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THE APPRECIATION OF HOSTILE TARGETTED HUMOR AS A MODERATOR OF EVENT-SPECIFIC AND GLOBAL PERCEIVED STRESS

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THE APPRECIATION OF HOSTILE TARGETTED HUMOR AS A MODERATOR OF EVENT-SPECIFIC AND GLOBAL PERCEIVED STRESS

by

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ABSTRACT

THE APPRECIATION OF HOSTILE TARGETTED HUMOR AS A MODERATOR OF EVENT-SPECIFIC AND GLOBAL PERCEIVED STRESS

Adviser: Professor Florence L. Denmark

An investigation was conducted in order to test two hypotheses pertaining to the relationship between the appreciation of hostile targetted (other-directed) jokes and the amelioration of event-specific stress or non-event-specific global perceived stress. Hypothesis I stated that a favorable orientation toward hostile targetted jokes, as such jokes facilitate the discharge of aggressive energy or tension which is directed at a target or "butt," will moderate (lessen or weaken) the relationship between event-specific or global perceived stress and illness outcome. Hypothesis II proposed that an appreciation for hostile targetted jokes will be a more effective stress palliative than will a favorable orientation toward non-hostile, non-targetted (non-directed) jokes, due to the association of the former with higher levels of energy discharge, and will have a more pronounced moderating effect upon the magnitude of the relationship between stress and illness.

A total of 86 female and 58 male undergraduates completed a series of five measures: (1) an assessment of event-specific stress, the Stress scale of the Psychological Distress Inventory (PDI); (2) an index of global stress, the Perceived Stress Scale (PSS); (3) the Beck Depression Inventory (BDI), a measure of psychological distress; (4) the Somatization scale of the Hopkins Symptom Checklist (HSCL), a measure of physical

symptomatology; and (5) a measure of appreciation for hostile targetted and non-hostile, non-targetted jokes, consisting of 10 jokes representing each category.

In order to assess the possible stress-moderating effects of an appreciation for hostile jokes or for non-hostile, non-targetted jokes, a series of stepwise hierarchical multiple regressions in hypothesis-testing format (ex: illness = stress + joke appreciation + interaction) was performed on the data. For both depression and somatization measures, separate analyses were conducted for each respondent subgroup for each type of joke appreciation and for each type of stress--a total of 16 analyses. None of the regression coefficients associated with the interaction term (the index of any stress-moderating effect) were statistically significant: Neither level of appreciation for hostile targetted jokes nor level of favorability toward non-hostile, non-targetted jokes improved predictability of illness beyond that information provided by score for either type of stress alone: The magnitude of the relationship between level of event-specific or global stress and illness outcome was unaffected by the level of appreciation for either hostile or non-hostile, non-targetted jokes.

A supplementary hypothesis, Hypothesis III, which proposed that level of joke appreciation will moderate the relationship between objective stress (number of PDI Stress scale events experienced) and global perceived stress, was not confirmed for respondents of either sex. However, results disclosed a significant reversal effect for the male subgroup: A high level of favorability for either hostile or non-hostile, non-targetted jokes was associated with a strong correlation between objective stress and global perceived stress.

Several explanations are offered to account for the null findings of the present study for Hypotheses I and II, and an interpretation of the results obtained for Hypothesis III for the male subgroup is provided. The overall pattern of findings is then assessed from the perspective of its significance for the study of humor and stress management.

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TABLE OF CONTENTS

PAGE NUMBER

LIST OF TABLES

STRESS AND ILLNESS

The complexity and rapid pace of our highly technologized society has generated increasing concern for our ability to assimilate change at the rate at which it occurs around us. Life change is perhaps the most familiar source of stress, subsuming those mundane occurrences which befall most of us at some point in our lives as well as those extraordinary events which cannot be anticipated. Such change has become the focus of considerable research interest. A brief review of representative definitions of stress will be followed by a discussion of prominent models of stress (some of which directly address the issue of life change) and the available instruments for its assessment.

Definitions of Stress

The term "stress" likely originated within the fields of engineering and architecture, where the concept has been employed to refer to any force acting against some resistance. In his handbook for carpenters and those in the construction trade, Graham (1965) defined stress as "distributed forces, such as pounds per square inch, tons per square foot, etc. Within the elastic limit of materials, stress is approximately proportional to strain" (p. 141). Strain, in turn, has been defined as "alterations in the form of a member which are caused by forces acting on the member" (p. 41). In the handbook, stress is defined as those external forces which impinge upon a body, whereas strain is a term which is employed to refer to the effects such forces bring to bear upon

to bear upon the body. An interesting contrast to Wolff's (1968) definition of stress is Graham's conception. He views stress as the "cohesive force or molecule resistance in a body opposing the action of applied force" (p. 4). Wolff then modified his conception to include human beings: "Stress is a dynamic state within an organism in response to a demand for adaptation, and since life itself entails constant adaptation, living creatures are continually in a state of more or less stress" (p. 4).

Psychological and physiological definitions of stress are numerous. From the standpoint of psychology, the most widely accepted definition is that of Selye (1956/1976), who loosely conceived of stress as the "rate of wear and tear in the body," and more rigorously as "the state manifested by a specific syndrome which consists of all the non-specifically induced changes within a biological system" (p. 64). The "specific syndrome" to which Selye referred was termed the General Adaptation Syndrome, or "G-A-S," in which glutocorticoids are secreted by the adrenal cortex in response to adaptational demands placed upon the organism due to such disparate stressors as starvation, heat, cold, and other environmental insults—hence the expression "nonspecifically induced changes" which is incorporated into the above definition.

There are those definitions which focus specifically upon the state of the organism (Selye's is an example); other definitions of stress emphasize either the stressful stimuli themselves or some combination of stimulus, organismic response, and mediating factors or variables (Ilfeld, 1980). Antonovsky (1974) conceived of stress as a "state of the organism in which energy is utilized in continuously dealing with problems over and above the energy that would have been demanded had the problem been resolved" (p. 246).

Rabkin and Struening (1976) viewed stress as "the organism's response to stressful conditions or stressors, consisting of a pattern of physiological and psychological reactions, both immediate and delayed" (p. 1014). Burchfield (1979) regarded stress as "anything which causes an alteration of psychological homeostatic processes"—that is, processes which serve to maintain "the normal mood state of the individual at rest" (p. 662). In a research study employing an arbitrary definition of stress as stressful stimuli, Ilfeld (1980) described stress as "those ongoing circumstances or conditions of daily social rules...that are generally considered as being problematic or undesirable" (p. 58).

The distinction between the terms "stress" and "stressor" is an important one, as certain researchers have a tendency to use the terms interchangeably. Although the term "stress" is sometimes loosely employed to refer to environmental sources of threat to the organism, the term "stressor" is the more appropriate designation. "Stress" is more properly employed when used to denote the organism's response to these stressors, or, in the broader sense, the total interaction between the stressor and the organismic response.

By and large, the definitions of stress discussed here have focused upon the negative or destructive aspects of stress as opposed to its potentially beneficial aspects, which are acknowledged in Wolff's (1968) conception. While Wolff does concur with the proposition that stress itself is always unpleasant (e.g., misfortune, frustration, etc.) in nature, he further asserts that, in and of itself, stress is neither constructive or destructive; rather, stress affords the setting or the context within which individuals may forge their own coping mechanisms with the possibility that such mechanisms may develop into systematized

patterns of behavior which can be applied beneficially or detrimentally. Although stress does constitute a potent threat to our well-being, it may also afford the opportunity for personal growth. Caplan (1964) viewed crisis situations as representing a challenge to one's repository of coping strategies. Those strategies which have proven themselves effective in dealing with the crisis will be reinforced; those which have failed to hold up under pressure will be discarded. In meeting future situations, the individual will enlist only those strategies which have met with success.

