes she teaches. Someone else could probably manage the 4 week summer school session. Zela could then take several administrative courses, or she could have the time to renew her body, mind and spirit by just "getting away."

Part of this study dealt with "areas of stress" within community. For example, "lack of privacy," lack of sufficient quiet for prayer, rest, work or relaxation," "uncomfortable living and working conditions," would be considered "areas of stress."

Practically every community has one or more "areas of stress." Poor acoustics result in noise levels that can be annoying to someone who has spent their day with noisy children. The sought for peace and quiet is not always found at home. Communities need to study these "areas of stress." A decision to carpet an area, to add acoustical tiles to rooms, or to ban radios and the television at certain times can alleviate noise levels.

A community decision to improve an area, for example, the community room by adding a carpet, comfortable chairs and colorful drapes, would do much to encourage persons to gather to enjoy one another.

A decision to move the television set from the community room where it competes with persons who just wish to get together, satisfies those who enjoy television, and those who wish to enjoy one another.

Setting thermostats at comfortable temperatures in winter and summer would alleviate stress for persons of all ages. Examples are numerous.

Sisters should be encouraged to assess the life changes they are currently experiencing, plus those they may be planning to enter into. Learning to pace change, and how to deal adequately with it would be time well spent. "Grinning and bearing" with situations may be heroic. It is not healthful!

Stress has become a household word. No living being is excused or exempt from it. Stress affects the body, the mind and the spirit. If we learn to recognize the effects of stress on ourselves in our daily lives, hopefully some of us may decide to do something to control the stress and our response to it.

Stress control was not a part of this project but it will be discussed briefly.

#### Stress Control

This project examined what stress is: "the nonspecific response of the body to any demand made upon it" (Selye 1976). We discussed how stress affected the body, and the body's attempt to adapt to stress.

This project investigated the relationship between stress and illness in a one year time period. Data revealed that too many life changes in a short period of time could be associated with illness.

What happens when someone decides to do something to improve life? Why do some people find the process of self-improvement so painful, so threatening? Transitions of any kind are always painful. While we may intensely dislike the life we are currently leading, in order to change we must relinquish the familiar- the status quo- and begin to search for something better. Searching for a better way to live means accepting and even welcoming a prolonged period of uncertainty. It is the transitional period of instability that we fear and often avoid, leading to either a retreat from self-improvement or an impulsive solution in an attempt to shorten the period of instability. Changing requires that we undo aspects of our lives, search for better solutions, and then recognize when enough change has taken place.

There are abundant courses, programs, and books on the subject of "stress control." The ideas that follow are taken from Lecker's The Natural Way to Stress Control (1978).

Once you have decided change must occur a good sequence would be:

1. Undoing the present situation  
↓
2. Instability and change  
↓
3. Knowing when to stop

This involves:

- Defining precisely what needs to be undone- focus on the critical block to your ability to cope with life.
- Mentally rehearse positive solutions to the problem.
- Initiate change at an appropriate time.

° Learn to tolerate and even to welcome the anxiety associated with the instability and change.

° Learn to set goals in advance in order to avoid getting stuck in the process of change-for-the-sake-of-change and thus overshoot the mark (Lecker 1978)

Construct for yourself a stress profile. Items in the profile would include stressors, where the stressors affect you- mind, emotions, and how you respond or fail to respond to them. Such a profile could include the following items:

#### Social Sphere

1. Too many life change experiences at one time
2. Repeated problems with people at work
3. Recurrent marital problems
4. Family or community conflicts that cannot be resolved
5. Insufficient number of friends and conflicts

#### The Mind

1. Inability to shut down the thought processes: insomnia
2. Chronic difficulties remembering
3. Distractability
4. Chronic procrastination and ambivalence

#### The Emotions

1. All emotions are too intense
2. Being "set off" by the least little thing
3. Inability to get "unstuck" from one particular emotion, e. g. anger

hostility, joy, sorrow etc.

4. Inability to react emotionally as other people do, e. g. feeling no emotion, reacting too slowly or too hastily

#### The Body

1. Destructive habits- nail biting, teeth grinding, picking at sores, etc.
2. Eating or drinking or using medications to excess
3. Recurrent headaches
4. "Head noises" or "ringing in the ears"; no physical ailments to explain this
5. Chronic eye strain
6. Periodic feelings of not getting enough air, no physical explanation for this
7. Palpitations, but no heart problems
8. Blood pressure fluctuating widely, must be taken several times to get a normal reading
9. Acid stomach
10. Constant gas: lots of burping
11. Frequent diarrhea; yet in good health, doctor says it's "nerves"
12. Need to urinate more frequently than normal; yet not diabetic, no kidney problems or other disease
13. Frequent muscle cramps, stiff neck, backaches
14. Trembling hands
15. Low pain threshold
16. Hands and/ or feet get cold and sweaty

17. Excessively oily skin
18. Face flushes frequently (Lecker 1978)

From the ~~above~~ list one can select the specific social, mental, emotional, and physical symptoms which constitute a personal "stress profile," or your unique way of reacting to stress. By becoming familiar with your stress profile you need to learn how to detect these manifestations as soon as they become evident, associating them with what is going on in your life at that moment. Learn to analyze your daily life in terms of the events that cause stress overload.

Stress can be brought on or aggravated by inadequate social supports, for example, no one with whom you feel comfortable sharing, no one in your ministry from whom you can receive support. Persons who never take the time, or allow themselves time to be creative may experience stress. Creativity can be expressed through painting, sewing, gardening, cooking, etc.. An improper diet can bring on stress. Meals hastily eaten may aggravate stress. A lack of regular exercise will contribute to poor muscle tone.

By further examining the way you live, you can assess whether you have adequate social supports and outlets: whether your creative-esthetic needs are being satisfied: whether your diet is balanced and nutritious: and whether you engage in a regular and sufficient amount of physical exercise.

### Unstressing the Mind



students, and give her more time to accomplish her duties during the day.

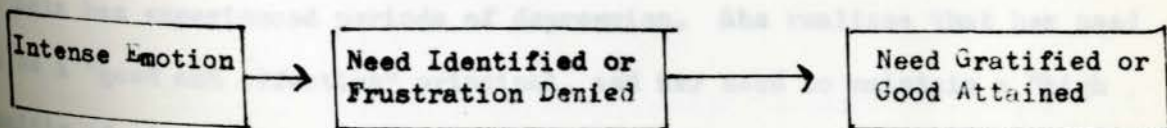
2. Rehearse mentally the positive solution to your need. Don't jump into action. Contemplate alternatives to your problems. Discuss the plans with someone you trust.

Several weeks before a school board meeting Zela mentally rehearses what she will say and what the responses from the school board members could be. She will wait until the board meeting. She has several possible solutions for her problem. Zela has discussed the plan with a close and trusted friend and has received encouragement and support from the friend.

3. Implement your plan without fear of what others will say. Don't be deterred by their reactions. Stick to your plans. Zela has the support of her community and of her faculty. Both groups can bring effective pressure to bear on the board members. Initially the board's reaction may be negative. If Zela sticks with her plan, eventually a favorable solution can be reached.

