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AN INTERVIEW STUDY OF THE EXPERIENCE OF
URBAN STRESS BY NEWCOMERS AND
NATIVE CITY DWELLERS

By

CARALEE ROBERTS

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Abstract

AN INTERVIEW STUDY OF THE EXPERIENCE OF URBAN STRESS BY NEWCOMERS AND NATIVE CITY DWELLERS

By

Caralee Roberts

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The concept of urban stress is discussed in light of the literature on psychological stress, environmental and urban stressors and adaptation to urban life. Five questions are raised: (1) Do city dwellers experience urban stress? (2) What aspects of city living do they experience as stressful and why? (3) What emotions, physical reactions and coping responses do people associate with these stresses? (4) Do people consciously appraise stress in the same way as stress appraisal theorists suggest? (5) Is there a difference between natives and newcomers in the amount and type of urban stress experienced and the degree of their awareness of these stresses?

To answer these questions 80 natives of and newcomers to New York City (Manhattan) were interviewed concerning their experiences of urban stress. When interviews were content analyzed, 14 different types of stress produced different patterns of response with regards to place of occurrence, reasons for being stressful, emotions,

physical reactions and coping responses. People's spontaneous descriptions of stress indicated some conscious appraisals similar to the appraisal models suggested by stress theorists, but these descriptions also suggested several complexities of the stress experience undiscussed by stress theorists. Few differences were found between natives and newcomers in the amount of urban stress they experienced or their conscious descriptions of that stress. There was some evidence that natives were more affected by repetitive stresses than newcomers.

The implications and limitations of this research are discussed. The concept of urban stress is criticized and suggestions are made toward a reformulation and enlargement of psychological stress theory to underscore the importance of people's active coping with challenge and demand.

To
Adele and Ben
for all their help

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INTRODUCTION

In recent years the problems of the city have become an important topic of discussion and study in all areas of social science. One popular, but not very thoroughly researched, urban "problem" has been the stressfulness of city living. The idea of the city as a stressful or evil place to live is an old idea in American thought. In their book, The Intellectual Versus the City, White and White (1962) have shown the development of this thought from Jefferson to Frank Lloyd Wright. Epidemiologists have tried to demonstrate the stressful consequences of urban living by comparing urban and rural rates of physical and mental illness (Carlston & Levi, 1971; Srole, 1972). Although the results of these studies have generally been found to be in the direction of higher mental illness in urban areas, the methodological problems involved raise questions as to the reliability of these results and their interpretation. The concept of urban stress leading to higher rates of physical or mental illness is still hotly debated (Dohrenwend & Dohrenwend, 1972; Fisher, 1976; Morgan, 1972; Parker, 1972; Srole, 1972).

In 1938 Wirth concluded that three main factors define the urban way of life: 1) the large size of a population, 2) its high density and 3) its heterogeneity. From these interrelated factors he derived all other aspects of urban--as distinguished from rural

or folk-life (i.e., diversification, segmented roles, sophistication, standardization, anomie, etc.).

More recently social scientists (Carlstrom & Levi, 1971; Glass & Singer, 1972; Milgram, 1970; Toffler, 1970; Williams, 1971) have discussed the stressful attributes of life in the city and how people attempt to cope with these attributes. For instance, Milgram (1970) approaches city life as a problem of too much stimulation bombarding a person at one time. He discusses how the attempts of city people to reduce information, and particularly social inputs, have resulted in the uniquely urban norms of noninvolvement, impersonality, unshockability, etc. Williams (1971) discusses the results of high density or social congestion in terms of behavior interference and sensed threat resulting from high exposure to competition and conflict. He also suggests ways in which people screen out and simplify conflicting messages and responses to them.

The concepts of these authors have been developed mostly from their own experience and thought. Little empirical work has been done to validate their points of view. An important first step yet to be taken in the study of urban stress is to determine if people really experience city life as stressful, and whether those aspects of urban life that they do experience as stressful correspond to the dimensions of urban stress that have been hypothesized by stress theorists. This first step is the intent of the present study. It will define and delineate urban stress by asking city dwellers themselves to describe in detail their own stressful experiences in the city.

Before the rationale for the present study can be developed, however, it is necessary to ground the concept of urban stress in the more general concept of psychological stress. The first chapter begins, therefore, with a general review and discussion of psychological stress theory. The second chapter then enumerates the dimensions of environmental stress that have been theorized and researched by social scientists. A more thorough explication of urban stress and stressors takes place within this discussion. The third chapter discusses the effects of adaptation to the city on the experience of urban stress.

The fourth chapter demonstrates the need for the present study and discusses the questions about urban stress that it attempts to answer. The fifth chapter describes the methods used in collecting the study's data and analyzing it.

Chapters VI and VII present the results of the study in terms of people's descriptions of urban stress and the effects of adaptation (length of time in the city) on these descriptions. Chapter VIII discusses the limitations and implications of these findings.

At the time that this research was begun stress was a popular concept, useful for organizing a wide variety of psychological research. More recently its popularity has waned. In the final chapter the results are discussed in terms of the serious limitations they raise for the concept of stress and suggestions are made toward a restructuring of this research area.

CHAPTER I

THE CONCEPT OF PSYCHOLOGICAL STRESS

This chapter will follow the development of the concept of stress from an explanation of medical symptoms to a psychological state directly influenced by cognitive functions.

Stress as a Generalized Response

Stress as a psychological concept was introduced into psychology as a logical expansion of Selye's (1956, 1973) medical concept of stress. Selye, in a long series of studies, demonstrated that the body made a generalized response to a wide range of noxious agents and physiological stressors. He called this response the General Adaptation Syndrome (GAS). Each part of the body reacts to a noxious agent (e.g., an infected cut) not only with a local adaptation (i.e., inflammation), but also by sending out a general nonspecific agent or "call for help" to the brain. The amount of the agent released increases in direct proportion to the amount or percentage of the body that is stressed. This agent excites the pituitary into secreting hormones that result in a wide variety of metabolic and hormonal changes in the body. Whether these changes are adaptive or maladaptive depends upon the stressor itself and upon other conditions in the body. The GAS is generally anti-inflammatory in character. If the noxious agent is widely found throughout

the body, the GAS will be more completely activated and will reduce local inflammation which might threaten bodily functioning if too widespread. However, constant stress or activation of the GAS often results in "diseases of adaptation," the overworking of the organs or systems influenced by the GAS (e.g., the liver, adrenals, kidneys, etc.).

Although he does not detail how such stressors work, Selye suggests that psychological stressors such as overwork, fear and nervous tension also initiate the body's GAS response. Levi (1972) suggests that originally this response to psychological stressors was adaptive because it led to arousal and prepared the body for physical activity (i.e., fight or flight), but that in modern life physical action is rarely a viable response. Thus, general arousal or GAS to psychological stressors is frequently maladaptive, leading to mental distress and/or physical disease (Levi, 1972, p. 11).

Many psychologists have followed up Selye's suggestion and have investigated an individual's general response or reaction to psychological stressors. These researchers have generally started from the assumption that a stress response is the equivalent of high arousal. Selye defines his GAS response to stress as basically a series of hormonal changes leading to autonomic arousal. Cognitive arousal (mediated by the Reticular Activating System and measured by EEGs) was believed to be directly correlated with autonomic arousal (Berlyne, 1960, p. 49).

Levi, who has worked mainly with hormonal changes in subjects under stress, has retained Selye's assumption that stress results

equally from arousal due to positively affective and negatively affective stimuli. Most psychological stress researchers, however, have limited their interest in and definition of stress to responses to negatively affective stimuli.

Measures of stress have generally fallen into one of four categories:

1. Measures of general arousal. The most popular measures of general arousal used to measure stress have been skin conductance (GSR) and heart rate, both measures of autonomic arousal (Corah & Boffa, 1970; Funkenstein, et al., 1957; Houston & Hodges, 1970). Folkins (1970), for instance, used both skin conductance and heart rate to measure changes in stress reaction due to different intervals between the announcement that the subject would receive a shock and the shock's onset. EEGs (Malmo, 1957) and hormonal trace measures (Levi, 1972) have also been used.

2. Measures of task performance. The general arousal literature has shown that under extremely high arousal task performance decreases. Stennett (1957), for instance, showed that highly motivated (highly aroused) subjects who were offered rewards for good performance and punished for errors on an auditory tracking test did more poorly than moderately motivated (moderately aroused) subjects. Arousal was determined in this study by measures of muscular tension and palmar conductance. In a review of the arousal concept Duffy (1957) describes studies showing an inverted U-shaped relationship between arousal and some measures of efficiency; moderate arousal producing highest efficiency. Several theorists have

used lowered task performance as a measure of high arousal or stress (Glass & Singer, 1972; Radloff & Helmreich, 1968). This measure has been most successfully used where the task itself is a major source of the stress (Funkenstein, 1957; Levi, 1972; Radloff and Helmreich, 1968).

3. Emotion or Mood. Studies of emotion have shown that ratings of high affect are normally accompanied by high autonomic arousal (Cannon, 1929). Stress researchers have frequently used ratings of emotions, moods or preferences for condition (implying affective reaction) as supplementary measures of stress (Corah & Boffa, 1970; Folkins, 1970; Funkenstein, 1957; Neale & Katahn, 1968). One important reason for using mood or emotion as a measure is the assumption by researchers that stress involves arousal accompanied by negative affect. If stress is assumed to require negative affect, as well as arousal, some measure of mood or emotion should accompany the nonspecific measures of physiological arousal.

Although Funkenstein (1957) and others have tried to show that different types of arousal (epinephrine-like versus norepinephrine-like arousal) are expressed by different affects (anger-in versus anger-out), several other studies have contradicted their findings (Levi, 1972; Schacter & Singer, 1962). These studies have shown that states of high arousal which are indistinguishable in terms of autonomic or endocrine measures can be experienced with very different affects. Levi (1972) performed one such study. In it the same subjects saw four different films (scenic, comedy, war and horror) on four successive nights. Urine samples were taken directly after

the film and in control periods both before and after the film. These were analyzed for level of adrenaline, noradrenaline and several other hormonal measures of arousal. Although the subjects used very different emotions to describe their reactions to the three exciting films (the comedy, war and horror films), there were no significant differences among the measures of arousal to the three films. Schacter & Singer's (1962) well known studies of emotion have also demonstrated the importance of learning or set for definition of internal arousal.

4. Long term effects of arousal. A fourth measure of stress also purports to measure the results of high arousal, but over an extended period of time. Several studies have been performed predicting higher rates of physical illness (especially of the stress related illnesses described by Selye) and mental illness among people experiencing high amounts of stress over time. The life stress research has demonstrated that a large number of negative life events (death, divorce, illness, etc.) within a six month or year period lead to higher levels of mental illness (Coates & Howat, 1974; Gerstein et al., 1974). Holmes (1974) and Rahe (1974) claim that life stress can result from a large number of negative or positive life events, i.e., from change per se.

Problems with a Generalized Response Theory

The studies of physiological response to psychological stress have, contrary to Selye's theories, found a great deal of variation in response among stressed individuals. Lacey (1967), in an

important article, points out that response to moderate stress is not quite so generalized as originally supposed. He makes three general points:

1. Under moderate stress the correlations between different physiological measures of stress are frequently low. Funkenstein (1957) and Lazarus (1966) suggest that this is because different kinds of arousal accompany different coping reactions (see above). However, Lacey suggests that this is because individuals differ in the way in which they express autonomic arousal (i.e., some have elevated heart rate when aroused, others elevated GSR). Both Lacey (1967) and Zuckerman (1969) also suggest that cognitive and autonomic arousal may operate independently, at least under moderately stressful conditions.

2. Several studies have shown that measures of physiological arousal, performance and self-report are frequently uncorrelated. Malmo (1957), for instance, showed that a divided set in a tracking task lowered performance without changing measures of cortical (EEG) or autonomic (heart rate, palmar conductance and respiration) arousal. Lazarus (1966) in his studies of subjects' reactions to vicarious threat, found that Japanese and Americans reported similar stressful experiences while watching a film of subincision operations. During the portions of the film depicting subincision, both groups reported greater experienced stress than during other portions of the film or during the control film. However, for the Japanese subjects, measures of skin conductance remained consistently high throughout the experiment, not distinguishing between different portions of the film.

3. There is a great deal of individual variation in the degree to which people experience stress in a given situation. Sensory deprivation studies have found wide variations in the degree of tolerance for stressful sensory deprivation in subjects (Myers, 1969). When given experimental shock, high anxious subjects show higher stress responses than low anxious subjects (Neale & Katahn, 1968). Bettelheim (1960) describes how some people subjected to the extreme stress of Nazi concentration camps died within three months. Others survived, but suffered major personality changes; while still others survived with their health and personalities intact.

These findings, discussed by Lacey (1967) and others, have led away from a simple "stressful stimuli→generalized response" model of stress. Obviously, both the type of stress response and its intensity result from an interaction between the stressor and the individual being stressed. Many stress researchers have begun to explore the parameters of this interaction.

Using stressors such as shock and loud noise which should act upon the body most directly (being physiological as well as psychological stressors), a large group of experimenters have found that accurate prediction of an anticipated stress or control over its administration results in lowered physiological and emotional response and less decrease in task performance. Haggard (1946), for instance, found lower GSR responses to shock when subjects were allowed to give the shock to themselves (could both predict and administer the stressor). He also found subjects to have lower GSRs

when they were aware of the contingencies for the shock (shock followed certain words in a learning paradigm). In a study by Monat, Averill and Lazarus (1972) subjects preferred knowing when the shock would come, and the physiological response patterns during anticipation of shock were different for known and unknown time of shock onset. Neale and Katahn (1968) found low anxious subjects do better on "intelligence tests" when they know in advance the order in which they will take the tests. They do better still if they can control the order in which they take them. High anxious subjects, however, did more poorly than low anxious subjects in all conditions and showed no improvement with increased control over the situation.

Geer et al. (1970) and Champion (1950) demonstrated similar effects for "experienced" control (where the subjects thought they could control the shock even though they could not). Geer gave 40 subjects ten trials of shock, each shock lasting for six seconds. He then told half his subjects that they could reduce the length of the shock by responding with quicker reaction times when it began. The duration of the shock was reduced for all subjects to three seconds. But those who believed they were controlling the length of the shock by their own reaction times had fewer spontaneous skin conductance responses and smaller skin conductance responses to shock onset.

From these studies researchers learned that the stress response is affected by cognitive variables. Besides being influenced by individual differences in physiological reaction and by the stressor

and response measure used, the stress response is affected by the information or attitudes held by the stressed individual.

Other research has shown that anticipation of a stressor or stressful event can produce the same physiological reactions as the event itself. Shannon & Isbell (1963) gave injections to 245 male subjects preliminary to dental work. They had five different conditions. In three conditions three different types of drugs were injected; in one condition the needle was inserted into the skin but no drug was given, and in one sham condition the needle was placed in the mouth, but never actually inserted in the skin. No differences were found between the five conditions in level of 17-OHCS (a measure of autonomic arousal) secreted during the "experiment." All conditions showed a significant increase in 17-OHCS over the prestress level.

Appraisal Theories

These findings have caused many researchers to completely rethink the original stress paradigm based on Selye's model of stress. They feel it is necessary to place more emphasis on the individual's perception or appraisal of the stressful situation. Out of this approach several appraisal theories of stress have been developed (Kahn, 1970; McGrath, 1970; Sells, 1970; Turan, 1972; Welford, 1974).

Perhaps McGrath (1970) has stated the appraisal theorists' position most succinctly. For him stress involves a sequence of four events. The first event is called demand (or load, input, stressor, press, environmental force). The second is reception (or recognition, cognitive appraisal, perception, acceptance) of

that objective demand by the individual (at some conscious or unconscious level). McGrath labels this as subjective demand. Third, there is the individual's response to the subjective demand (at physiological, psychological, behavioral and social interaction levels). And fourth, there are the consequences of the response both for the individual and for the environment of which he is a part (McGrath, 1970, pp. 15-16). For McGrath the individual's response is then the result not of the stressor or demand directly, but of the individual's perception or appraisal of that demand. Stress itself occurs as the result of a particular type of appraisal. This is the appraisal of a substantial imbalance between the perceived environmental demand (subjective demand) and the perceived response capabilities of the individual. The consequences of the demand are also appraised. These consequences must be important to the individual in that if the demand is not met, some motive or need of the individual will be threatened. The two steps that McGrath and the appraisal theorists have added to the stressor-response paradigm (subjective demand and perceived consequences of failure to meet this demand) both occur within the individual--more specifically, within his (conscious or unconscious) cognitive or appraisal mechanisms.

Studies of real life stressors seem to support this conception of stress. Helmreich and Radloff (1968), for instance, in their study of the SEALAB II deep-sea divers, show how the intense physical stresses they suffered did not significantly affect their task performance and morale because the stresses were balanced by appraisals of high competence both for themselves and for the others working on the

project. Interviews and other measures showed that the deep-sea divers did see their tasks as extremely difficult and dangerous. Several near accidents occurred. The waters were cold, murky and shark-infested and the divers were too deep to come to the surface quickly without dying from "the bends." They lived for two weeks in a crowded, self-contained underwater lab that depended for its oxygen and other necessities upon the base crew 200 feet above them on the surface. The deep-sea divers were undoubtedly aroused, aware of the difficulties and the consequences of failing to handle the situation. But they showed positive, not negative affect. Many divers were sorry to return to the surface after the two weeks and were eager to go down again. All of them saw the dive as an important positive experience. Why was the affect positive? These divers, though aware of the dangers they faced, were also confident of their own and the base crew's skills. They believed that they could handle the situation.¹

Lazarus has developed a two stage model of stress appraisal similar to McGrath's. He equates stress and threat, although threat is defined as the anticipation of harmful events, as opposed to their actual occurrence. Threat must be appraised or evaluated as harmful. Lazarus divides appraisal into two types. Under "threat appraisal" he considers situational and personality factors that influence a

¹They also expected many rewards from a successful dive. They expected that it would result in an increase in self-respect and in the respect of their friends and the world generally. It would also increase their chances for future success. Radloff and Helmreich use a cost-reward analysis to show that the rewards for the divers (in their own opinions) outweigh the objective dangers of the situation.

person to appraise a situation as threatening. Under "secondary appraisal" he considers situational and personality factors that help determine a person's emotional and behavioral reaction to threat. Figure 1 gives an outline of his model.

Appraisal for Lazarus is definitely a cognitive process that requires considerable complexity and abstractness. "But the term cognitive does not imply awareness, good reality testing or adaptiveness. It only implies that thought processes are involved, not the kind or quality of thought. What is meant is that beliefs, expectations, perceptions, and their motivations underlie how a threat stimulus is reacted to. Furthermore, the cognitions involved need not be reportable" (Lazarus, 1967, p. 168). Although Lazarus discusses the possibility of both conscious and unconscious threat, he does not make any attempt to describe when and under what conditions stressors are unconsciously rather than consciously appraised. Neither does he distinguish between the types or dimensions of stressors that might have different likelihoods of being consciously appraised.

Stress, as the concept has been developed by psychologists, is a psychological and physiological state. The psychological state is the perception of threat or of an imbalance between environmental demand and one's own resources in a situation involving important consequences for the individual. This perceived threat or imbalance results in a physiological state of high arousal which leads potentially to negative affect, to reduced task performance and, over a longer time, to stress-related physical disease (e.g., ulcers, adrenal malfunctions). It also initiates some type of mental or behavioral

	Threat Appraisal	Secondary Appraisal
Situational Factors	a. Balance of power between harm producing stimuli and counterharm resources b. Imminence of anticipated confrontation with harm c. Ambiguity of the stimulus cues concerning harm	a. Location of the agent of harm b. Viability of alternative actions in preventing harm c. Situational constraints
Personality Factors	a. Motivational characteristics of the individual b. General belief systems about transactions with the environment c. Intellectual resources, education and sophistication	a. Motive strengths and pattern b. Ego resources c. Coping disposition d. General beliefs about the environment

Source: Lazarus, 1966, p. 160

Figure 1--Lazarus' Analysis of Factors Influencing Appraisal in Threatening Situations

coping response (e.g., fight or flight) in an attempt to reduce perceived demand, increase one's resources or reevaluate the potential consequences of the situation.

Theoretically this concept of stress appears quite logical and self-contained. But it is difficult to research objectively because a person's psychological and physical state cannot be measured directly. It must be inferred from specific physiological measures, reports of emotion, variations in task performance, verbal report and observable coping responses. The next chapter describes how some of these measures of stress have been used in exploring the effects of different environmental stressors.

CHAPTER II

DIMENSIONS OF ENVIRONMENTAL AND URBAN STRESSORS

The last chapter discussed stress research that was concerned mainly with the stress state: the individual's response to stressful stimuli and the aspects of the situation or the person that can influence that response. Psychologists, however, have also studied the various kinds of psychological stimuli that have been considered to be stressors in an attempt to determine why these particular stimuli are experienced as stressful. To phrase it in McGrath's terms: What dimensions of a stimulus or environmental demand are likely to threaten or have negative consequences for an individual's motives or needs? What dimensions of the environment require responses from the individual that are perceived as beyond or almost beyond his capabilities?

Although psychologists have studied physiological, social, ego and environmental stressors, our main concern is with environmental, or more particularly, urban stressors. Of course urban stressors can (as can environmental stressors generally) threaten physiological, social or personal motives. Thus, walking down a dark slum street may threaten a person's need for physical safety. Living completely alone in an anomic community on the other hand might threaten one's more personal needs for love or appreciation.

The limitation here is not in the motive being threatened, but rather in the kind of stressor causing this threat. The source of the threat must be the environment or physical situation rather than specific people or psychological problems (e.g., fear of failure). Of course, even this distinction is difficult to make. The urban environment is by definition made up of people. Many real life and urban stressors involve combinations of physiological, social, ego and environmental stressors. It will be enough to stipulate that environmental stimuli--such as those discussed below--play an integral part in the development of a threat or stress.

From their explorations of environmental stressors researchers have extracted several dimensions or general characteristics of these stressors. Most of this research has been performed in the laboratory, but the extracted dimensions can also be usefully applied in an analysis of urban life and stressors. This section analyzes several environmental stressor dimensions and gives examples of their relevance for urban living. It emphasizes how these dimensions rely on the concepts of appraisal to elicit the experience of stress.

Attentional Overload

The first dimension of stress can be called attentional overload (Saegert, 1975). There are two major ways in which it arises: stimulus or energy overload and informational overload.

Examples of energy overload would be extreme heat, constant noise and bright flashing lights. Psychologists (Berlyne, 1960; Fiske & Maddi, 1961; Zuckerman, 1969) have determined that individuals need

a balanced amount of stimulation from the environment. Physiologically, stimulus input and cognitive activity are monitored by the Reticular Activating System (RAS), which in turn determines an individual's arousal level and controls the balance between exteroceptive stimulation, interoceptive (somesthetic) stimulation and cortical activity (Berlyne, 1960; Zuckerman, 1969). Too little or too much external stimulation upsets this balance. Sensory deprivation research has shown that too little external stimulation for an extended period of time results in heightened somesthetic sensitivity and reduced control over cognitive activity (Zuckerman, 1969). This is usually accompanied by high autonomic arousal (perhaps partially the consequence of the individual's feelings of loss of control over his experience). Too much stimulation from the environment also disrupts thought--and frequently motor activity--and thereby can be appraised as threatening by an individual motivated to complete the disrupted task. Sokolov (1969) in his studies of the orienting response to new stimulation or to any change in stimulation has demonstrated the disrupting effect of heightened energy input.

Much of the process described above for energy overload can be described purely in physiological terms. The heightened arousal seems a direct effect of the interactions between energy and the RAS. But appraisal is necessary to determine the individual's reaction to RAS arousal. For high energy input that falls short of causing actual physical pain or homeostatic imbalance the individual's appraisal of the situation determines whether the resulting arousal is experienced as stressful or pleasurable. Very high energy input

can be consciously sought. Fiske and Maddi (1961) and Berlyne (1960) both describe the motivational qualities of increased stimulation and arousal. But when increased arousal conflicts with other motives or needs--when it comes on top of an already high arousal level or feelings of fatigue, when it degrades or interrupts the performance of an important task--it is appraised as undesirable. Undesirable, but difficult to avoid, arousal is appraised as stressful.

Energy overload is a commonly discussed dimension of urban stress. Sounds, lights, smells, movement, people can all combine to flood the senses and perhaps stress the individual when he needs quiet to rest, think or complete a task. The pace of life has also been shown to be faster in the city (Lowin et al., 1971). There is more to do, more is happening around one. There are more changes in the environment from place to place and everything is moving at a faster pace. Simmel (1951) in his discussion of the metropolis and mental life declares that "the basis of the metropolitan type of individuality consists in the intensification of nervous stimulation which results from the swift and uninterrupted change of outer and inner stimuli" (p. 48). If one assumes a limited energy model of life (as Selye does), the greater amount of stimulation should lead to greater arousal, greater energy use, and more stress on the person. Some people, however, do not experience this aspect of the city as stressful. Their arousal mechanism is adapted to a high level of stimulation, and they are more likely to experience as stressful a place or situation that is quiet or slow moving. Whether the stress

of energy overload is experienced in the city depends to a great extent on a person's "optimal level of arousal" (Zuckerman, 1969).

Information overload differs from energy overload in that it is concerned not solely with the quantity of stimulation received from the environment, but also with its quality. It is concerned with the amount of nonredundant information about the environment that an individual receives or the "surfeit of cues in an environment that have adaptive significance for the inhabitant" (Saegert, 1976, p. 219). Examples of information overload would be several people trying to tell you something at once, or a person trying to make an important decision from a large number of confusing and conflicting alternatives. Information overload usually involves the concepts of complexity, novelty or irrationality. A person in an overload situation experiences an inability to assimilate or make sense out of all the information presented.

Information overload is of course a cognitive concept. It depends not solely on the amount of information that enters the exteroceptors, but on how that information is organized and what it means to the individual. Novel, complex or irrational inputs are stressful because they are difficult to organize, handle, or control. But such information must also be important to a person's motives or needs. For instance, if a person feels that city politics are irrelevant to his personal life, he will ignore confusing or complex information about political crises and will not feel stressed if he cannot understand them. If, however, he believes city politics will directly influence his future (perhaps his own job is dependent

on the results of a crisis) the complex and confusing information can be experienced as very stressful.

Information overload is the dimension of urban stress most frequently discussed by city life and urban stress theorists (Carlstrom & Levi, 1971; Milgram, 1970; Williams, 1971; Wirth, 1938). Milgram (1970) sees Wirth's three factors of city life (large numbers, high density and heterogeneity of people) as leading to an overload of stimulation. Too much information must be handled, too many social contacts must be negotiated, too many decisions must be made. In order to handle these problems, Milgram suggests that people limit the influx of information in several ways. These defensive responses to overload lead in turn to a different code of conduct for the city dweller. Noninvolvement with strangers, respect for privacy, impersonality, a blasé attitude toward bizarre behavior, segmented roles and identities, all result from an attempt to cut down the complexity, novelty and irrationality of life in the city. Toffler (1970), whose description of the future is essentially a description of an intensely urban way of life, describes the problem of overstimulation and suggests that there are limits to man's adaptability to the future's increased transience, novelty and diversity. He believes that the popularity of "movements" and subcults today results from people's need to simplify their choices about their way of life (e.g., their clothes, beliefs, friends, possessions, etc.).