Models of Stress

The range of definitions offered in the previous section imply a variety of stress models within which these definitions are embedded. The models of stress to be outlined in the present discussion comprise a sampling of the prominent conceptions, some of which concern stress in general, whereas others are specific to the domain of stressful life events (life change).

Hans Selye (1956) formulated a homeostatic model of stress, in which any nonspecific stressor interfering with the ongoing steady state of the organism can induce that which he termed a "General Adaptation Syndrome," or "G-A-S." Selye described the syndrome as follows:

> In addition to many specific defense-reactions (e.g., maintenance of a constant body temperature, osmotic pressure, blood pressure), there is an integrated syndrome of closely interrelated adaptive reactions to non-specific stress itself; this has been termed the General Adaptation Syndrome (G-A-S).
>
> The G-A-S does not merely represent a transitory "emergency" adjustment to changes in the environment, but is an adaptive reaction, which comprises the "learning" of defense against future adaptation once this is acquired....

> The process of adaptation may itself become the immediate cause of diseases, namely of derangements due to maladaptation....Among these are some of the most fatal diseases of man, such as the hypertensive, the "rheumatic" and the "degenerative" or "wear-and-tear" diseases of old age; the psychosomatic syndromes probably also belong to this group. (p. 6)

Selye also stated that

> we are just beginning to see that many common diseases are largely due to errors in our adaptive response to stress, rather than direct damage by germs, poisons, or other external agents. In this sense, many nervous and emotional disturbances, high blood pressure, gastric and duodenal ulcers, certain types of rheumatic, allergic, cardiovascular, and rival diseases appear to be essentially diseases of adaptation. (p. viii)

The G-A-S consists of three distinct phases or stages: (1) an alarm reaction, in which, in order to respond to the stressor, sources of energy (primarily glucocorticoids secreted by the adrenal cortex) are rapidly mobilized over large sections of the body; (2) a resistance stage, in which there is a focal concentration of defense against the stressor; and, finally, (3) an exhaustion stage due to wear and tear on the focal channel of defense and a spread of the reaction again to larger areas of the body. At the same time as they supply the body with rapidly mobilized sources of energy and work to obstruct inflammatory processes, glucocorticoids also serve to lessen the organism's capacity to fight infection, delay the growth of new tissues surrounding a wound, inhibit the formation of antibodies, decrease the number of white blood cells, give rise to intestinal ulcers, depress thyroid activity, suppress bodily growth, and impede sexual and reproductive changes. Consequently, when subjected to protracted stress, bodily functions which are directed toward growth, reproduction, and resistance to disease are inhibited.

Holmes and Rahe (1967) employed a homeostatic model of stress in their formulation of the Social Readjustment Rating Scale (SRRS). In assigning life change unit (LCU) weights to represent the magnitude

of readjustment required by a particular life event, Holmes and Rahe defined readjustment as the amount and duration of change in a person's accustomed pattern of existence. The LCU score for an individual designates the magnitude of disruption of homeostasis within a given period of time, rather than the magnitude of threat which is perceived by the individual. The stressor operationalized by the SRRS is non-specific and bears a strong similarity to Selye's (1956) model discussed earlier.

An optical model of the life event—illness relationship, proposed by Rahe (1974) and Rahe and Arthur (1978), conceptualizes life change as an array of light rays of varying intensities which pass sequentially through a series of lenses until they are projected onto an illness measure, representing the outcome of the stress reduction. The lenses signify intervening variables serving to augment or to lessen the intensity and impact of the life changes. The first lens in this model represents perception and incorporates those variables which have a bearing upon the individual's perception of threat—variables such as the desirability, controllability, intensity, or meaningfulness of the event. The second lens in the model represents the individual's psychological defenses and includes various ways of coping with events perceived as being stressful. The next position in the model sequence is occupied by a physiological "black box," which represents the range of conscious and unconscious physiological changes associated with increased arousal. Following this "black box" is a lens which represents what has been termed "response management," or the host of strategies (e.g., meditation or muscular relaxation) typically available to an individual in the throes of a threatening situation. Next in the sequence is a lens representing illness behavior, the degree to which the individual is

prone to report illness and to make use of medical services. The final step in the sequence is the illness measure, the process by which illness outcome is quantified. Rahe's and Arthur's (1978) conception constitutes an expansion of the life change—illness model in order to accommodate the operation of mediating variables which may account for individual variation in the magnitude of the association obtaining between stress due to life change and physical or psychological disorders.

In choosing to define stress in terms of an alteration of psychological processes, Burchfield (1979) implied that an individual must first become aware of an event's occurrence in order for that event to be perceived as stressful. In analyzing adaptive and maladaptive responses to chronic intermittent stressors, Burchfield concluded that maximal adaptation involves the realization of three objectives: (1) maintenance of homeostasis, (2) conservation of resources, and (3) effective defense against the stress. In Burchfield's formulation, successful adaptation to chronic intermittent stress consists of an anticipatory response accompanied by a decrease in overall physiological responding, which is facilitated by the learning of predictive and consequential cues pertaining to the source of the stress. Whereas the exhaustion stage in Selye's model conceptualizes illness as a depletion of the body's physical resources, Burchfield's formulation regards illness as the end-product of learned helplessness, a condition which is characterized by an organism's having given up active attempts to cope with the chronic stressor.

Sarason's (1979) model views stress as an interaction between person and situation; in his view, stress occurs only under those conditions in which the individual lacks sufficient resources to counter an external

threat. Sarason's model grounds stress in cognitive terms, the stress process involving two types of appraisals: that of the situation or task confronting the individual and that of the individual's capacity for dealing effectively with the task or situation. According to this model, the most adaptive response to a stressor is that of a task orientation, in which the individual's attention is focused upon the specifics of the task rather than upon the emotional reaction to the stressor. In its attempts to account for any variance in illness outcome beyond that which is explained by life change, Sarason's conception underscores the importance of various situational, individual and physiological moderator variables.

Lazarus' (1966) model of stress and coping provides a heuristic for the development of assessments of stress and programs of stress research. He regarded stress as constituting a transaction between person and situation, as a process through which transactions are transformed over time and across encounters. In Lazarus' view, the assessment of stress must incorporate simultaneously yet not confound analyses along social, psychological, and physiological lines. Lazarus also advocated an ipsative-normative approach to stress research, in which the N is reduced across persons and is increased within persons. This approach allows for an examination of states (variability across situations) as well as one of traits (consistency across situations) of coping with stressful encounters. Lazarus (1966, 1981) differentiated between an event's cognitive appraisal and the coping strategies associated with a stressful event.

Within the cognitive realm, Lazarus also distinguished between primary and secondary appraisal. In his conception, primary appraisal pertains to the situation or event, which can be evaluated as irrelevant, as non-threatening (benign), or as stressful. Events deemed as stressful

are then subjected to further evaluation along the dimensions of harm/loss (in the case of a stressful event which has already occurred), threat (in the case of a harm or loss that is anticipated), and challenge to self (an anticipated opportunity for growth, mastery, or for personal gain). Secondary appraisal in Lazarus' model entails an assessment of the individual's capacity to deal successfully with the oncoming situation, event, or task. In those situations in which the threat or the demands of the situation are perceived by the individual as severely taxing available coping resources, coping may take the form of either a problem-focused attempt to alter the situation for the better or an emotion-focused attempt, palliative in nature, to deal with or somehow control the somatic and subjective components of stress-related emotions. Lazarus' formulation has incorporated four possible modes of coping: information-seeking, direct action, inhibition of action, and intrapsychic modes (cognitive processes). Finally, Lazarus argued for the inclusion of social and personal values in any assessment of the effectiveness of individual coping.