#### Unstressing the Emotions

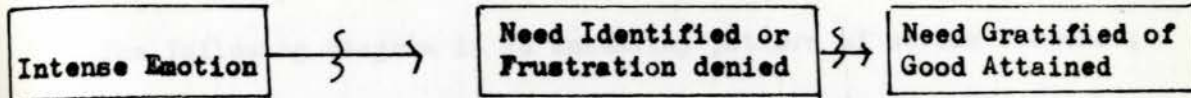
The stress control sequence that should be set into action by an emotion follows:



This sequence may be unproductively interfered with at several points.

in several ways:

62



- Failure to use the emotions as a signal to initiate a search for important unfulfilled needs
    - Need detected but the information is discarded without examination
    - Fear of satisfying need because it would be too greedy or assertive to do so
    - Excessively rigid standards and unworkable values prohibit gratification of the need
    - No goal or means are clearly established for satisfying the need
    - Individual waits for comfort to precede mastery rather than the reverse.
- Thus the time is never ripe to initiate a solution

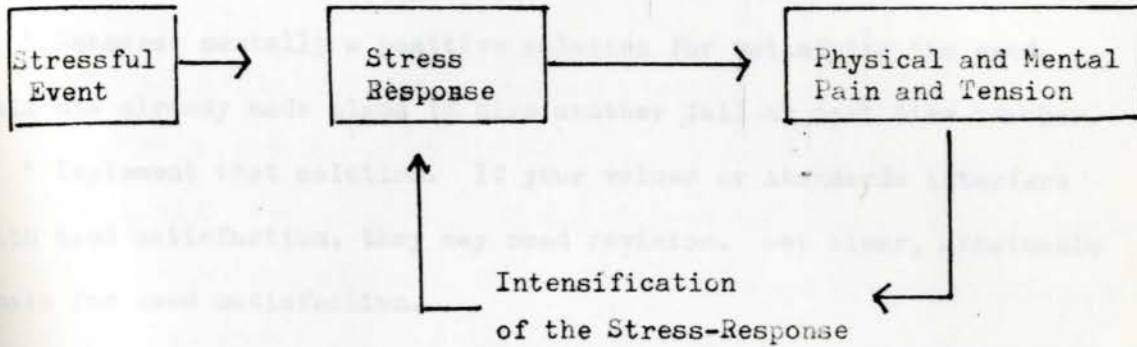
When an individual permits these interferences in the need-gratifying process of daily life, emotional stress will gain to over-load proportions. Emotional stress can be overcome by applying the stress control formula that follows:

- Focus on the need underlying the emotion.

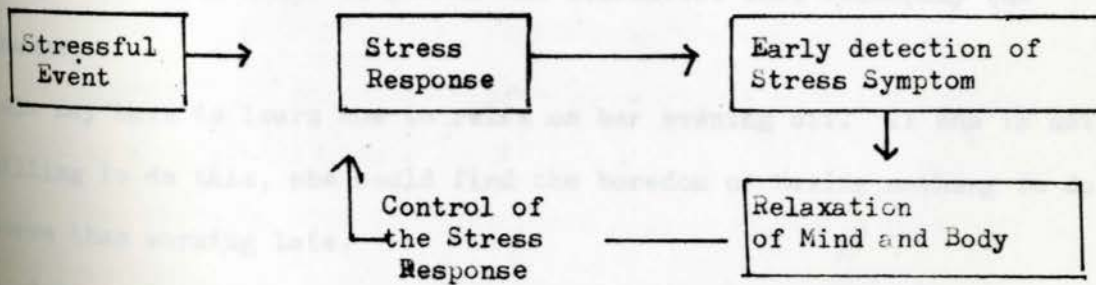
Zela has experienced periods of depression. She realizes that her need to be a "good and effective" principal, and her need to maintain a "high quality of education" may be contributing to her spending long hours in her office. She begins to realize that others' expectations of her-

The essence of a good Stress Control Plan is a reprogramming of your mind's and body's responses to stress.

The following diagram is an unhealthy pattern of stress response;



A self-intensifying cycle is established in response to a stressful event and it leads ultimately to destructive stress overload. An individual must learn to reprogram the mind and body responses to stress in this way:



1. Focus on the problem or problems pre-occupying your mind, taking one at a time.

Sister Zela has decided that hiring another teacher, possibly a part time person, will give her more time to be available to faculty and

her community's, the faculty's, and the student's might be too much. She realizes that she must prove to them and to herself that she can "do it all, and do it well." She realizes that she needs to change her life-style regarding the amount of time she spends in the office.

- Rehearse mentally a positive solution for satisfying the need.

Zela has already made plans to hire another full or part time teacher.

- Implement that solution. If your values or standards interfere with need satisfaction, they may need revision. Set clear, attainable goals for need satisfaction.

Zela begins by deciding to stay away from the office one evening each week. She may gradually increase the evenings away from the office until she is only working one evening a week.

- Realize that comfort comes after mastery, not before. Solving problems and making necessary changes is stressful and uncomfortable. Accept the small doses of stress and discomfort that accompany the change.

Zela may have to learn how to relax on her evening off. If she is not willing to do this, she could find the boredom of having nothing to do, worse than working late.

- Accepting the small doses of discomfort will help to avoid much greater stress that can result from chronically unfulfilled needs and painful, inescapable emotions.

#### Unstressing the body

As explained earlier, the body's response to stress is highly complex

and varied, according to the individual affected. Some of react with an upset stomach, by catching cold, or by having clammy hands. Still others of us react by suffering chest pains resulting from labored breathing.

The principle underlying physical stress control is that it is impossible for any one of us to exist in two contradictory states simultaneously. We can't be short and tall at the same time. Neither can vigor and fatigue coexist. We cannot be stressed and physically relaxed at the same time. Knowing how to find a state of physical relaxation and how to sustain it, one will be better able to prevent the occurrence of physical stress overload and will be better able to control excessive tension once it has occurred.

Once again the stress control formula is useful here. Learn how to focus on physically relaxed states: how to rehearse physical relaxation responses until they can be achieved quickly and with ease. Learn how to implement the physical relaxation responses at a time preceding or during a stressful event.

Zela may well wish to investigate a simple program that will assure relaxation of the body. Once she has found a program, she will want to practice it several times a day for a few minutes. If she selects a breathing control program, she could use this prior to her time for prayer. She could also practice it as a means of falling asleep at night. Once she has mastered the technique so that it has become natural,

she'll find it useful to do in her office during the day. She will discover that she can use it a few minutes before entering into a stressful situation, or after she has experienced a stressful situation.

Early on in this paper, Zela was presented as someone suffering from stress. She was experiencing at least eleven life change situations and not handling them well. She was beginning to experience symptoms of illness- depression, chest pains, shortness of breath, etc.. Zela decided to initiate some changes in her life. She selected one problem that was responsible for much of her stress, rehearsed positive solutions, sought support in initiating the change, and experienced the effects of that change. Lecker's "Stress Profile" (1978) and solutions to un-stressing the mind, the emotions and the body is not a complicated program. It does require a desire and a determination to bring about change that will relieve stress.

#### Psychological and Neurological Trends

In recent years, Psychological and neurophysiological studies on altered states of consciousness have focused on the understanding of the relationship between the brain mechanisms and consciousness in general. These studies have given rise to attempts to relate the various neuro-physiological findings with the psychological states and their behavioral correlates (Hirai 1974).

At this time there are two principal trends in research. One is the research which seeks to clarify the changes in consciousness brought

about by autogenic training, hypnosis, yoga, and different types of meditation. The focal point of these studies has been on the mental and physical relaxation induced by these methods, and their effectiveness in alleviating anxiety. Autogenic training, for example, has been used in the treatment of various neurotic states and psychosomatic illnesses. According to Luthe (1963) the mechanisms of the cure process could be based on the autogenic brain-elaboration during this training.

Yoga has been used to obtain the mental relaxation that accomplishes psychophysiological changes. Wenger, Bagchi (1961) and others have confirmed the physiological changes in EEG, skin potential, heart-rate and respiration.

In the field of research on altered states of consciousness, the most complicated studies have dealt with hypnotherapy. There are numerous arguments among scholars in this field. Yet to date, there is little concrete evidence or hypotheses that would correlate the matter with psychological and physiological methods. Measuring instruments and measuring techniques have not been perfected for this to date.

Voluntary control using the method of operant conditioning (also known as biofeedback) is another trend in the study of altered states of consciousness. This is a well designed scientific method that has been used successfully on both animals and humans. Operant conditioning has resulted in the study of the relationship between regulation of bodily processes and consciousness. Many kinds of research have been

performed in this area. As a result common nomenclatures have arisen to describe the findings. Some researchers have called this mechanism biofeedback (Kamiya 1971). Shapiro and his colleagues have called it self control.