Pain or Threat of Injury

This second dimension of stress, like attentional overload, has a physiological basis: the experience of physical pain or injury. Combat stress, community disasters, slum living, extremely loud noise and experimental shock are all examples of stressors that can contain this dimension. Actual pain and injury have been shown to produce direct physiological reactions in people, leading to physiological stress (Selye, 1956). However, the experience of pain and of its psychological and physiological correlates is frequently influenced by the victim's appraisal of the situation. Experiments with hypnosis and placebo painkillers have demonstrated the degree to which the experience of pain is mediated by cognition. McAmmond et al. (1971) found that people frightened of the dental situation whose fears were treated through hypnosis were less aroused during an oral injection (GSR) and more likely to return voluntarily for dental work than were a group of controls. Gelfand et al. (1963) found nurses took longer to perceive heat pain and tolerated the pain longer when they were given a placebo that they believed was a painkiller. Both Janis (1958) and Andrew (1970) have demonstrated the beneficial effects of information about an operation on a patient's recovery. Patients given a complete description of their operation, of what effects they would experience, and of the postoperative hospital routine needed fewer drugs and were discharged from the hospital earlier than a control group of patients.

Threat or anticipation of injury or pain, even vicarious experience of pain, have been shown to cause stress reactions in the

absence of any real stressor. The Shannon and Isbell (1963) and the Monat et al. (1972) studies mentioned above have documented the reaction to anticipatory pain.

The anticipation of violence (pain) is perhaps one of the most stressful features of urban life today. Rates of mugging and other violent crimes are higher in the city than in rural areas (FBI, 1973). But perhaps fear of violence is higher in the city for other reasons. City people regularly must travel into areas and among people they do not feel they understand or can predict. Almost none of the people they see when travelling alone in the city are friends on whose help they can depend. The "vulnerable space" or physical area within which a person will identify with the victim when a crime is committed (i.e., "that could have been me!") is much larger in both area and population in an urban than a suburban or rural environment, and therefore the frequency of violence occurring within a person's "vulnerable space" is likely to be much higher (Milgram, 1970).

There are other sources of danger in a city that may be considered stressful by its inhabitants. Heavy traffic, poorly maintained public transportation, and poorly repaired or heated housing can all be sources of danger and fear for urban residents.

Interruption

The next two dimensions of stress to be described are interruption and loss of control. There is no direct evidence of a physiological mechanism underlying the stressful experience of these two dimensions. They both, however, assume the existence of a basic

need or motive that is frustrated or denied by the environment. The dimension of interruption assumes a need for completion of a behavioral sequence. The dimension of control assumes a need for controlling or at least making some sense out of one's environment. These needs are assumed to be universal or a basic part of human nature, but in any particular situation they may not be aroused in an individual. They might also be overshadowed by an even greater need or motive. In such a situation a potential stressor that denies only this need or motive will not be appraised as stressful.

The interruption of a sequence of behavior has been described as a dimension of stress by several theorists (Brady, 1966; Mandler & Watson, 1968; Weick, 1970). It can occur because of stimulus overload, as when loud noise or distracting talk interrupts one's task; or it can occur in situations--like being caught in a traffic jam when one is hurrying to an appointment--which directly block an initiated behavior sequence.

Mandler and Watson (1968) have studied the effects of interruption of behavior on an organism. They suggest that organized behavior is unitary in nature. When an organized behavior sequence is initiated and then interrupted so that it cannot be completed, a state of arousal results. Arousal produces emotional behavior (not necessarily negative emotions). When a behavior sequence is interrupted, there is a tendency to completion of that sequence until the situation is somehow changed. The sequence is either pursued with increased vigor, or a substitute response is found to complete the sequence. If the arousal cannot be terminated through a completion

of the behavior sequence, or through the substitution of a similar sequence or through some other change in the situation, the arousal will be experienced as anxiety or as feelings of helplessness or disorganization.

Mandler studied the disruption of serial learning sequences for subjects, where the sequences of words formed primary sentences. After the subject learned to anticipate the words in sequence, the sequence was interrupted by substituting an unlearned word for an anticipated one. Arousal was measured by the subject's GSR. Mandler found a rise in GSR when the serial learning sequence was interrupted by an unlearned word. The rise was higher for overlearned sequences than for sequences learned to mastery only. It was also higher for completely irrelevant interrupting words than for interrupting words that met the syntactic and semantic requirements of the sentence.

In generalizing from the laboratory research on interruption to interruption in everyday life, it is not likely that we will find a person experiencing stress each time he is unable to complete a sequence of behavior. Most interruptions probably cause mild irritation or chagrin, but not the high arousal and negative emotions that are supposed to distinguish a stress response. I would suggest that interruption is only responded to as stressful when an individual appraises that an important motive is thwarted by the interrupted behavior. The interruption of behavior itself may cause some arousal but it must be reinforced by the appraisal that the completion of the behavior is important to the individual, but difficult or impossible to accomplish.

Williams (1971) suggests that one of the major negative effects of high population density is a result of increased "behavior interference." "High levels of diverse activities which involve simultaneous use of scarce space, facilities and energy" (p. 7) result in interference with goal attainment efforts and deprivation of gratification. The high rate of incoming information, diversity of role relationships and increasing demands and claims from others (all overload concepts) continually interrupt and interfere with behavior or plans and result in stress. Simply walking down a crowded street involves continual interruption and adjustment of direction. Planning a large meeting or organizing an appointment schedule can require dozens of negotiations and changes in plans. Heavy traffic and subway breakdowns are frequent interruptions of people's plans and actions (unless, of course, they too are planned for). The proportion of interruptions in urban and rural life may be equivalent (although Williams suggests that they are higher for higher densities of people), but city people are frequently tempted by the wider range of opportunities around them to do more and to schedule more closely, so that interruption or delay of one's plans is more likely to have a greater effect on one's day. Of course interruption need not be appraised as stressful by an individual. Many people adjust to traffic delays by refusing to care if they are late. Others plan for interruptions or develop contingency plans for when they occur. The city's greater options and opportunities also increase the likelihood of a person finding a good alternative or substitute behavior for an interrupted one.

Control

Understanding or control as an important motive or need in life has been expounded by several personality theorists. White (1959) proposes a motive for competence or drive for effectance. He uses Piaget's descriptions of his children's curiosity and their attempts to act as a cause (i.e., to effect a change in the environment) as supportive evidence for this motive. DeCharms (1968) believes that "man's primary motivational propensity is to be effective in producing changes in his environment" (p. 268). Kelly (1963) speculates that man actively seeks to conceptualize, organize and make sense out of his environment. Man chooses those mental constructs that will best help him to anticipate or predict future events.

The experiments on prediction and control discussed earlier in the section on theories of stress response have shown that the correct prediction of an event or the appraisal of control over it can be a relevant dimension of pain and overload stressors (Glass & Singer, 1972; Lovibond, 1968; Pervin, 1963). Part of the stressfulness of interruptions of behavior might also be the implications they have for loss of control over the situation.

Averill (1973) in a review of the studies of stress and control suggests five different types of control available to an individual: stimulus modification, regulated administration, information gain, reappraisal and decisional control. Information gain (reduced ambiguity) has been discussed by Janis as an important factor in successful recovery from serious operations and in successful

preparation for disasters. In an analysis of disaster warnings Janis (1962; Janis & Leventhal, 1968) concludes that a warning should include the magnitude of the danger, its probability of occurrence, and the personal implications of the danger for the person. He describes how ambiguous or incomplete warnings lead to hypervigilance and nonconstructive fear or panic or else to blanket reassurance and failure to act at all. Reappraisal as a defensive mechanism for reducing anxiety has been studied by Friedman et al. (1963). Over a period of several months Friedman studied parents of children with leukemia. Those parents who consistently denied that their child would die had lower 17-OHCS excretion levels (a physiological stress measure) than other parents.

Rotter (1966) and other personality researchers who have studied internal and external locus of control have shown significant differences in how people appraise situations in terms of control. These studies have shown that people with an internal locus of control (people who feel they have a significant amount of control over their environment) experience less anxiety, and search out and make better use of information related to understanding and controlling the environment.

Averill (1973) has pointed out, however, that greater feelings of control do not always lead to reduced stress. Moreover, Mechanic (1970) found that people who had given up control and not tried to cope in a particular situation were less anxious or stressed. In a situation where coping or control is appraised as impossible (e.g., getting stuck in a traffic jam) giving up desire to control and also

the motive being pursued (e.g., "I don't care when I get where I'm going") can most successfully reduce experienced stress.

Control in relation to urban living can be discussed from two points of view. From one point of view the individual city dweller has much less control over his environment than a rural inhabitant. He is much less likely to own his own home or land, and if he does, he is much more controlled in his use of that land by city laws and codes. He has less direct control over facilities providing him with safety, transportation, health services, etc. Any power he holds over local government, school facilities, landlords, etc. is more likely to come from collective organizations rather than personal relationships.

However, the size of the city population gives a person more control over his own life in terms of personal privacy or control over information about himself. The diversity of facilities and services available in a city gives a person more choice of action and therefore more control over when and where he will do something.

Because of the hierarchical structuring of urban living (Wirth, 1938), income and social position have a greater influence over a person's control of the environment in the city than in rural life. Power and control become more dependent upon the possession of money (Simmel, 1951) in an environment where most of the people dealt with every day are not also personal friends or acquaintances. A rich man in the city can gain control over goods and services, as well as privacy and information, because he can afford to pay for what he desires. The poor man in the city loses

even his control over his personal privacy and information about himself when he is forced to use public clinics and welfare services rather than friends or private organizations for social support.

Meaning or Value

The last dimension to be discussed is more completely cognitive and more complex than the previously discussed dimensions. This is the dimension of value or meaning. It cannot be defined in terms of a single basic need or mechanism. It occurs, rather, when the symbolic meaning or value a person gives to an environment conflicts with the individual's own motives or needs. Examples of such a conflict might occur in those prisoners and slum dwellers who see their environment as defining them in ways contrary to their own good opinion of themselves. People's perception of or attitudes toward sound, density and being alone frequently determine whether these are experienced as stressful. Sound is more likely to be perceived as annoying noise if it comes from some disapproved or foreign source than if it is produced by oneself. The density of a room is viewed very differently if the people are friends invited for a party or strangers shopping in a small store. Aloneness can be viewed as privacy or isolation depending on whether or not it is chosen and desired.

The meanings of an environment and the values or needs with which it may conflict can be either culturally or individually determined. Caudill (1958) in a paper on stress in different cultures points out how differing values involving beauty and mutilation result

in a casual attitude toward wounds in New Guinea, but in trauma for an individual wounded in Bali. He also emphasizes the importance of cultural values and supports for successful coping with stressors.

Klausner (1971) discusses in depth the influence of social and personal values on the experience of filth and noise. His discussion of noise--a typically urban stressor--is particularly instructive, because it brings together many different ways in which the meanings or appraisals of a sound can affect how one experiences it. He suggests, that when noise is loud enough, it produces a "system overload" that results in "released affect." "Whether this affect is interpreted as security or anxiety depends, in part, on the socially defined message carried by the sound" (Klausner, 1971, p. 128). However, less intense noise can also be appraised as stressful (or at least as very annoying). A study by Mech (1953) showed that performance of a task during noise could be affected by set. Subjects told that noise would result in lowered efficiency showed a performance decrement, whereas those told that the noise would improve performance showed a performance gain.

Chatlos and Goldstein (1967) found that hospital patients' reactions to several different experimentally produced noises (as measured by heart rate, digital temperature and skin resistance) were related to the associations they made to the sound. A survey (Bolt et al., 1967) found that annoyance with aircraft noise was not necessarily decreased through repetition or habituation. Of the respondents, 34% reported that they had become more used to aircraft

noise after a year, but 24% said they had become more bothered by the noise. Cohen (1971) points out that perceived usefulness affects annoyance. If the noise is accepted as necessary for some need, or is related to one's own job or activities, it is perceived as less annoying.

The concept of acoustical privacy has also been suggested as a dimension of annoyance with noise. People are more annoyed by noise when withdrawing from social interaction. People are more bothered by road traffic when at home than when at work or outside (Cohen, 1971). They are more annoyed by noise at night than during the day, and probably would be more annoyed when in a bedroom (which means for most people greater privacy) than when in a living room. Glass and Singer (1972) have shown that frustration and inefficiency due to noise are increased by one's inability to predict or control the noise.

The source of the noise is also important. Surveys have shown that noise coming from disliked neighbors or unapproved activities is experienced as more annoying than noise of greater intensity coming from street traffic, a more affectively neutral source (Cohen, 1971). Finally, the survey by Bolt et al. (1967) found that the most prosperous social classes are more susceptible to sound than the less prosperous ones. Higher income, middle age, smaller families and more education (all interrelated variables) were found to result in greater sensitivity to noise. Parrack (1957) argues that this difference is due to the upper classes being more resentful of intrusions generally and better able to buy privacy

or distance. Their jobs frequently require control over incoming information, and they know better how to use their social power to reduce their annoyance.

Filth, also discussed at some length by Klausner (1971), is another common stressor in the city. Klausner suggests that filth and dirt signify to many people illness, poverty and a denial of or disassociation from middle class standards (i.e., cleanliness). Williams (1971) believes that an "--assault upon values, beliefs and norms and upon the total integration of personality and social collectives . . . may result from unavoidable exposure to offensive, shocking, ugly and immoral inputs" (p. 15). He also suggests that the high exposure to competition for scarce resources and facilities and the conflict between people with incompatible values and motives which results from the sheer density of the urban population, results in sensed threat to oneself and one's values (and hence in experienced stress.)

In most real life situations stressors involve more than one dimension or result from a complex of several appraisals and several coordinated or conflicting motives. Noise, for instance, that is so loud as to cause "energy overload" can also be interrupting or out of one's control. It can be a source of pain (if too loud or high) or of information overload (if containing novel, complex, or conflicting information). Finally, as we have just seen, noise that is none of these things can become a source of stress because it holds one or more social or personal meanings that conflict with a person's motives or desires. The complexity of the influences of appraisal

and meaning on such an apparently simple concept as noise gives us some idea of why reactions to more complex stressors such as crowding or lack of privacy are so difficult to manipulate and study.

This chapter has been devoted to the delineation of several dimensions of stress or aspects of the environment that can elicit stress. Each has been discussed in terms of its possible contribution to the experience of urban stress. Most of this discussion has been theoretical or hypothetical. There is little empirical evidence that these dimensions are the aspects of the urban environment that produce stress in people, or even that people experience urban stress at all. Nowhere in the urban stress literature are people asked about their own experiences with a variety of stressful aspects of city life.

CHAPTER III

ADAPTATIONS TO URBAN STRESS

Types of Adaptation

An important aspect of stressors with respect to all of the dimensions discussed above is the effect of adaptation to a stressor on a person's appraisal of stress. According to McGrath's model, the appraisal of stress depends on three separate appraisals: the perceived demands from the environment, the perceived resources of the person to handle that demand, and the perceived consequences of the demand if it is not met. Adaptation over time can change any of these three appraisals.

Appraisal of Demand

There are two ways a person can adapt his appraisal of demand. First, his body can actually adapt physiologically, for instance, to a different level of stimulation, thus reducing the experience and appraisal of energy overload (Berlyne, 1960).

Second, a person can learn more about a situation or demand so that he can more efficiently appraise it. When a person first encounters a novel, potentially stressful situation he can appraise it only in terms of his past experience of similar situations. As he interacts in the situation he learns or "constructs" the probabilities or meanings of the situation (Wapner et al., 1973). He learns

which aspects of the situation can be safely ignored, and which are salient for his own plans and goals. He learns to categorize aspects of the situation as similar to each other or to previously experienced situations. As his appraisal of the situation becomes more sophisticated, he can handle more information at one time. As he becomes better able to predict the situation, he successfully avoids interruptions or incorporates unavoidable ones into his plans. As the situation becomes better known and understood, it is less likely to be appraised as too demanding for the individual to handle.

Appraisal of Resources

When appraisal of a situation becomes more efficient, changes often occur in the individual's appraisal of his own resources. A clearer picture makes it easier to pick out and apply present skills and abilities that can effectively handle the situation. At the same time increased experience with a situation allows for the initiation and testing of new coping skills or responses. Eventually, it is even possible to anticipate a demanding situation and cope with it before it arises.

Both Milgran (1970) and Williams (1971) make specific suggestions as to how city dwellers adapt to or cope with the high demands of urban environments. Milgram's suggestions are all means of lowering information input from transitory social interactions that are irrelevant to or conflict with a person's motives or plans. Several of the coping methods also involve reappraisal of the demand. These methods are:

1. one can allocate less time to each input
2. one can disregard low priority inputs
3. one can redraw boundaries in social transactions, shifting the burden to the other party (e.g., exact change on buses reduces the complexity of the bus driver's job)
4. one can block reception of input prior to entrance into the system (i.e., unfriendly countenance)
5. one can filter the intensity of inputs (i.e., superficial involvement with others)
6. one can establish specialized institutions to absorb input (e.g., welfare departments).

Williams' (1971) methods of handling the information overload and the "behavior interference" resulting from high density or "social congestion" overlap to a certain extent with Milgram's. The methods seem more general, however, and perhaps encompass a wider variety of situations. They are:

1. block or ignore incoming messages
2. screen incoming messages--discard low priority ones
3. simplify messages by categorizing, rank ordering, etc.
4. simplify responses by categorizing, delegating, scheduling, and limiting the scope of the response
5. reduce "extraneous" activities through routinization/conventionalization, ritualization and controlled fantasy.

Appraisal of Consequences

One final kind of appraisal can be influenced by adaptation. A person can reappraise the consequences of a certain demand for his own goals or needs. A significant reappraisal of consequences can happen in two ways. First, a person can discover that a certain demand does not have the negative consequences that he had anticipated. For instance, a person may be afraid to drive on the city streets because he thinks he will not be able to keep up with or assert himself in the heavy, hectic, cutthroat traffic. Therefore, he will never get to where he is going or will become so anxious that he won't be able to do his work properly when he gets there. After driving in the hectic, cutthroat traffic, he may find that indeed he can't keep up with it. But he may also find that he need not become anxious or pull off the road. He will eventually arrive even though others get there before him. He may even find that by purposely refusing to assert himself or to try to cut in front of other cars, he gains a feeling of superiority to the other drivers that is definitely rewarding. In this example, the individual was correct in his analysis of the environmental demand and in his own ability to cope with the demand, but has reappraised the consequences of the demand.

The second way to reappraise consequences is by giving up the goal or motive that is threatened by the environmental demand. A person, instead of getting irritated and stressed by noise from neighbors or traffic at ten in the morning when he is trying to sleep, can give up all hope of sleeping past eight o'clock and simply

rearrange his sleeping schedule. The noise then no longer interferes with or interrupts his plans or needs. Of course, this kind of adaptation is not always possible. If a person's apartment is always noisy, he cannot decide to give up sleeping altogether.

There are limits to the three kinds of adaptation discussed above. There are some situations that will remain stressful or hard to handle even when the situation is efficiently appraised, coping is as skillful as possible, and motives and plans have been adjusted. Dimensions of stress differ also in the degree to which each kind of adaptation is possible. For example, when a situation involves a conflict between an environment's meaning and a person's values, only reappraisal of the meaning or values or avoidance of the situation will successfully reduce experienced stress. Information overload, interruption and loss of control, on the other hand, can become less stressful due to any of the three kinds of adaptation.

The Importance of Time

Adaptation generally occurs over time. It takes time to experience or construct a situation, to learn to appraise it and cope with it. Lawton and Nahemow (1973) have developed a model of adaptation that takes into account environmental press (demand), competence (appraisal and coping) and changes over time.

In their graph (see Figure 2) adaptation level is presented as a function of environmental press and competence. Environmental press (or demand) can vary from weak to strong (in the case of stimulation, from underload to overload). As competence (efficient

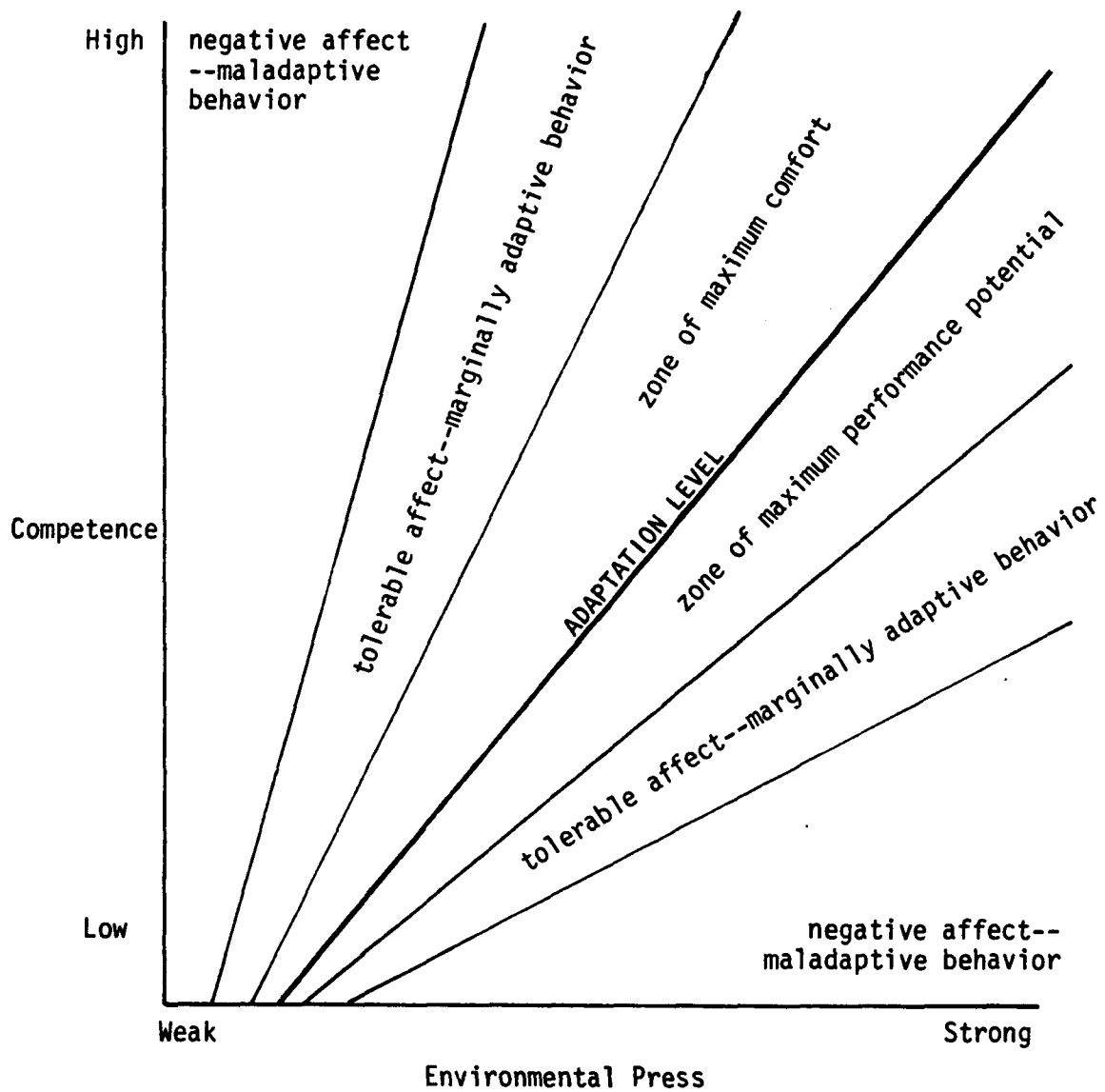


Figure 2.--Model of Adaptation (from Nahemow & Lawton, 1973, p. 25).

appraisal and coping skills) increases, a person is able to handle not only greater demand, but a wider range of demand. The adaptive and affective responses to different levels of press and competence are shown in the graph. Lawton and Nahemow suggest that when a person functions for a certain period of time under a particular press, his level of competence changes. If the environmental press is above the adaptation level, say in the "zone of marginally adaptive behavior" (i.e., stress is experienced) he will learn how to better organize the incoming information and to adjust old or develop new coping mechanisms and his competence will increase. As his competence increases, he becomes less challenged, and finally becomes comfortable with the situation, or perhaps even a little bored. If a person spends a long time in a situation that is below his adaptation level, these authors suggest that his competence may actually decrease so that he is less able to adapt to stronger environmental demand.

Competence can, of course, vary due to other influences than time. The physical factors of health and fatigue, and the circadian rhythm of body functions might easily affect it. Instruction can increase competence and speed adaptation. Likewise, psychological defenses that do not allow proper appraisal of the situation might make improved competence and adaptation impossible.

Adaptation and Conscious Appraisal

There is another aspect of the adaptation process that should be important for a discussion of the appraisal of stress. From the above discussion we might conclude that the nonadapted person or

newcomer to an environment is more likely to experience stress. It is also suggested that the adapting person is more likely to be appraising and coping with a demanding environment consciously. Schutz (1962) describes differences between the native and the stranger in their understanding and appraisal of a physical or social environment. He suggests that the native does not have a homogeneous, coherent knowledge of his own world of daily life. His appraisals and knowledge are frequently full of unrecognized contradictions. But his knowledge or understanding predicts the behavior of people and things well enough. His "thinking as usual" can be maintained so long as: (1) life and social life continue the same, (2) he can rely on knowledge handed down from parents, teachers, the government, tradition, etc. (even if he does not understand its original meaning), (3) it is sufficient to know about the general type or style of events in his life in order to manage or control them, and (4) his system of recipes or schemes of interpretation (i.e., appraisals) are accepted and applied by his fellow men. The native can act on his knowledge automatically, habitually, half-consciously, without giving serious thought to how or why he acts as he does.

The stranger, on the other hand, who does not share the assumptions of his new environment, must consciously learn the rules. He becomes aware of the contradictions or inconsistencies; he tries to find answers to why things are done. The new environment--instead of being a shelter to him as it is for the native--is an adventure or challenge, and perhaps an important source of stress.

The urban environment is not only a novel one for a newcomer, but an extremely complex and confusing one. Franck et al. (1974)

studied the adaptation of newcomers to an urban environment (New York City) and compared the process with the adaptation of newcomers to a nonurban environment (Cornell University). They found that the urban newcomers experienced their environment as more "demanding," more complex, uncertain or surprising, and as requiring a more conscious and deliberate construction process than did the nonurban newcomers. Urban newcomers continued actively "constructing" or consciously appraising and adapting to the environment even after six to eight months of living in the city.²

This discussion of adaptation would lead us to expect that people who have grown up in or adapted to an urban environment would perceive themselves as better able to cope with their environment, and would experience less stress in everyday living than would newcomers to an urban environment. Newcomers would not only be more stressed by those aspects of living specific to urban life, but, because they are still actively trying to cope with or adapt to these stressors, they would be more likely to appraise the stressors and their own responses to them consciously.

²This brings up the interesting possibility that a large city is so complex that the adaptation process not only takes longer, but perhaps is never complete. Toffler (1970) suggests that in the future adaptation will be a constant process. Life will be so novel, diverse and transient that even a native to a culture must constantly adapt and change. In such a situation the newcomer's main adaptation might be to learn to adapt constantly. Today's city might already be so complex that there is little difference between newcomer and native in their conscious appraisal of the urban environment.