The Measurement of Life Stress

Researchers involved in the formulation of instruments to measure stress have operationalized it typically in terms of the amount of life change, even though potential sources of stress are many and varied. Underlying this research definition is the assumption that the process of adaptation contributes a significant portion of our daily wear and tear. Toffler (1971) was one of the first to recognize that our frenetic existence exacts a significant toll upon our well-being, although the nature of this toll in a given case may be highly individualized.

He coined the term "future shock," defining it as the "disease of change," stating that "...in the most rapidly changing environment to which [humankind] has ever been exposed, we remain pitifully ignorant of how the human animal copes" (pp. 2-3). Holmes and Rahe (1967) noted the widespread belief that failure to deal successfully with adaptive demands is a "necessary but not sufficient cause of illness and accounts in part for the time of onset of disease" (p. 213). In other words, given certain predisposing factors (e.g., adaptational deficits) within the individual, the accumulation of life change is considered to be a precipitating factor in illness onset.

The most widely employed instruments for the assessment of life change have been the Schedule of Recent Events (SRE) and its variants, of which the Social Readjustment Rating Scale (SRRS; Holmes & Rahe, 1967) is one. The SRE is a checklist comprised of a series of 43 potentially stressful situations from which respondents are asked to indicate those they have experienced within a specified time period (e.g., the most recent 6 months). A respondent's stress score consists of the number of stressful events which have befallen him/her during the relevant time span. The SRRS was developed by arbitrarily assigning a stress readjustment rating (weighting) of 500 points to the event "marriage" and having judges weight the remaining 42 items, employing "marriage" as the standard. This ratings procedure resulted in a mean group weighting (designated a "life change unit," or LCU) for each event. Mean group weightings were then divided by 10, yielding the standard weights employed in the calculation of the total SRRS scores. The mean LCUs of scale items ranged from a low of 11 for the item, "minor violations of the law," to a high of 100 for the item, "death of spouse."

The SRRS consists of items of a pleasant nature (e.g., vacation, Christmas) and items of an aversive nature (e.g., personal injury, passing on of a loved one), with the addition of certain other items which could fall into either category depending upon the particular circumstances (e.g., pregnancy, change in financial status, etc.). This raises the issue as to whether or not stress is most accurately conceptualized as total life change, as Holmes and Rahe (1967) and Dohrenwend (1973) argue, positive events having the potential to generate stress comparable in magnitude to that which is induced by negative events, or whether events of a positive nature can, to some degree, offset the effects of negative events (Dekker & Webb, 1974), thereby necessitating the use of stress measures incorporating comparable numbers of positive and negative events and yielding balance (negative events minus positive events) change scores, or whether researchers would be well-advised to restrict their attention to stress measures incorporating negative change scores only (i.e., listings comprised of events generally regarded as being unpleasant), in accordance with the views of Vinoker and Selzer (1975), Mueller, Edwards, and Yarvis (1977) and others.

A second issue of concern to those involved in the construction of life stress measures is the level of objectivity built into the instrument. Typically, life-events-based ("event-specific") stress measures apply normative (standardized) weights, or readjustment ratings, to the various items employed, rather than relying upon the individual respondent's appraisals of event aversiveness, thus raising the issue of the applicability of standardized (objective) item ratings across vast segments of the general population. Although acknowledging the presence of a certain degree of individual variability in the event weightings,

Holmes and Rahe (1967) argued for the retention of the standardized item ratings as a feature of stress measures.

Lazarus (1960) and others have called for a more subjective approach to the assessment of stress. In Lazarus' view, the crucial factor in the generation of stress is not the event itself but rather the particular meaning attached to the event within the context of a person's unique life history. Although a certain subset of events would likely be perceived as disruptive by virtually all persons, to a large extent, the magnitude of the disturbance induced by an event is a function of the manner in which that event is perceived. Providing respondents with the opportunity to rate the items on a stress measure according to how items are personally relevant (i.e., "How aversive or stressful did you find Event X to be?") yields more useful results in terms of illness prediction than would be forthcoming from the more traditional stress indices making use of normative ratings of scale events (Chiraboga, 1977; Sarason, Johnson, & Siegel, 1978; and Yamamoto & Kinney, 1976).

Speaking to the issue of the value of subjectivity in stress research, Wolff (1968) argued that a researcher requires detailed information pertaining to an individual's life history and his or her social and cultural expectations in order to make a determination as to whether or not a specific event would be regarded by that person as being stressful. According to Wolff, this knowledge is crucial to an understanding of the dynamics of the relationship obtaining between a given present-day event and a subsequent physiological or psychological disorder.

Researchers did not follow Wolff's lead; as a result, early work in the area of stressful life events met with mixed success: In these early studies, correlations obtained between various measures of stressful life

events and measures of illness outcome, although significant, were not markedly high, stress scores accounting for only a small percentage of the variance in the dependent measure (illness outcome). Despite what some researchers regard as methodological flaws in these investigations, such research did underscore the clear-cut connection between life change and subsequent emotional or physical disorders.

The transition from event-specific measures of stress which make use of normative event weighting to those employing respondent ratings of particular events can be credited with effecting an increase in the accuracy of illness prognostication. However, the increased application of non-event-specific measures of global perceived stress in stress research may enhance this level of predictive accuracy. The distinction between non-event-specific stress measures and indices of event-specific stress is clarified in the section entitled "Stimuli" (pp. 50-66).

Stress: Physiological and Psychological Sequelae

Inspired by the publication of the Life Events Survey (Holmes & Rahe, 1967), a number of researchers (e.g., Johnson & Sarason; Rabkin & Struening, 1976) have demonstrated a relationship between an individual's past stressful life experiences and their current physiological and psychological functioning. Studies have reported an association between the number of recent life changes noted by respondents to the Life Events Survey and other scales, on the one hand, and subsequent ill health, disease, and accidents as well as anxiety, mood disturbances, and various forms of psychological maladaptation (Holmes & Masuda, 1974; Paykel, 1974; Rabkin & Struening, 1976).

Volicer and Volicer (1978) reported an association between psychological stress and changes in heart rate and blood pressure. Others have noted a relationship between stress level and incidence of cardiovascular disease (Theorell & Rahe, 1971; Rahe & Lind, 1971; Rahe & Paasikiri, 1971; Bruhn, Paredes, Adsett, & Wolf, 1974), stress and complications during pregnancy (Nuckolls, Casser, & Kaplan, 1972; Jones, 1978; Yamamoto & Kinney, 1976), stress and generalized health difficulties (Bieliauskas & Webb, 1974; Marx, Garrity, & Somes, 1977; Rahe, Meyer, Smith, Kjaer, & Holmes, 1964; Ruvin, Gunderson, & Arthur, 1971). Employing college populations, researchers have disclosed a significant association between stress and upper respiratory infection (Jacobs, Spilken, & Norman, 1969) and stress and severity of subsequent illness (Garrity, Marx, & Somes, 1977a, 1978). Other studies (Constantini, Braun, Davis, & Ierrolino, 1973; Dekker & Webb, 1974; Johnson & Sarason, 1978; Vinoker & Selzer, 1975) have found a statistically significant association between life-change-associated stress and anxiety and between such stress and the onset of depression (Cadoret, Winokur, Dorzab, & Baker, 1972; Constantini, Braun, Davis, & Ierrolino, 1973; Johnson & Sarason, 1978; Paykel, Meyers, Dienelt, Klerman, Lindenthal, & Pepper, 1969; Thompson & Hendrie, 1972; Vinoker & Selzer, 1975).