The various nomenclatures indicate the existence of control systems, once thought to be involuntary processes, which can be manifested through a certain training or learning by the person or animal (Mirai 1974).

#### Toward a Holistic Approach to Medicine

The present research and clinical programs focusing upon holistic health care are more suggestive of a direction than an accomplished fact. Perhaps the most important aspects of this renewed concern over the etiology of disease and its prevention are the fundamental, philosophical revisions which are taking place in our model of healing. Central to this revision is the concept that all stages of health and disease are psychosomatic in etiology and duration, and in the healing process. Both psychological and medical factors should be considered in any system of holistic medicine.

What are healthy solutions and what constitutes the nature of health may be the most pressing issues confronting the healing professions today. Working within a holistic approach to healing are professionals who have skills related to health in an essential but often unacknowledged manner. Among these practitioners are instructors of various



physical exercises ranging from gymnastics to Tai Chi, nutritional counseling, meditations teachers, and all other instructors of skills intended to enhance the quality of an individual's life. Health care is an area requiring mutual interaction and enrichment among these professions (Dudley 1977).

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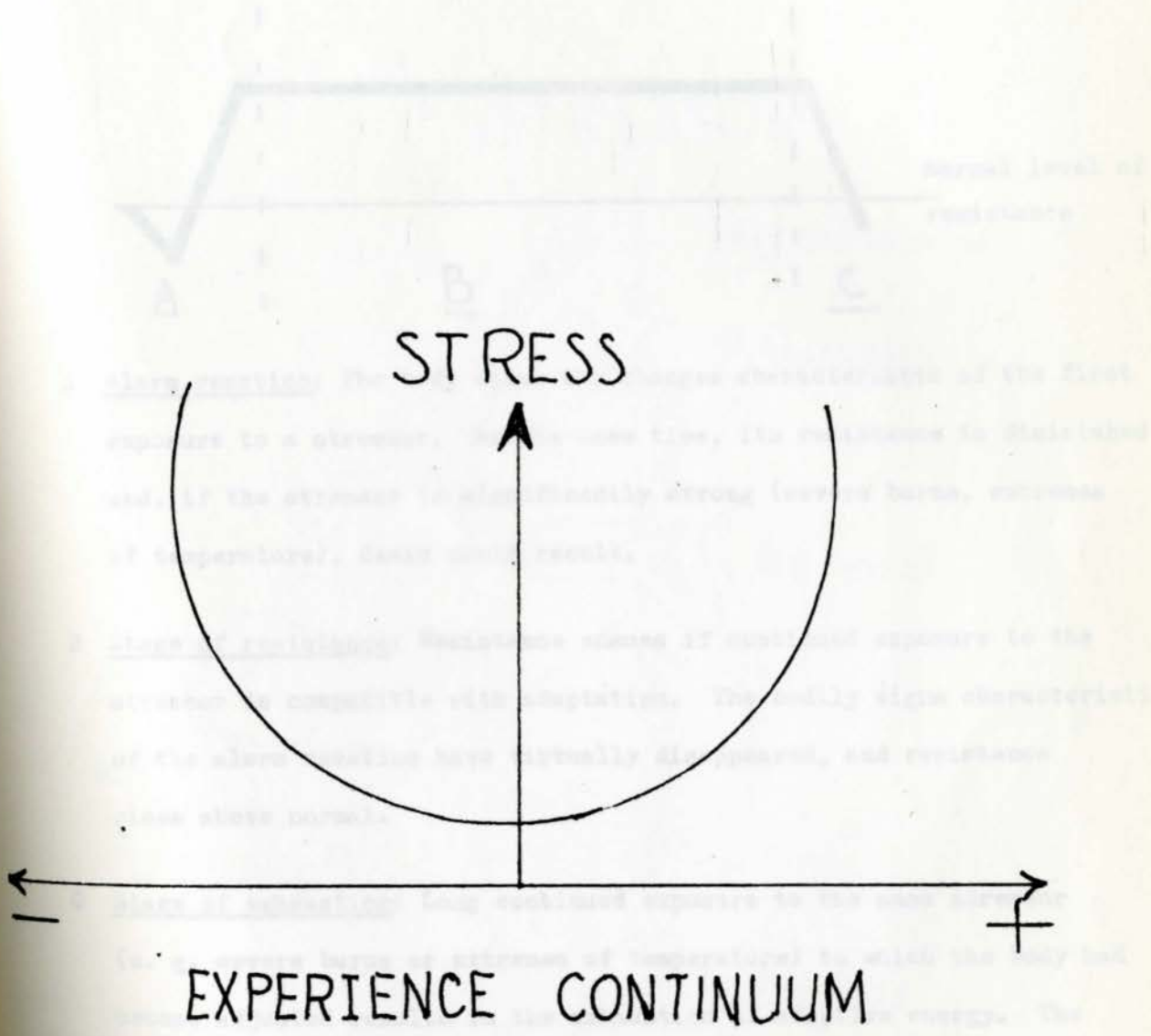
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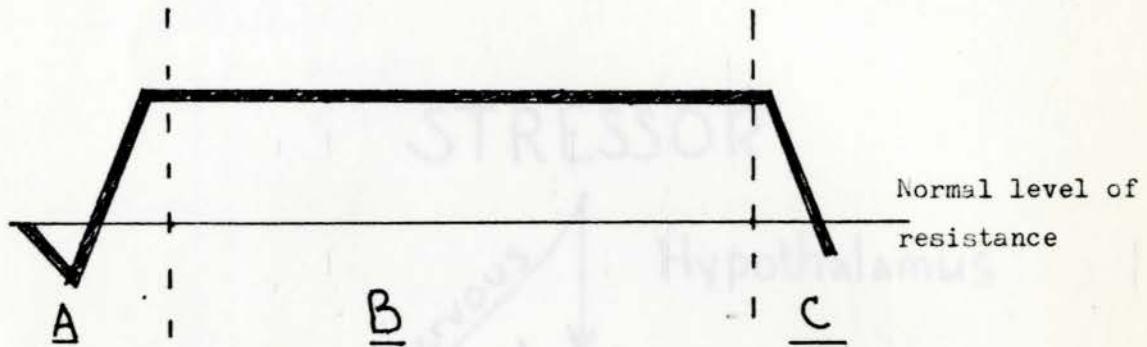
EXPERIENCE CONTINUUM

Figure 1 Theoretical model showing the relation between stress and various types of experience. (courtesy L. Leve)