CHAPTER IV

GOALS OF THE STUDY

In the past three review chapters we have determined that stress is a psychological as well as a physiological state of an individual, and that it is directly related to the appraisal and perception of both the environmental demand or stressor and the individual's own resources and needs. It has generally been inferred through physiological measures, task performance measures and indications of emotional states. Surprisingly enough, few attempts have been made to determine the extent to which these appraisals and the state of stress itself are consciously perceived. Certainly one would expect that people consciously experience stress and are frequently aware of their appraisals of demand, resources, consequences and coping strategies, especially when the stressor or threat involved is external or environmentally based.

We have also explored possible dimensions or aspects of environmental stress that occur in the city and quite possibly lead to the experience of urban stress. Again, there is little empirical evidence for the occurrence of these dimensions in urban environments. There are no studies asking people whether or not they experience urban stresses, and if so, what aspects of the environment are experienced as stressful.

Finally, although the literature on adaptation would indicate that both the amount of urban stress experienced and a person's conscious appraisal of it should change over time, there is little direct empirical support for this contention.

This study's main concern is to provide a clearer definition and understanding of urban stress through an exploration of how it is consciously perceived by urbanites. More specifically it attempts to answer five questions.

Questions to Answer

1. Do city dwellers consciously experience urban stress?

This question is, of course, basic to those that follow. The frequency and degree of stress experience and its effect on people's liking for the city are also of interest.

2. What particular urban situations are stressful to people and what are the relevant dimensions of these situations that make them stressful?

Although much work has been done with environmental stressors generally, the delineation of stressful urban situations remains mainly hypothetical. Even researchers on environmental stressors have used only situations or stressors that they have assumed to be stressful and varied the dimensions of these that they hypothesized were relevant. By asking people for their own evaluations of what stresses them and why, we can obtain some confirmation of the previous research and theory and/or learn of new stressors or dimensions of stress that people consider stressful.

3. How is urban stress experienced? Are people who are experiencing urban stress aware of the physiological arousal, negative emotions and variations in task performance that are the major response measures used in studying stress?

Conscious awareness of responses used as measures of stress could be considered evidence supportive of the measures' validity. No conscious awareness of physiological or task performance responses would not, however, invalidate the use of these responses as measures, since subjects may not be consciously aware of these responses even though they occur. No conscious awareness of the emotions assumed by psychologists to accompany stress raises the more serious problem of whether the emotions are being denied consciously and could be inferred through subconscious measures (such as projective techniques), or whether the subject's definition of stress and experience of it differs from psychologists' conceptions by not requiring the experience of negative emotions. Information as to whether the experience of stress differs in different people, or in the same person for different types of stress would also be relevant to the debate concerning the relationship of different physiological responses to differences in affective response and/or coping tendencies (Funkenstein, 1957; Lazarus, 1966; Levi, 1972; Schacter & Singer, 1962).

4. Do subjects consciously evaluate: (a) the balance between urban environmental demand and their own resources, and (b) the consequences of that demand for their own motives or needs?

The specific aspects of the environment that are perceived as demanding are explored in question 2. Do people also evaluate

their own resources (e.g., personal abilities, skills, social and financial support, ego defenses, etc.) and the consequences of failing to cope with a demand? No one would expect conscious appraisal from every person in every situation, but a complete lack of appraisal or the presence of very different types of appraisal than stress theorists have hypothesized would call into question the appraisal theories of stress.

5. Do newcomers to an urban environment experience more urban stress than native city dwellers, and are they more likely to appraise and perceive these stresses and stressors consciously?

Theories of adaptation would predict that people who spend a longer time in a situation are more likely to have developed the competence to handle the situation and are less likely to feel stressed by it. Newcomers and natives can be compared in several ways as to their experience of stress. They may differ in the frequency and degree to which they feel stressed, the types of urban situations they experience as stressful, the dimensions of these situations that they identify as stressful, and the degree to which or ways in which they have learned to avoid or cope with stress. Schutz (1962) suggests that natives of an environment (who are more adapted to it or perhaps simply have had long experience with it) would have less conscious appraisal of the environment and of their own coping responses. Will the conscious appraisals and experiences of stress in newcomers be more full and complete than those of natives?

The Interview as Method

The purpose of this study is to explore people's conscious experiences and appraisals of urban stress. This emphasis on consciousness logically implies the use of verbal report as a methodological approach. There are several types of verbal reporting: questionnaires, scales, interviews, stream-of-consciousness reporting and diaries.

Since this is an exploratory and definitional study, questionnaires or scales that predetermine either the types of stress to be discussed or the dimensions or categories of response and description are inappropriate. Likewise, experimenter-contrived situations which use stream-of-consciousness reporting or postexperiment interviews would require the experimenter to define the stress situation for the respondent or at least limit the stresses studied to only one or a very few discrete time-bound situations. A definitional or exploratory study should, instead, be as comprehensive as possible, allowing respondents to discuss as many or as few stresses as actually affect them, including stresses that develop over a period of months or are anticipations of things that may never occur. Only by obtaining and comparing a wide range of real life stresses can the uniqueness or importance of each be determined.

Stream-of-consciousness reporting and diaries could be used for a wide range of stress situations, but they are inevitably obtrusive measures that may distort or change the experience being studied. Their use encourages a "scientific" or "impartial observer" set in respondents which can significantly influence their conscious

experience of stress. A method of verbal report must be used that does not reduce the reality or change the experience of urban stress.

The method of choice is a relatively unstructured general interview. Such an interview can elicit reports about a wide range of real life urban stress experiences. Questions can guide discussion to ensure a certain thoroughness and structure without predefining the categories of response.

The interview as a method, however, has its own limitations and it is necessary to understand them in order to properly interpret interview findings. A nonstructured interview is subject to several problems with recall. First, it is likely that certain stresses or categories of stress will not be remembered during the interview itself. Also, if some types of stress are discussed less thoroughly than others, comparisons between types of stress will be more difficult (e.g., Does that type of stress invoke no emotional reaction, or was it simply not reported?). Second, there is no rank-ordering, rating or forced choice comparison among the types of stress or categories so that all stresses and descriptions must be treated as equal whether they were experienced once or every day, whether they were powerfully motivating experiences or minor irritations. Third, because the interviewer must necessarily admit his interest in urban stress, it is possible that respondents will provide stereotypic urban stress responses. They may describe what they think the experimenter wants to hear or what they have frequently heard discussed as urban stresses, even though these situations have never been particularly stressful or salient for them. It is also possible that they will suppress description of urban stresses

that they either feel the interviewer to be uninterested in or that they are embarrassed or ashamed to divulge.

These limitations to the interview method make this study necessarily exploratory and incomplete. Hopefully, however, its results will suggest the range and structure of stressful urban experiences. Undiscovered aspects of stressful urban living may be uncovered. The parameters of possible differences or similarities between the types of stress can be suggested. Particularly striking or unexpected findings may suggest new conceptualizations or hypotheses for the field. The tentative results of this study can then be explored more thoroughly both through more exact verbal report methods (i.e., scaled questionnaires) and through behavioral measures in experimental field studies, longitudinal studies, specific incident surveys, etc.

CHAPTER V

METHOD OF THE STUDY

This study has three main purposes: (1) to discover what aspects of the urban environment people describe as stressful and why, (2) to determine how people describe their conscious experience and appraisal of urban stress, and (3) to discover whether newcomers describe themselves as experiencing more stress or different kinds of stress or as having more complete conscious appraisals of stress than native city dwellers. In order to accomplish these goals a sample of relatively verbal, mature newcomers and a similar sample of natives living in a major city were interviewed.

Sample Selection and Study Design

The major independent variable in the study was length of residence in the city. Respondents were found who could be categorized as "newcomers" and "natives." "Newcomers" were defined as people residing in Manhattan for between six months and three years who had never lived in another major city. This length of time would ensure that the person had lived in the city long enough to have experienced its many potential stressors, but not so long that his or her adjustment to the city was complete and long forgotten. The actual range for newcomers was from .5 years to 3.3 years, with the mean and median residence time both being 1.8 years. Thirty-eight percent of newcomers

had lived most of their lives in a small town. "Natives" were defined as people who had lived seven or more years in Manhattan, preferably all of their adult lives. The range of years in Manhattan for "natives" was 6.5 to 40 years, with a mean of 16.8 years and a median of 15.2 years. The mean length of residence in New York City or any major city (over 1 million in population) was 22.0 years. Sixty percent of natives were raised in New York City.

Each group, natives and newcomers, was comprised equally of males and females. Although there was no evidence in the literature which definitely suggested that there would be differences in experience or appraisal of urban stress for males and females, the possibility needed exploration and so these two populations were analyzed separately within each sample (i.e., native and newcomer). Because this was an exploratory study, no predictions were made as to sex differences in any of the response categories.

A total of 80 respondents was interviewed, 20 in each of four conditions: male native, female native, male newcomer, and female newcomer.

Several other variables obviously affect a person's experience of urban stress. These include age, living situation (i.e., alone or with others), borough and neighborhood of residence, and socioeconomic status. If one interview condition should vary significantly from the others on one or more of these variables, it would be impossible to interpret differences in responses among the conditions. These variables, therefore, were controlled for or made equivalent for all conditions as described below.

Age: A respondent's age was limited to between 24 and 42 years old. This age range was considered to comprise a rather homogeneous yet representative group, avoiding the distorting influence both of the lack of independence of college age people (who frequently live at home or are dependent on the university) and the physical problems of those approaching old age. The mean age for natives was 31.6 and for newcomers 28.9 (difference not significant). No correlation was found between age and the scaled ratings of frequency of stress ($r = -.13$), degree of stress ($r = -.21$, $p < .10$), preference for the city ($r = .03$) or finding the city more stressful over time ($r = .08$). Seven respondents spontaneously mentioned increased age as increasing the experience of some stresses, while six respondents thought that some kinds of stress decreased with age.

Living situation. Forty-four percent of all respondents lived alone.³ These respondents were distributed equally among all conditions. The remaining 56 percent lived with one or more people. For those who lived with others, 58 percent lived with a spouse or member of the opposite sex, 27 percent lived with a same sexed roommate and 15 percent lived with a relative (other than spouse). Fifteen percent of the sample respondents had one or more children. There were no significant differences between conditions for any of these variables.

³There was a total of 11 mentions of living alone as affecting one's experience of stress. Ten of these were made by females.

TABLE 1.--Comparison of Respondent Groups--Length of Time in New York City and Control Variables.

Variable	Natives		Newcomers		Total or Average
	Male	Female	Male	Female	
Time lived in Manhattan	(years)		(years)		(years)
Range	6.5-40	6.5-32	.5-3.1	.5-3.3	.5-40
Mean	17.7	16.0	1.9	1.7	9.3
Median	15.5	15.0	1.9	1.8	
Time lived in Major City					
Mean	22.7	23.1	2.1	1.9	12.4
Raised in New York City					
Yes	11	13	0	0	24
No	9	7	20	20	56
Lived in Small Town					
Never	11	12	4	4	31
Yes	6	7	3	4	20
Most of Life	3	1	13	12	19
Age	(years)		(years)		(years)
Range	24-42	25-42	24-42	24-42	24-42
Mean	32.9	30.4	29.3	28.5	30.3
Median	32.5	29.0	27.0	27.0	
Living Conditions	(number)		(number)		(number)
Alone	8	9	9	9	35
Spouse or Mate	10	4	6	6	26
Roommate	2	2	4	4	12
Other Relative	0	5	1	1	7
Living with Children	3	6	2	1	12
Profession	(number)		(number)		(number)
Unemployed*	0	1	1	1	3
Office, Clerical	3	0	1	3	7
Sales, Business	1	4	2	4	11
Artist, Writer, Actor	5	3	7	4	19
Student	3	3	2	3	11
Student + part-time**	3	5	1	2	11
Professional	5	4	6	3	18
Neighborhood	Native	Newcomer	Male	Female	Total
Safe-Clean	24	23	25	22	47
Mixed Opinion	11	12	10	13	23
Unsafe-Unclean	5	5	5	5	10

*And no specific profession.

**Generally professional.

Place of residence. Respondents were required to be residents of Manhattan, the most urbanized borough of the city in terms of its population density, reliance on public transportation, physical facade, variety of professions, entertainments, etc. Natives and newcomers, males and females were equally distributed among the Manhattan neighborhoods. Respondents were asked to rate their neighborhoods as safe or unsafe and as clean or unclean. Fifty-nine percent of the sample lived in neighborhoods they themselves rated as safe and clean; 29 percent in neighborhoods receiving mixed ratings and 12 percent in unsafe, unclean neighborhoods. There were no differences between groups in the types of neighborhoods they inhabited (i.e., safe-unsafe, clean-unclean). (See Table 1.)

Socioeconomic status. No questions were specifically asked about socioeconomic status or income levels. Respondents were solicited, however, through a newspaper⁴ appealing mainly to educated, middle class readers. This population was chosen because it was considered necessary to obtain a population of some size in the city, but one with a relatively homogeneous background and one with high enough verbal skills to be able to respond constructively to an open-ended, appraisal-oriented interview technique. A university population was avoided because it was considered to be less representative of the city as a whole, and because university respondents would be involved in the overshadowing stressors of school work and exams. However, respondents were asked their professions and these included unemployed, clerical,

⁴The Village Voice.

business, artistic, graduate student and professional. The same variety of occupations was present in all conditions.

Race. In the sample three Blacks, all newcomers, were interviewed. The rest of the respondents were White.

Procedure and Interview

Respondents were paid \$5.00 for the interview. They were interviewed individually in an office on one of two different university campuses in Manhattan.⁵ The interview was approximately 50 minutes in length and was tape-recorded for all respondents.

The interviewers were the main investigator (female) and a graduate student (male), each interviewing equal numbers of respondents in each condition. Before beginning the study pilot interviews and training in the interview techniques occurred. It was impossible for the interviewer to remain ignorant of the condition to which the respondent belonged, but an attempt was made to interview people in a random order of conditions.

The interview itself is reproduced in Appendix B (pp. 174-180). Respondents were asked for their own definitions of stress and urban stress and then asked if they had ever experienced urban stress.⁶ Respondents were then asked to name the aspects of city living that

⁵New York University or City University of New York Graduate Center.

⁶One of the respondents, a female native, said "no" to this question and was given an alternate interview asking for her experience with and response to urban situations frequently considered by others to be stressful. She was replaced in her condition by another female native.

they experienced as stressful, and to describe why they were stressful. Next, respondents were asked if they responded to different situations with different emotions and what physiological responses, etc. accompanied these emotions. Respondents were asked to name stresses that they avoided, ones they worried about and things they no longer experienced as stressful. They were also asked to describe in detail one repetitive and one unusual urban stress situation. These detailed descriptions were subsequently probed with more specific questions concerning coping responses, resources and Lazarus' factors of appraisal. The interviews ended with specific questions about the respondents' opinions of the city, general amount and frequency of urban stress experienced, positive reasons for liking the city and some personal information about themselves. Figure 3 restates the questions asked by this study in brief but explicit form and indicates those interview questions meant to elicit answers to these questions.

Coding and Analysis

A content analysis of respondents' transcripts was performed in several steps. First, between 20 and 40 interview transcripts were read and all mentions of different stresses were written down verbatim. These verbatim reports were then grouped into several mutually exclusive categories and previously unread transcripts were tentatively coded using these categories to see if they could be coded logically and reliably. The categorization of stresses into types required several repetitions of this procedure before reliable coding was obtained. This same procedure was then followed for all other

GENERAL QUESTIONS TO BE ANSWERED BY THE INTERVIEW

1. What is the respondent's own personal definition of what stress and urban stress means (Q1 and 2)?
2. Do city dwellers experience urban stress (Q3)?
3. What particular aspects of the urban environment are experienced as stressful (Q4)? Why (Q5)? Are the dimensions of stressors mentioned by respondents different from or the same as those hypothesized and discussed by psychologists?
4. Does the respondent's experience of stress include physiological changes (Q7b), negative emotions (Q7a) or variations in task performance (Q7c)?
5. Do people have different experiences of stress in different situations (i.e., repetitive stress, unusual stress, avoided stress, worried about stress) (Q8 and 9)?
6. Do people consciously evaluate: (a) environmental demand (Q9: A-1 & 4, B-1 & 4); (b) their own resources (Q9: A-2 & 4, B-2 & 4); (c) the balance between the two (Q1 and 2); (d) the consequences of the demand (Q9: A-1, B-1); (e) their own coping responses (Q9: A-5, B-5).
7. Are any of the interview conditions related to: (a) the degree or frequency of experienced stress (Q11 and 12), (b) general satisfaction with the urban environment (Q13 and 14), (c) whether the respondent lives in the city because he wants to (Q16) or (d) the number of positive aspects of urban living the respondent names (Q18)?
8. Do newcomers experience more stress than natives (Q13, 14)? Different kinds of stressors or dimensions of stress (Q4 and 5)?
9. Do newcomers more frequently appraise stress or coping consciously? Do they appraise consciously a wider range of stress situations (Q4, 5, 6, 7, 8 and 9)?
10. Are there any differences between males and females: (a) in the amount or kind of stress experienced (Q4, 5, 13 and 14); (b) in the appraisals of stress (Q6, 7, 8 and 9)?

Figure 3.--General Questions to be Answered by the Interview.

categorizations of stress description: places of occurrence, emotions, physical responses, dimensions of stress, coping responses, resources mentioned, etc. Lack of reliability most commonly occurred when categories were too discrete. When this was apparent, closely related categories were combined (e.g., unpredictability, unfamiliarity and helplessness were combined to form the dimension "lack of control"). Because the interview was relatively unstructured and respondents frequently returned to previously discussed stresses, coding was performed for all categories wherever they appeared throughout the interview.

A particular type of stress was coded only once for each respondent no matter how many times it was mentioned. If two or more situations belonging to the same type of stress were mentioned, the emotions, dimensions and other categories used to describe each of these situations were coded under that type of stress (e.g., descriptions of subway stress and traffic would be coded under Travel stresses and so would all emotions, dimensions, etc. mentioned for either stress). This was necessary because respondents frequently discussed related stresses as a group or did not make clear which of several related stress situations they were describing. When similar situations were coded as one category, unsatisfactorily low intercoder reliabilities were avoided. However, these combined descriptions do blur some interesting distinctions (e.g., between subway stresses and traffic stresses) and make it more difficult to obtain significant differences among codes for categories containing few code choices (e.g., if several situation descriptions are coded under the same type of stress, all possible

emotions--five different codes--might be coded). No single category was coded more than once for each type of stress.

A second group of categories were coded simply for their presence or absence in the interview or for their general presence or absence in descriptions of each type of stress. These include anticipation, ambiguity, adaptation, changes in task performance, the mention of age as affecting experienced stress, etc.

Before the final coding was performed for any category inter-coder reliabilities of at least .80 were obtained on one-fourth of the interviews using two coders. Recoding reliabilities were also performed to check for consistency of coding for the other three-fourths of the interviews. Intercoder reliabilities of .96 were obtained for type of stress and of from .80 to .89 for the other category codes. (See Appendix A, p. 173, for specific category reliabilities.)

With the exception of some scaled questions at the end of the interview, where parametric analysis could be used, most data were frequency data and were analyzed using the chi-square technique and the phi coefficient of correlation. When chi-square tables involved several rows and columns, the significance of particular categories was tested by partitioning the table into a 2 by 2 table and testing each cell against the other cells combined (e.g., the importance of irritation-anger as an emotion for Travel stresses would be tested by comparing the frequency of irritation-anger compared with all other emotions, for Travel stresses compared with all other stresses.) Expected frequencies for the entire table were always used (Wike, 1971). Where tables presented data lacking in independence, chi-square statistics were

inappropriate and descriptive statistics were used. When specific probes were asked with regard to a category, analysis was made separately of spontaneous mentions of this category before probing as opposed to responses made during specific probe questions. Only the spontaneous mentions of categories were used for comparisons between types of stress, since the probing questions were not asked equally of all types of stress (i.e., the probe questions were only asked for repetitive and unusual stresses).

Because content analysis necessarily attributes significance to high frequencies of mention, occasional contradictory or particularly insightful comments receive little recognition. An attempt is made in the following chapters to include this type of data as well as the results of the nomethetical analyses.

CHAPTER VI

RESPONDENTS DESCRIPTIONS OF URBAN STRESS

The results presented in this chapter will be organized in terms of the answers they provide to Questions 1-4 in Chapter IV above (see pages 46-48).

The first question to be answered is: "Do city dwellers experience urban stress?" Only one of the 81 respondents--a female native--said that she experienced no stress living in Manhattan. However, while discussing how she handled urban situations often thought by others to be stressful (in an alternate form of the interview), she did mention one aspect of the city that she found stressful. She felt that the city was changing for the worse because it was not being properly cared for or run.

Of the 80 respondents who said they did experience some urban stress, 20 (36 percent) elaborated on their answer to say that the experience was continual or very salient. On the other hand, 19 (24 percent) of the respondents indicated that they did not generally think of the city in terms of stress, but could name and describe stressful urban experiences when asked. Those who did not generally think of the city in terms of stress were a little more likely than other respondents to rate themselves below the mean on scales of frequency and degree of experienced stress ($\chi^2 = 5.74$ and 4.12 respectively, $p < .05$). They

did not, however, differ in the number or types of stress that they mentioned. They were distributed equally among the conditions.

Type of Stress

Since city dwellers do experience urban stress, what types of stress do they experience? The content analysis of interviews produced 14 types of stress that formed five natural groupings.

The first and most frequently mentioned group of stresses has been called the Social Environment Stresses (see Table 2), because each type of stress generally involves a stress resulting from interaction or contact with large numbers of people or with strangers. Thus, most Travel stresses were described in terms of crowded sidewalks, streets, buses or subways, or problems with individual taxicab drivers, subway riders or token booth clerks. (No one complained about the transportation system in Manhattan as such; people mentioned it as potentially one of the easiest cities to get around in.) Likewise, Service stresses involve problems with crowds, lines or individual service people or companies. Interactions with Strangers generally involved problems with individuals being either aggressive, intrusive or upsettingly pathetic or strange. Social Overload stresses, on the other hand, described the general social milieu of the city: the fast pace of its residents and the feeling of overstimulation from being surrounded by so many people and activities. These four stresses are grouped together not only because they all involve other people, but because the respondents generally discussed them together or expressed similar reactions to them all. As we will see later, the Social Environment stresses are also significantly affected by the physical

TABLE 2.--Type of Stress Codes.

Stressor Category	Respondents Who Mentioned Stressor:	
	Number	Percent
<u>SOCIAL ENVIRONMENT STRESSES:</u>	<u>80</u>	<u>100</u>
<u>Travel:</u> Problems with walking, traffic, public transportation, etc. Crowding problems, waiting, delays, parking, etc.	74	92
<u>Services:</u> Problems with getting things done. Crowds in constricted places, waiting in lines, obtaining services, red tape, problems with service people.	65	81
<u>Interactions with Strangers:</u> Feelings about people generally or groups of people: crazy, pathetic people, panhandlers, rude, pushy people. Altercations with strangers, seeing other people in altercations, etc.	60	75
<u>Overload:</u> Feeling rushed, time pressures, hurry, fast pace, etc. Overstimulation due to numbers of people, choice, etc.	32	40
<u>CRIME:</u>	<u>76</u>	<u>95</u>
<u>Crime:</u> Fear or experience of attack, mugging, crime, rape, material loss, robbery, etc.	76	95
<u>PHYSICAL ENVIRONMENT STRESSES:</u>	<u>62</u>	<u>78</u>
<u>Noise:</u> Traffic, construction, people, subway, noise, etc.	49	61
<u>Ugliness:</u> Air pollution, dirty places, garbage, decay, ugly design, etc.	41	51
<u>General Environment:</u> Lack of nature, beauty, space, expanse, etc. Weather complaints.	24	30
<u>BASIC LIVING PROBLEMS:</u>	<u>57</u>	<u>71</u>
<u>Apartment:</u> Problems with landlords, rent, finding an apartment, etc. Size and condition of apartment.	27	34
<u>High Cost of Living:</u> Prices of things, expenses of city living (except for rent on apartment).	24	30
<u>Jobs:</u> Problems with getting, keeping or not liking one's job.	26	32
<u>Friends and Dates:</u> Problems with meeting people, not liking people; keeping in touch with and getting to know friends and dates.	20	25
<u>Feeling Self Change:</u> Feeling that the city is changing one's self in ways that one doesn't like	10	12
<u>CHANGING CITY:</u>	<u>8</u>	<u>10</u>
<u>Changing City:</u> Feeling that the city is changing for the worse, deteriorating, losing its positive attributes.	8	10

surroundings in which they occur. For example, confined, stuffy subway spaces increased Travel stresses due to crowding.

The second group, Crime Stresses, contains only one type of stress, but a very prevalent and salient one for city dwellers. This stress is the fear of crime or attack. People generally discussed this stress separately from the other types of stresses and reacted to it differently. For most people it meant fear of mugging or burglary, while some feared senseless murder and rape. It also includes the stress people experienced as a result of an actual experience with crime or attempted crime.

The third group of stresses has been called the Physical Environment Stresses. These include stressful Noise, the Ugliness of the city (i.e., because of pollution, garbage, physical deterioration, etc.) and complaints about the general lack of nature, space, beauty, etc. in the city (General Environment). These stresses obviously involve people at times--people cause the noise, garbage and lack of beauty--but they were generally conceived and described by respondents in terms of their physical components.

The fourth stress group has been named Basic Living Problem Stresses. This group involves important problems that must be met and solved in a person's life and that were considered by respondents to be more stressful or difficult to handle for city dwellers. These stresses include finding an Apartment and interacting with the landlord and/or other tenants, getting and keeping a desirable Job, meeting and keeping in touch with Friends (of both sexes), and the High Cost of Living (i.e., making ends meet). Also included with this group of

stresses were stressful worries (mentioned most frequently by newcomers) about being changed by the city in ways one didn't like or about not "making it" in the city (Feeling Self Change). Respondents generally expressed this fear in vivid terms, as though the city were an extreme environment, demanding successful coping for survival. Not "making it" meant to them dropping out, disappearing or becoming a bum or "paper bag lady" (i.e., an old woman who walks around the streets carrying two full shopping bags and rummaging through trash cans).

The last stress group, like the second, consists of one type of stress that was considered unique enough to be categorized individually: Changing City. This was the complaint (generally expressed by natives) that the city itself was changing for the worse because it was not being properly managed by its government or taken care of by its inhabitants.⁷

Table 2 gives a synopsis of the stresses mentioned above, as well as the number of people mentioning each stress. Crime and Travel were mentioned by over 90 percent of respondents while Services, Interactions with Strangers and Noise were mentioned by a strong majority of them. Overload, Ugliness, General Environment and the Basic Living Problem stresses were generally mentioned by between one-third and one-fourth of the respondents. Feeling One's Self Change and Feeling

⁷These interviews were performed in 1974, before the New York City budget crises.

the City Change in ways one doesn't like were each mentioned by about 10 percent of the respondents.

Place of Occurrence

All types of stress were coded for the place or places in which they were described as occurring. Table 3 describes the types of places coded. They include: (1) transitional public places such as streets or sidewalks, subways or buses, taxis, cars, train depots, airports, etc. and the public (unsupervised) parts of buildings (e.g., doorways, hallways, stairs, elevators, etc.) through which people move on their way to other places; (2) destinational public places such as stores or businesses, places of entertainment (e.g., concerts, movies, restaurants) and government agencies, bureaucracies and offices where people go to accomplish some goal (i.e., business or relaxation) and (3) private places. The only private place frequently described as stressful was one's own apartment.⁸ There were also some types of stress that were not place specific, but reflected city life generally. These were the Social Overload stresses, the General Environment stresses and stresses involving Basic Living Problems. These were not coded for place, because so few specific places were mentioned for them.