The sizable body of research substantiating a connection between stressful life events (stress due to life change) and a range of physical and emotional disorders amounts to compelling evidence that a relationship does in fact obtain. In most instances, however, the magnitude of the resulting correlation is small (on the order of .3) (Rabkin & Struening, 1976), indicating that other factors may serve to intervene between the

impacting of the life change and the associated illness. Only in recent years has stress research turned its attention to the identification of such factors or processes, of which involvement with humor may be one. Knowledge regarding the operating levels of such variables may enhance the ability of investigators in the area to formulate accurate forecasts of stress-induced illness.

The following discussion considers the nature of humor involvement as it relates to stress and to physical and psychological well-being.

HUMOR AND HEALTH

The Moderators of Stress: An Important Focus

There is perhaps no more thought-provoking an issue in stress research than that which is embodied in the following question: Why is it that certain individuals succumb to physical or emotional disorders whereas others do not do so? Undeniably, magnitude of stress level is one contributant. However, individual differences in susceptibility to illness also seem to obtain in instances wherein stress levels are comparable. As Rabkin and Struening (1976) noted, individuals differ markedly in terms of the nature of their responses to stressful life events of comparable intensity. The correlations which have been found to obtain between measures of stressful life events (life change) and indices of health, although statistically significant, are typically on the order of .3, indicating that life change in and of itself accounts for less than 10% of the variability in illness outcome. The strong connection assumed to exist between stress and illness does <u>not</u> appear to hold true for many individuals. In light of this finding, the research issue introducing this section may be phrased

more interestingly as follows: Why is it that certain individuals who undergo a marked degree of life change (who experience a number of intensely stressful life events) succumb to a wide range of disorders whereas others experiencing equally intense changes emerge largely unaffected? It is thought likely that factors having no direct relationship to stressful life events may, in some instances, operate to intervene between life change and illness outcome. The trend in stress research is, therefore, as first suggested by Johnson and Sarason (1979), Kobasa (1979), and others, to ascertain and then to carefully investigate those variables which function to enhance or to moderate the stress—illness relationship (i.e., those factors which determine which individuals will be most adversely affected by the impact of negative life events). Janis (1958) and later Lazarus (1966) underscored the important role assumed by cognitive and personality factors in the etiology of stress reactions. This position was first articulated centuries earlier by the Stoic philosopher Epictetus in his observation that "men are disturbed not by things, but by the view which they take of them." It is argued here that an increased understanding of the functions of such intervening or mediating factors will have significant ramifications for both stress research theory and for the accuracy of illness prediction, as well as for the development of preventative and rehabilitational post-stress techniques.

Considerable attention has been given recently to research into individual and situational mediators between stressful life events (life change) and illness. Such research tends to be multi-variate in its design. As stress models become increasingly complex, incorporating

the operation of an array of psychological, physiological and sociological mediators, stress researchers must respond with methodological approaches of increasing sophistication.

The earliest study to address the issue of possible intervening variables in the stress—illness outcome relationship was that of Nuckolls, Casser, and Kaplan (1972), who reported that, although neither a measure of life crisis nor an assessment of psychological assets was in and of itself sufficient to predict outcome of pregnancy, the two measures taken together were of predictive value. Nuckolls et al. found that, under comparable stress levels, females scoring high on an assessment of psychosocial assets experienced fewer difficulties during pregnancy than did other females. More recent research has pinpointed other mediating factors which serve to increase the predictability of stress impact within a range of contexts associated with both physical and psychological well-being. According to a study by Bruhn, Paredes, Adsett, and Wolf (1974), indices of "joyless striving" and of depression heightened the accuracy of life change measures in the prediction of sudden death due to myocardial infarction. Employing a college population, Marx, Garrity, and Somes (1977) reported that a measure of social functioning mediated between stress level and illness outcome. Garrity, Marx, and Somes (1977a) found that the use of a trio of personality measures (i.e., social conformity, liberal intellectualism, and emotional sensitivity) and an index of psychological strain as assessments of stress level enhanced ability to predict generalized health outcome. Employing research participants classified as low in sensation-seeking, Smith, Johnson, and Sarason (1978) noted a correlation between stressful life events (life change) and scores on Lanyon's Discomfort Scale. Johnson and Sarason (1978) disclosed that

level of stress was more predictive of anxiety or of depression in persons high in externality. Research evidence has also been forthcoming with regard to the stress-buffering role of sensation-seeking (Johnson, Sarason, & Siegel, 1979; Smith, Johnson, & Sarason, 1978), alienation (Kobasa, 1979), and social support (Holmes & Dudley, 1973; Nuckolls, Casser, & Kaplan, 1972; Sandler & Lakey, 1982).

Stress research seeks definitive knowledge with respect to those mediating variables which are most strongly associated with the maintenance of physical and psychological well-being. In addition, such research seeks clarification of the manner in which such well-being may be maintained in the face of extreme external stress. The present study examines an aspect of humor involvement (specifically, favorability toward hostile (other-directed) targetted jokes) as one possible stress moderator*. Support for an association between the appreciation of humor and stress amelioration has been forthcoming from Freudian humor theory (1976), as well as from the clinically-based investigations of Greenwald (1977) and Olson (1976).

One potential means for coping with stress is the development of a cognitive set which operates to produce an "inoculation effect" against future stressful situations. In arriving at a determination of the magnitude of impact of a given stressor, cognitive theorists such as Albert Ellis (1962) emphasized the manner in which the stressor is evaluated

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*A variable designated as a "mediator" may intervene between two or more variables or processes and produce either a lessening (moderating) effect or a heightening (enhancing) effect upon the strength of their association. Within the context of the present study, humor involvement will be referred to as a potential moderator of stress impact, with the understanding that a moderator is actually a sub-category of mediator.

or appraised—the result of a cognitive set—rather than the intrinsic properties of the stressor. Humor involvement—specifically, a favorable orientation toward humor—is one of a number of cognitive sets which act to moderate the impact of stress. In the following section, the salutary effects of humor involvement are examined from several key historical and research perspectives.

Historical and Research Perspectives: The Role of Humor in the Promotion of Health

That humor possesses therapeutic properties is an idea traceable to Biblical writings: "A merry heart doeth like a medicine" (Proverbs 17:22). In 1790, Kant characterized joking and the laughter which accompanied it as furthering the "vital bodily processes" having a favorable "influence on health."

Theorists in the field of psychology have long acknowledged humor's potential as an adaptive coping mechanism. Freud (1959, 1960) spoke of humor as the "highest of the defensive processes [i.e., defense mechanisms]" (1960, p. 233), one which allowed for a savings of emotional energy: "The essence of humor is that one spares oneself the affects to which the situation would naturally give rise and overrides with a jest the possibility of such an emotional display" (1959, p. 216). Freud viewed the humor process as an "eminently beneficial" one—it "has in it a liberating element, signifying the "triumph not only of the ego, but also of the pleasure principle, which is strong enough to assert itself here in the face of the adverse real circumstances" (1959, p. 217). In Freud's conception, humor represents a relaxation of superego control,

allowing the ego the freedom of a temporary flight from reality in order to take delight in humorous play either for its own sake (non-tendentious humor) or for the purpose of expressing id impulses otherwise denied expression (tendentious humor).

Freud thought a true appreciation of humor to be predicated upon an individual's capacity for the release of id-induced tensions in a socially sanctioned manner. This discharge of tension, in turn, requires a relatively flexible superego working in conjunction with an intact ego.