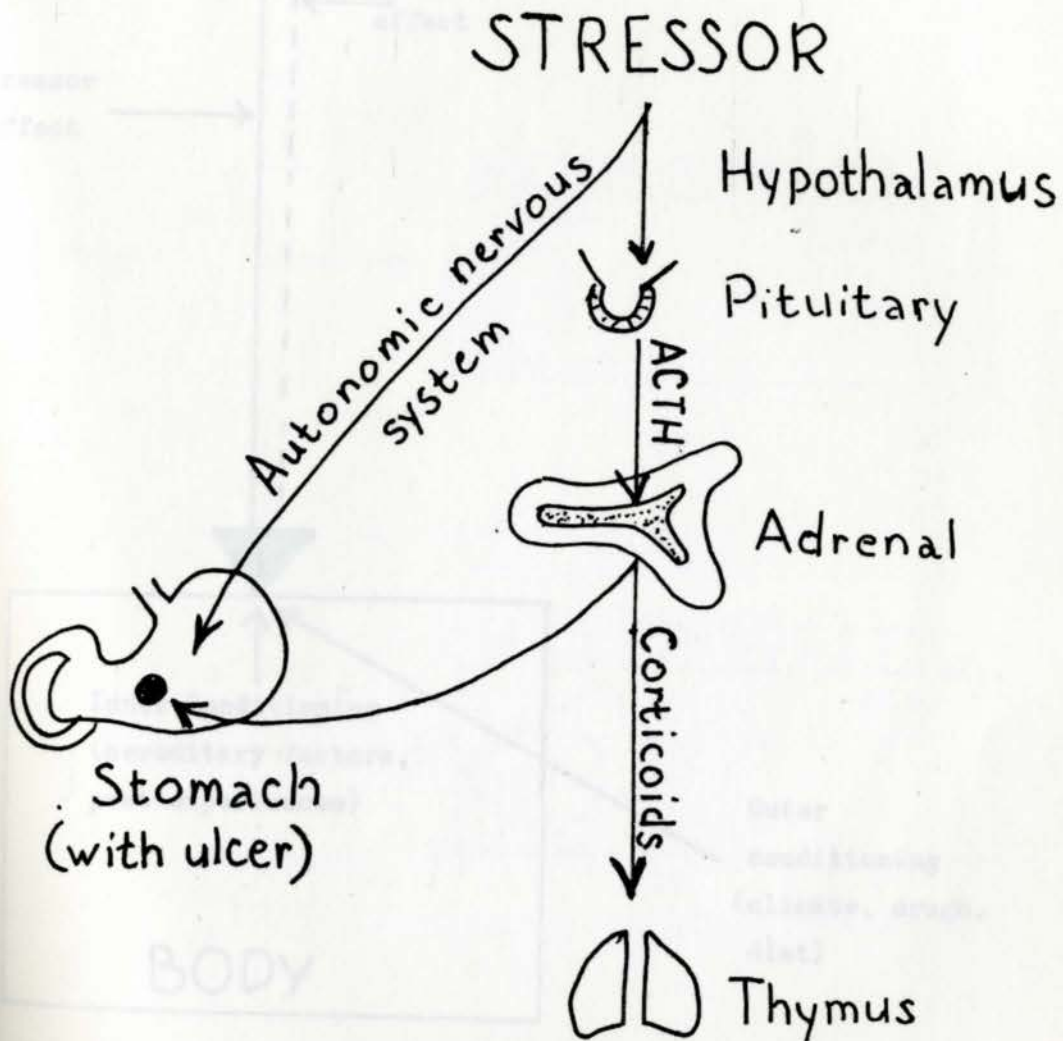
(Selye 1975)

Figure 2 Three phases of the general adaptation syndrome (G. A. S.)



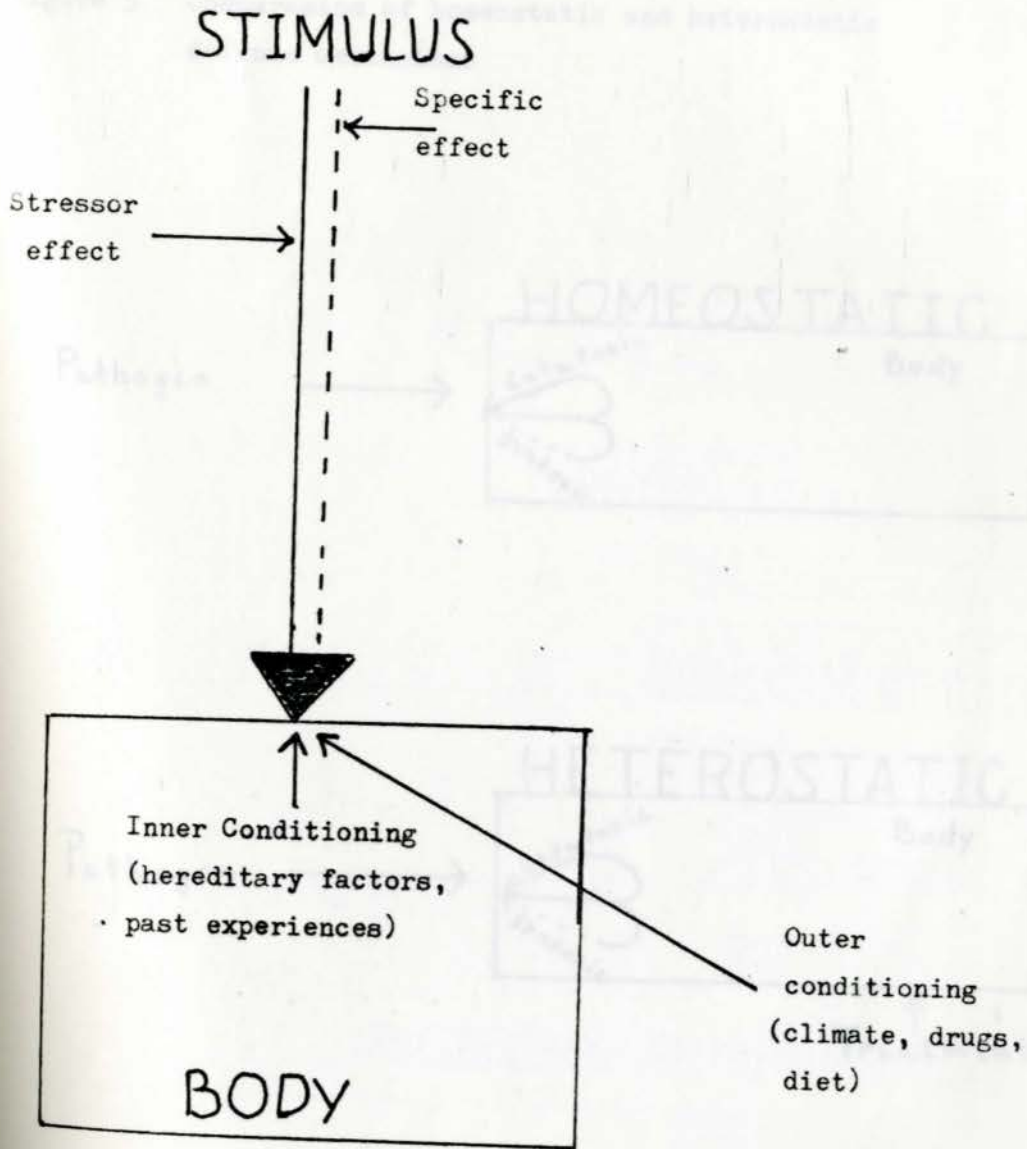
- A Alarm reaction: The body shows the changes characteristic of the first exposure to a stressor. At the same time, its resistance is diminished and, if the stressor is significantly strong (severe burns, extremes of temperature), death could result.
- B Stage of resistance: Resistance ensues if continued exposure to the stressor is compatible with adaptation. The bodily signs characteristic of the alarm reaction have virtually disappeared, and resistance rises above normal.
- C Stage of exhaustion: Long continued exposure to the same stressor (e. g. severe burns or extremes of temperature) to which the body had become adjusted results in the exhaustion of adaptive energy. The signs of the alarm reaction reappear, but they are now irreversible, and the person dies (Selye 1975).