Table 4 gives a breakdown for groups of stress indicating place of occurrence in terms of transitional or destinational public

⁸One's own apartment was also frequently mentioned as a haven from the outside world and from public stress situations. The lack of any other retreat from urban stresses is emphasized by people's choice of activities for relaxation. (See page 91).

TABLE 3.--Place of Occurrence--Codings for Where Each Type of Stress Occurs.

Place	Number of Mentions	Respondents	
		Number	Percent
<u>STREET:</u> Street, sidewalk as a pedestrian, district or neighborhood	161	75	94
<u>SUBWAY OR BUS:</u>	143	75	94
<u>CARS, TAXIS, ETC.:</u> riding in cars, taxis; airports, bus or train terminals	44	40	50
<u>PUBLIC PARTS OF BUILDINGS:</u> doorways, hallways, stairs, elevators, toilets, etc., of office or apartment buildings	37	30	38
<u>STORES:</u> stores, businesses, banks, etc.	50	44	55
<u>PLACES OF ENTERTAINMENT:</u> movies, restaurants, bars, concerts, museums, places of exercise or recreation, parades, demonstrations	46	48	60
<u>BUREAUCRACIES:</u> government offices, agencies, schools, libraries, hospitals, etc.	18	18	22
<u>OWN APARTMENT:</u> inside one's own apartment (includes noises heard inside apartment even if noises occur elsewhere)	54	35	44

TABLE 4.--The Percent of Time That Each Place of Occurrence was Mentioned for Each Stress Group.

Stress Groups	Place of Occurrence				TOTAL Number of Mentions
	Transitional Public Spaces*	Destinational Public Spaces**	Own Apartment	General City or Unspecified	
<u>SOCIAL ENVIRONMENT:</u>	60%	30%	1%	9%	357
Travel	100	0	0	0	150
Services	6	93	1	0	105
Interactions	84	10	6	0	70
Overload	0	0	0	100	32
<u>CRIME:</u>	80	5	15	0	131
<u>PHYSICAL ENVIRONMENT:</u>	52	2	16	30	125
Noise	65	2	33	0	60
<u>LIVING PROBLEMS:</u>	0	0	9	91	107
<u>CITY CHANGING:</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>100</u>	<u>8</u>
TOTAL NUMBER OF MENTIONS:	385	114	54	175	728

* Street, subway, buses, cars, airports, public parts of buildings, etc.

** Businesses, places of entertainment, bureaucracies, etc.

places, one's own apartment or general city. The "general city" category includes stresses described as occurring in the city generally as well as the number of people mentioning the types of stress not coded for place. (See above.)

The vast majority (69 percent) of stresses mentioned by respondents occurred in transitional or destination public places. Transitional public places are scenes for the widest range of stresses, including Travel, Interaction with Strangers, Crime and the Physical Environment stresses (especially Noise). Destination public places, on the other hand, were almost exclusively associated with Service stresses. Apartments were mentioned as stressful mainly in relation to Crime and Noise stresses.

Dimensions of Stress

All types of stress were coded for why people found them to be stressful. These "dimensions of stress" and their more specific "elements" are described in Table 5. Almost all respondents mentioned at least one element of each dimension at least once during the interview.

The most frequently mentioned dimension is labeled "demandingness" (taken from Franck, et al., 1974) and includes various ways in which the city is seen as demanding more time, energy or money from the city dweller. It is closely related to the concepts of energy and informational overload. The first element of this dimension, "extra demand" involves the effects of the different types of overload on people's behavior: feeling one's senses bombarded, feeling

TABLE 5.--Dimensions of Stress--Why Stress Was Seen as Stressful.

Dimension Name -- Element: definition	Number of Mentions	Respondents	
		Number	Percent
<u>DEMANDINGNESS:</u>	<u>321</u>	<u>78</u>	<u>98</u>
Extra Demand: hassle, extra energy or time, extra planning, feel rushed, competition, senses bombarded, too much choice	167	70	88
Constancy-Repetitiveness: accumulation of stresses, need break, need time to relax.	82	52	65
Extra Expense: high prices, high rents, extra costs (i.e., taking taxis at night for safety).	72	39	49
<u>EGO THREAT FROM OTHERS:</u>	<u>253</u>	<u>76</u>	<u>95</u>
Unpleasant Others: rude, hostile, aggressive, incompatible people; pathetic, unhappy, ugly people.	179	76	95
Alienation: feel alienated, isolated, others "noninvolved," feel lonely.	52	36	45
Ethnic Complaints: ethnic or racial bases given for why person was experienced as stressful.	22	16	20
<u>PHYSICAL HARM OR MATERIAL LOSS:</u>	<u>244</u>	<u>75</u>	<u>94</u>
Threat of Injury: threat of or experience of pain, hurt, being killed, sexually molested, injured, etc.	126	72	90
Threat of Material Loss: robbed, ripped off, burglarized; lose job or income.	56	48	60
Threat from Stories: feel threatened after hearing stories from friends or reading about crimes, etc.	34	31	39
Threat of Illness: fear of mental or physical illness.	28	20	25
<u>LACK OF CONTROL:</u>	<u>237</u>	<u>78</u>	<u>98</u>
Uncontrollable Situation: feel helpless, unpredictability, things senseless, situation unknown, no control over own life.	195	75	94
Uncontrollable Authority: impersonal, uncaring authority or bureaucracy, dehumanizing.	42	31	39
<u>BLOCKING-DELAY:</u> stopped from doing something, delayed; having to wait in lines; interrupted, or distracted.	204	78	98
<u>NEGATIVE PHYSICAL ENVIRONMENT:</u> need nature, beauty or space; dislike ugliness, noise, physical discomfort	134	68	85
<u>PERSONAL SPACE INVASION:</u> undesired physical contact, pushing, shoving, people too close to self.	96	63	79
<u>EGO THREAT FROM OWN ACTIONS:</u> must act suspiciously, aggressively to others; feel senses dulled over time; feel self change in ways I don't like.	70	43	54
<u>OTHER:</u>	<u>8</u>	<u>7</u>	<u>9</u>

rushed and hassled, feeling that coping with something involves extra time, energy or planning, being overwhelmed by too many choices. In particular, many people emphasized that extra planning and thought were necessary in the city to organize their lives. They described figuring out how to park their car cheaply or efficiently, planning entertainment or recreation to avoid crowds, handling bureaucratic hassles and making plans for seeing friends. One respondent said that he enjoyed the challenge of beating the systems in New York, because New York had so many more systems to beat than anywhere else he had lived. This element also includes stresses involving the fierce competition in getting or keeping one's job. Stresses involving overstimulation were generally mentioned by people who found themselves unable to turn off or ignore noise, movement, etc.

The second element of "demandingness" is "constancy-repetitiveness." It emphasizes the more long-term effects of demand. It includes people needing a break or feeling unable to get away from a stress as well as the accumulation over time of certain types of stress. That people found situations to grow more stressful over time because of their constancy or repetitive nature supports the necessity for longitudinal studies in obtaining an understanding of the experience of urban stress.

The third element of "demandingness" is a specific complaint about the "extra expense" of city living. The most frequent complaints concerning extra expense involved the high cost of apartment rentals and the expenses involved in owning and parking a car.

The second most frequently mentioned dimension is "ego threat from others." This includes the ways in which respondents feel threatened or stressed by the noncriminal actions of others. The most frequent element of this dimension, "unpleasant others," generally took the form of finding strangers to be rude, hostile and aggressive or pathetic, unhappy and ugly. It involves an experience of psychological discomfort or threat to the ego rather than an actual fear of physical harm, interruption of task performance, etc. People complained about always needing to be on their guard against other people, or feeling belittled or upset by the lack of social niceties in public situations.

Stress from "unpleasant others" was frequently expressed as dislike of certain kinds of people. When this dislike was based on an ethnic or racial bias, it was coded as a separate element, "ethnic complaints." One interesting aspect of this element was a frequent complaint about being unable to understand foreign-speaking people. Several people shared the conviction that some foreigners used their incomplete knowledge of English to avoid honest communication (e.g., in a landlord-tenant dispute).

The third element of "ego threat from others" was the feeling of "alienation" or isolation some people experienced in response to the vast number of strangers in the city. One male newcomer expressed it as a feeling of "isolated crowdedness." Others said they felt lonely when walking in a crowd of strangers or felt others to be noninvolved and withdrawn.

Closely related to "ego threat from others" is the dimension of "ego threat from one's own actions." This includes hating one's

own aggressive, rude or withdrawn response to unpleasant strangers and feeling guilty about doing nothing for pathetic people or beggars. It also involves people saying that they did not like other adaptations to stresses such as learning not to see the dirt or not to hear the noise or not to miss the natural beauty of the countryside.

The "threat of experience of physical harm or material loss" dimension is, of course, closely tied to fear of crime. It does involve, however, fear of other kinds of harm. "Threat of injury" involves the threat of experiencing pain, hurt or death in a mugging, attack or rape, or as an innocent bystander to violence (e.g., hurt in a police shootout or unruly crowd). It also, however, involves fear of injury or death in a traffic accident or as a result of being accidentally pushed by a crowd or of falling in front of a subway train (a rather common fear). A couple of people also mentioned fear of injury in dilapidated or unsafe housing.

"Threat of material loss" from mugging or burglary was frequently mentioned. Material loss due to loss of one's job (e.g., by competition), income (e.g., by bureaucratic mix-up) or deducted pay (e.g., when late for work) was also mentioned. "Threat from stories" was coded when people said a major reason they feared Crime was because they had heard or read so many accounts of crime, muggings, etc. Finally, "threat of illness" was included when people mentioned fears of mental or physical illness resulting from overcrowding, air pollution, noise, etc.

"Lack of control" is an exceedingly complex dimension. It was divided into only two elements because more refined categorization

into reliable, mutually exclusive elements could not be achieved. The "uncontrollable situation" element involves several types of loss of control. It includes: (1) complaints about feeling helpless or unable to act or do anything about a stress, (2) feeling that a situation was unpredictable, unknowable or senseless, (3) feeling stress resulting from unfamiliarity or an unknown (but knowable) aspect of a situation, (4) feeling a loss of choice or control over one's life. This last involved feeling that there was a lack of spontaneity in city life, a fragmentation or lack of continuity; the feeling one couldn't quite get one's life in focus or give it direction, because one was living at too fast a pace, doing too much or being given too many choices.

Feeling lack of control over a dehumanized, uncaring, impersonal authority was coded as a separate element ("uncontrollable authority"). This was frequently coded in stressful interactions with banks or bureaucracies or when feeling the city government was unresponsive to some stressful situation capable of remedy (e.g., dirty streets or subways).

"Blocking-delay" was closely related to "lack of control" in many people's minds, but it was analyzed separately when people emphasized being frustrated or blocked from doing something rather than simply feeling helpless (i.e., "lack of control"). One particularly common aspect of this dimension was the stressfulness of waiting. Waiting for buses and trains, waiting in lines for concerts, movies or dinner, waiting in traffic or waiting in stores, banks and agencies involved a particularly irritating stress for many people.

This irritation was always exacerbated when a person was blocked from getting somewhere or doing something of particular importance. It also seemed to be a "last straw" kind of stressor, being experienced much more acutely at the end of a hectic or stressful day. Other kinds of blocking involved not being able to find a parking place, stores being closed in the evenings, being slowed down by crowds on the street and being unable to hear or communicate because of loud subway or street noise.

Stresses involving physical or psychological discomfort resulting mainly from the physical setting were coded as the dimension of the "negative physical environment." This included extreme noise, foul smells (e.g., in a subway station) or icy weather as well as the more aesthetic complaints about ugliness, lack of beauty, lack of open space, etc.

The dimension of "personal space invasion" (Sommer, 1959) includes all complaints of undesired closeness to others, undesired personal contact or actual pushing and shoving by others under crowded conditions. This dimension showed up exclusively in crowded stress situations (i.e., on the subway, in stores, on the street), but it was not the only dimension of stress related to crowding. "Blocking-delay," "lack of control," "fear of physical harm," "unpleasant others," etc. were all mentioned by respondents as dimensions of crowding stress.

Table 6 shows the intercorrelations between these dimensions of stress. Several clusters of significant correlations are apparent. As one would expect, "fear of injury," "material loss" and "threat from stories" are significantly intercorrelated, all being mentioned

TABLE 6.--Correlations Between Dimensions of Stress.

	Demand	Constancy	Expense	Unpleasant	Alienation	Ethnic	Injury	Material Loss	Threat Stories	Illness	Control	Authority	Blocking	Negative Environment	Personal Space
Extra Demand	--														
Constancy-Repetitiveness	<u>.23</u>	--													
Extra Expense	<u>.23</u>	.07	--												
Unpleasant Others	<u>.25</u>	.14	.15	--											
Alienation	.16	.08	.01	<u>.28</u>	--										
Ethnic Complaints	.10	.12	.05	<u>.23</u>	.04	--									
Threat of Injury	.14	.13	.13	<u>.34</u>	.09	.07	--								
Threat of Material Loss	.12	.09	.09	<u>.21</u>	.04	.12	<u>.44</u>	--							
Threat from Stories	.05	.14	.01	.14	.04	.06	<u>.34</u>	<u>.44</u>	--						
Threat of Illness	.08	.08	.06	.06	.05	.00	.03	.00	.01	--					
Uncontrollable Situation	<u>.28</u>	<u>.23</u>	.16	<u>.41</u>	.18	.10	<u>.41</u>	<u>.23</u>	<u>.21</u>	.11	--				
Uncontrollable Authority	.10	.05	.15	.14	.01	.12	.11	.07	.00	.13	<u>.25</u>	--			
Blocking-Delay	<u>.38</u>	<u>.23</u>	<u>.21</u>	<u>.32</u>	.18	.11	<u>.26</u>	.19	.07	.09	<u>.36</u>	<u>.23</u>	--		
Negative Physical Environment	<u>.22</u>	.13	.10	.19	.16	.02	.13	.02	.06	<u>.23</u>	<u>.30</u>	.12	<u>.34</u>	--	
Personal Space Invasion	<u>.34</u>	.13	.07	<u>.29</u>	<u>.22</u>	.06	<u>.20</u>	.01	.00	.02	<u>.26</u>	.14	<u>.42</u>	<u>.40</u>	--
Ego Threat/Own Actions	<u>.22</u>	.18	.04	<u>.33</u>	.13	.12	.11	.11	.14	.04	<u>.20</u>	.08	.12	.14	.04

Correlations of .09 and above are significant at the $p < .001$ level.

frequently in relation to crime. "Extra demand," "blocking-delay" and "personal space invasion" form another interesting cluster (all highly related to Service type stresses), as do "unpleasant others," "fear of injury" and "uncontrollable situation" (related both to Interactions with Strangers and Fear of Crime). Besides these clusters "blocking-delay" is significantly correlated to three elements: "unpleasant others" ($\phi = .32$), "uncontrollable situation" ($\phi = .36$) and "negative physical environment" ($\phi = .34$). "Unpleasant others" is related to "ego threat from ones own actions" ($\phi = .33$); and "personal space invasion" and "uncontrollable situation" are related to "negative physical environment" ($\phi = .40$ and $.30$, respectively). Overall these correlations among elements, although significant, were not particularly high. This is as it should be since the elements and dimensions were coded as conceptually independent categories.

Conscious Responses to Stress

There are two aspects to the conscious experience of stress: (1) the conscious physical, emotional and behavioral responses to stress and (2) the conscious evaluation of stress as hypothesized by stress theorists. In this section we will analyze the data relevant to the physical, emotional and behavioral reactions to stress. In the next section we will stop to discuss the fourteen types of stress in light of all categories of analysis thus far presented and in the final two sections we will continue with the analysis of data related to evaluation of awareness of the state of stress.

As discussed earlier, no theory of stress suggests that physiological reactions, emotions and coping responses must be

consciously perceived. Therefore, a lack of supporting evidence in these interviews for such measures cannot in any way call into question their use as measures of stress. However, the presence of such evidence does help to confirm the validity of such measures. The patterns they form with each other and with dimensions and types of stress can add to our understanding of the experience of urban stress.

Physiological Arousal

Physiological change was mentioned in conjunction with only 37 percent of all stresses discussed. However, all but two respondents mentioned some physiological change due to stress at least once during their interview. Since respondents were not specifically asked for their physiological (or emotional) reactions to each stress, this percentage can be considered as spontaneous rate of recall.⁹ Table 7 indicates the frequency with which respondents mentioned the different types of physiological responses. Physical tension was the most frequently mentioned physical change, followed by specific arousal-related symptoms (i.e., increased heart rate, sweating, stomach upset, weak feeling, adrenaline). Nervousness, pain and fatigue were all mentioned by less than half of the respondents. Mental confusion, narrowing of focus and difficulty thinking are considered together as one category of physical reaction (called "mental") because they did not occur frequently enough to be analyzed independently.

⁹There was one question in the interview that elicited physiological reactions to a particular stress situation. (See interview question 7).

TABLE 7.--Physiological Reactions to Stress.

Physiological Reaction	Number of Mentions	Respondents	
		Number	Percent
<u>TENSION:</u> general feelings of tension, physical pressure, specific tense parts of the body (e.g., clenched fists)	99	56	70
<u>SPECIFIC SYMPTOMS:</u> specific symptoms of arousal: fast heart rate, upset stomach, sweating, clammy feeling, adrenaline, feeling weak or faint	95	51	64
<u>NERVOUSNESS:</u> general nervous complaints	53	38	48
<u>PAIN:</u> physical pain from injury, headache, painful noise, etc.	30	23	29
<u>FATIGUE:</u> physical fatigue, exhaustion, tiredness	27	19	14
<u>MENTAL:</u> mental confusion, distraction, narrowing of focus, etc.	13	11	14

Negative Emotions

Table 8 gives the five major categories of emotions described by respondents as accompanying stress. All respondents mentioned at least one emotion and 79 percent of all mentions of stress were given emotional descriptions. Irritation-anger was the most common emotional reaction to urban stress, with worry-fear following closely. Indications of dislike, unpleasantness, feelings of disgust and other general negative emotions were also mentioned frequently. The less frequent emotions included sadness-depression--coded separately--and pity, alienation and surprise--coded together as "other emotions."

Emotions and Physical Reactions

No discernible relationship appeared between emotional and physical reactions to stress. This lack of relationship could be partly the result of the method used to code the respondents' transcripts. Each respondent was coded only once for each type of stress, but all other codings (i.e., place, dimensions, emotions, physical responses, coping, etc.) could be multiply coded for each type of stress. This method of coding was used in order to obtain high intercoder reliability. However, because both emotions and physiological responses were multiply coded for each type of stress, it is impossible to tell which physical response originally accompanied which emotion. In analyzing the relationship between emotional and physical reactions, therefore, each physical response was counted as occurring in conjunction with each emotional response mentioned for a particular type of stress. As a result the distinctions being sought

TABLE 8.--Emotional Reactions to Stress.

Emotional Reaction	Number of Mentions	Respondents	
		Number	Percent
Irritation - Anger	208	78	98
Worry - Fear	183	77	96
Unpleasant - Dislike (general statements of negative emotion)	172	71	89
Sad - Depressed	43	34	43
Other: pity, surprise, alienation	44	37	46

are considerably blurred. However, a truly strong relationship between type of physical response and emotional response would have been clear despite the handicaps involved in this coding method. Indeed, relationships were found between emotions and dimensions of stress (see below). One can safely conclude that there was little relationship between respondents' mention of physical response for a particular stress and their mention of emotion. We will see later that, in fact, physiological reactions are more closely tied to the type of stress being described than to its accompanying emotions.

Emotions and Dimensions

The data were also analyzed to determine whether dimensions of stress influenced a person's emotional reactions to a situation¹⁰ and a strong relationship was found. (See Table 9.) When the proportion of time each dimension occurred with or without an accompanying emotion was compared for different dimensions, "demandingness" and "negative physical environment" were less likely to be accompanied by mention of emotions than all dimensions as a whole, whereas "threat of injury or loss," "lack of control" and "personal space invasion" were each more likely to be mentioned along with one or more emotions.

When the proportion of time any one emotion occurred in the presence of a particular dimension was compared with the proportion of time that emotion was mentioned in conjunction with any dimension, three predictable relationships emerged. (See Table 9.) Worry-fear

¹⁰There were too few mentions of physiological reactions to achieve a comparison of physical responses and dimensions of stress.

TABLE 9.--Emotions and Dimensions of Stress. The Proportion of Time Each Emotion was Mentioned for Each Dimension.

Dimensions of Stress	Irritation-Anger	Worry-Fear	Unpleasant-Dislike	Sad-Depressed	Other (pity/confusion/alienation)	Average Number of Emotions for Each Dimension	Proportion of Time Emotions Not Mentioned	Total Number of Dimensions Mentioned
Demandingness	47	28	33	9	9	1.3	(27)	253
Ego Threat from Others	54	37	44	13	14	1.6	15	205
Threat of Injury or Loss	43	(64)	39	10	13	1.7	(11)	171
Lack of Control	56	45	44	13	15	1.7	(12)	207
Blocking-Delay	(68)	38	51	8	11	1.8	18	204
Negative Physical Environment	44	28	45	8	4	1.3	(28)	134
Personal Space Invasion	(66)	39	49	9	9	1.7	(11)	96
Ego Threat from Self	50	49	40	14	14	1.7	19	70
Overall Proportion	<u>52</u>	<u>39</u>	<u>41</u>	<u>10</u>	<u>11</u>	<u>1.5</u>	<u>18</u>	

* Using Overall Proportion as a standard, individual proportions are circled that are considerably above or below this standard in each column.

was related to "threat of injury or loss" and irritation-anger was a frequent result of both "blocking-delay" and "personal space invasion."

These data clearly show that respondents experience differing amounts and types of emotions depending on the dimensions of stress involved. Respondents were actually asked in one part of the interview if they responded with different emotions to different situations. Forty-six (58 percent) said "yes," 21 (26 percent) said "no" and the rest misunderstood or could not answer the question. Of those that said "yes," 24 (52 percent) used some dimension of stress as the reason they would react with different emotions in different situations. Eleven respondents said they would respond with different emotions to physically threatening or violent situations as compared to other stress situations. Six said they would react differently in situations involving a lack of control, and seven felt they experienced different emotions in situations involving physical stressors (i.e., "negative physical environment") than they did in ones involving interpersonal or personal stresses (i.e., the ego threat dimensions). Four respondents (nine percent) said that their emotions would differ depending on their ability to cope with or avoid the situation. Five others (11 percent) mentioned one of Lazarus' factors of appraisal (i.e., imminence, location of the agent of harm, social resources) as influencing their emotional reactions.

Those respondents who said they generally reacted with the same emotions to all stressful situations were asked to say what these situations had in common that made them react similarly to them. Ten respondents (48 percent) again used some dimension of stress:

four mentioned "lack of control," four mentioned "demandingness" and two mentioned "blocking-delay." Six respondents (29 percent) said that the urban stresses they experienced were all the same emotionally because they were impossible to cope with or impossible to avoid. Interestingly, when the actual codings for emotion were noted for individuals who said they reacted with the same emotions to all urban stresses, these individuals were as varied in their mentions of emotion as the rest of the sample.

Task Performance

Although respondents were asked about the effects of at least one stress on "how well they did what they were trying to do at the time" (interview question 7c), only 52 respondents mentioned any effect of stress on task performance, and nine of those respondents (17 percent) felt that stress had actually improved task performance. (For instance, fear of crime helped someone to be more alert and prepared on the street at night and to walk home quicker, and the stressful competition and the high level of "professionalism" in New York had forced some to improve the quality of their work. (cf. Lawton & Nahemow, p. 40 above.)

Of the 43 mentions of a decrease in task performance, twelve (28 percent) were for Social Environment Stresses and 26 (60 percent) were for Noise. The reasons for noise's strong effect on task performance will be discussed more thoroughly when each type of stress is analyzed in more detail.

Coping Responses to Stress

Besides physiological and emotional responses to stress and variations in task performance there are also coping responses to a stress. These can be used as measures of stress (e.g., the degree to which a stressor is avoided) or studied as important phenomena in their own right.

It is possible of course to cope with each type of stress in a wide variety of ways--some unique, others representing general coping styles--but for this study all coping responses mentioned by respondents were categorized into one of four broad categories: (1) active coping (this included taking any physical action such as changing trains or complaining to a friend to reduce the stress or its effects); (2) mental coping (this involved rationalizing, ignoring, fantasizing, etc., e.g., on a crowded subway); (3) avoiding or trying to avoid a situation; (4) concluding that nothing could be done to cope with or improve the situation. Respondents often mentioned more than one kind of coping for each type of stress. Active coping was mentioned most frequently--202 times or 44 percent of all coping responses mentioned. Avoidance came next--141 times or 31 percent of all mentions. Mental coping was mentioned 72 times (16 percent) and "Nothing I could do" was mentioned 41 times (nine percent). On the whole, some type of coping (active, mental or avoidance) was spontaneously mentioned for 52 percent of all stresses mentioned.

When coping is related to the dimensions of stress (Table 10), we see that some kind of coping response (active, mental or avoidance) is more characteristic of "personal space invasion" and less

TABLE 10.--Dimensions of Stress and Coping Responses--The Proportion of Times Each Coping Response was Mentioned in Conjunction with Each Dimension of Stress.

Dimensions of Stress	Type of Coping				No Mention of Coping
	Active	Avoid	Mental	Nothing I Can Do	
Lack of Control	63	31	36	25	25
Fear of Harm	66	29	41	19	23
Personal Space Invasion	61	38	56	19	7
Negative Physical Environment	43	28	30	16	37
Blocking-Delay	58	29	39	17	24
Ego Threat--Others	63	28	38	15	25
Ego Threat--Self	67	19	40	7	29
Extra Demand	53	19	39	9	33
OVERALL PROPORTION: ALL DIMENSIONS	<u>59</u>	<u>28</u>	<u>38</u>	<u>16</u>	<u>27</u>

characteristic of "negative physical environment" than it is of all dimensions combined. For instance, people avoided extremely crowded situations but felt that there was nothing they could do about unpleasant physical environments. When specific types of coping are related to dimensions of stress, "negative physical environment" is mentioned much less often in relation to active coping than are the dimensions generally. "Invasion of personal space" is mentioned in relation to mental coping and avoidance a high proportion of time, and "lack of control" is mentioned in conjunction with "nothing I can do." "Extra demand" and "ego threat from self" were mentioned in conjunction with avoidance coping responses proportionately less frequently than were the dimensions as a whole.

Besides questions about coping during stressful situations, respondents were also asked at the end of the interview how they generally coped with urban stress. They were asked what they did after a stressful day to reduce their feelings of stress. The vast majority of responses involved doing something relaxing at home, alone. Forty-one respondents (51 percent) said they took a shower, meditated, rested, slept, etc. Thirty-five (44 percent) mentioned eating, drinking, taking tranquilizers or drugs, etc. Twenty-nine respondents (36 percent) mentioned reading, watching television, listening to music, doing a hobby, etc. Only 24 (30 percent) mentioned talking with or seeing a friend, going out to some entertainment, etc. Respondents who did not live alone mentioned this last category more frequently ($\chi^2 = 5.33, p < .05$). Sixteen (20 percent) of the respondents mentioned some exercise or walking. There were also 16 spontaneous mentions throughout the interviews

of the need to get out of the city occasionally in order to reduce feelings of urban stress.