Later authors echoed Freud's positive appraisal of the therapeutic potential inherent in humor. Allport (1950) remarked that the "neurotic who learns to laugh at himself may be on the way to self-management, perhaps to cure" (p. 92). Commenting upon humor's salutary role, Rollo May (1958) noted that humor has the function of "preserving the sense of self....It is the healthy way of feeling a 'distance' between one's self and the problem—a way of standing off and looking at one's problem with perspective" (p. 60).

A number of researchers regard humor as signifying an abrupt shift in one's cognitive perspective, a shift which enables the individual to deal more effectively with external stress. Koestler's (1964) theory of "bisociation," which refers to the juxtaposition of two ordinarily incongruous frames of reference or the discovery of various similarities and analogies implicit in concepts usually regarded as being remote from one another, was essentially an elaboration of the position that humor is an uniquely human mode for dealing with the demands of daily life, a mode which was the end-product of a lengthy period of social evolution. O'Connell (1976) noted that humorists are adept at effecting "rapid perceptual-cognitive switches in frames of reference" (p. 327). It is

through such shifts in perspective that humorists can effectively distance themselves from the immediate threat of a problem or situation, coming to view it from a different vantage point. In this manner, humorists are able to gain insight into the difficulty while simultaneously lessening the anxiety and the feelings of helplessness which may prevent effective coping.

In addition to the cognitive-affective hypotheses of theorists and of therapists, there exists psycho-physiological evidence in support of humor's role in the promotion of physical and psychological well-being. The classic documented case of "healing through laughter" is that of Norman Cousins (1977, 1979a, 1979b). Victimized by a painful collagen disease which was unresponsive to conventional modes of treatment, Cousins transferred himself out of his hospital ward and into a hotel room, placing himself on a daily regimen of comedy films. Cousins found that exposure to humor on a protracted basis had an anesthetic effect, easing his discomfort and inducing prolonged, medication-free sleep. He regarded humor as a positive stimulant instrumental in staving off the most severe consequences of his illness.

Cousins' dramatic recovery from his illness amounts to little more than anecdotal substantiation of the therapeutic effects of humor. However, his experience did prompt researchers to suggest that laughter may stimulate the production of endorphins, the body's natural anesthetic. During episodes of laughter, Cousins noted a decrease of at least five points in his sedimentation rate (an indicator of the severity of an infection or an inflammation). Although there were other factors operating in Cousins' situation which may have facilitated his recovery, i.e., vitamin therapy, removal from the hospital environment, the illness possibly having run its course, it was Cousins' belief that humor was the critical element in his return to health.

Research at the University of California at Los Angeles into the range of human emotions (Cousins, 1982) has reported a number of significant findings. One conclusion forthcoming from these studies has been that laughter appears to be closely allied with an array of feelings such as hopefulness, the will to survive, trust, faith, joy, and even love. These feelings act to mobilize the body's natural defenses, giving rise to biochemical effects not only upon the immunological system, but upon the endocrine, respiratory, cardiovascular, neurological and musculoskeletal systems as well.

Within the unique world of health and illness, humor performs the valued function of indirect communicator, as well as serving as an instrument or mechanism for coping with external or internal stress which is associated with physical and psychological illness. The following discussions detail the arguments for the beneficial effects of humor involvement for communicational, sociological, psychological, and physiological domains.

Humor as a Mode of Indirect Communication

One perspective from which humor may be examined is that of its role as an indirect communicator. Humor may be employed in order to convey, in a rapid albeit indirect manner, messages that are usually emotionally laden and which might be deemed unacceptable were they presented in a non-humorous manner. That which is spoken in jest tends not to elicit the types of social reactions which may follow critiques, remarks, or insults uttered with a straight face. The humorous communication may be a message of anxiety, or one of fear, embarrassment, anger, or apology; on the other

hand, the message may be one of love, warmth, support, hope or of trust. In times of illness, stress, or other crises, patient and health professional find themselves thrust into intimate and somber contact, a context within which the mutual expectation of trust and cooperation is operating. Although time constraints prevent the fostering of a full-blown relationship between patient and health practitioner, the former is expected to submit willingly to invasive procedures and to the disclosure of highly personal information. Emerson (1963) noted that humor constitutes a form of interaction which provides this sense of familiarity rather quickly, does not offend, and is readily facilitated. Furthermore, the "joke-frame" characteristic of humor affords the degree of flexibility necessary for the smooth termination of an interaction or for effecting the transition from jocular mode to serious dialogue. Emerson found such humor to consist typically of joking, bantering, and the exchange of amenities.

Fry (1963) was the first to formulate a description of the play—joke framework, which not only provides for the "face-saving" quality of humor and for the speedy resolution of the feelings underlying the communication (Freud's psychic economy), but also affords the speaker the option, should the listener not respond favorably, of backing off with the disclaimer, "I was only making a joke." Emerson (1963) reported that humor was deemed appropriate in virtually every context within the hospital setting and was initiated by personnel at all levels as well as by the patients themselves. On the ward, jokes were generally well received; when joking was not successful, it was attributed to the listener's detection of the implicit message underlying the joke. According to Emerson, the indirect communicational channel which humor provides is of

value in "promoting the continued harmony of a social relation at the same time that important messages are conveyed" (p. 47).

Humor From a Sociological Perspective: A Mechanism for Coping with External Pressures

Within the health-illness setting, a number of unwritten rules of normal society are disrupted, violated or suspended. Humor provides a means of coping with such socially disruptive behaviors through its fostering of the patient-staff relationship, its easing over of tensions generated by social conflict, its promotion of solidarity and social control, and its management of the "delicate situations" brought about by illness and the realities of the health-care system. Involvement with humor has survival value and may function as an agent for social change.

Coser (1959) reported that joking by patients on a hospital ward served to decrease social distance, to indoctrinate other patients into the fraternity of those under treatment for illness, assuaged patient anxieties regarding their situations, and allowed for the release of pent-up frustrations and hostilities. She observed that humor was employed to alleviate patient concerns in three areas: the self-concept, submission to a rigid authority structure, and adjustment to a rigid routine.

In their investigation of the dynamics of humorous exchanges on the part of patients and staff-members on a psychiatric ward in a V.A. hospital, Kaplan and Boyd (1965) noted a tendency for both patients and hospital personnel to make use of humor in winning others' approval and in fostering a sense of intimacy or familiarity between strangers. Kaplan and Boyd

observed a need on the part of patients to conform to staff expectations and to those of the larger society, to curtail disruptive behavior in other patients, to ameliorate personal anxiety, and to preserve a sense of solidarity. The researchers noted that jokes concerning sexual matters, deviant behavior and overdependency appeared to serve a social control function in that they provided a levelling mechanism with staff-members and a negative sanction for patients as well as facilitating a climate of group cohesiveness. Furthermore, patients were able, through self-deprecating humor, to take a detached view of themselves and the problems they were facing.

Within the patient-health professional relationship, rules in society pertaining to social conduct and to behavior regarding the bodily functions or aspects of personal hygiene are often violated or ignored. Both professional and patient are expected to engage in a frank, open discussion of such topics without embarrassment. Sexual and scatological joking constitute a means of forestalling feelings of embarrassment or of modesty. Furthermore, the male patient, finding himself thrust into a dependent role and forced to adjust his male image accordingly, may avail himself of humor as a means of exercising symbolic control over his affairs and over those around him and may employ humor as a levelling mechanism.