Figure 3 Principal pathways mediating the response to a stressor



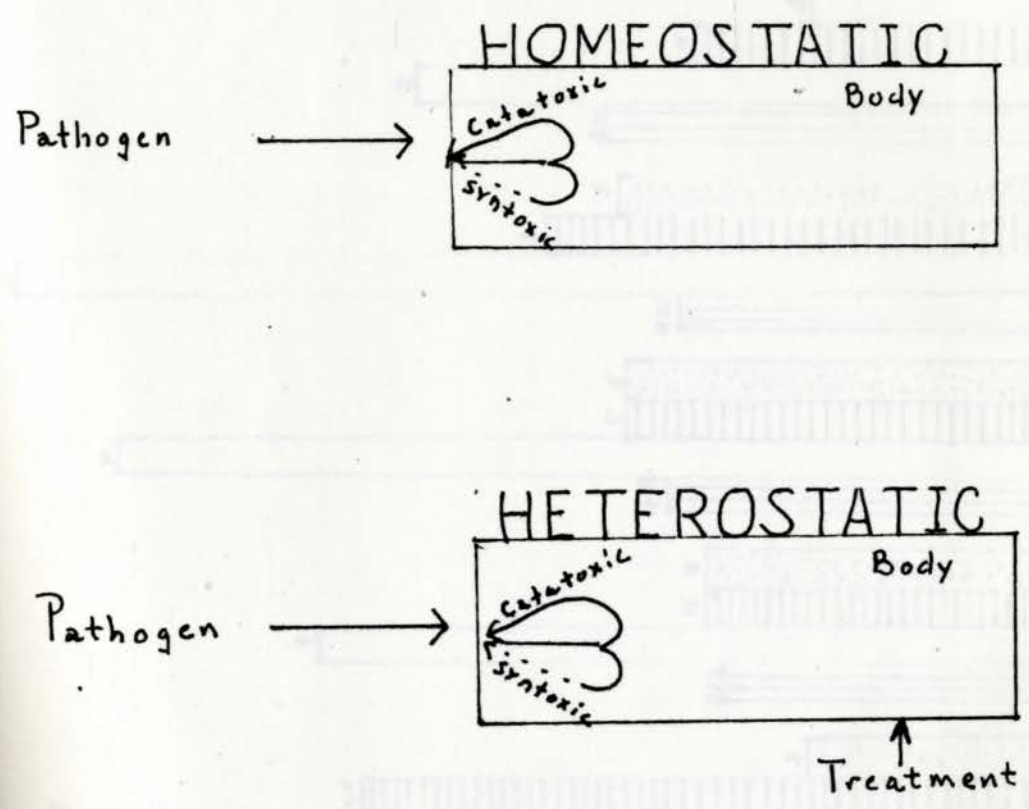
(Selye 1975)

Figure 4 Factors influencing the response to stressors



(Selye 1975)

Figure 5 Comparison of homeostatic and heterostatic defense mechanisms



(Selye 1975)



Figure 6 Bar Graph of averages of stress, illness, acute and chronic illnesses

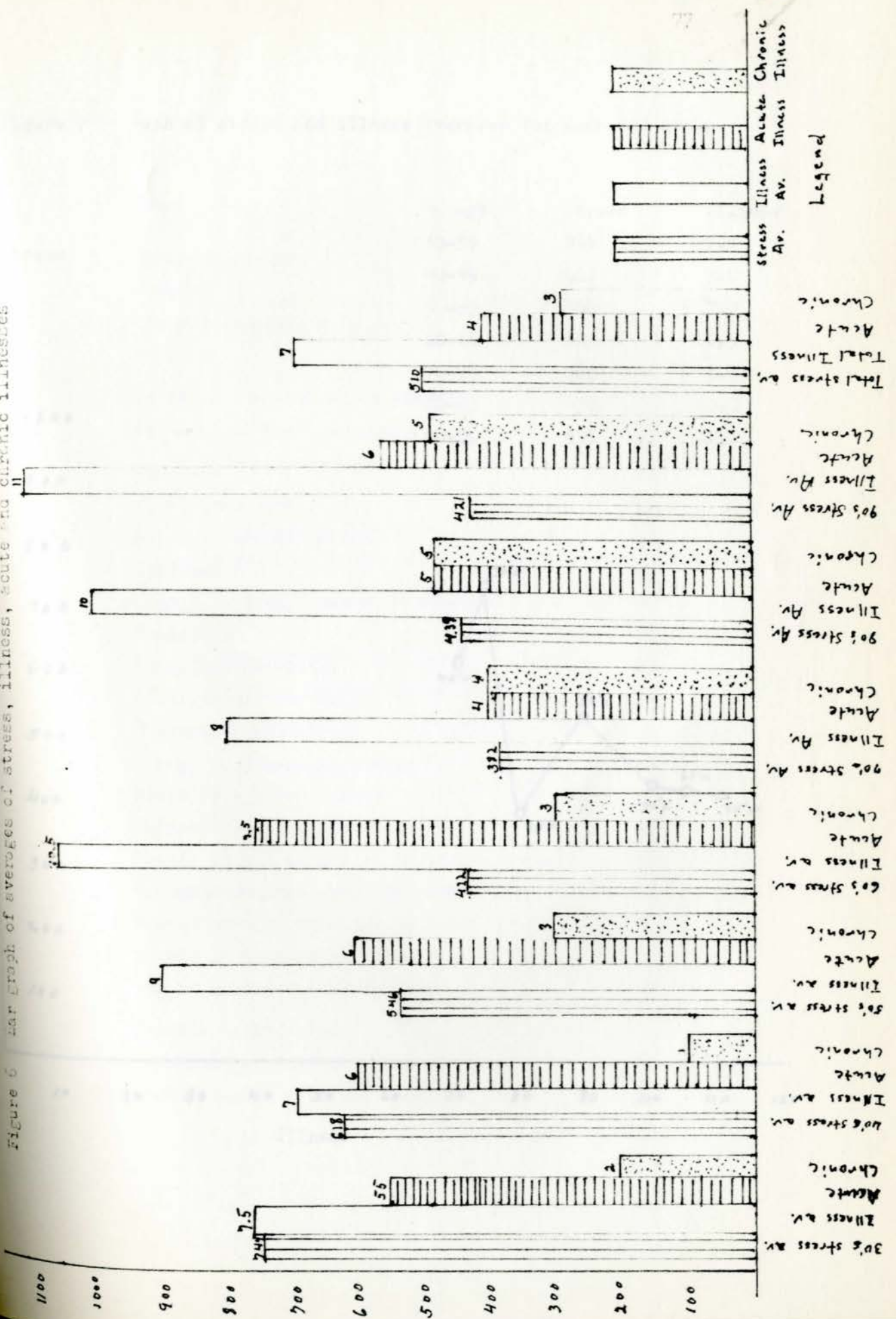


Figure 7 Graph of stress and illness averages for each age group.