More Detailed Analysis of Type of Stress

Having looked at the overall categories of place of occurrence, dimensions of stress, emotions, physical reactions and coping responses, we can now use these categories to discuss each type of stress separately and holistically in order to come to a better understanding of how respondents experienced the different types of stress.

The Social Environment Stresses

The Social Environment Stresses were defined above as those situations involving stressful contact with large numbers of people or with unpleasant strangers (see p. 64 above). They include stresses concerned with Travel in the city, obtaining Services, Interactions with Strangers and Social Overload (see Table 11 and Appendices C-G, pp. 181-190). These stressful situations were most likely to be characterized as being stressful because of the presence of "unpleasant others" ($\chi^2 = 17.68$, $p < .001$ when this group was compared to all other groups of stress combined for this element of a dimension compared to all other dimensions combined), feelings of "alienation" ($\chi^2 = 6.77$, $p < .01$) and, particularly, "personal space invasion" or crowding ($\chi^2 = 69.94$, $p < .001$). There was a higher mention comparatively for emotions ($\chi^2 = 24.66$, $p < .001$) and physical responses ($\chi^2 = 9.17$, $p < .01$) for this group of stresses than for the other stresses as a whole. The "other" emotions (i.e., surprise, pity, and alienation) were especially mentioned ($\chi^2 = 10.03$, $p < .01$), while worry-fear emotions were less frequently

TABLE 11.--Significant Chi-Squares for Types of Stress and Other Appraisal Categories.

	PLACE Street Subway-bus Traffic Public Buildings Stores Entertainment Own Apartment	PHYSICAL REACTION Tension Specific Symptoms Nervousness Pain Fatigue Mental Symptoms	EMOTIONS Irritation-Anger Worry-Fear Unpleasant-Dislike Sad-Depressed Other	DIMENSIONS Demandingness extra demand repetitiveness extra expense Ego Threat-Others unpleasant other alienation ethnic complaint Harm or Loss injury material loss threat stories illness Lack of Control uncontrollability authorities Blocking-Delay Negative Physical Environment Personal Space Invasion Ego Threat-Self	COPING Active Avoidance Mental Nothing I Can Do
<u>SOCIAL ENVIRONMENT:</u>					
Travel Services	* *	" "	" "	+ * * *	" *
Interactions	*		" *	* +	+ *
Social Overload			+ *	*	
<u>CRIME:</u>	* +	*	" * -	* * * *	
<u>PHYSICAL ENVIRONMENT:</u>					
Noise	+ *	"	+ = *	*	+ *
Ugliness	*	"	* = *	* *	+ *
<u>LIVING PROBLEMS:</u>					
Apartments				* * *	+
Jobs		+		*	
Overall Chi-Squares	623.93*	115.73*	136.03*	779.7*	58.8*

* p < .01 or greater, above expected frequency

+ p < .05, above expected frequency

= p < .01 or greater, below expected frequency

- p < .05, below expected frequency

mentioned than would be expected ($\chi^2 = 14.05$, $p < .001$). The physical response of fatigue was high for Social Environment Stresses ($\chi^2 = 5.63$, $p < .05$) while that of pain was lower than would be expected ($\chi^2 = 24.90$, $p < .001$). More than the expected number of total coping responses was credited to this group of stresses ($\chi^2 = 51.12$, $p < .001$).

Travel stress, the first of the Social Environment Stresses occurred most frequently--as one would expect--on the streets, in cars, taxis and airports ($\chi^2 = 64.17$, $p < .001$) and on subways and buses ($\chi^2 = 38.57$, $p < .001$). Ninety-two percent of those respondents mentioning Travel specified subways or buses as stressful (85 percent of all respondents). Forty-seven percent of those respondents mentioning Travel stresses spontaneously specified the rush hour as when this stress was most likely to occur. The dimensions of stress that were mentioned relatively more frequently for Travel than for the other types of stress were "personal space invasion" ($\chi^2 = 69.86$, $p < .001$) and "negative physical environment" ($\chi^2 = 10.19$, $p < .01$). Travel related places (i.e., the street, cars, taxis, subways and buses) were also higher than other places on the "negative physical environment" dimension, and cars, taxis and airports were mentioned quite frequently for the "extra expense" element of the "demandingness" dimension. This last finding reflects the frequent complaints about the extra cost of taxis in traffic jams, the high cost of parking cars in the city and the exorbitant (\$50-100) parking tickets.

Some kind of emotional ($\chi^2 = 26.13$, $p < .001$) or physical ($\chi^2 = 38.70$, $p < .001$) reaction was mentioned more frequently to Travel stress than to the other stresses as a whole, although no particular

emotion or physical response was especially characteristic of this stress. Coping responses were also mentioned more frequently for Travel than would be expected ($\chi^2 = 40.02$, $p < .001$) with mental coping responses being frequently specified ($\chi^2 = 3.19$, $p < .10$).

Complaints about Services in the city were attributed almost entirely to such places as stores, banks and businesses ($\chi^2 = 155.62$, $p < .001$ when Services were compared with other types of stress), places of entertainment (e.g., concerts, movies, restaurants) ($\chi^2 = 111.72$, $p < .001$) and government agencies, offices or bureaucracies. The elements and dimensions most frequently used to describe Service stresses were "extra demand" (e.g., extra hassle, time, energy, etc.) ($\chi^2 = 9.63$, $p < .01$), "personal space invasion" ($\chi^2 = 22.76$, $p < .001$), "blocking-delay" (e.g., waiting in lines) ($\chi^2 = 11.60$, $p < .001$) and "extra expense" ($\chi^2 = 4.21$, $p < .05$). The emotions involving irritation-anger ($\chi^2 = 13.16$, $p < .001$) and the physical reaction of fatigue were particularly characteristic of Service stresses. Worry-fear on the other hand, was mentioned less frequently ($\chi^2 = 12.25$, $p < .001$) than it was for the other stresses as a whole. Coping responses were mentioned with regards to Service stresses more frequently than would be expected ($\chi^2 = 20.10$, $p < .001$) with avoidance being particularly characteristic ($\chi^2 = 10.40$, $p < .01$). On the whole Service related stresses form a rather distinct type of stress.

Interactions with Strangers as a stressful experience occurred primarily in anomic public gathering places such as on the street ($\chi^2 = 13.68$, $p < .001$) and in the subways and buses. Ego threat dimensions of stress were relatively more important for Interactions

with Strangers than for the other stresses as a whole. These included the elements: "unpleasant others" ($\chi^2 = 56.37$, $p < .001$), feelings of "alienation" ($\chi^2 = 15.41$, $p < .001$), "ethnic prejudice" and the dimension "ego threat from own actions" ($\chi^2 = 13.19$, $p < .001$). This finding indicates that people find their values and their own conceptions of themselves more threatened in situations involving stressful interactions with strangers than in any other stress situation. The emotional responses of surprise, pity and alienation (analyzed together as "other" emotions) were mentioned relatively more frequently for this type of stress ($\chi^2 = 18.46$, $p < .001$) than for other stresses, while worry-fear was mentioned less frequently ($\chi^2 = 7.05$, $p < .01$). Active coping strategies were more characteristic of Interactions with Strangers than of the other stresses as a whole ($\chi^2 = 5.52$, $p < .05$).

Social Overload stress situations were not coded for place of occurrence since these situations were so often discussed in terms of the city generally. The only element particularly characteristic of this type of stress was "extra demand" ($\chi^2 = 40.85$, $p < .001$). People complained mostly of the fast pace and overstimulation in the city. Fatigue--no doubt a result of the extra demand--was a frequently mentioned physical reaction. On the whole there were relatively few mentions of emotions for Social Overload stress ($\chi^2 = 26.19$, $p < .001$), although worry-fear was mentioned more frequently than would be expected ($\chi^2 = 6.34$, $p < .05$). There was no particularly characteristic coping response.

Crime

Crime as a type of stress appeared to be quite clearly separated in people's minds from the other types of urban stress they discussed. It was therefore analyzed as a separate "stress group." It comprises both fear of mugging, robbery, rape, murder, etc. and the actual experience of some crime or attempted crime.

Crime was feared by people in a number of urban settings: on the street ($\chi^2 = 17.79$, $p < .001$), in the subways and buses, in the public parts of buildings (e.g., elevators, hallways, doorways) ($\chi^2 = 8.79$, $p < .05$) and in one's own apartment. It was most particularly related to the evening, night and darkness by 64 percent of those mentioning this stress. The elements of stress that respondents mentioned more frequently in relation to crime than to other types of stress were, quite naturally, "fear of harm" ($\chi^2 = 107.66$, $p < .001$), "fear of material loss" ($\chi^2 = 132.49$, $p < .001$) and "threat from stories" ($\chi^2 = 107.18$, $p < .001$). Other dimensions of stress were unimportant, with "personal space" ($\chi^2 = 21.93$, $p < .001$), "negative physical environment" ($\chi^2 = 21.93$, $p < .001$), "demandingness" ($\chi^2 = 21.32$, $p < .001$) and "unpleasant others" ($\chi^2 = 5.07$, $p < .05$) being mentioned relatively less often for this stress than for the other stresses combined. The street, the public parts of buildings and one's own apartment also received particularly high mentions of the physical threat dimension, reflecting the link between Crime stresses and place.

Mentions of emotional reactions were relatively higher for Crime stresses than for the other stresses as a whole ($\chi^2 = 14.97$,

$p < .001$), with worry-fear ($\chi^2 = 49.87$, $p < .001$) being particularly frequent. Related to this was the high rate of mentions for the specific physical symptoms of heart rate, sweating, adrenaline, etc. ($\chi^2 = 18.52$, $p < .001$). The other major emotions--irritation-anger ($\chi^2 = 12.80$, $p < .001$) and unpleasant-dislike ($\chi^2 = 6.48$, $p < .05$)--were mentioned less frequently than would be expected. Some type of coping was more likely to be mentioned for crime stresses than for other stresses as a whole ($\chi^2 = 18.02$, $p < .001$), although no specific coping strategies were favored.

Physical Environment Stresses

These stresses include stressful Noise, Ugliness (the stressful experience of dirt, air pollution and decay in the city) and General Environment stresses such as lack of space, lack of nature, lack of beauty, etc. The elements and dimensions given as most important for these stresses as compared with other stresses are "negative physical environment" ($\chi^2 = 139.78$, $p < .001$), "threat of illness" (e.g., loss of hearing, lung cancer, etc.), "blocking-delay" (e.g., interrupting noise) ($\chi^2 = 8.99$, $p < .01$), and "constancy-repetitiveness" (i.e., the situation being made more stressful by its constant, prolonged or repetitive nature) ($\chi^2 = 9.24$, $p < .01$).

On the whole, fewer emotional descriptions were given for these stresses than for others ($\chi^2 = 35.47$, $p < .001$), although irritation-anger ($\chi^2 = 4.82$, $p < .05$) and unpleasant-dislike ($\chi^2 = 10.80$, $p < .01$) were relatively more frequently mentioned than the other emotions. The worry-fear emotions were especially uncommon

for this stress ($\chi^2 = 14.87$, $p < .001$). The specific symptoms category of physical reactions (related to worry-fear) was also very low ($\chi^2 = 21.48$, $p < .001$). Pain, on the other hand, was mentioned more frequently for this group of stresses than for other stresses ($\chi^2 = 54.68$, $p < .01$) (e.g., painful noise, headaches). Coping responses were mentioned less frequently than would be expected ($\chi^2 = 29.85$, $p < .001$) with mental coping being relatively favored ($\chi^2 = 5.46$, $p < .05$) over the other coping responses. Respondents were also more likely to comment that there was "nothing they could do about" physical environment stresses ($\chi^2 = 11.73$, $p < .001$).

Stressful Noise was an important component of the physical environment stresses. It was complained of most frequently in the subways ($\chi^2 = 6.50$, $p < .05$), on the street and in one's own apartment (e.g., coming from neighbors' apartments or from the street) ($\chi^2 = 35.71$, $p < .001$). The only dimension on which noise differed from the other stresses as a whole was "blocking-delay" (e.g., interruption of an ongoing activity by noise) ($\chi^2 = 17.81$, $p < .001$). This is reflected in a high response to irritation-anger emotions ($\chi^2 = 12.31$, $p < .001$) even though noise elicited fewer than the expected number of emotion responses as a whole ($\chi^2 = 12.18$, $p < .001$). Stressful noise also elicited more physical reactions generally ($\chi^2 = 17.67$, $p < .001$) and pain responses in particular ($\chi^2 = 30.21$, $p < .001$) than would be expected when compared to other stresses.

Noise as a stressor deserves some special attention as being the only stress consistently associated by respondents with lowered

task performance.¹¹ The information provided in the above analysis suggests to us the reason why. Noise is obviously seen as interrupting, distracting and interfering with whatever one is trying to do, as can be seen by the frequent mention of the "blocking-delay" dimension with regard to it. Most urban stresses either occur in public places while one is performing some repetitive, simple task (e.g., getting to work, buying groceries) or reflect generalized worries or anticipations of possible problems (e.g., fear of crime, concern about jobs, apartments, etc.). These may affect one's overall happiness in the city, but they are unlikely to have an immediate, direct effect on the performance of a task. Noise, on the other hand, occurs not only in public places (e.g., on the street, in the subway), but also at home and on the job. It can occur at any time of the day or night, resulting in immediate, direct effects on one's concentration and performance. Because of the ubiquitousness and immediacy of noise, the blocking of a person's activity or a decrease in the quality of his performance is particularly salient.

Mental methods of coping were relatively more frequent for noise than for other stresses ($\chi^2 = 5.04$, $p < .05$), although respondents frequently felt there was nothing they could do about it.

Ugliness stresses (e.g., dirtiness, air pollution, decay, etc.) were most frequently located on the city streets ($\chi^2 = 26.92$, $p < .001$),

¹¹This is particularly interesting since in a major series of studies, Glass and Singer (1972) found no decrease in task performance during loud laboratory noise. Perhaps Glass and Singer's subjects perceived their task as one of performing well under noisy conditions and willingly exerted the effort to perform this task (much as a jack-hammer operator would), while urbanites perceive noise as an unnecessary added burden.

although at least one-third of the respondents specified no particular part of the city for this stress. The only significantly high dimension for this stress was, naturally enough, "negative physical environment" ($\chi^2 = 67.99$, $p < .001$). The unpleasant-dislike emotions were mentioned a higher proportion of the time for Ugliness than they were for the other stresses as a whole ($\chi^2 = 5.69$, $p < .05$), as was the physical reaction of pain (e.g., smarting eyes, etc.). On the whole, however, physical reactions to Ugliness were mentioned less frequently than would be expected ($\chi^2 = 9.00$, $p < .01$).

General Environment stresses (e.g., bad weather or lack of space, nature, beauty) were not coded for specific places. The only important dimension for this stress was, again, "negative physical environment." Mentions of emotional and physical reactions to it were relatively lower than for other stresses ($\chi^2 = 27.45$, $p < .001$) and $\chi^2 = 6.20$, $p < .05$).

Basic Living Problems

Basic Living Problems include problems in finding or keeping a good apartment (Apartment), finding and functioning in a good job (Jobs), the high cost of city living (High Cost of City Living), making and visiting friends (Friends and Dates) and seeing one's self change (Feeling Self Change) in ways one does not like. No specific places were coded for these stresses. Overall, the elements of dimensions that were coded frequently for Living Problems were "extra demands" (e.g., extra time, hassle, competition) ($\chi^2 = 8.16$, $p < .01$) and "extra expense" (e.g., high rents, high cost of living)

($\chi^2 = 104.83$, $p < .001$)--both elements of the "demandingness" dimension. These stresses received, when compared with the other stresses, fewer mentions of emotional reactions ($\chi^2 = 17.09$, $p < .001$), physical reactions ($\chi^2 = 19.92$, $p < .001$) and coping responses ($\chi^2 = 48.42$, $p < .001$). There was, however, significantly more frequent mention of active coping responses than would be expected when compared with the other stresses as a whole ($\chi^2 = 6.31$, $p < .05$).

Because respondents mentioned a relatively small number of Living Problem stresses, few significant differences appear among the specific types of stress. Stresses related to Apartments were particularly high on the element of "extra expense" (e.g., exorbitant rents) compared to other stresses and low on physical reactions in general ($\chi^2 = 8.08$, $p < .01$). Cost of Living stresses were also extremely high on the "extra expense" element, as well as low on both emotional and physical reactions ($\chi^2 = 10.65$, $p < .05$ and $\chi^2 = 19.83$, $p < .001$). Job related stresses showed relatively higher mention of the "extra demand" element (e.g., tough competition) ($\chi^2 = 10.00$, $p < .001$) and of the physical reaction of tension ($\chi^2 = 4.39$, $p < .05$). Relatively few emotional responses were made in discussions of stresses involving Friends and dates ($\chi^2 = 11.72$, $p < .001$). For the stresses involving Feeling Self Change for the Worse the particularly important dimension was--as might be expected--"threat from one's own actions."

General Findings

Looking at the dimensions of stress as they have been discussed for different types of stress, it seems clear that certain dimensions or combinations of dimensions of stress are particularly characteristic of specific types of stress. "Ego threat" dimensions are most frequently mentioned for Interactions with Strangers. "Blocking-delay" is particularly important for Service stresses and Noise. "Personal space invasion" is important only for Travel and Service stresses. "Physical threat" stands out significantly as related to Crime; and "negative physical environment" is related to Ugliness and General Environment stresses. There is one exception to this pattern, however. The feeling of "lack of control" in a situation is the single most frequently mentioned element of stress, but it is not especially important for any one type of stress situation. It was mentioned consistently in all stress situations.

Looking at the relationships between emotional and physical reactions and types of stress, we can see why so few and tenuous relationships were found between emotions and physical responses. Physical reactions to stress seem more closely related to specific types of stress than to specific emotions. For example, Service and Social Overload (both high demand stresses) resulted in fatigue. Noise and Ugliness resulted in pain (e.g., headaches, sore eyes, etc.). Job problems (high competition) resulted in high tension. There is an indication, however, that where the worry-fear emotions are particularly strong (i.e., in fear of crime or harm situations) specific symptoms (e.g., heart rate, sweating, weakness, etc.) are

also more frequent. It would be particularly interesting to relate physical reactions to dimensions of stress as well as to type of stress in a study where mentions of physical responses were more consistently obtained.

Stressful Situations

Besides the division of stresses into types of stress as defined through content analysis, described above, the investigator elicited responses during the interview to four general a priori categories of stress situations. Respondents were asked to describe in detail one repetitive stress and one unusual or outstanding stress that they had experienced and also to name one or more things in the city that they avoided and that they worried about. More specific questions were then asked about the repetitive and unusual stress situations when time permitted.

The results of grouping responses into these stress situations confirm and in some ways elucidate previously discussed results. The types of stress that respondents identified as being repetitive, outstanding, avoided or worried about were analyzed again in a comparison of these four stress situations. Overall, the pattern of frequencies described above for each category of analysis as a whole was reproduced in this smaller group of stress situations, with two exceptions: physical environment stresses were mentioned a little less frequently and the "threat of harm or loss" dimension of stress was mentioned more frequently (being an important dimension in the unusual, the avoided and the worried about situations). The emotions

for these stress situations were impossible to analyze because the worry-fear emotion was coded for every "worried about stress" situation, skewing the expected frequencies. When "worried about stress" situations were dropped from the analysis, no significant chi-square emerged from the emotion by stress situation matrix. The "avoided stress" category raised a similar problem for the coping responses. There was no significant overall chi-square for stress situations and physical responses.

People more frequently described the Social Environment stresses as repetitive stresses than they did the other stress types ($\chi^2 = 28.64$, $p < .001$). (See Table 12.) In particular, they mentioned Travel stresses ($\chi^2 = 18.32$, $p < .001$), Social Overload stresses and Noise stresses. Crime was picked less frequently as a repetitive stress than as one of the other kinds of stress situations ($\chi^2 = 45.84$, $p < .001$). The dimensions of "blocking-delay" ($\chi^2 = 5.40$, $p < .05$), "personal space invasion" ($\chi^2 = 6.60$, $p < .05$) and "negative physical environment" ($\chi^2 = 4.23$, $p < .05$) were chosen as more characteristic of repetitive than of other stress situations, while "threat of harm" was significantly less characteristic ($\chi^2 = 45.84$, $p < .001$). Mental coping was also more frequently mentioned for repetitive stress situations than for the other stress situations as a whole. Among respondents asked if the situation continued to bother them after it was over, 86 percent said they experienced no aftereffects (e.g., emotional or physical changes, mood changes, etc.) or only very short-range effects (i.e., lasting a couple of minutes) to repetitive stress situations.

TABLE 12.--Analysis of Four Stressful Situations--By Type of Stress and Dimensions.

	Repetitive	Unusual	Avoided	Worried About	TOTAL
<u>TYPE OF STRESS:</u>					
<u>SOCIAL ENVIRONMENT:</u>	(41.6) 62***	36	44	(39.6) 11***	153
Travel	(20.7) 35***	9	24	8	76
Services	14	6	(9.4) 17**	2	39
Interactions	9	(7.5) 21***	2	1	33
Social Overload	4	0	1	0	5
<u>CRIME:</u>	(28.8) 4***	27	24	(27.4) 51***	106
<u>PHYSICAL ENVIRONMENT:</u>	11	0	3	1	15
<u>LIVING PROBLEMS:</u>	3	4	0	(5.2) 13***	20
<u>TOTAL:</u>	80	67	71	76	294

Overall Chi-square = 109.04, $p < .001$.DIMENSIONS OF STRESS:

Demandingness	53	33	37	26	149
Harm or Loss	(56.4) 34***	49	39*	(36.9) 60***	182
Ego Threat--Others	45	43	34	28	150
Lack of Control	49	(43.7) 54*	38	41	182
Blocking-Delay	(47.7) 60*	33	38	23	154
Negative Environment	(25.7) 34*	(19.9) 9**	27	13	83
Personal Space Invasion	(24.8) 35*	11*	(19.8) 28*	6	80
Ego Threat--Self	6	13	11	10	40
<u>TOTAL</u>	315	245	252	207	1020

Overall Chi-Square = 72.94, $p < .001$ * $p < .05$ ** $p < .01$ *** $p < .001$

Respondents describe a particularly wide range of unusual stresses, including descriptions of muggings, subway breakdowns, and altercations with landlords. Interactions with Strangers was a type of stress more characteristic of this situation than of other stress situations ($\chi^2 = 35.41$, $p < .001$). Crime was also mentioned frequently. No dimension appeared as particularly characteristic of this stress situation, but mentions of "personal space invasion" ($\chi^2 = 5.00$, $p < .05$) and "negative physical environment" ($\chi^2 = 8.55$, $p < .01$) were particularly rare. Among respondents asked if the unusual stress continued to bother them after it was over, 64 percent reported long lasting aftereffects of their experiences. The difference between repetitive and unusual stresses in this respect was significant ($\chi^2 = 9.63$, $p < .01$) for no or short-term effects versus long-term aftereffects.

The types of stress mentioned as most typical of avoided stresses were Travel, Service stresses and Crime. The only significant dimension for avoided stresses was "personal space invasion" ($\chi^2 = 4.90$, $p < .05$), frequently given as an important reason why Travel and Service stresses were stressful.

Although Crime was mentioned frequently for both unusual and avoided stresses, it was mentioned especially as a worried-about stress. Sixty-seven percent of the responses to the question: "What do you worry about in the city?" involved crime. Altogether in the interviews, 52 respondents (65 percent) mentioned fear of mugging, 17 (21 percent) mentioned fear of burglary, 17 (21 percent) mentioned fear of being killed, and 13 (32 percent of the women) mentioned fear of rape. When compared to the other stress situations, both Crime ($\chi^2 = 42.88$, $p < .001$)

and Living Problems ($\chi^2 = 14.10$, $p < .001$) were more frequently mentioned as worried-about situations than as other stress situations. "Threat of harm" was also a more frequent dimension for this situation than would be expected ($\chi^2 = 22.08$, $p < .001$). Finally, these situations infrequently elicited any mention of coping response from the respondents.

In this analysis of stressful situations a rather clear contrast appears between repetitive and unusual stresses. Repetitive stresses such as Travel, Noise and feeling rushed (Social Overload) are viewed as demanding and uncomfortable (i.e., crowded and unpleasant physically), but not as physically threatening. They are frequently coped with mentally (e.g., by ignoring) and people describe them as having little or no effect after they have ended. Unusual stresses, on the other hand, generally involve stressful interactions with strangers or crime. Because they are so varied, no dimension of stress is particularly characteristic, although they rarely involve crowding or negative physical environments. As one might expect from their outstanding nature, the effects on the individual (from his/her point of view) are much longer lasting.

The avoided stress and worried-about stress analyses highlight two of the most idiosyncratic or "pure" types of urban stress. Travel and Service stresses, generally related to crowding, are the most frequently avoided urban stresses. Fear of crime on the streets or in one's apartment, involving threat of harm and/or material loss, is a very common urban worry that is particularly difficult to cope with.

Awareness of the State of Stress

McGrath's definition of stress (see p. 11) involves an appraisal of perceived demand, of perceived resources to meet that demand, of a perceived imbalance between the two (favoring the demand) and a perception of negative consequences if the demand is not met. Are respondents consciously aware of all these components of stress appraisal? Several attempts were made in the interview to answer this question.

Respondents' Definitions of Stress

One way of answering this question is to determine whether each of these components are present in respondents' definitions of stress (see Table 13). When asked to define stress, 78 percent of respondents mentioned pressure, hassle, frustration, threat or some feeling of the environment acting on them, demanding something from them. This appraisal of the demand characteristics of the environment seems a basic part of the appraisal of stress for most people. Sixty-five percent of the respondents also described stress in terms of their mental or physical response to stress--mentioning tension, anxiety, nervousness and physiological reactions. (Sixteen percent of respondents specifically stated that stress had both physical and mental-psychological aspects.) Twenty-nine percent of respondents expressed difficulty in coping with or handling either the stress itself or the emotions resulting from it. This difficulty in handling stress can be interpreted as an appraisal of an imbalance between demand and resources. On the average, respondents

TABLE 13.--Definitions of Stress.

Definitions	Number of Mentions	Respondents Mentioning Percent
<u>ENVIRONMENTAL DEMAND:</u>	<u>74</u>	<u>78</u>
Pressure	46	
Hassle	12	
Frustration, conflict	10	
Feel threatened	2	
Other	4	
<u>RESPONSES TO STRESS:</u>	<u>69</u>	<u>65</u>
Tension	30	
Anxiety	26	
Nervousness	6	
Physiological Responses	7	
<u>COPING PROBLEMS:</u>	<u>28</u>	<u>29</u>
Can't cope with, control	15	
Hard to handle emotionally	4	
Uncomfortable, want to escape	9	
<u>DESCRIPTIVE RESPONSES:</u>		<u>31</u>
Stress has positive and negative aspects	3	
Stress is an abnormal state	3	
Stress has physical and mental aspects	13	
Stress can be externally or internally caused	4	
Stress is cumulative	2	

mentioned 2.5 independent definitions of stress, indicating that on the whole people define stress both in terms of experienced demand and in terms of their emotional, physical or behavioral (coping) response to that demand.¹²

Appraisal of Demand

When respondents were asked why they experienced a situation as stressful, they most frequently responded as they did in their general definition of stress--with a description of experienced demand. The most frequently mentioned dimension of stress (see Table 5) was "demandingness," but other frequently mentioned dimensions involved perceived external pressure or threat. "Ego threat from others," "threat of physical harm or material loss," "blocking-delay," "negative physical environment" and "personal space invasion" were all conceptualized in terms of the external stimuli demanding some response from the individual. It is clear that respondents were able consciously to appraise and describe the demandingness of a situation. The type of demandingness was differentiated for types of stress and helped determine the emotions experienced in the situation (see pp. 71-79 above.)