Anthropologists such as Levine (1961, 1968, 1969) have long recognized that the "joking relationship" in various cultures allows for the channeling of sexual and aggressive drives in a socially sanctioned manner. Humor is at once the camouflage, the protective facade through which the unexpressible may find expression...the masking through which the truth may penetrate without the risks attendant upon the direct,

unvarnished expression. The humor prevalent in a given culture reflects the values and apprehensions of its people and may signal the need for social reform (Bergson, 1960/1900; Boskin, 1979; Stephenson, 1959).

Humor From a Psychological Perspective: A Mechanism for Coping with Internal States

Illness, the hospitalization experience, and the need to maintain and to preserve one's health are attendant with a myriad of intrapsychic stresses, often precipitated by external forces or agents. In the view of Robinson (1977), humor served as a coping mechanism for the alleviation of anxiety and stress, an outlet for feelings of hostility and anger, an escape from reality, and a means of easing the psychological burdens associated with crisis, chronic ill health, and death.

Anxiety is one of the more prevalent sources of discomfort which prompt the use of humor. In her classic study of humor within a hospital setting, Coser (1959) noted that patients' anxieties centered around fears concerning themselves in relation to their lack of familiarity with the health-care environment and the rigidity of the hospital structure. Through jesting and lighthearted bantering, patients were able to lessen their uneasiness over impending surgery as well as to reduce feelings of insecurity and concerns over loss of control regarding their situations.

Jokes of a hostile nature have been observed to occur with great frequency within the health-care setting. Such expressions of anger and of frustration, although perhaps difficult for people to accept, signal what some believe to be the most constructive function of humor. Through the use of targetted humor, patients' rage over what they regard as an

uncaring, unresponsive, dehumanizing bureaucracy finds release. There exists within targetted humor the embodiment of a complaint against the system, as well as the expression of a drive to seek more equitable treatment from the system or to effect improvements in it (Coser, 1959; Robinson, 1977). Kaplan and Boyd (1965) noted that staff-directed hostile humor functioned as a morale booster. Furthermore, for psychiatric patients, when such humor is directed at other patients, it lessened the frequency and the intensity of deviant behavior.

Anxiety and anger often result in a denial of reality. Humor is instrumental in smoothing the way for a person to come to grips with the painful realities of illness and impending death. According to Freud's (1927) conception, humor may be differentiated from other mechanisms for the denial of reality (e.g., neuroses, psychoses, and alcoholism) in that humor does not "overstep the bounds of mental health" (p. 163). Mindess (1971) viewed humor as providing a brief respite from reality, temporarily freeing an individual from the restraints of a rational, ordered society. Humor has also proven to be an effective instrument for the neutralization of the negative consequences of trauma, crisis, or death. Moody (1978) noted that patients confronted with disabling and disfiguring accidents, injuries and illnesses employed humor, i.e., jokes targetted at their own stigma, in order to place others at ease.

Humor in Relation to Physiological Functioning

Laughter is an activity with significant ramifications for the biological survival of the human species. Moreover, the absence of laughter, humor, and play has been noted to impair physiological and psychological functioning (Berlyne, 1969).

From the standpoint of many early researchers in the area of humor, laughter is the embodiment of nature's "cure-all" for the troubles of Humankind. Spencer (1980) described laughter as the discharge of nervous excitement. Addressing the issue of the physiological effects of laughter emanating from the excitement of pleasure, Darwin (1872/1965) remarked that "circulation becomes more rapid; the eyes are bright and the colour of the face rises... and the brain, being stimulated by the increased flow of blood, reacts on the mental power" (p. 32). McDougall (1903/1963) defined laughter as an instinct having "survival value," in that it "seems to quicken the respiratory and circulatory processes and...to produce a general sense of well-being and euphoria" (p. 388).

A classical medical treatise by the physician James Walsh (1968) and a later work by Moody (1978) chronicled the recognition of humor's benefits on the part of medical practitioners during the Middle Ages. These books also detailed the development of "humor therapy" and the use of court jesters. Acknowledging that humor involvement was a "potent factor for health" (p. viii), Walsh noted laughter's effects upon the lungs and the increase in the oxidation of the blood that accomplished "the same thorough-going stimulation of inspiration as exercise with spurt" (p. 37).

Koestler (1964) viewed laughter as a complex reflex, commenting that humor is the "only domain of creativity where a stimulus on a high level of complexity leads to a massive and sharply defined response on the level of physiological reflexes" (p. 31). As is the case for tears, said Koestler, laughter "appears to serve no biological function, yet the activity produces such obvious relief that it is certainly something more than a 'luxury reflex.' " (p. 32).

The most comprehensive research into the physiological effects of laughter is that of Fry (1969, 1971, 1977a, 1977b, 1979). He studied the effects of mirthful laughter upon heart rate, oxygen saturation, levels of peripheral blood and upon respiratory phenomena, finding that, in terms of complexity, the physiological impact of humor rivals its psychological impact. Both the arousal and cathartic effects of humor have their analogs within the psychological domain. Unlike other emotions, laughter entails extensive physical activity, and thusly the results of mirth are comparable to those associated with physical exercise. Laughter heightens respiratory activity and the exchange of oxygen, increases muscular activity and heart rate, as well as stimulating the cardiovascular system, the sympathetic nervous system, and the production of catecholamines. These catecholamines in turn stimulate the brain's production of endorphins, the body's natural pain-reducing enzymes. This arousal state is followed by a relaxation state in which respiration, heart rate, and muscular tension return to normal levels. During this relaxation state, the oxygen saturation level of peripheral blood is unaffected, blood pressure decreases, and a state similar to the impact of hearty physical exercise takes hold. The value of such exercise has been well documented. Fry points to the value of humor and laughter in physical health maintenance, specifically in the prevention of cardiac disease, cerebral vascular illness, cancer, and a range of other stress-related conditions (Fry, noted in Mindess, Miller, Turek, Bender, & Corbin, 1985).

According to Schachter and Wheeler (1965), an arousal increase appears to be a necessary precondition for the appreciation of a humor stimulus. In the Schachter and Wheeler study, responses to humor were more favorable in an experimental group injected with epinephrine (high arousal group) than in a control group receiving a saline solution (low arousal group). Goldstein (1970) operationalized reactions to humor in terms of recordings of skeletal/muscular response (reaction time) and reported that latencies of overt humor responses were shorter for the more humorous cartoons. Langevin and Day (1972) disclosed that the amplitude of galvanic skin response was positively correlated with level of humor appreciation. Godkewitsch (1976) employed heart rate and skin conductance as indices of arousal, noting that such arousal was a direct function of the intensity of the humor response.

THE RESEARCH STUDY

Introduction

Objective of Study

The present study seeks to clarify the relationship between joke appreciation and the moderation of stress through an examination of the question of whether knowledge of the level of an individual's favorability toward familiar joke categories will aid in the prediction of the relationship obtaining between the magnitude of event-specific stress (stress having its basis in objectifiable events) or non-event-specific global perceived stress, on the one hand, and levels of two stress-related outcomes, i.e., depression and somatization, on the other.

Review of Relevant Studies

Investigations conducted by Safranek and Schill (1982) and Martin and Lefcourt (1983) furnished the basis for the present research. The two studies sought to examine the relationship between various aspects of humor involvement and stress moderation, and each will be considered in some detail.

Safranek and Schill (1982)

Safranek and Schill (1982) employed psychology undergraduates in an attempt to clarify the role assumed by humor appreciation and usage in the alleviation of stress brought about by life change. In their study, the Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978) provided an assessment of the degree of life stress experienced by students

over the past year. Safranek and Schill made use of two measures of humor involvement: (1) Angell's Humor Use Inventory (1970), a measure of the frequency with which and the extent to which an individual attempts to behave in a humorous manner in various situations, and (2) a measure of humor appreciation consisting of a series of 10 jokes (two examples of each of the following joke categories were included: nonsense jokes, sick jokes, insult jokes, hostile jokes, and sexual jokes) with accompanying ratings scales, yielding an aggregate humor appreciation score representing the sum of the 10 joke ratings. Safranek and Schill also made use of three stress-related-outcome measures: (1) the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); (2) the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970); and (3) the Psychosomatic Checklist (Cox, 1974).