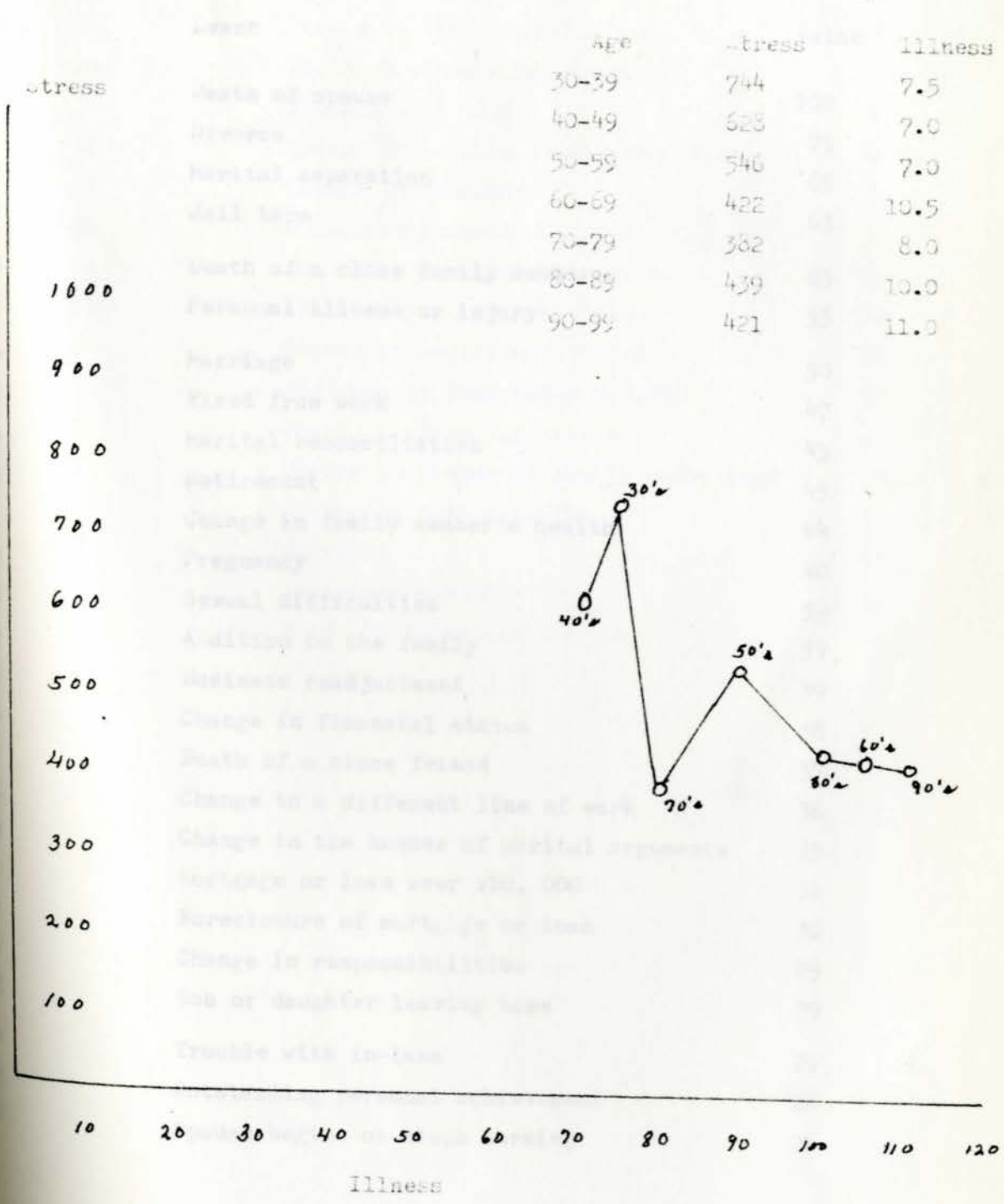


Table 1 "Social Readjustment Rating Scale"

Rank	Event	Value
1	Death of spouse	100
2	Divorce	73
3	Marital separation	65
4	Jail term	63
5	Death of a close family member	63
6	Personal illness or injury	53
7	Marriage	50
8	Fired from work	47
9	Marital reconciliation	45
10	retirement	45
11	Change in family member's health	44
12	Pregnancy	40
13	Sexual difficulties	39
14	Addition to the family	39
15	Business readjustment	39
16	Change in financial status	38
17	Death of a close friend	37
18	Change to a different line of work	36
19	Change in the number of marital arguments	35
20	Mortgage or loan over \$10,000	31
21	Foreclosure of mortgage or loan	30
22	Change in responsibilities	29
23	Son or daughter leaving home	29
24	Trouble with in-laws	29
25	Outstanding personal achievement	28
26	Spouse begins or stops working	26

Rank	Event	Value
27	Starting or finishing school	26
28	Change in living conditions	25
29	Revision of personal habits	24
30	Trouble with boss	23
31	Change in working hours, conditions	20
32	Change in residence	20
33	Change in schools	20
34	Change in recreational habits	19
35	Change in church activities	19
36	Change in social activities	18
37	Mortgage or loan under \$10,000	17
38	Change in sleeping habits	16
39	Change in number of family gatherings	15
40	Change in eating habits	15
41	Vacation	13
42	Christmas season	12
43	Minor violation of the law	11

(Holmes 1967)

Table 2 Sample of data from Wyler' "Seriousness of Illness Rating Scale"

Illness	(Seriousness of illness units in parentheses)	Number of patients	Mean average life change units in 2 years preceding the illness
Headache	(88)	5	209
Acne	(103)	6	311
Psoriasis	(174)	6	317
Eczema	(204)	7	231
Bronchitis	(210)	3	322
Hernia	(244)	9	457
Anemia	(312)	7	325
Anxiety reaction	(315)	4	482
Gallstones	(454)	6	563
Peptic ulcers	(500)	17	603
High blood pressure	(520)	4	405
Chest pain	(609)	7	638
Diabetes	(621)	6	599
Alcoholism	(688)	3	688
Manic-depressive	(766)	4	753
Psychosis	(785)	12	609
Heart failure	(824)	9	772
Cancer	(1020)	15	777

(Wyler 1971)

Table 3 Social Readjustment Rating Scale for Women in Religious Life

Rank	Life Event	Life Change Units
1	Decision to leave community	84
2	Decision to take a leave of absence	79
3	Death of a close family member	75
4	Stay in a psychiatric unit or other institution	71
5	Crisis in faith	70
6	Death of a close friend	66
7	Major personal illness or injury	59
8	Being reassigned without consent	57
9	Friend leaving the community	54
10	Retirement from work	53
11	Final profession of vows	50
12	Changing to a different line of work	49
13	Major change in number of arguments/ disagreements with sisters in the local community	48
14	Closing of an institution in which you are living/ working	47
15	Reconciliation (with God, friend, sister in community)	45
16	Major change in involvement with family	45
17	Decision to seek counseling help	44
18	Major change in amount of freedom permitted by rule/ custom	44
19	Major change in religious rule or constitutions	44
20	Major change in form of local government	44
21	Change in line of work outside community commitment	43
22	Troubles with boss	43
23	Sexual difficulties	42
24	Major change in responsibilities in the community	42
25	Major changes in responsibilities at work	42
26	Major change in involvement of seculars in local community	41
27	Change in residence	40

Rank	Life Events	Life Change Event
28	Trouble between convents or convent and larger community	40
29	Trouble with local church (parish) over renewal	40
30	Becoming responsible for community finances	40
31	Revision of personal habits	39
32	Menopause	39
33	Outstanding personal achievement	39
34	Major change in working hours outside commitment	35
35	Major change in prayer forms	34
36	Major change in social activities or recreation	33
37	Being assigned with consent	32
38	Major change in financial state (money available in community)	31
39	Beginning or ending formal school	30
40	Change of a member of your local community	30
41	Major change in local community get-togethers	30
42	Change in independent use of money	26
43	Contact with individuals who have left the community	26
44	Major change in number of family get-togethers	25
45	Major change in eating habits	24
46	Major change in sleeping habits	22

(Anderson 1975)

Table 4 Units of stress and illness suffered March 1, 1978, through  
March 1, 1979

Age	Mean Units of stress per sister $\pm$ S. D.	Mean Number of illnesses per sister $\pm$ S. D.	rho	p
30-39	772 $\pm$ 797.3	7 $\pm$ 2.05	.668	<.01
40-49	635 $\pm$ 318.9	6 $\pm$ 3.6	.616	<.01
50-59	514 $\pm$ 348.0	7 $\pm$ 3.5	.549	<.01
60-69	417 $\pm$ 219.4	6 $\pm$ 2.2	.419	<.01
70-79	599 $\pm$ 329.6	7 $\pm$ 3.5	.514	<.01
80-89	447 $\pm$ 253.7	9 $\pm$ 3.5	.534	<.01
90-99	421 $\pm$ 366.3	11 $\pm$ 79.3	1.0	<.01



Table 5 Social Readjustment Rating Scale for Women Religious

Rank	Event	Value	No. who checked it
1	Being fired	82	2
2	Assigned to a ministry for which you have no great personal attraction	80	17
3	Struggle with decision to take a leave of absence	76	4
4	Teaching too many students at a time	65	21
5	Lonely/ seldom a chance to share self/ friends dying	62	43
6	Loss of a close friend through death/ misunderstanding	61	37
7	Major personal illness of injury	60	36
8	Feelings of being over-worked/ of "always working"	59	39
9	Struggle with decision to seek a change of community	59	31
10	Reconciliation with God, friend, community member	58	55
11	Insufficient time to prepare for ministry	58	15
12	Bored/ not enough to do/ work not stimulating	57	16
13	Inability to accept self/ assets, limitations	56	54
14	Change in number of arguments with superior	56	25
15	Moving from one community to another	55	25
16	Death of a family member	54	24
17	Victim of a violent crime or theft	54	3
18	Major change in involvement with family	53	25
19	Community meetings frustrating/ few decisions	52	91
20	Car frequently not available for ministry/personal use	52	30
21	Change in number of arguments with community members	51	61
22	Change in form of ministry	51	21
23	Insufficient time to enjoy self/friends/community	51	28
24	Having to find a job	51	6