Evaluation of Resources

Spontaneous mentions of one's own resources with regard to stressful demand were coded throughout the interview. Respondents

¹² Respondents' definitions of "urban" stress added little additional information. Respondents either repeated their definition of stress or defined urban stress as stress experienced in or caused by the city.

were also asked what personal, physical and social resources were important for the repetitive and unusual stresses that were probed in some detail.

Resources mentioned throughout the interview were coded into one of four categories: (1) personality or mood. Here people either described some constant aspect of themselves as affecting their experience of stress (e.g., "I'm easygoing," "I'm a native New Yorker," "I'm claustrophobic"), or said that their experience of stress depended on their immediate mood (i.e., on what was happening in their personal life at the time, or whether the day had gone well, etc.); (2) environmental supports (these included lighting, pleasant surroundings, bad or good weather, etc.); (3) social resources (social resources could mean the company of a friend--e.g., having someone to talk to or share experiences with--the obtaining of the official support of police, apartment superintendents or other authorities, or expecting the moral or physical support of strangers--e.g., "I feel safer on crowded streets at night"); (4) possession of property (this was coded where something outside the respondent, but possessed by him or her, served as a resource; examples of things coded in this category include money, a car, a good apartment, a dog, tenure or having a secretary.

All these resources were coded if they were mentioned as being either present or absent (i.e., as making the situation either less stressful or more stressful). Personality or mood was the most frequently mentioned resource (mentioned spontaneously 140 times). Personality was usually considered as a resource in the general handling of stress. People said they were generally happy people, or were able to

block out and forget stressful experiences, or were generally more likely to take things personally. Mood seemed particularly important in repetitive or irritating stress situations such as subway riding, where one's mood could negate or exaggerate one's stressful response to the situation. People felt that when they were in a good mood they hardly noticed situations that at other times were appraised as quite stressful.

The other three resources were all mentioned around 50 times apiece. The total number of resources mentioned was 298 before the specific probe questions were asked of repetitive and unusual stresses. Specific questioning elicited another 239 responses, indicating that conscious appraisal of our own resources is easily obtained.

Mentions of resources were pretty evenly distributed over the different types of stress, although a few significant effects due to type of stress were observed. Personality or mood was a particularly important resource for Social Overload stresses ($\chi^2 = 5.00$, $p < .05$). Environmental supports showed a trend toward being important for Travel stresses ($\chi^2 = 3.36$, $p < .10$). Social resources were particularly important in handling Interactions with Strangers ($\chi^2 = 5.29$, $p < .05$) and Crime situations ($\chi^2 = 5.94$, $p < .05$), and possessions were not important with regard to Interactions with Strangers ($\chi^2 = 4.23$, $p < .05$), but were particularly important with regard to Basic Living Problems ($\chi^2 = 9.23$, $p < .01$).

When repetitive and unusual stresses were compared with regard to resources, there were more mentions of personal and environmental resources being relevant to repetitive than to unusual stresses.

On the other hand, social resources seemed particularly important for the handling of unusual stresses. This is as would be expected, since unusual stress generally involved Interactions with Strangers and Crime, both of which were high on mentions of social resources.

Appraising the Balance between Demand and Resources

Only one or at the most two respondents ever said directly that they balanced the threat or demand of a situation against their resources or coping abilities in coming to the conclusion that a situation was stressful. However, it was clear than many people were doing just that. It could be seen at times in the way respondents described the demand of a situation or their own resources. They frequently explained how things would be more or less stressful if demands or resources varied--implying that they were weighing one against the other. Describing a situation as difficult or impossible to cope with or to handle also implies an evaluation that one's resources cannot meet the demand. When respondents defined stress, 26 percent did so in terms of difficulty with coping. Sixteen percent of those who gave reasons why they experienced the same or different emotions in different stressful situations also did so in terms of ability to cope.

All interviews were coded for a conscious evaluation of an imbalance between demand and resources whenever there occurred either a description of a stressor in which demand seemed to be discussed in the light of resources or vice versa, or when the respondent reported having trouble coping or being able to handle the situation. Because this particular type of coding demanded so much inference from the

respondent's account, it was impossible to reliably code it separately for each type of stress. It was eventually coded only for its presence or absence in the interview. Seventy-one people (or 89 percent of all respondents) were coded as evaluating a situation in this way at least once during the interview.

Appraised Consequences of Stress

The appraisal of demand and the appraisal of one's own resources were easily distinguished in people's discussions of stress. But the difference between appraisal of demand and the appraisal of the consequences of failure to meet that demand was difficult to determine in the interviews. These two aspects of stress appraisal were generally combined in discussions of why something was stressful (i.e., the dimensions of stress). For some stresses, such as those involving fear of crime, the consequences of failing to cope with the threat were obvious. Fifty-two respondents (65 percent) specifically mentioned fear of being mugged if they did not avoid or properly cope with the threat of crime. Burglary, killing and rape were also mentioned specifically. A fear of physical illness or disability as the result of noise, pollution, etc. was frequently mentioned, as were the fears of losing one's job or one's apartment or not "making it" in the city. In these situations the stress was actually the anticipation of the consequences of not coping. On the other hand, the consequences for failure to cope with (or avoid) subway crowds or long supermarket lines or altercations with strangers were much less frequently verbalized. In fact, when respondents were specifically asked in their detailed descriptions of repetitive stressors,

what would happen if they did not try to cope with these stresses, in any way, most people had trouble answering the question. They thought it self-evident or said: "Nothing." Except for a few people who feared that they could become (or had become) cold and unfeeling in the city, and a few others who thought the pace or demandingness of the city might cause long-range physical damage to them, the consequences for failure to handle the Social Environment stresses were rarely consciously evaluated.

Factors of Appraisal

There is a little evidence in the respondents' interviews for the importance of some of Lazarus' factors of stress appraisal. Lazarus emphasizes the importance of anticipation of threat. He suggests that threat increases as the imminence of the stress increases. Although there were 120 mentions by 73 respondents of anticipation of stress, only five people (six percent) mentioned increased experience of stress with increased imminence, and then only when questioned specifically on the matter. Crime ($\chi^2 = 19.16$, $p < .001$) and Living Problems ($\chi^2 = 9.06$, $p < .01$) were anticipated to a greater extent than Social ($\chi^2 = 21.07$, $p < .001$) and Physical Environment ($\chi^2 = 6.95$, $p < .01$) stresses. These results support those for worried-about stresses which were also most commonly Crime and Living Problem situations. Worrying about something is anticipating stress or the failure to meet a demand.

In a comparison of repetitive and unusual stressful situations 68 percent of those talking about repetitive stresses said they anticipated them--thought about them before they occurred--but only 31 percent

felt stressed by the anticipation itself. In the unusual stress situation only five percent had anticipated or expected the situation to occur, although 30 percent were aware of the possibility of its occurrence in a general way (e.g., knew they could be mugged, but were not expecting or fearing it right then). The difference between these two stress situations with regards to anticipation was significant at the $p < .001$ level ($\chi^2 = 49.53$, $df = 2$).

In secondary appraisal Lazarus emphasizes the importance of viable alternative coping actions. Respondents (75) mentioned a total of 137 possible alternative coping actions not actually tried. These were mentioned more frequently for Social Environment ($\chi^2 = 8.17$, $p < .01$) and Physical Environment stressors ($\chi^2 = 6.40$, $p < .05$) and less frequently mentioned for Crime ($\chi^2 = 7.52$, $p < .01$) and Living Problems ($\chi^2 = 5.52$, $p < .05$). More respondents mentioned alternative ways of coping in discussing repetitive stresses (70 percent) than in discussing unusual stresses (48 percent) ($\chi^2 = 5.36$, $p < .05$).

Although the importance of Lazarus' "personality factors" in the appraisal of threat could not be studied directly in this study, an inspection of individual responses to stress situations suggests that there were personality differences in the types of dimensions mentioned by respondents (Lazarus' "motivational characteristics of the individual") and in the types of coping mentioned (Lazarus' "coping dispositions"). Inspection showed that some people (24 percent) definitely favored one coping response in their descriptions of stress situations (i.e., they mentioned one more than half of the time).

There was probably also a difference between people in the types of things they mentioned as stressful in the city, but this was impossible to determine in the present analysis because the classification of stresses into types did not allow for the multiple coding of situations so similar that they were coded under one type of stress.

CHAPTER VII

NATIVE-NEWCOMER DIFFERENCES

This chapter presents results relating to question 5 (p.48) about adaptation to city stresses, plus data on male-female differences and positive aspects of city life.

Degree of Urban Stress Experienced

The amount of urban stress experienced by natives and newcomers was tested in several ways. Respondents were asked to rate the frequency with which they experienced stress and the degree to which they experienced it when it did occur. Natives rated themselves as experiencing stress more frequently than newcomers. The mean for natives was 4.55 and for newcomers 3.72 on a seven point scale ($t = 2.51$, $p < .05$). There was, however, no significant difference between conditions for the degree of experienced stress. Answers to these two questions were significantly correlated ($r = .55$, $p < .01$).

There was no difference found between the number of types of stress mentioned by natives (269) and newcomers (277). When each type of stress mentioned by an individual was counted separately for each place in which it was mentioned as occurring, there was still no difference between natives (391) and newcomers (380). There was also very little difference between natives and newcomers in the

types of stress that concerned them (see Table 14), although newcomers did show a tendency to worry more about themselves changing in ways they didn't like (8 versus 2), while natives were more concerned with the city changing for the worse (7 versus 1).

There were no differences between natives and newcomers in the types of stress mentioned as repetitive stressors. For unusual stresses, however, natives showed a tendency to mention Travel more frequently (8 versus 2) (e.g., stalled subways, missed airplanes, etc.) while newcomers mentioned Interactions with Strangers (15 versus 6). Natives, having lived longer in the city were certainly more likely to have experienced some kind of unusual stressful problem with transportation. Newcomers, on the other hand, having not yet learned the urbanite's defenses against strangers and unwanted social interactions, were more likely to have had recent rather stressful experiences with strangers (e.g., someone trying to pick them up or proposition them).

Natives also mentioned more avoided stresses than newcomers (57 versus 36). This is particularly interesting since avoiding stress seems to be the most common way of coping with stresses involving crowding and other overload situations. Perhaps Natives not only know better how to organize their lives to avoid experiencing demanding or threatening situations, but also have come to place a higher importance on saving themselves from these situations. Therefore, they avoid entertainment, major sales, late evening travel, etc. that newcomers have not yet learned to avoid or which they still consider to be exciting or rewarding enough to be worth the stresses involved.

TABLE 14.--Type of Stress Mentioned by Different Respondent Groups.

Type of Stress	Male Natives	Female Natives	Male Newcomers	Female Newcomers	Natives	Newcomers	Males	Females	TOTAL
<u>SOCIAL ENVIRONMENT:</u>	58	56	58	59	114	117	116	115	231
Travel	19	18	17	20	37	37	36	38	74
Service	19	15	15	16	34	31	34	31	65
Interactions with Strangers	13	14	16	17	27	33	29	31	60
Social Overload	7	9	10	6	16	16	17	15	32
<u>CRIME:</u>	18	20	18	20	38	38	36	40	76
<u>PHYSICAL ENVIRONMENT:</u>	28	28	33	25	56	58	61	53	114
Noise	12	12	14	11	24	25	26	23	49
Ugliness	10	11	12	8	21	20	22	19	41
General Environment	6	5	7	6	11	13	13	11	24
<u>LIVING PROBLEMS:</u>	27	22	39	19	49	58	66	41	107
Apartments	7	5	10	5	12	15	17	10	27
Cost of Living	7	6	8	3	13	11	15	9	24
Jobs	8	6	8	4	14	12	16	10	26
Friends	3	5	7	5	8	12	10	10	20
Self Changing	2	0	6	2	2	8	8	2	10
<u>CITY CHANGING:</u>	3	4	0	1	7	1	3	5	8
<u>OTHER:</u>	<u>4</u>	<u>1</u>	<u>4</u>	<u>1</u>	<u>5</u>	<u>5</u>	<u>8</u>	<u>2</u>	<u>10</u>
TOTAL	138	131	152	125	269	277	290	265	546

Conscious Appraisal of Stress

There were no differences between natives and newcomers in terms of the overall number of responses given for emotions, physical reactions, changes in task performance, dimensions of stress or coping with stress. Only two differences were found between natives and newcomers on specific categories of these appraisal measures. Newcomers mentioned more experiences of depression ($\chi^2 = 4.16$, $p < .05$) and of "other emotions" (i.e., pity, alienation, surprise) ($\chi^2 = 4.16$, $p < .05$) than natives. They seem to have not yet learned to ignore or suppress their reactions to the urban situations that arouse these types of emotions (i.e., pathetic people, ugly environments, etc.).

Some differences between conditions appear when the different aspects of conscious appraisal were considered for different types of stress. Newcomers responded more emotionally than natives to Living Problems in the city (56 versus 33).¹³ Newcomers were also more likely to mention their physical reactions to Living Problems (26 versus 10) and to Physical Environment stresses (46 versus 27), but were lower in their mentions of physical reaction to Social Environment stresses (65 versus 96) than natives. If all of the categories of appraisal are considered together, newcomers mentioned them more frequently than natives when discussing Living Problem stresses (202 versus 148). Natives more frequently mentioned them with regard to fear of the city changing for the worse (17 versus 1).

¹³This was particularly true for male newcomers (to be discussed below).

These results show very little overall difference between natives and newcomers in the number and types of things they experience as stressful. Natives do, however, avoid more stresses, react more physically to social environment stresses and see the city as changing for the worse. Newcomers, on the other hand, react more physically to physical environment stresses, are more conscious of the subtler emotions such as depression, pity, alienation and surprise, and have more problems adjusting emotionally and physically to the city's Living Problems--being particularly concerned with the city changing them in ways they do not like.

Adaptation to Stress over Time

Do natives and newcomers show so little difference in terms of the amount of stress experienced and the completeness of their appraisal of stress because there is little or no adaptation effect over time, or because the newcomers in this study had already managed to adapt to the city before they were interviewed?

In order to answer this question the number of years that a respondent had lived in Manhattan was correlated with the number of stresses mentioned in different places in the city. An overall correlation for both conditions between years in Manhattan and the number of stresses mentioned was not significant ($r = .02$). However, the correlation for "newcomers only" was highly significant ($r = -.49$, $p < .01$). In other words, for newcomers living in the city between six months and three years the number of stresses mentioned decreased as more time was spent in the city. Adaptation did not continue,

however, for respondents living in the city over seven years; for natives alone the correlation was $r = .01$. Interestingly enough, the correlation between years living in Manhattan and the number of stresses mentioned was much stronger for male newcomers than for female newcomers. For male newcomers it was $r = -.68$ ($p < .01$), while for female newcomers it was only $r = -.36$ ($p < .10$). There was no significant correlation for either natives or newcomers between the number of years in Manhattan and the scaled answers of respondents to the frequency or degree of urban stress experienced (interview questions 11 and 12).

When the number of years in Manhattan was correlated with the combined mentions of emotion, physical responses, places and dimensions--used here as a measure of the completeness of appraisal--the same relationships held. There was a significant negative correlation between number of years in Manhattan and number of mentions of all the above categories combined for newcomers ($r = -.38$, $p < .02$), and it was stronger for males ($r = -.56$, $p < .01$) than for females ($r = -.16$, n.s.). There was no relationship between the number of years in Manhattan and the completeness of appraisal for native respondents ($r = -.02$). We can presume that adaptation was occurring for newcomer respondents over time, but was already complete for natives. Newcomers mentioned significantly more things that had become less stressful for them over time than did natives (55 stresses as opposed to 26). When asked, 19 natives (48 percent) could think of nothing that had grown less stressful over time, while only five newcomers (12 percent) felt the same (χ^2 of the difference = 8.16, $p < .01$).

Why were the negative correlations between number of stresses and length of residence in Manhattan stronger for male than for female newcomers? Were female newcomers adapting less to the city, or had they simply adapted faster? There is some indication from the interviews that, consciously at least, female newcomers felt that they were adapting to the city. When asked which stresses were less stressful or no longer stressful to them now, female newcomers mentioned 31 things that had become less stressful over time while male newcomers mentioned only 24. Females mentioned a total of 230 appraisal categories with regard to these stresses while males mentioned only 102. This difference in the completeness of appraisal descriptions is partly due to the fact that social environment and crime stresses, which are generally described in more detail than other stresses, made up 77 percent of the stresses adapted to by females, but only 46 percent of those adapted to by males.

A look at Table 14 gives us a possible explanation for why male newcomers should take longer to adapt to the city than female newcomers, and therefore should receive higher correlations between length of time in the city and number of stresses mentioned. Male newcomers, more than the other respondents, and particularly more than female newcomers, experienced the Basic Living Problem stresses (39 versus 19). They had more trouble finding jobs, getting decent apartments, making friends and accepting the psychological changes that they were going through. Certainly these stresses would take more time and effort to adapt to than those involving Travel, Services,

etc., and the consequences for failing to adapt to them would also be much greater.

Support for this hypothesis comes from a question asked at the end of the interview as to whether respondents thought that the city became more stressful or less stressful over time. Female newcomers more frequently said less stressful, while male newcomers more frequently said more stressful ($\chi^2 = 4.54$, $p < .05$). Individual male newcomers who were still adapting to city life and therefore still experiencing more stress--especially the serious Living Problem stresses--had not yet experienced the city as becoming less stressful over time.

The Experience of Stress over Time

With the exception of male newcomers, most respondents felt that urban stress in general decreased over time. Fifty-five percent of respondents answering the question said that stress decreased over time; 13 percent thought it remained the same and 32 percent thought it increased. Forty-one percent said they thought they had learned to cope better, adapt to or ignore stress more successfully over time. Indeed, when spontaneous mentions of specific stressors becoming more or less stressful over time were coded, 69 percent of those mentions stated that a particular stress was less stressful than before. The reason most frequently given was that the respondents had adapted in some way or had learned a new coping skill. (This relationship was less true for Crime stresses than for other types of stress. "Less stressful" was specified for only 47 percent

of those mentioning changes in stressfulness related to Crime. Most respondents felt fear of Crime had become more stressful over time.)

There was a significant difference between natives and newcomers in the spontaneous mentions of changes in specific types of stress over time. The natives more frequently mentioned specific things as becoming more stressful over time (47 versus 17), while newcomers more frequently mentioned specific things (as opposed to the city generally) as becoming less stressful than before (82 versus 46). Natives were also more likely to say that repetitive stressors were becoming more stressful over time, while newcomers said that they became less stressful ($\chi^2 = 6.56$, $p < .05$).

In summary, although there is no overall difference between the number or different types of stress mentioned by natives and newcomers, or in the completeness of their descriptive appraisals, there is evidence that newcomers do adapt to city living in the first few years they live there. The females of this sample adapted more quickly than the males because the kinds of things they found to be stressful (i.e., the Social Environment stresses) were easier to learn to cope with than the things that male newcomers experienced as stressful (i.e., Basic Living Problems). There is also evidence that natives experience certain kinds of stresses--especially repetitive, Social Environment ones--more strongly than newcomers. They rated themselves as experiencing stress more frequently and mention more attempts to avoid these stresses.

Male-Female Differences

There were no overall differences in the number of stresses mentioned by males and females, but there were some differences in the types of stress mentioned. As previously described, males were more likely to mention Living Problem stresses (68 versus 41 mentions), largely because of the high number of mentions by male newcomers (see Table 14). Also, when fear of crime was counted separately for each place in which it occurred, the number of mentions by women was substantially higher than for men (83 versus 56). Women also mentioned more dimensions of stress related to Crime (150 versus 105) and more overall appraisal of Crime (283 versus 188). There were no significant male-female differences with regard to the kind of place, emotion of physical response mentioned either for specific types of stress or for stresses as a whole. Males mentioned feelings of ethnic prejudice or dislike as an element of stress more frequently than women (42 versus 29), while women mentioned stories about crime as an element of stress more frequently (25 versus 9). When worried-about stresses were discussed, women more frequently mentioned avoiding things that they worried about (e.g., avoiding going out late at night alone (27 versus 13).

Throughout the interview women mentioned more resources than men did (304 versus 233). Social support resources in particular were mentioned more frequently by women (70 versus 48 mentions). They also more frequently said that having someone (i.e., a friend) with them made repetitive stresses easier to handle ($\chi^2 = 6.66$, $p < .01$). This relationship was not so strong for unusual stresses ($\chi^2 = 3.81$, $p < .10$); men also found friendship a help in those situations.

Women mentioned more coping responses than men (295 versus 241). In particular, they mentioned using more mental coping techniques (64 versus 40). Finally, women mentioned Lazarus' factors of appraisal (e.g., ambiguity, imminence, alternatives and constraints) more than men (111 versus 25).

Although males mentioned a few more stresses than females (not significantly more), females mentioned more appraisal categories of stress (i.e., place, emotion, physical reactions, dimensions, coping, resources, Lazarus' factors, etc.) when these were combined into one total score (2,521 versus 2,272). They were either more consciously aware of all aspects of their stressful experience, or they were more willing to verbalize it.

Liking for the City

Several final questions concerning respondents' liking for the city were asked at the end of the interview. Fifty-two percent of respondents answering the question: "Do you think that living in the city is more or less stressful for you than living in a small town or rural area would be?" said that the city was more stressful than a small town or rural area for them, although 28 percent of these people said that the country had its own disadvantages. Finding the city to be less stressful than a small town or rural area correlated .35 (phi coefficient, $p < .01$) with preferring Manhattan or a large city (i.e., over one million in population) as a place to live. When respondents were asked where they would choose to live if they could get the job they wanted and have their friends or relatives near them,

39 percent chose Manhattan and 61 percent chose either Manhattan or another large city. Twenty-five percent chose a small town, rural area or suburb. Some who chose a large city (20 percent) qualified their choice by saying they would also like a second home in the country, while many of those choosing a less populated place to live (42 percent) said they would want it to be near a larger city. There was an interaction between groups with female natives and male newcomers preferring smaller populations. This is particularly interesting with regard to the male and female newcomers, since male newcomers seemed to be having more trouble adjusting to city life than female newcomers and had rated it as becoming more stressful over time.

Those who chose large cities as ideal places to live were also more likely to say that they were in Manhattan because they wanted to be rather than because certain obligations kept them there ($r = .30$, $p < .01$). Overall, 59 percent of respondents said they were in Manhattan because they wanted to be and another 29 percent mostly because they wanted to be (although they had obligations to stay). These ratings might be inflated, since the question was impossible to word without implying that staying because of external obligations signaled lack of control or weakness on the part of the respondent.

Finally, respondents were asked what they liked about living in the city. The number of reasons given for liking the city correlated positively with choice of the city as an ideal place to live ($r = .39$, $p < .001$) and living in the city because one wants to ($r = .40$, $p < .001$). The variety of the city--its shops, entertainment, jobs, schools, people, neighborhoods--was mentioned by 95

percent of all respondents and accounted for a total of 52 percent of all responses. Feelings of power, movement, stimulation, excitement and unpredictability from living in the city were mentioned by 45 percent of the respondents. "Ego-building" feelings that one is living "at the center," "where it's all happening," and that one has become a more sophisticated person or has "made it" in the city were mentioned by 42 percent of all respondents. Convenience (32 percent), interesting people (30 percent), freedom to be oneself (21 percent) and exciting street life (16 percent) were also attributes of the city that people liked. There were no significant differences between groups in the number or type of things that were mentioned as being liked about the city.

Interestingly, the two most frequently mentioned reasons for liking the city (i.e., variety and stimulation) can also be seen as sources of overload or demandingness when experienced in too great amounts. In fact, many respondents said just that at some point in their interview.

CHAPTER VIII

LIMITATIONS AND IMPLICATIONS OF THE RESULTS

The purpose of this study has been to see what we can learn about the concept of stress and urban stress from the verbal reports of urbanites. Before we discuss this in detail, it is important to consider the limitations of our data.

Limitations

The first question that must be raised is: Are the respondents talking about urban stress? Respondents were allowed to give their own definitions of stress and urban stress and then to discuss these concepts as they experienced them. Two questions must be raised: Were the stresses people mentioned specifically urban? Were the situations they described really stressful?

The "Urbanness" of Stress

The newcomer respondents frequently described the urban stresses they experienced by comparing them with less stressful experiences where they lived before. They said things like "I'm not used to having to wait in lines all the time, back home . . ." and "In _____ we never experienced anything like this." They were obviously using their previous experience to determine what was uniquely stressful about New York City. Natives also compared their life in the city with previous

places they had lived--a comparison decreasingly valid, perhaps, as the number of years over which it was made increased. They also mentioned going away on vacations or trips to smaller towns or cities as increasing their awareness of the urban stress they experienced on returning to Manhattan. Only one respondent, a newcomer, said he experienced no more urban stress living in Manhattan than he had in the small city in which he had grown up.

The "urbanness" of a place, however, is definitely relative. Traffic jams, crowds, crime, all the problems considered to be characteristic of large cities are also present to some extent in smaller cities and sometimes appear even in small towns. Problems like ugliness, air pollution and social isolation might even be more prevalent in some small towns or rural areas than in large cities. What makes these stresses urban is that they all occur consistently and together only in large cities.

The accumulation and repetitiveness of individual stresses multiply their influence on people's lives and experience. Many people were aware of this experience when they described the effect of certain stressful situations in terms of how many other stressful experiences they had had that day, how many times the same thing had happened before or whether or not they had recently taken a vacation from the city. Certainly even the most prourban respondents appreciated the value of occasional breaks in the urban routine--either through holidays away from the city or by retreating to their own apartments or to some slowpaced activity to relax and restore themselves. Although

the stresses described by respondents may not be unique to urban life, in combination they become a qualitatively unique experience.

Is This Really Stress?

Our second question about urban stress is: Were the situations described by respondents actually stressful to them? We could refer to people's own verbal reports and point out that respondents said they were stressful and we must take their word for it, but this question deserves more serious consideration. In fact 18 respondents mentioned at some point in the interview that they weren't really sure if a particular situation was really stressful or just irritating or anxiety producing or terrible.

Two problems arise with regard to people's verbal reports of stress. First, most people know what aspects of the city are generally considered by people and writers to be stressful. Respondents often demonstrated this when they said things like: "I know air pollution is supposed to be a stress, but I never really think about it," or "Most people probably say they are worried about crime, but I don't let it bother me." People did try to evaluate these stereotypes in terms of their own experience. The possibility of respondents reporting popular stereotypes of urban stress rather than their own experiences is highest in short and unelaborated responses (e.g., "I suppose the noise is stressful"). When people described a stress in detail it was obvious that they were talking of their own experience. Their experience may have been colored by the stereotypes of urban stress, but they were real experiences none the less. Just as serious is the

possibility that respondents failed to mention some aspects of the urban environment that were truly stressful because these were not immediately associated in their minds with the urban stress stereotype.

The second problem in determining whether people were really describing stress is more difficult to solve: When does a situation change from one that is simply experienced negatively to one that is stressful? This was the problem respondents had when they said that they weren't really sure something was stress. How does one distinguish between a state involving only high arousal and negative affect and one involving stress? Appraisal theorists say that the state of stress occurs only when a situation is perceived as difficult or impossible to cope with and yet has important consequences for the individual. For some respondents this distinction was not clear.