In order to assess the possible stress-moderating effects of humor, Safranek and Schill employed multiple regression techniques in hypothesis-testing format (ex: (stress-related) outcome measure = life stress score + score on measure of humor appreciation/usage + interaction). The researchers conducted separate regression analyses for humor usage and stress and for humor appreciation and stress for each of the three outcome measures (i.e., depression, anxiety, and somatic complaints)—a total of six analyses—but none of the regression coefficients associated with the interaction terms were statistically significant: In the Safranek and Schill study, neither knowledge of an individual's score on the Humor Use Inventory nor knowledge of that person's score on the humor appreciation measure improved ability to predict the strength of the outcome measure beyond that information provided by the life stress score alone. In other words, the magnitude of the relationship between

level of life stress and negativity of outcome was independent of the level of a respondent's involvement with humor.

On the basis of their findings, Safranek and Schill concluded that level of humor appreciation or humor usage, in and of itself, does not appear to effectively moderate life stress, at least not in the broad sense in which it is construed in their research. However, Safranek and Schill did acknowledge the possibility that future research might confirm the value of humor as an agent in the short-term alleviation or reduction of stress in certain situations.

Martin and Lefcourt (1983)

Martin and Lefcourt (1983) proposed that a sense of humor may function as a buffer against the negative consequences of stress. They selected Sandler and Lakey's (1982) Life Events of College Students Checklist as their stress measure in their study and chose six distinct measures of humor involvement: (1) the Situational Humor Response Questionnaire (SHRQ; Martin & Lefcourt, 1981), an assessment of the frequency with which subjects display mirth in various contexts; (2) the Meta-Message Sensitivity subscale of the Sense of Humor Questionnaire (SHQ; Svebak, 1974), a measure of the degree to which subjects report a sensitivity to humorous stimuli in their surroundings; (3) the Personal Liking of Humor subscale of the Sense of Humor Questionnaire (SHQ; Svebak, 1974), an index of the degree to which subjects report valuing humor in their lives; (4) the Coping Humor Scale (Martin & Lefcourt, 1983), a measure of the degree to which subjects report employing humor specifically as a stress-coping mechanism; (5) a measure of humor production, based upon techniques developed by Turner (1980), which asked subjects to create a short comedic

routine based upon common household objects; and (6) a second humor production measure (also based upon techniques of Turner (1980)), one which called for subjects to compose a humorous narrative for a stressful travelogue depicting male initiation rites among the Aboriginies. The Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971) constituted the stress-related-outcome measure in the Martin and Lefcourt study. The POMS yields a Total Mood Disturbance Score representing the aggregation of scores on five negative mood subscales (i.e., tension, depression, anger, fatigue, and confusion) and the subtraction of the score on one positive mood (vigor).

Martin and Lefcourt applied multiple regression techniques to their data and received strong support for their research hypotheses: In the case of all humor measures with the exception of the Meta-Message Sensitivity subscale of the Sense of Humor Questionnaire, humor involvement was found to have a significant moderating effect upon the relationship between negative life events, as measured by the Life Events of College Students Checklist, and overall mood disturbance, as assessed by the POMS. For five of the six humor measures employed in Martin and Lefcourt's study, then, knowledge of a person's score improved the ability to predict the magnitude of the outcome measure (POMS score) beyond that information provided by the life stress data alone. The strength of the relationship between level of life stress and negativity of outcomes was inversely related to level of involvement with humor: Lower correlations were obtained between level of life stress and level of mood disturbance for respondents attaining high scores on the five key measures than for those registering low scores on the measures. Martin and Lefcourt interpreted these findings as confirmation of humor's salutary role in stress reduction.

Safranek and Schill vs. Martin and Lefcourt: A Contrast

Some consideration of the differences in the approaches taken by the Safranek and Schill and the Martin and Lefcourt studies will help clarify the research inconsistencies which in part have prompted the present study. First of all, the two investigations differed with respect to the nature and the number of the moderator (humor-related) measures used: Martin and Lefcourt employed five measures of humor involvement, four of which were measures of active as opposed to passive involvement; Safranek and Schill employed one measure of active and one measure of passive humor involvement (the latter consisting of a joke ratings questionnaire). The contradictory findings emanating from the two studies may be partially attributable to the broader range of humor-related measures incorporated into Martin and Lefcourt's study, in addition to these researchers' heavier reliance upon measures tapping active aspects of involvement with humor (i.e., humor usage or production). Stress may be more effectively ameliorated through active rather than passive humor involvement (i.e., receptivity to jokes). Another distinction between the Martin and Lefcourt and the Safranek and Schill studies which may account for the divergent findings pertains to the nature of the outcome measures employed by each. Martin and Lefcourt employed the Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971), an index of generalized mood as the criterion measure, whereas Safranek and Schill selected a trio of outcome measures (the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970); and the Psychosomatic Checklist (Cox, 1974). It is uncertain as to whether the moderating effects of humor upon stress, to the extent that they do operate, would

be as evident from the administration of an anxiety or a depression measure, such as was employed by Safranek and Schill, as they would from the administration of a measure of generalized mood state, such as the POMS in the Martin and Lefcourt study. Due to their limited scope, measures of depression or anxiety may be less sensitive to minor changes in a person's overall psychological health or outlook occurring as a result of exposure to and/or active involvement with humor.

The Present Study: An Extension of Prior Research

The present investigation is an advance over previous studies in three respects:

(1) The present study focuses upon level of joke hostility, a humor-related variable whose function within the context of the humor involvement—stress moderation relationship has not received research attention. The dichotomization of jokes into hostile targetted and non-hostile, non-targetted forms is expected to yield interesting findings with respect to the differential effectiveness of various types of humor in the amelioration of stress.

(2) In addition to making use of a measure of event-specific stress (the Stress scale of the Psychological Distress Inventory (PDI; Lustman, Sowa, and O'Hara, 1984)), as was typical of previous studies of humor involvement and stress moderation, the present study incorporates into its design a recently developed measure of non-event-specific global

perceived stress, the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), one which bases its stress score not upon the effects of specifiable life events but rather upon respondent reactions to and feelings and thoughts regarding being stressed.

(3) The present study employs a relatively comprehensive measure of humor/joke appreciation comprised of several examples each of four familiar joke types. The inclusion of a 20-item humor appreciation measure more satisfactorily approximates the methodological requirement for a sufficiently broad index of humor appreciation than does the 10-item measure featured in the Safranek and Schill (1982) experiment.

Experimental Hypotheses

The present study was guided by the proposition that an appreciation for certain types of jokes constitutes an effective buffer against the deleterious effects of stress, e.g., somatic complaints and depression. A pair of research hypotheses were derived from this research objective.

Hypothesis I

Hypothesis I proposes that an appreciation for targetted (other-directed) jokes will moderate or buffer stress reactivity, i.e., lessen the magnitude of the relationship between event-specific or global

perceived stress, on the one hand, and two measures of illness outcome, i.e., somatization or depression, on the other hand. Hypothesis I predicts that there will be an interaction between level of appreciation for hostile targetted jokes and level of event-specific or non-event-specific global perceived stress, an interaction which will manifest itself as follows: For individuals scoring high in appreciation for hostile targetted jokes, the relationship between event-specific stress or non-event-specific global perceived stress and somatization or depression will be weaker than for those individuals registering low scores for appreciation of hostile targetted jokes. In other words, the stress-moderating influence of a favorable orientation toward hostile targetted jokes would be expected to manifest itself only under the condition wherein a high level of event-specific or non-event-specific stress obtains.