Rank	Event	Value	No. who checked it
25	Struggle with decision to seek a change of ministry	49	18
26	Insufficient time for retreat/home visit/reneal/vacation	48	54
27	Community/ place of work buglarized/vandalized/burned	48	20
28	Personal budget not sufficient to meet expenses	48	26
29	Moving from one place of ministry to another	48	16
30	Living/ working conditions uncomfortable	48	28
31	Lack of sufficient privacy in community	48	25
32	Hospitalization for tests/ illness/ surgery	47	44
33	Change in number of arguments with employer/others	47	15
34	Lack of sufficient quiet for prayer/rest/work/relaxation	46	28
35	Present form of local government	45	56
36	Parental problems in school	45	16
37	Insufficient time for leisure for self on a daily/weekly basis	44	58
38	Being assigned to a ministry for which you have a great personal attraction	43	49
39	Concern about dress/ life style of some community members	42	71
40	Change in eating habits	42	36
41	Change in form of prayer	42	33
42	Major change in responsibilities at work	41	45
43	Change in community's financial situation	41	44
44	Major change in responsibilities in community	40	33
45	Returning to school for a degree	40	9
46	Enjoy work in present ministry	39	180
47	Change in sleeping habits	39	30
48	Close personal relationship with friend/friends	38	96

Rank	Event	Value	No. who checked it
49	Retirement from active ministry	37	19
50	Working with enthusiastic children/ adults	36	45
51	Menopause	55	14
52	Responsible for community's finances	35	13
53	Community meetings stimulating/ things accomplished	34	67
54	Great personal achievement	33	38
55	Ability to accept self/ assets, limitations	32	106
56	Vacation	31	111
57	Decision to seek counseling/ spiritual direction	30	35
58	First profession/final profession/ jubilee	30	8
59	Experience support and encouragement from persons at work	29	119
60	Encouragement and support from community members	28	131
61	Exercise	27	98
62	Days missed from work due to illness/ injury	24	82

(Mangelsdorf 1979)

Table 6 Mean number of illnesses with varying amounts of stress

Age	Stress > 1000		Stress < 1000 - 500		Stress < 500	
	N	$\bar{X}$ No. Illnesses	N	$\bar{X}$ No. Illnesses	N	$\bar{X}$ No. Illnesses
30-39 (N=29)	(8)	2.4	(12)	2.0	(9)	1.1
40-49 (N=29)	(3)	8.1	(16)	5.0	(2)	2.5
50-59 (N=24)	(2)	9.0	(9)	5.6	(13)	7.5
60-69 (N=52)	(4)	20.0	(16)	9.1	(32)	5.6
70-79 (N=44)	(3)	14.7	(6)	6.4	(35)	6.2
80-89 (N=32)	(0)	0	(14)	6.4	(18)	3.4
90-99 (= 4)	(0)	0	(2)	13.5	(2)	3.0

## Appendix 1 Personal letter sent to each sister in the Province

Lindenwood 4 College  
 4653 Maryland Plaza  
 St. Louis, Missouri  
 April 10, 1979

Dear Sister \_\_\_\_\_,

I am presently working toward a Master's Degree in Counseling Psychology and Gerontology. My thesis entails measuring life changes and illness in the members of our Province. I have the support of the Provincial Team in this project.

Participation in this project is on a voluntary basis. The more participants I have, the more valid my thesis project will be. Participants will remain anonymous. All returned questionnaires will be handled by Dr. Diana Richards of Lindenwood 4 College. If you wish to participate in the project please fill out both parts of the questionnaire and place it in the envelope provided by your superior. Returns are due April 25, 1979.

The results of this project will be shared with the Province in late Fall or early Winter of 1979.

Thank you very much for your co-operation and for your participation in the project.

Sincerely in Christ,

*Ann Mangelsdorf, D.S.H.*

Ann Mangelsdorf, C. S. U.

Appendix 2 Life change questionnaire sent to each sister

Stress is the "wear and tear" on the body that results from daily living. Positive and negative events can cause stress. Stress is a necessary part of our life, However, too much stress can lead to illness.

Below is a list of situations that can cause stress. On the left hand side of the page please check ✓ the situations that you have experienced between March 1, 1978, and March 1, 1979.

- Enjoy working in present ministry
- Vacation
- Major change in responsibilities at work
- Major change in responsibilities in community
- Present form of local government
- Death of a family member
- First Profession/ Final Profession/ Jubilee
- Retirement from active ministry
- Struggle with decision to change to a different ministry
- Struggle with decision to change to a different community
- Hospitalization for tests/ illness/ surgery
- Major personal illness or injury
- Days missed from work due to illness
- Great personal achievement
- Being assigned to a ministry for which you have a great attraction
- Being assigned to a ministry for which you have no attraction
- Major change in involvement with family
- Close personal relationship with friend/ friends
- Reconciliation with God, friend, member of community
- Loss of a close friend through death/ misunderstanding
- Struggle with decision to take a leave of absence
- Insufficient time for leisure/ recreation/ self on a daily or weekly basis

- \_\_\_ Insufficient time for retreat/ vacation/ home visit/ personal renewal
- \_\_\_ Change in number of arguments with superior
- \_\_\_ Change in number of arguments with community members
- \_\_\_ Change in number of arguments with employer/ others
- \_\_\_ Experience of support and encouragement from the community
- \_\_\_ Experience of support and encouragement from persons at work
- \_\_\_ Concern about dress/ life style of some members of community
- \_\_\_ Responsible for community's finances
- \_\_\_ Change in community's financial situation
- \_\_\_ Personal budget not sufficient to meet needs/ expenses
- \_\_\_ Menopause
- \_\_\_ Community meetings stimulating/ things accomplished
- \_\_\_ Community meetings frustrating/ few decisions
- \_\_\_ Change in form of ministry
- \_\_\_ Having to find a job
- \_\_\_ Being fired
- \_\_\_ Returning to school for a degree
- \_\_\_ Moving from one community to another
- \_\_\_ Moving from one place of ministry to another
- \_\_\_ Car frequently not available for ministry/ personal use
- \_\_\_ Change in form of prayer
- \_\_\_ Ability to accept self/ assets, limitations
- \_\_\_ Inability to accept self/ assets, limitations
- \_\_\_ Lonely/ seldom a chance to share self/ friends dying
- \_\_\_ Bored/ not enough to do/ work not stimulating
- \_\_\_ Insufficient time to prepare for ministry
- \_\_\_ Teaching too many students at one time/ discipline problems
- \_\_\_ Parental problems in school
- \_\_\_ Working with enthusiastic children/ adults
- \_\_\_ Lack of sufficient privacy in community
- \_\_\_ Lack of sufficient quiet for prayer/ rest/ work/ relaxation

- Living/ working conditions uncomfortable
- Decision to seek counseling/ spiritual direction
- Change in eating habits
- Change in sleeping habits
- Insufficient time to enjoy community members/ friends
- Feelings of being over-worked/ of "always working"
- Victim of a violent crime or theft
- Community/ place of work buglarized/ vandalized/ burned
- Exercise

Go back to the situations that you checked. On the right hand side of the page, rate on a scale of from 1 to 100 the stress that you experienced in each situation.

1-25 a little stress

51-75 a good amount of stress

26-50 some stress

76-100 very much stress

Example:  Exercise 15

- Please go back over your questionnaire. Make sure you did the following:
1. Write your name from your personal letter
  2. Check life situations on the left hand side of the page
  3. Rate the amount of stress on the right hand side of the page
  4. Check the illnesses you experienced/ seek outside illnesses with an "X"
  5. Indicate your present age



## Appendix 3 Illness list sent to each sister

Below is a list of illnesses. Please check ✓ the illnesses that you experienced between March 1, 1978, and March 1, 1979. Indicate with an "x" if an illness is a chronic problem for you.