This question can be asked another way: How difficult or demanding does a stressor have to be to be experienced as stressful? There was an extremely wide variety of situations described by respondents as stressful. Situations varied from irritation at waiting in line to hospitalization after a violent mugging. Are both of these situations eliciting the same stress state? Lazarus (1966) and others have said that the strength of people's experience of threat or stress is determined by the strength of the motive being threatened (or the severeness of the consequences of failure to cope with the situation). However, it is not clear how serious the threat must be, how likely the failure to cope, how high the level of arousal before the state of stress is experienced. Is an occasional worry about being burglarized or falling on the subway tracks or an occasional loud jackhammer

really experienced as stressful, or is it only an accumulation of these worries and irritations that result in stress?

The Awareness of Cognitive Processes

Many psychologists, including Heider (1958) in his work on attribution theory and, more recently, Nisbett and Wilson (1977) have called into serious question the accuracy of verbal report for learning about a person's cognitive processes. Nisbett and Wilson in a well-documented paper and series of experiments conclude that people have "little or no direct introspective access to higher order cognitive processes. . . . Instead, their reports are based on a priori, implied causal theories or judgments about the extent to which a particular stimulus is a plausible cause of a given response." (p. 231) They conclude that ". . . accurate reports will occur when influential stimuli are salient and a plausible cause of the responses they produce." (p. 231) In other words, people, with no conscious awareness of their own cognitive processes, cannot report on what aspects of the environment really cause what aspects of their cognitive and behavioral response. Rather, they are themselves theorists trying to deduce cause and effect in their own lives by examining those aspects of the environment they notice and remember in the light of the thoughts, emotions and behavioral responses that accompany them. To the extent that they notice the influential stimuli, experience the same situations repeatedly, develop or have access to plausible theories and attain conscious awareness of their own responses they should more accurately report the reasons for their actions.

There are several points in favor of the respondents in this study being able to perform these tasks. First, the respondents themselves were generally educated, verbal and introspective. Almost all of them answered the interview questions intelligently and with obvious thought. Second, unlike many of the situations discussed by Nisbett and Wilson, most of the stress situations described by respondents were frequently repeated--allowing respondents many occasions for noticing influential stimuli and marking their own responses. Third, according to appraisal theories of stress the very nature of stress situations is such that they should arouse and direct the respondents' attention to the stressful stimuli and to their own responses and attempts to cope with those stimuli. Finally, it is not necessary to the validity of the study that we assume respondents were directly aware of their introspective processes. The avowed purpose of the study has been to compare respondents' reports of their conscious appraisals to the ideas of stress theorists and urban theorists in order to see to what extent they agree and where they differ. That the respondents were at least able to develop plausible a priori theories as to why and how they experience urban stress is obvious from their complex responses to the question of why they found the different stresses to be stressful. It speaks for the naïve intelligence of the respondents that, although most of them had no direct knowledge of the theories propounded concerning stress and urban life, they were able to develop similar and in some ways more informative theories about the causes of urban stress than those developed by the theorists discussed in the Introduction (see p. 140 ff.).

The investigator does recognize, however, the true limitations to interview research. Respondents were asked to describe situations which--although frequent--occurred in the past. Moreover, the interview relied mostly on spontaneous recall rather than check lists, intense probing, etc. In such a situation one must assume some stereotypic responding and some forgetting on the part of respondents. Their cognitive defenses or desire to impress the interviewer might also have produced biased responses. Although the pattern of responses that emerged in the analysis of this data appears significant and understandable in the light of present theory, it must be supported by other types of behavioral and experimental data before any conclusive statements can be made.

The Generalizability of Results

Our last question is: Considering the composition of our sample, to what population can we generalize these results? As explained in the methods section, it was decided that a study of 80 interviews would need to be performed on a relatively homogeneous population, if any kind of consistency was to be obtained. A sample of educated, verbal respondents was needed to maximize the possibility of obtaining sufficient material to analyze. Only adults who were old enough to be out of school and living on their own and yet young enough not to be experiencing the special physical and psychological stresses of growing old were selected in order to minimize the possibility that special personal life stresses would outweigh urban stresses to such an extent as to push them out of consciousness.

The resulting sample included young adults (average age 30) who were generally unmarried or married without children and who worked in professional jobs, white-collar jobs or the arts.

Interestingly, Fischer (1976) describes exactly these attributes as being more characteristic of urbanites than of rural people. Quoting from a series of studies he says that urbanites are younger (15-45), less likely to be married or to have children if married, and more likely to have a higher educational, occupational and income level.¹⁴

Although more typically urban than rural, our sample differs rather drastically from the average urban population in the extent to which respondents preferred living in the city. Fischer quotes national surveys indicating that only 13 percent of the general population and 20 percent of people currently living in cities would prefer living in a city if they could live anywhere they wanted. The respondents' answers to a similar question asked in the interview were 75 percent in favor of living in cities, 61 percent in favor of large cities (i.e., with a population of over one million).

Interestingly, the sample's respondents match extremely well Fischer's description of those people who do prefer city living. Drawing from several sources, he concludes that these people are: (a) more highly educated, (b) are in professional and white-collar

¹⁴ He also says that cities contain a higher proportion of minorities. Only seven percent of the study's sample were identifiable as belonging to minorities.

jobs or are unemployed,¹⁵ (c) are young or elderly, (d) are single or married without children, (e) are interested in "high culture," (f) are already living in cities and (g) are Black (only four percent of the sample respondents were Black). We might say, then, that although the sample of respondents interviewed in this study is not representative of the urban population as a whole, it contains in high concentration those characteristics that are more typical of urbanites than of other Americans and are particularly typical of people living in the city because they want to.¹⁶ This fact would lead us to conclude that our sample is typical of a certain type of urbanite. He is a person for whom the city is particularly well-suited and for whom the stresses of the city are generally outweighed by its advantages. It is quite probable that the urban population as a whole would experience greater urban stress than is described by our respondents and would report additional or differing types of urban stress.

Implications

Considering the limitation of the method of verbal report, how consistent were the results of this study with the stress and urban stress theories discussed in the first chapters? We will make this comparison in four parts: (1) the appraisal of stress, (2) the

¹⁵A good proportion of the sample's respondents were temporarily unemployed or only partially employed--drawn to the interview by their free time and need for extra money.

¹⁶No doubt this is partly the result of self-selection by people willing to spend an hour talking about their "urban experiences."

dimensions of stress, (3) the responses to stress and (4) adaptations to urban stress over time.

The Appraisal of Stress

How similar are the meanings of stress described and discussed by the respondents in this study to the definition of stress given by appraisal stress theorists? McGrath's definition of stress as a perceived imbalance between the demands of a situation and one's own resources where the consequences of failure to meet these demands (i.e., cope with them) were important to the individual was pretty well mirrored by respondents' descriptions. People were certainly aware of the demand aspects of stressful situations and were also frequently able to describe their own resources for coping with that demand. Moreover, they frequently discussed their difficulty in handling stressful situations, which would indicate their ability to perceive an imbalance between demand and resources. Finally, they sometimes discussed or implied that they were aware of the consequences of not handling certain stresses--especially those involving anticipation.

There are, however, some discussions of stress that did not exactly fit the appraisal theorists' paradigm. There is a large group of stresses that respondents described as stressful and yet did not experience as "difficult to handle" per se. A good example of these stresses is an irritating, hassling or uncomfortable repetitive stress such as waiting in lines or being crowded into a rush hour subway. This type of situation rarely calls for any direct physical action from a person beyond standing and doing nothing. Rather, respondents

described such situations as stressful because--through frustrating some powerful motive (i.e., the desire to complete an important task or the need for personal space and fresh air)--they evoked strong negative emotional or physical reactions (i.e., anger, tension, claustrophobia). It was this emotional response to the situation, rather than the demand for physical action that respondents found difficult to cope with. Those who found no way of coping with these emotions within a situation (i.e., through rationalization) generally coped by avoiding the situation altogether.

Many stresses were also really anticipations of potential stresses--especially physically threatening situations (e.g., crime, subway breakdown, etc.). The anticipated stress can be fit into McGrath's paradigm--anticipating an imbalance between a demand and one's own resources that could lead to important consequences. But analyzing such a stress is complicated by the fact that the anticipation of a stress is experienced as stressful in and of itself. Thus, anticipating a possible mugging every time one goes out at night leads to its own physiological, emotional and coping reactions completely unrelated to one's reaction to an actual mugging attempt. Also, the failure to cope with the anticipation of stress can lead to its own important consequences (e.g., the inability to leave one's apartment after dark).

Dimensions of Urban Stress

In Chapter II five possible dimensions or reasons for urban stress were discussed: attentional overload, fear of pain, interruption, lack

of control and conflicting values or meanings. How do these compare to the dimensions of stress actually described by respondents?

The overload dimension is, of course, closely related to the dimension of "demandingness" which received most mentions by respondents. However, "demandingness" was rarely discussed by respondents in terms of overloading stimuli. Some, but not many, talked about their senses being bombarded or being surrounded by too much choice. Most respondents, however, talked in terms of their response to the stress: the extra effort demanded of them by city life. They talked of extra hassle, of extra energy, time, planning, etc., of feeling rushed and of never being able to get away from it all. These responses might be caused by energy overload, information overload or social overload (having to cope with too many social interactions, Milgram, 1970), but the distinction between these types of overload was not important for people's experience of urban stress.

Pain or fear of pain and violence was one of the most frequently mentioned dimensions of urban stress in this study. Some of these fears involved fear of car or pedestrian accidents, subway fires or injury due to poor quality housing. But most people feared pain or injury from the violence of crazy or unpredictable strangers or due to criminal assault. Virtually every respondent came to grips with the possibility of crime or violence in the city in some way. A few felt that they need not fear it--usually because they felt they could handle any potentially dangerous situation. Others feared it, but had resolved not to allow this fear to interfere with their lives and interests. The majority, however, had made some accommodation to their

fears either through avoiding potentially dangerous situations (e.g., the subway at night, ghetto areas) or through developing certain protective actions (e.g., walking down the center of the street at night or living in an apartment with a doorman). For a few--like the woman who reported being mugged eight times--fear of crime, violence and pain permeated their whole experience of the city.

Fear of pain and violence has many indirect as well as direct effects on the experience of urban stress, because it exacerbates other urban living problems. For example, it causes many people to pay exorbitant prices for inadequate housing which has the single advantage of being in a safe building or safe neighborhood. Also, it frequently limits people's opportunities for relaxation and enjoyment in the evening because they are afraid to travel at night (especially people who can only afford public transportation). Finally, it deprives people of the outlet of either being friendly with or expressing anger at strangers in public places, because they fear that strangers might have criminal intentions or potentially violent natures.

Fear of material loss was closely related to fear of violence in most respondents' minds since both were aspects of the larger problem of crime. A few respondents, however, specifically stated that they were not concerned with having their money or property stolen, but only about their personal safety.

Although blocking-delay appears as a major dimension of stress, most people did not conceive of it in terms of the interruption of an ongoing activity that was discussed in Chapter II. Rather, this

dimension was most frequently expressed as delay. The most common use of this dimension was with regard to Travel or Service situations where respondents found it stressful to wait for things. Being delayed or waiting was considered stressful because it wasted time or made a person late for an engagement. Only a few people reacted personally to delay itself (e.g., "I don't keep others waiting, so why should I have to wait?" or "Those people have no right to be in my way!"). Interruption per se was mentioned frequently as a cause of stress only when noise related stresses were discussed. On the whole, people perceived both interruption and delay in terms of the effect they had upon their lives. It was necessary for the interruption or delay to conflict with an important motive in such a way as to lead to important negative consequences if the interruption or delay was not effectively coped with (e.g., when one's sleep was being interrupted before an important exam or delays on the subway would make one late for one's job or an important appointment).

The importance of lack of control as a dimension of stress was perhaps underemphasized in the Results section because it was not associated with any one type of stress, emotion, coping response, etc. Instead, it was consistently given as an important dimension for all types of urban stress. Lack of control for the respondents generally meant one of two things: their inability to understand and/or predict something in a situation (e.g., when a train will be late or whether a person is crazy or violent), or their inability to do anything about a stress situation (e.g., air pollution, crowding, apartment rents). These two aspects of control correspond well to the concepts of

predictability and control discussed by theorists and researchers (see Chapter II, p. 28). Although the consistent use of this dimension makes it an important one for urban stress, it also makes it a difficult dimension to discuss in the context of these results, since it cannot be easily related to any particular group of stresses or emotional reactions. It will be important for future studies to determine if the dimension of control is a particularly urban dimension of stress or if it is used as consistently in discussions of nonurban stresses (e.g., rural stresses, ego-related stresses). If it is used frequently in all discussions of stress, it would then be important to determine whether it is an inherent aspect of stress itself, or whether it is simply a salient concept in people's perception of modern life.

The last dimension discussed in Chapter II, that of value or meaning, was discussed mostly in terms of feeling threatened by the physical environment (i.e., the filth seen on the streets experienced as conflicting with middle-class values). Many people in the study did see the physical environment of the city as stressful because it thwarted their needs or values (e.g., the need for beauty, nature, peacefulness, open space, etc.). They also saw the physical environment and the discomforts of the city as adding to the stress of other situations (e.g., close, hot, unventilated subway cars during crowded rush hours, lack of proper lighting in dangerous hallways or streets). But the aspect of the city that respondents found most threatening to their values and egos was other people.

Ego threat from others was the second most frequently mentioned dimension of stress. This included undesired or unpleasant interactions with strangers; seeing ugly, pathetic or offensive people or interactions between people; reacting negatively to "foreign-speaking" or ethnically different people, and just finding the numbers of strangers or coldness of strangers to be threatening or alienating.

This aspect of urban life has been generally discussed by writers in terms of the quantity of people in the city causing some type of overload. The Wirthian school and, more recently, Milgram, (1970) explain the quality of interactions with strangers entirely in terms of their quantity. Size, density and the heterogeneity of a city population result in an intensification and diversification of life that leads eventually to alienation and anomie--or, in Milgram's terms, to social overload. It is coped with by using psychological defenses against strangers. Fischer (1976) proposes a subcultural theory that in some ways fits more closely the respondents' perceptions of the situation. Fischer suggests that size, density and heterogeneity of a population do not lead eventually to a general alienation between people, but to an intensification of subcultures at the expense of the common community. He feels that within their own subculture people experience mutual support and close friendship, but when people must interact with others outside their own subculture the differences between people are intensified and can frequently lead to misunderstandings and conflicts.

Fischer feels that because people generally live within the supportive environment of their own subculture, strictly urban stresses

are only experienced in the short periods of time that people are in public places--that is, when they must interact with people outside their own subculture. (He accepts that newcomers, before they have found their "niche" in the city and adjusted to a specific subculture there, could experience more serious stresses. Fischer concludes that the urban types of stresses--especially those involving interactions with strangers--happen so rarely as to have a negligible effect on an urbanite's life.

The results of this study support Fischer's statement that public places are the most important scenes of urban stress. Respondents also agreed that at least the repetitive stresses were short-lived and quickly forgotten. But Fischer underestimates the effect of public place stresses on city dwellers. The anticipation and avoidance of these stresses can have pervasive effects on people's lives. There is also some indication that reactions to repetitive public place stresses intensify over time and eventually result in even greater avoidance of public places and of social interaction outside one's own subculture. When urbanites withdraw more and more into their own subcultures, they are giving up just those aspects of the city--its diversity, novelty and stimulation--that people agree are what make city living worthwhile.

Lofland, in her book A World of Strangers (1973), puts far more emphasis on the difficulty involved in "gaining the capacity for knowing others only categorically." She feels "living as a stranger in the midst of strangers" has the potential for an intolerable complexity and "chaotic unpredictability" (again, the overload

concept) and goes on to explain how urbanites in the past and present have found ways to eliminate some of the strangeness of personally unknown others--mostly through categorization, spatial and appearential ordering and the privatizing of public space.

Our data suggest that interaction with strangers is indeed an important type of urban stress. Moreover, they indicate that this stress as experienced by urbanites is not simply a matter of social overload. People also find interactions with strangers to be both physically and mentally threatening.

As discussed earlier, many people consider physical violence a very real threat among strangers in the city. Their fears range from fear of someone inadvertently bumping them in the mouth on a crowded subway through fear of verbal aggression escalating into physical assault to fear of psychotic snipers or of being pushed in front of an oncoming subway train. More prevalent, though, was the experience of threat to people's conception of the way things should be and the values people should have. Respondents felt stressed or threatened by the conflict between the reality of city life and their religious or humanitarian ideals. They didn't want to accept the conclusions about life and society that must be drawn from seeing homeless beggars, shysters and violent altercations. The resulting internal conflict between their experiences and their values or world view was experienced as stressful.

Closely related to the dimension of ego threat from others was ego threat from one's own actions. About half of the respondents mentioned that finding themselves acting or reacting to stressful

situations in ways they did not like formed one dimension of stress. Most frequently this involved reacting aggressively, coldly or defensively to strangers. People found themselves adopting urban norms or being driven to aggressive or defensive actions that conflicted with their espoused values and ideals. Interestingly, there was no difference between newcomers and natives in their mention of this dimension of stress. Though people may adopt Milgram's defenses (1970) or treat other subcultures differently from their own (Fischer, 1976), the adjustment is not so complete that people do not feel intermittently stressed by their own "adaptive" actions.

One dimension of stress was isolated in the analysis of results that was not discussed in the Introduction, although it is an obvious, well-researched aspect of urban life. This is the invasion of personal space. It is one facet of a much more complex urban stressor, crowding. Crowding as a stressor has been discussed as social overload and as behavioral interference (Saegert, 1973; Williams, 1971). When respondents described it as such it was coded here as "demandingness" and "blocking-delay." But they also described an aspect of crowding that involved: (a) feeling that people were too close to one's self, (b) undesired physical contact and (c) actual pushing and shoving.¹⁷ This aspect of crowding was coded independently as "personal space invasion" (Sommer, 1959). That people conceive of this dimension as closely related to the other dimensions of crowding

¹⁷When fear of physical harm appeared as a dimension of crowding it was coded under "fear of harm."

discussed by theorists can be seen by the significant correlations between the "personal space invasion" dimension and the dimensions of "demandingness" (social overload), "blocking-delay" (behavioral interference) and "negative physical environment" (noise, heat, stuffiness, etc. resulting from crowds). However, unlike these other dimensions which were related to noncrowded as well as crowded stress situations, the "personal space invasion" dimension was mentioned only in situations involving uncomfortably high social densities. These occurred almost exclusively among the Service and Travel stresses.

All the dimensions of urban stress discussed by theorists were also described by the respondents in this study, although they sometimes were given slightly different emphases (e.g., "demandingness" emphasized response rather than overload). But respondents also described some aspects of urban stress that require further development by urban theorists, in particular all the ramifications of interacting with strangers and unpleasant others--especially feeling one's values and identity threatened by these situations.

The importance of interactions with others as a dimension of stress is emphasized by the overwhelming mention of types of stress that involved other people. All the Social Environment stresses, Crime and even many of the Living Problem stresses (i.e., problems with landlords, friends, etc.) involved stresses related to people. This should not be surprising since the defining characteristic of cities is the large number of people there. The question should be raised, however, as to whether the heavy emphasis on social stresses is not the result of perceptual bias--other people appearing more salient to the

respondents than the physical environment. People are generally accustomed to viewing the physical environment as a given and become aware of it only when it approaches extremes (e.g., painful noise, suffocating heat and closeness, complete lack of nature and trees).

The importance of the physical environment in people's experience of stress can be more clearly seen when we consider the close relationship between place and type of stress. With the exception of streets and subways a place in the city generally elicits one or at the most two types of stress (e.g., stores and businesses are mentioned only in conjunction with Service stresses). Likewise, most types of stress occurred only in three or fewer place categories (e.g., Noise stress is mentioned only on the street, in subways and in one's own apartment). It is obvious that even for such people-related stresses as Services, Interactions with Strangers and Crime, the character of the place or physical environment in which it is experienced is a major determining factor of the stress (e.g., a dark, isolated stairway deservedly elicits a greater fear of mugging than a lighted, well-traveled street). Indeed, when respondents were specifically asked for changes in the physical environment that would increase their experience of repetitive or unusual stress, 86 percent easily suggested one or more changes.

Responses to Stress

Respondents mentioned three important categories of responses to stress: physiological reactions, negative emotions and coping responses. Their mention of physiological reactions to stress was

relatively infrequent, raising the question of whether: (a) the stresses they mentioned were not stressful enough to elicit physiological responses, (b) consciousness of and/or memory for physical changes in the body is poor, or (c) people do not spontaneously describe their reactions to stress in physiological terms. Those physical changes that were mentioned were frequently unique to specific stresses (e.g., pain for Noise, fatigue for Service stresses).

Respondents were much freer in their description of negative emotional reactions to stress, but they were relatively unspecific in their emotional descriptions. A quarter of all mentions of emotion were expressed only as a general negative emotion (i.e., unpleasant-dislike). Most stresses were discussed as frequently in terms of fear as of anger. The only stresses where respondents more frequently mentioned irritation-anger were Service and Noise stresses--both involving delay or interruption of behavior. The only stress which favored worry-fear emotions was Crime. Certainly specific types or dimensions of stress do not elicit unique emotions in these respondents' verbal reports. This data confirms the conclusion of emotion and stress theorists (Schacter, 1962; McGrath, 1970) who have found emotional reactions to be better indicators of the degree of arousal (or stress) than of the type of situation eliciting that emotion.

Although the emphasis of this study was on the urbanite's experience of stress and not specifically on his attempts to cope with it, the coping response has a fundamental influence on the appraisal, experience and consequences of stress. The appraisal of an imbalance between perceived demand and resources--McGrath's

definition of stress--can be restated as feeling one is unable to handle or cope with a situation satisfactorily. In fact, Lazarus, in a recent paper on the psychology of coping (Lazarus et al., 1974), states that he now feels the concept of threat--originally the cornerstone of his stress theory--is too narrow and that the phenomena he is interested in can be better studied as coping. He defines coping as "problem solving efforts made by an individual when the demands he faces are highly relevant to his welfare (jeopardy or promise) and when those demands tax his adaptive resources (the outcome is uncertain, the limits of his adaptive skill are approached)" (pp. 250-251). The similarity between this definition and that of appraised stress is striking, except for one thing: coping can occur in reaction to challenging or gratifying situations as well as to threatening or frustrating ones. This definition, therefore avoids the strong negative connotations of "stress" which have bothered some psychologists (e.g., Franck, et al., 1974), as well as some of this study's respondents. Several respondents emphasized that things that were in some ways stressful to them were also challenging and exciting (e.g., competition within a profession; the pace and rush of the city). Coping as a concept, of course, has the added advantage that it is a response--whether internal or behavioral--rather than a difficult to verify physical or cognitive state.

There are indications from the analysis of coping responses in this study that type of coping can be related to type of stress (i.e., Travel elicited more mental coping responses, Service stresses more avoidance and Interactions with Strangers and Living Problems

more active coping responses). Further research in this area is certainly needed to probe more closely the relationship between coping and particular types and/or dimensions of stress. Of particular importance is research using behavioral measures of coping to substantiate or enlarge on these preliminary findings.

Besides indicating a relationship between type of coping response and characteristics of the stress situation, the analysis of coping in this study raises some more general issues as to the relationship between coping and experienced stress. Successful coping seems to occur on at least two levels. Many respondents discussed coping with a situation or with their reactions to it in terms of being able to remain in the situation or "handle it" even though the situation remained stressful. For example, people described the mental coping and the behavioral skills they used to make crowded subway riding or walking home at night tolerable, but they still appraised these situations as stressful. Others felt that they now coped with previously stressful situations so successfully that they no longer experienced any stress. They simply "tuned out" the outside world when riding the subway or, after successfully handling one attempted mugging, no longer feared another. When coping becomes completely successful the appraisal or experience of stress should never occur (i.e., there is no imbalance or threat). In time the coping behavior, too, should become habitual and may not achieve consciousness.

The costs of coping are also an important consideration in analyzing stress. Potentially stressful situations might be

successfully coped with only by giving up an important motive or by devoting so much energy to the coping that either (a) other aspects of living must be sacrificed or (b) the wear and tear on the body produces long-range physical changes.

Avoiding stress--in one way a most successful coping response, since the stress is never even experienced--frequently means giving up some motive or desire. For instance, several respondents mentioned that they had given up ever going out alone at night, or ever going to certain neighborhoods or riding certain subways. Such avoidance can result in other stresses of feeling trapped in one's apartment or being blocked from enjoying a particular interest (e.g., live jazz concerts). In fact a large number of respondents describe consciously deciding that the cost of avoiding crime was just too high. For them it was less stressful to risk mugging or worse on the streets at night than to be cooped inside their apartments, missing the very entertainment that they come to the city to experience.¹⁸

As mentioned above, the extra effort or energy expended in coping with stress can also cause stress itself or lead to extra costs to the individual. Several people, for instance, complained of walking down crowded city streets not only because of the problem of interference from other pedestrians, but because the hassle of coping by constantly dodging and watching the oncoming pedestrian traffic left no time for enjoying the scenery, the shopwindows or the walk itself.

¹⁸For similar reasons other respondents said that they refused to cope with strangers by being rude or offensive, even though this was sometimes the easiest or most tempting way to handle them. They refused to let the city change their values or reduce their sensitivity to people.

Of even more concern to some people was the possible long-term effects of the pace and noise in the city, even though these stresses were often "successfully" coped with. Several respondents, for instance, when asked if they thought city living became more or less stressful over time, said something like this: "Seemingly less stressful, because you learn to cope with it, but probably really more stressful, because it builds up unconsciously or affects you physically after a time." The idea that faster, more energetic living (i.e., burning the candle at both ends) will result in long-term physical effects on the body is a popular one and is supported by Selye's limited energy theory of stress. But so far there is little support for it in such data as comparative rates of illness or morbidity among urbanites versus rural and small town residents (see Fischer, 1976 for a more complete discussion). Either: (a) most urbanites do not really live at a faster pace or put more energy into living and thus do not experience more stress (Fischer's conclusion), (b) small town and rural residents experience enough of their own stresses to cause equivalent physical effects or (c) the limited energy model of stress and life is not viable.

It is worth noting that three aspects of stress and coping discussed by respondents: (a) an immediate fear of inability to cope with stress, (b) coping, but experiencing the effort required or negative emotions involved as an additional burden or stress and (c) fear of the long-term negative effects of stress correspond closely to Selye's model of the three stages of stress: (a) alarm reaction, (b) resistance and (c) exhaustion. Perhaps the exhaustion

stage is rarely reached because most people learn to avoid burdensome stresses or to make adjustments in their lives (if necessary, by leaving the city) before this extreme phase is reached.

Adaptations to Urban Stress over Time

One of the most interesting findings of this study was the lack of really important differences between natives and newcomers in the number of stresses experienced in the city or the completeness of conscious stress appraisal. However, although there is no difference in the number of stresses described by natives and newcomers, there is some indication that they experienced different types of stress to a different degree.