<input type="checkbox"/> Cold sores, canker sores	<input type="checkbox"/> Eye infection	<input type="checkbox"/> Heart condition
<input type="checkbox"/> Hay fever, allergies	<input type="checkbox"/> Common cold	<input type="checkbox"/> Pneumonia
<input type="checkbox"/> Heart burn, indigestion	<input type="checkbox"/> Throat infection	<input type="checkbox"/> Anxiety reaction
<input type="checkbox"/> Skin disorders, acne, etc.	<input type="checkbox"/> Nose bleed	<input type="checkbox"/> Over weight
<input type="checkbox"/> High blood pressure	<input type="checkbox"/> Sinus problems	<input type="checkbox"/> Mononucleosis
<input type="checkbox"/> More fatigued than usual	<input type="checkbox"/> Constipation	<input type="checkbox"/> Appendicitis
<input type="checkbox"/> More nervous than usual	<input type="checkbox"/> Flu/ virus	<input type="checkbox"/> Ulcers
<input type="checkbox"/> Arthritis	<input type="checkbox"/> Diarrhea	<input type="checkbox"/> Kidney stones
<input type="checkbox"/> Low blood pressure	<input type="checkbox"/> Dizziness	<input type="checkbox"/> Gall stones
<input type="checkbox"/> Periods of depression	<input type="checkbox"/> Menstrual problems	<input type="checkbox"/> Headaches
<input type="checkbox"/> Foot problems/ corns, etc.	<input type="checkbox"/> Ear infection	<input type="checkbox"/> Diabetes
<input type="checkbox"/> Circulation problems	<input type="checkbox"/> Alcoholism	<input type="checkbox"/> Asthma
<input type="checkbox"/> Thyroid problems	<input type="checkbox"/> Anemia	<input type="checkbox"/> Shingles
<input type="checkbox"/> More tense than usual	<input type="checkbox"/> Chest pains	<input type="checkbox"/> Varicose veins
<input type="checkbox"/> Hyper-tension	<input type="checkbox"/> Bronchitis	<input type="checkbox"/> Hemorrhoids
<input type="checkbox"/> Bed-sores	<input type="checkbox"/> Blindness	<input type="checkbox"/> Hernia
<input type="checkbox"/> Deafness	<input type="checkbox"/> Eczema	<input type="checkbox"/> Drug allergy
<input type="checkbox"/> Cancer	<input type="checkbox"/> Drug allergy	
Other _____	_____	Present age _____

Please go back over your questionnaire. Make sure you did the following:

1. Erase your name from your personal letter
2. Check life situations on the left hand side of the page
3. Rate the amount of stress on the right hand side of the page
4. Check the illnesses you experienced/ mark chronic illnesses with an "x"
5. Indicate your present age

ACTH Abbreviation for adrenocorticotrophic hormone.

adaptation energy The energy necessary to acquire and maintain adaptation, apart from caloric requirements.

adrenalin One of the hormones secreted by the adrenal medulla.

adrenals Two endocrine glands situated just above the kidneys. They consist of a whitish outer cortex, or bark (which produces corticoids), and a dark brown medulla, or marrow (which makes adrenalin).

alarm reaction The first stage of the general adaptation syndrome. In the G. A. S., it affects the body as a whole.

anti-inflammatory corticoids Adrenocortical hormones which inhibit inflammation, for example, cortisone or cortisol. They have a marked effect upon glucose metabolism and are therefore also known as glucocorticoids.

atrophy Shrinkage of an organ.

catatoxic (cata = against), Substances which attack damaging agents, e. g. by inducing enzymes which destroy toxic compounds.

cell A relatively autonomous, circumscribed, small mass of living material, visible under a microscope. The tissues of all living beings consist mainly of cells.

conditioning factors Substances or circumstances which influence the response to an agent, for instance, a hormone.

corticoids Hormones of the adrenal cortex. It is customary to subdivide them into anti-inflammatory glucocorticoids and pro-inflammatory mineralocorticoids.

direct pathogen An agent which causes disease by its own inherent actions, not merely by stimulating abnormal responses in living beings, e. g., a strong acid, physical injury, or extreme temperatures which traumatize, burn, or freeze tissues.

diseases of adaptation Maladies which are principally due to imperfections of the G. A. S., for instance, to an excessive or insufficient amount, or to an improper mixture of adaptive hormones.

distress Harmful or unpleasant stress.

feedback The return of some of the output of a system as input.

G. A. S. general adaptation syndrome.

general adaptation syndrome The manifestations of stress in the whole body, as they develop in time. The general adaptation syndrome evolves in three distinct stages: alarm reaction, stage of resistance, stage of exhaustion.

heterostasis (hetero= other: stasis= position). The establishment of a new, steady state by treatments which stimulate normally dormant capacities of homeostasis, raising them to maintain a heightened level of resistance.

homeostasis (homo= similar and stasis= position). The body's tendency to maintain a steady state despite external changes: physiological staying power.

hormones Chemical substances released into the blood by the endocrine glands to stimulate and coordinate distant organs. Bodily growth, metabolism, resistance to stress, inflammation and sexual functions are largely regulated by hormones.

hypothalamus A brain region at the base of the skull, e. g., to secrete ACTH during stress.

indirect pathogen An essentially innocuous agent which causes damage by evoking inappropriate defense reactions; then only the latter are experienced as disease (e. g., allergic inflammation, excessive mental irritation and tension.)

inflammation The typical reaction of tissue (particularly of connective tissue) to injury. Its main purpose is to seal off injurious agents.

lesion A pathological change in body structure.

milieu intérieur The internal environment of the body: the soil in which all biological reactions develop.

nonspecific A nonspecifically formed change is one that affects all or most parts of a system without selectivity. It is the opposite of a specifically formed change which affects only one or at most a few units within a system. A nonspecifically caused change is one which can be produced by many or all agents.

pathogen An agent which causes disease.

P. C. N. Pregnenolone - 16 $\alpha$  - carbonitrile, a powerful catatonic hormone derivative.

pituitary A little endocrine gland embedded in the bones of the skull just below the brain.

reaction In biology, the response of the body, or of one of its parts, to stimulation.

specific A specifically formed change is one which affects only a single

unit or, at most, a few units within a system, with great selectivity.

A specifically caused change is one which can be produced only by a single agent or, at most, by a few agents. The term specific has no meaning unless to indicate whether it refers to the change itself or to its causation.

stage of exhaustion The final stage of the general adaptation syndrome.

Stage of resistance The second stage of the general adaptation syndrome.

stimulus In biology, anything that elicits a reaction in the body or in one of its parts.

stress In biology, the nonspecific response of the body to any demand made upon it. For general orientation, it suffices to keep in mind that by stress the physician means the common results of exposure to any stimulus.

stressor That which produces stress.

symbiosis. (sym= together: bosis= living). The mutually advantageous association of two or more individuals of different species.

syndrome A group of symptoms and signs which appear together.

syntoxic (syn= together) Syntoxic substances act as tissue tranquilizers, creating a state of passive tolerance which permits peaceful coexistence with aggressors. Thereby, they can eliminate those diverse manifestations which are principally due to excessive response of our body, e. g., inflammation.

therapy <sup>+</sup>treatment.

tissue In biology, a collection of cells and the inter cellular material surrounding them.

triad A syndrome consisting of three manifestations.

triphasic Having, or developing in, three stages, as the G. A. S..

ulcer Inflammation and erosion on a surface.

Religious Terminology Defined

Religious Order A particular group of religious men or women, for example, Sisters of Charity, or Jesuit Priests. Orders may have thousands of members. Congregations are similar to Orders.

Province Many orders or congregations divide their large group into geographical areas that serve countries or parts of countries. Several hundred to a thousand members may make up a province.

Religious Community A group of religious men or women living together make up a community. Communities may have as few as 2 or 3 members, or as many as 70 or more. Large communities are sometimes called institutions.

Major Superior The person who is responsible for a province is referred to as a major superior.

Superior or local superior The person immediately responsible for a community is a local superior. If communities are quite small, one superior might be responsible for several communities.

Ministry A work engaged in by a province, a community, or by an individual. A ministry could be teaching, nursing, etc.. Ministries are sometimes called works.