Newcomers to the city seem to show a rather immediate adaptation to the more obvious stresses of moving to a new place. They learn the urban social norms, become familiar with the city--its transportation system, shopping facilities and opportunities for enjoyment--rather quickly. Finding compatible jobs, apartments, and friends seem to take a little longer, but these are probably accomplished by the third year. People who find these adjustments to be particularly difficult usually leave the city by this time. But seemingly from the reports of natives, some kind of reaction builds up over time, especially to the repetitive stresses in the city. Natives feel they are stressed more frequently, they mention more urban situations as becoming more stressful over time, they avoid repetitive stresses more and they mention more physiological reactions to Social Environment stresses. These results seem to indicate that

the irritations, pace and minor stresses of the city do build up over time and people begin avoiding them to whatever extent is possible in an attempt to reduce unwanted demand and hassle.

These findings contradict normal adaptation theory which would suggest that repetitive stresses should become less stressful over time. There are two complementary possible explanations for these findings. First, the types of repetitive stress that natives seem to find more stressful over time generally involve people. Saegert (1975) suggests evidence to show that arousal caused by such significant stimuli as other people does not habituate, but increases over time. People stresses are not easily adapted to. Second, as natives develop a better understanding of how the city works and see it changing over time, they perhaps become more conscious of which stressful situations cannot be changed or helped and which are senseless or unnecessary. Several native respondents became extremely emotional when they began describing the dirt or waiting in lines, or the condition of the subways because they felt that these situations did not have to exist. More concern by the city government or a little consideration on the part of service people or of all Manhattanites could easily correct these problems. Perhaps people can learn to accept or ignore what they consider necessary or impossible to change, but become increasingly irritated with (and try to avoid) unnecessary or senseless aggravation.

Schutz's theory that natives should be less conscious of their surroundings and behavior--acting automatically and habitually--while newcomers are actively exploring and learning the rules and

attributes of their new environment is not supported by the results of this study. Natives and newcomers gave equally complete and sophisticated descriptions of their stressful experiences. It would appear that the urban environment does not meet the qualifications set by Schutz for the nurturing of blissfully unaware natives. At least two of his four qualifications for "thinking as usual" (see p. 43) are not really present in city life. Life and social life do not continue the same over time for many city dwellers and a person's system of recipes or schemes of interpretation are not accepted and applied by other urbanites. Put another way, the city is so quickly changing and so diverse that adaptation becomes a constant process. The city continues to demand as much thought and energy from the native as it does from the newcomer.

CHAPTER IX
CRITIQUE OF THE STRESS CONCEPT
AND FUTURE DIRECTIONS

Throughout the previous chapters several problems with the stress concept have been pointed out and discussed. It is now time to reconsider stress in the light of these discussions.

A Reconceptualization of Stress

The most serious limitation of stress is that it has been conceptualized as a psychological or physical state of an organism. How can a state be measured? According to Selye (1966) too much stress in an organism can be determined by the appearance of stress related diseases. Psychologists have used measures of arousal to determine the high general activation syndrome that can lead to these stress diseases. But arousal per se need not lead to illness. It does not even appear exclusively under stressful conditions. What is more, it is very difficult to measure reliably (see discussion on pp. 6-8).

The appraisal theorists of stress have developed a consistent picture of what happens psychologically to produce stress, but because of the possibility of appraisal without consciousness and the possible unreliability of verbal report, the psychological states of stress cannot be directly measured either. Behavioral changes (i.e., coping

responses occur as a result of experienced stress--attempts to reduce experienced demand, to increase resources) to nullify consequences or to reduce arousal--but again such a wide variety of coping responses are possible for the same naturally occurring stress that they are very difficult to isolate and measure.

Perhaps the only feasible method of studying stress is to use multiple measures--physical, emotional, behavioral and verbal--for each respondent and each situation. A particularly effective approach might be to study in depth specific individuals' responses to stress in a variety of situations so that idiosyncratic physiological and personality responses can be taken into account.

Another important problem with stress is its essentially negative, passive conceptualization--a person is stressed and that's "bad." Selye saw stress as a necessary aspect of life resulting from both the positive and negative experiences of an individual. Psychologists have generally reconceptualized stress as an undesirable state involving arousal and negative affect. Yet arousal theorists have demonstrated that moderate arousal improves task performance and Nahemow and Lawton (1973) have suggested that mild stress or challenge should lead to improved coping skills and higher levels of adaptation (see pp. 40-41).

A positive side to stress was clearly present in many respondents' perceptions of stress. The challenge of "making it" in the city or in one's profession was seen as both stressful and exhilarating. The pace and stimulation of the city were seen as both stressful and exciting. The line between stress and challenge, negative

and positive affect was thin and was constantly being crossed in people's experience.

What is more, though people found the city to be stressful, most of them actually preferred living there. For most of the respondents interviewed, the rewards of the city outweighed its stresses and problems. The variety of people, entertainment and services, the possibility of rising in one's profession and the feeling of being in the center of things were highly rewarding. A cost-benefit analysis would conclude that the demands of the city were outweighed by its rewards.

This kind of cost-benefit analysis of stress situations is not generally mentioned by stress theorists, although it is described by two (Radloff and Helmreich, 1968; Welford, 1974). It deserves more attention since it can explain why extreme physical and psychological stressors can actually be sought and the accompanying emotional arousal be evaluated as challenge or euphoria (e.g., in sports competitions, dangerous exploring expeditions, etc.) while such comparatively innocuous situations as standing in line can be experienced as stressful and conscientiously avoided.

This kind of analysis also suggests that stress should be seen as a continuum. Stress does not result directly from high threat or arousal. Only when the costs start to outweigh the rewards of a situation does stress begin to be experienced. The experience can then become more and more severe as the costs increase or as rewards decrease. Thus, in particular situations respondents not only talked of the difficulty in handling the demand, but of the

costs of doing so. Some respondents felt they could handle or cope with certain situations, but the effort or unpleasantness involved was not worth it. Situations that could be successfully handled only with effort were frequently experienced as becoming more stressful over time. The effort was slowly reevaluated as less and less worthwhile. The benefits were not worth the costs. An example of this change over time is found in native respondents who frequently described themselves as slowly giving up movies, restaurants or other urban entertainments when the pleasure they produced was experienced as less and less worth the effort of fighting crowds, finding parking and waiting in lines. As the balance between the rewards of coping with a situation and the effort or unpleasantness involved changes, a situation is seen as involving higher or lower degrees of stress irrespective of actual changes in demand or in coping skills. This might explain the difficulties of achieving a stress reaction from subjects under experimental conditions. The belief that the experiment is interesting or worthwhile (plus the money paid the subjects) might increase the rewards in a stress situation enough to counterbalance the negative aspects of the stress situation and diminish the subject's appraisal and experience of stress.

Despite the emphasis of appraisal theorists on the cognitive aspects of stress, the stress concept has encouraged a perception of people as passively relating to something negative. People are put in a stressful or demanding situation, perceive it as such and react with high arousal, negative emotion and lowered performance or defensive coping. The concepts of challenge, of cost-benefit

analysis and of coping all try to put an active, controlling person back in the picture.

Many respondents in this study derived great pleasure from describing their attempts to manipulate their environments, beat the system or "fight city hall." Several said they found themselves uncomfortable with some of the interview questions because they implied negative or passive reactions on their part and they did not see themselves as passive.

Whether respondents perceived the city as stressful or challenging, they always saw it as having an important impact on their lives. This is the significant point. All respondents expressed strong feelings about the city and their experiences there. Many loved it, a few hated it and some both loved and hated it, but none were neutral. No one was bored with the subject. People welcomed the opportunity to discuss their interactions with the city and many had obviously given their relationship to the city much thought. Not all environments have this strong effect on people's conscious thoughts and lives. To do so an environment must interact significantly with a person's own motives and goals, demanding an outlay of energy, involvement and emotion. For lack of a better term, we shall call this "environmental demand."

The usefulness of a psychological concept or model lies in its ability to organize a body of literature in such a way as to generate new insights and confirmable hypotheses. The concept of stress succeeded in organizing a large field of data, but it has not succeeded in producing a consistent body of confirmatory research. The measures

of stress are complex and often unrelated. The assumption that stress is a negative thing that people respond passively to has blinded researchers to the variety of people's emotional and coping responses in challenging and stressful situations. Stress researchers see successful coping by subjects of stress experiments only as their own failure to achieve their manipulation. They perceive the variety of coping responses and physical reactions in demanding situations only as resources of low intersubject and intermeasure reliability. Researchers must begin to look not for simple measures of negative reactions to stress, but for various patterns of arousal and coping among people experiencing demanding (i.e., potentially stressful or challenging) situations. The identification of such situations (which could be different for different people) can best be made by comparing people's physical reaction, conscious perceptions and coping responses in such situations with some predetermined baseline (i.e., measures of the same people in less demanding situations).

Future Directions for Research

There are several questions raised by the results and discussion of this study that deserve attention as important areas for future research.

First, an attempt should be made to confirm the descriptions of different "urban stresses" through more exact rating or scaling measures. The "types of stress" reported in this study should be reconceptualized as demanding aspects of city living and people should be asked first to give the frequency and degree to which they find

these situations demanding and then to rate or make forced choices as to their emotions (both positive and negative), physical responses, reasons for finding the situation demanding (dimensions), and methods of coping with the situation. Such a study with a questionnaire format could be administered to a much wider sample of urbanites. With some widening of scope comparative samples of suburbanites and small-town people might be obtained.

A truly important area for future research is the relationship between the anticipation of possible stress or high demand and the actual occurrence of the anticipated situation. In situations such as crime, interactions with strangers and basic living problems research should attempt to separate out the experience of anticipation from the experience of the situation when it actually occurs and to handle them as independent--if potentially related--demanding situations. Such a study might expect to find stronger and more varied emotions under actual high demand (e.g., worry about an anticipated mugging versus terror, anger or repulsion during an actual mugging attempt). There might also be more memory for physiological reactions in actual demand situations and major differences in types of coping response between anticipated and actual situations (e.g., active coping to avoid anticipated mugging versus passive coping in the situation itself).

The difference between the experience of anticipated and actual high demand might be a useful focus for someone interested in the study of conscious appraisal of the balance between demand and resources, if situations are studied in which people unexpectedly

experience the actual situation quite differently than they anticipated. Respondents in this study occasionally mentioned situations where an actual situation was much less stressful than the anticipation of it, either because of a mistaken appraisal of the potential stress, or because of a sense of relief when its occurrence freed the person to actively cope with it rather than simply to worry about it (e.g., an anticipated showdown with a landlord). This unexpected experience and its opposite (when the situation is much more stressful or demanding than anticipated) should be more likely to elicit a conscious, well-remembered appraisal of the demands, resources and consequences of the situation.

Anticipation of demand or stress appears to be an important aspect of urban life and perhaps has a more pervasive influence on urbanites' behavior than demanding experiences in and of themselves. Repetitive "stresses" such as crowded travel and service situations were generally anticipated by people. Although their anticipations were not experienced as stressful in and of themselves, they often influenced behavior to the extent of people attempting to avoid or use their coping skills to mitigate these "stresses." Some people planned travel and shopping to avoid the most crowded periods of the day. Others developed plans for taking less crowded trains or negotiating crowded stores. Those situations whose anticipation were also stressful (e.g., crime or physical injury) often influenced people's lives to the extent of determining their place of residence, raising their expenses, limiting their general mobility and proscribing some forms of relaxation or entertainment (e.g., giving up bicycle

riding after the third bicycle was stolen). Anticipations of problems with renting apartments or of making it in one's profession were sometimes the major reasons given by people for their eventually deciding to leave the city. Studies limiting themselves to people's response to or coping with actual demand situations would grossly underestimate the effects of urban demand on people's lives.

Coping with particularly demanding aspects of the urban environment should be another fascinating, if complex, focus of future research. Most challenging here is the problem of how people's coping patterns change over time (e.g., from handling the situation as it arises, to anticipating the situation and then avoiding it or preparing for it in some way). Investigators of coping mechanisms must consider mental as well as behavioral coping strategies and the costs of coping (i.e., expenditure of energy, giving up of motives or goals) as well as its degree of success (i.e., in reducing experienced demand).

Finally, differences in the experience of urban demand and in means of coping with that demand between native city dwellers and newcomers requires further investigation. What situations are seen as changing over time in terms of the amount of demand involved or the costs of coping with that demand? Do the reasons people give for experiencing this demand or their motives and goals in relation to urban situations change over time? Are the changes that do occur related simply to length of residence in the city or do they also involve changes in the individual's age or stage of life?

The results of this study, while providing tentative answers to our original question about urban stress, have also demonstrated the limitations of the urban stress concept. This discussion has attempted to reassess the approach of stress and urban theorists and pose more complex and interesting questions for future research. Hopefully, the perspectives gained from this study will lead to a more sophisticated and productive reconceptualization of the stress and urban living fields.

APPENDICES

APPENDIX A

RELIABILITY QUOTIENTS FOR CONTENT ANALYSIS

APPENDIX A.--Reliability Quotients for Content Analysis.

Category	Intercoder Reliability (20 transcripts)	Code-recode Reliability (5 transcripts)
Type of Stress	.956	.971
Place of Occurrence	.843	.911
Physical Reaction	.891	.885
Emotional Response	.864	.860
Dimensions of Stress	.810	.796
Coping, Resources and Adaptation	.836	.888
Lazarus' Appraisal Codes and Others	.815	.783

APPENDIX B

URBAN STRESS INTERVIEW

APPENDIX B

URBAN STRESS INTERVIEW

Respondent no. _____ Condition _____

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Psychologists have for a long time discussed whether there is anything about a large city that makes living in it more stressful than living, for instance, in a suburb or a small town. But no one has ever really asked a large number of city dwellers whether they experience city living as stressful, and if they do, what kinds of things they experience as stressful. These are the kinds of questions I am going to ask in this interview.

1. My first question is: What does the word "stress" mean to you? Anything else?

2. What do the words "urban stress" mean to you then?

3. Have you ever experienced urban stress? (If no, use alternate form of interview.)

4. Now I would like you to think of your experience living in the city and to tell me some of the aspects of city living that you have found to be stressful. (Keep notes to refer to in question 5.)

5. Now I am going to ask you why each of the things you have told me about are stressful, just to be sure that I understand. Why did you find _____ to be stressful? (Ask this question for each different stress mentioned in question 4.)

6. Do you ever react differently or have different emotions in different kinds of stressful situations? (If respondent says he always has the same emotions in stressful situations, ask question 6a and then go to question 7. If respondent says he has different emotions in different stress situations, go to question 7 and then to question 6b.)

6a. What is it that these situations have in common that makes you react to them all in the same way?

7. (If respondent said same for question 6, have him pick one of the situations he has mentioned as stressful and answer the following questions. If respondent said different, have him pick two stressful

(question 7 continued)

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situations in which he has experienced different emotions and answer the following questions for each situation.)

7a. What emotions do you feel when you are in this situation?

7b. Does your body change in any way when you experience this stress?

7c. Does the stress you feel make it either easier or harder for you to _____ (accomplish what you are trying to do, reach your goal)?

6b. (To be asked of people who respond with different emotions, after they have answered question 7 for two different stress situations.) What do you think is different in these two situations that makes you respond to them differently?

8. Now I am going to suggest five different ways in which stress can differ. I would like you to think of a specific example of each. One that you yourself have experienced as stressful. If you like, you can use again some of the stressors you have mentioned before.

8a. First, I would like you to tell me about something related to city living that happens repeatedly and that you experience as stressful. (After spontaneous response, ask:) Now I'd like you to describe this situation for me in more detail. What happens? What are you thinking about and feeling during the situation?

8b. In contrast to the first example, can you think of a specific situation or stressor related to city living that stands out in your mind as an unusual or particularly stressful experience? Something that has only happened to you once or twice in your life here? (After spontaneous response, ask:) Now I would like you to describe this situation for me in more detail. What happened? What were you thinking about and feeling during the situation?

8c. Now tell me about a situation or thing in the city that you avoid because you find it stressful.

8d. Give me an example of something that you worry may happen to you in the city.

8e. Can you give me an example of a thing or situation related to city living that you used to find stressful, but that no longer stresses you? Something you still experience.

9. Now I am going to take a couple of the examples that you have described for me and ask you some more specific questions about them.

9A. (All of these questions are to be asked about the repetitive stress situation, question 8a.) First, let's take _____ (name the stress situation).

9A1. What about this situation makes it difficult for you to handle or to cope with?

9A2. Is there something characteristic of you that makes this situation more difficult for you to handle than for someone else?

9A3. Do you find this situation more stressful or less stressful for you now than the first time you experienced it?

9A4. Often when a person experiences the same situation over and over there are times when he feels more stressed by the situation and other times when he feels less stressed by it. Have you found this to happen to you in this situation? (If respondent answers yes, or don't know, ask:)

9A4a. Can you think of something that varies or changes in yourself that can make the situation either easier or more difficult for you to handle?

9A4b. Can you think of some change in the physical environment that can make the situation more difficult or easier to handle?

9A4c. Would the situation be easier or more difficult to deal with if you had someone with you (or, if appropriate, if you didn't have someone with you)?

9A4d. Does it make any difference what other kinds of people are around you at the time--not with you, but in the situation?

9A5. How do you try to cope with this situation?

9A6. Have you ever been in this situation and thought of doing something that would help you to cope with it, but then decided not to? Why didn't you do it?

9A7. Does the situation continue to bother you after it is over?

(question 9 continued)

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9A8. Are you aware beforehand, before it happens, that this situation is likely to be stressful? (If yes:) Does thinking about the situation before it occurs also make you feel stressed?

9A9. Some people feel more stressed when they think they know what is going to happen next in a situation. Some people feel less stressed. In this situation, do you think you know what is going to happen next? Would you find it more stressful or less stressful if you knew or felt you knew (did not know or felt you did not know) what was going to happen next?

9B. (All of the following questions are to be asked about the unusual stress situation, question 8b). Now I'd like to ask the same questions about _____ (name the stress situation).

9B1. What about this situation made it difficult for you to handle or to cope with?

9B2. Is there something characteristic of you that made this situation more difficult for you to handle than it would be for someone else?

9B3. Do you think that you would find the situation to be more stressful or less stressful if it were to happen to you again?

9B4a. Would this situation have been easier or more difficult to handle if it had occurred at a different time (i.e., of day, of your life, etc.)?

9B4b. Can you think of some change in the physical environment that would have made the situation easier or more difficult to handle?

9B4c. Would the situation have been easier or more difficult to deal with if you had had someone (had not had someone) with you?

9B4d. Would it make any difference what other kinds of people were around at the time?

9B5. How did you try to cope with this situation?

9B6. When you were in this situation did you think of doing something that would have helped you to cope with it, but then decide not to? Why didn't you do it?

(question 9 continued)

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9B7. Did the situation continue to bother you after it was over? How long?

9B8. Were you aware beforehand that you were likely to experience a stressful situation like this? (If respondent answers yes, ask:) Did thinking about the situation before it occurred make you feel stressed?

9B9. Some people feel more stressed when they think they know what is going to happen next in a situation. Some people feel less stressed. In this situation, did you think you knew what was going to happen next? Would it have been more stressful or less stressful if you had not known (had known or felt you knew) what was going to happen next?

Now I am going to ask you some more general questions about urban stress.

10. Is there anything you do after a stressful experience or a particularly stressful day to reduce your feeling of being stressed? Anything else?

11. If you were asked to rate how frequently you experienced urban stress on a scale from "always" to "never" where would you say you fell? (Present card depicting a seven point scale with "always" as 1 and "never" as 7.)

12. Besides the frequency of stress, there is another distinction that can be made. That is the intensity or degree to which a person feels stressed. If you were asked how stressed you are by the experience of living in the city from "very stressed" to "not at all," where would you place yourself? (Present card depicting a seven point scale where "very stressed" is 7 and "not at all stressed" is 1.)

13. What would be your ideal sized community? Where would you most like to live, assuming you could get the job you want and could have your friends and relatives near you? (Present card with the following choices: Manhattan, large city, small city, small town, suburb, rural area.)

14. Do you think living in the city is more stressful or less stressful for you than living in a small town or rural area would be?

15. Do you think living in a city a long time makes living there more stressful or less stressful?

16. If you were to rate yourself on why you live in Manhattan on a scale from "I live here simply because I want to" to "I live here because I have to, or because I have obligations to stay," where

(question 16 continued)

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would you place yourself? (Present card with seven point scale where "because I want to" is 1 and "because of obligations" is 7.)

17. Background and condition information:

17a. How long have you lived in Manhattan?

17b. With whom do you live? (no one, spouse, children, parents, roommate, others).

17c. What part of Manhattan do you live in? (Washington Heights, Harlem, Upper West Side, Upper East Side, Midtown, Village, Lower East Side, Lower West Side, Other).

17d. Have ever lived in: another borough of New York City, another large city, a rural area, a small town? How long?

17e. What is your age?

17f. What is your occupation?

17g. (Sex: male, female).

17h. (Ethnic background: white, black, spanish, other).

18. So far I have only asked what makes city living stressful. Could you now tell me some of the things you personally like about living in the city?

APPENDIX C

TYPE OF STRESS BY PLACE OF OCCURRENCE

APPENDIX C.--Type of Stress by Place of Occurrence.

Place	Travel	Services	Interactions with Strangers	Crime	Noise	Ugliness	TOTAL Stressors
Street	36	0	(20) 34***	(39) 58***	13	(8) 20***	161
Subways or Buses	(40) 68***	2	19	27	(16) 24*	3	143
Cars, Taxis	(12) 35***	2	2	3	1	1	44
Public Buildings	11	2	4	(9) 17*	1	2	37
Stores	0	(9) 44***	5	1	0	0	50
Entertainment	0	(9) 37***	1	6	1	1	46
Bureaucracies	0	(4) 17	1	0	0	0	18
Own Apartment	0	1	4	19	(6) 20***	0	54
TOTAL	150	105	70	131	60	27	543

Overall Chi-Square = 623.93

*p < .05

***p < .001

Only types of stress coded for place are included.

Circled numbers represent expected frequencies.

APPENDIX D

TYPE OF STRESS BY PHYSICAL REACTIONS

APPENDIX D.--Type of Stress by Physical Reactions.

Type of Stress	Tension	Specific Symptoms	Nervousness	Pain	Fatigue	Mental	TOTAL
<u>SOCIAL ENVIRONMENT:</u>	46	54	31	15 2***	13 20**	6	159
Travel	27	26	16	2	7	3	81
Services	9	10	4	0	7	2	32
Strangers	7	14	7	0	1	0	29
<u>CRIME:</u>	12	16 29***	9	2	0	1	53
<u>PHYSICAL ENVIRONMENT:</u>	25	20 3***	9	6 22***	4	4	67
Noise	17	15 2***	9	5 16***	3	3	50
<u>LIVING PROBLEMS:</u>	16	8	3	4	3	2	36
Jobs	6 10*	3	2	1	1	2	19
TOTAL	99	95	53	30	27	13	317

Overall Chi-Square = 115.73

*p < .05

**p < .01

***p < .001

Types of stress with low frequencies considered only within their group. Total includes City Changing.

Circled numbers represent expected frequencies.

APPENDIX E

TYPE OF STRESS BY EMOTIONAL REACTIONS

APPENDIX E.--Type of Stress by Emotional Reactions.

Type of Stress	Irritation- Anger	Worry-Fear	Dislike	Sad	Other: Pity, Surprise, Alienation	TOTAL
<u>SOCIAL ENVIRONMENT:</u>	122	9978***	95	24	2434**	353
Travel	44	37	39	8	9	137
Services	2741***	2310***	23	3	6	83
Strangers	32	3120**	29	13	818***	112
Social Overload	5	611*	4	0	1	21
<u>CRIME:</u>	3721***	3364***	3120*	4	8	117
<u>PHYSICAL ENVIRONMENT:</u>	2736*	249***	2335***	5	0	85
Noise	1222***	111***	15	0	0	38
Ugliness	12	7	1017**	2	0	38
<u>LIVING PROBLEMS:</u>	26	32	20	9	2	89
TOTAL	208	183	172	43	44	650

Overall Chi-Square = 136.03

*p < .05

**p < .01

***p < .001

Types of stress with low frequencies considered only within their group. Total includes City Changing.

Circled numbers represent expected frequencies.

APPENDIX F

GROUPED TYPE OF STRESS BY DIMENSIONS OF STRESS

APPENDIX F.--Grouped Type of Stress by Dimensions of Stress.

Dimensions	Social Environment	Crime	Physical Environment	Living Problems	TOTAL ⁺
<u>DEMANDINGNESS</u>	167	25	36	(45) 83***	313
Extra Demand	(91) 104*	10	16	(24) 36**	166
Repetitiveness	37	11	(20) 19**	7	75
Extra Expense	26	4	1	(10) 40***	72
<u>EGO THREAT:</u>	(137) 176***	24	12	37	250
Unpleasant	(97) 123***	19	9	25	177
Alienation	(30) 37**	2	2	10	51
Ethnic	16	3	1	2	22
<u>HARM OR LOSS:</u>	73	(40) 133***	21	12	241
Injury	54	(21) 62***	1	5	124
Material Loss	9	(9) 41***	1	5	56
Threat Stories	2	(6) 28***	4	0	34
Illness	8	2	15	2	27
<u>LACK OF CONTROL:</u>	119	42	34	37	235
Uncontrollable	99	38	25	30	193
Authorities	20	4	9	7	42
<u>BLOCKING-DELAY:</u>	115	22	(27) 41**	24	202
<u>NEG. PHYSICAL ENVIRON.:</u>	57	3	(18) 63***	9	134
<u>PERSONAL SPACE:</u>	(52) 92***	0	0	4	96
<u>EGO THREAT-SELF:</u>	44	9	2	15	34
TOTAL:	843	258	209	221	1541

Overall Chi-Square = 779.70, $p < .001$ * $p < .05$ ** $p < .01$ *** $p < .001$ ⁺City Changing is included in totals.

Circled numbers represent expected frequencies.

APPENDIX G

TYPE OF STRESS BY COPING RESPONSES

APPENDIX G.--Type of Stress by Coping Responses.

Type of Stress	Active Coping	Avoiding	Mental Coping	"Nothing I Can Do"	TOTAL
<u>SOCIAL ENVIRONMENT:</u>	105	86	36	17	244
Travel	(46) 36**	38	23	8	105
Services	32	(23) 35**	(12) 5	3	75
Strangers	(21) 29*	(15) 9*	6	5	49
<u>CRIME:</u>	54	19	40	10	123
<u>PHYSICAL ENVIRONMENT:</u>	22	8	(9) 15*	(6) 12**	57
Noise	11	5	(5) 10*	8	34
Ugliness	10	2	4	4	20
<u>LIVING PROBLEMS:</u>	(14) 21*	7	2	2	32
TOTAL	202	141	72	41	456

Overall Chi-Square = 58.8 $p < .005$ * $p < .05$ ** $p < .01$

Types of stress with low frequencies are considered only within their groups.

Circled numbers represent expected frequencies.

APPENDIX H

LAZARUS' FACTORS AND TYPE OF STRESS

APPENDIX H.--Lazarus' Factors and Type of Stress.

Grouped Type of Stress	Anticipation	Ambiguity	Unfamiliarity	Location of Agent of Harm	Alternatives	Constraints	TOTAL
Social Environment	(45) 26***	14	14	4	(38) 49**	(29) 38*	145
Crime	(36) 54***	14	12	2	(30) 20**	(23) 14**	116
Physical Environment	(6) 1*	1	0	0	(5) 10*	8	20
Living Problems	(10) 18**	7	2	0	(8) 3*	3	33
TOTAL	99	36	28	6	82	63	314

Chi-Square = 57.56, $p < .001$

* $p < .05$

** $p < .01$

*** $p < .001$

Circled numbers represent expected frequencies.

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