Hypothesis II

This hypothesis posits that certain types of humor are more effective in the amelioration of stress than are others: For the criterion measures of somatization and depression, Hypothesis II states that the magnitude of the stress-moderating effect of an appreciation for hostile targetted jokes will be greater than that associated with an appreciation for non-hostile, non-targetted jokes. It is argued here that hostile targetted jokes are more facilitative of stress reduction, as they allow for a discharge of aggressive energy or tension through the humor which they embody (humor which occurs at the expense of some target, or "butt," usually some individual, group, or category of people), whereas non-hostile, non-targetted jokes do not. Hypothesis II, then, predicts that the interaction between level of appreciation for hostile targetted jokes

and level of event-specific or non-event-specific global perceived stress will be of a higher magnitude than the interaction between level of appreciation for non-hostile, non-targetted jokes and level of either type of stress.

Hypothesis III

The supplementary research hypothesis, Hypothesis III, proposes that level of appreciation for hostile targetted jokes, and, to a lesser extent, favorability toward non-hostile, non-targetted jokes will moderate the relationship between the number of negative events experienced within a specified period of time—an index of objective stress—and level of non-event-specific global perceived stress. According to Hypothesis III, a high level of appreciation for hostile targetted jokes or a high level of favorability toward non-hostile, non-targetted jokes lessens the likelihood that a given number of negative events will be translated into feelings of generalized stress. In other words, Hypothesis III predicts that there will be an interaction between level of appreciation for either joke type and level of objective stress: For individuals scoring high in appreciation for either joke type, the relationship between objective stress and global stress will be of lower magnitude than that same relationship for individuals scoring low in appreciation for either joke type.

Experimental Design

The present study employed a within-subjects design: All research participants completed the series of five measures, which are described in the section entitled, "Stimuli."

Method

Research Participants

Respondents for the present study were undergraduates enrolled in psychology courses in the New York Metropolitan Area colleges. During the course of data collection, a total of 223 data sets were gathered. Seventy-nine sets (41 females, 38 males) were eliminated from data analysis, 41 due to their having been incompletely filled out, 33 because they had been completed by individuals for whom one or more of the hostile jokes were self-referent (i.e., targetted that person's ethnic membership group), and 5 owing to respondent difficulties with written and/or spoken English. The final research sample upon which data analyses were performed consisted of data sets from 86 females and 56 males.

Stimuli

A series of five measures was employed in the present study. These measures were presented in booklet form, with the order of administration as follows: (1) the 20-item Stress scale of the Psychological Distress Inventory (PDI; Lustman, Sowa, & O'Hara, 1984), a measure of event-specific stress; (2) the 14-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), a measure of non-event-specific global perceived stress

(stress-associated thoughts, feelings, and reactions); (3) the 21-item Beck Depression Inventory (BDI; Beck, Mendelson, & Erbaugh, 1961), a measure of psychological distress; (4) the 12-item Somatization scale of the Hopkins Symptom Checklist (HSCL; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), a measure of somatization; and, finally, (5) a measure of humor appreciation consisting of 20 jokes with accompanying rating scales. The final page of the booklet solicited information on respondent demographics: age, sex, ethnicity, and fluency of written and spoken English. Appendix A presents samples of each of the experimental measures along with a specimen demographics sheet. Each of the stimulus measures will be described in the order of its presentation in the booklet.

The Stress Scale of the Psychological Distress Inventory: An Event-Specific Measure of Global Perceived Stress. The Psychological Distress Inventory (PDI; Lustman, Sowa, & O'Hara, 1984) is a recently developed instrument designed primarily as an assessment of life stress in college-age populations. Although the PDI Stress scale is the subscale of interest in the present study, the PDI is also comprised of subscales tapping somatic discomfort, anxiety, and depression.

The Stress subscale of the PDI consists of 20 items which are correlated with the amount of negative perception of experienced life events (e.g., Item 5: "Break-up with girlfriend or boyfriend" and Item 12: "Failure to graduate as expected"). Respondents completing this subscale were asked to indicate those events from a series listed which they themselves had experienced within the past year and then to rate the negativity or aversiveness of each experienced event on a Likert Scale ranging from "1" ("not at all aversive") through "5" ("extremely aversive").

Ratings scores of experienced events were summed to yield a total score for event-specific stress.

The PDI was standardized upon several samples of college males and females. Lustman, Sowa, and O'Hara (1984) reported the results of an analysis which was conducted to ascertain the effects of the moderator variables of age and sex on PDI data: A multivariate analysis employing sex and age level (i.e., the age group 17-21 vs. 22-25 vs. 25+) as covariates disclosed no significant differences on any of the PDI scales as a function of either factor, nor was the interaction effect involving sex and age found to be statistically significant.

Reliability estimates for the PDI subscales were obtained using both split-half and test-retest methods. Results will be reported here for the PDI Stress scale only: An internal consistency test performed on PDI Stress scale data yielded an alpha reliability coefficient of .64 ($p < .001$, $N = 242$); test-retest reliability was also high, with a coefficient of .80 ($p < .001$, $N = 52$) reported for the Stress scale. These reliabilities were computed for college-age volunteers with a six-week time interval between administrations. Considering that any measure purporting to assess stress level is, in effect, a measure of dynamic state, finding a test-retest reliability of this magnitude is impressive.

In a research study conducted in support of the construct validity of the PDI subscales, scores obtained for each of the PDI subscales were correlated with the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970), a measure of anxiety; the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); the Cornell Medical Index (CMI; Brodman, Erdman, Lorge, & Wolff, 1949), an assessment of ill health; and the Life Stress Questionnaire (LSQ; Lustman,

Sowa, & Day, 1981), a measure of stress. The PDI Stress scale correlated significantly with both the BDI ($r = .44$, $p < .001$) and the LSQ ($r = .74$, $p < .001$), indicating a satisfactorily high level of construct validity.

In order to ascertain the effects of response set on the PDI, Lustman and his associates computed the correlations for their PDI subscales with the Marlowe-Crowne Social Desirability Scale (M-C; Strehan & Gerbasi, 1972). None of the resulting correlations were significant, indicating that the PDI subscales are relatively free from social desirability contaminants.

Research into the concurrent validity of the PDI subscales involved respondent completion of the measure, along with BDI items and a demographics sheet calling for information pertaining to respondents' current stress level (high, moderate, or low) and whether or not they were then undergoing psychotherapy outside of the school counselling center. Through the use of univariate *F*-tests, three discriminant analyses were computed for data from the PDI subscales. The results of these analyses contrasted students who reported receiving psychological help only from the nearby school counselling center with those not receiving assistance within the past year. For a reason not specified in their report, Lustman et al. excluded from their analyses persons who had reported receiving help outside of the school center and individuals who had sought the aid of the center but who were not assisted. The PDI Stress scale scores for help-seekers did not differ significantly from the scores of non-help-seekers. Results of the second and third discriminant analyses were more favorable: PDI Stress scale scores for a psychologically depressed student group (BDI scores >10; Hollan & Kendall, 1980) were significantly higher than those obtained by a non-depressed criterion

group (BDI scores <10), the PDI Stress scale scores here effectively differentiating students according to level of depression; the final discriminant analysis compared PDI Stress scale scores for students reporting a low level of stress in their lives with students who had indicated high stress levels: Scores on the PDI Stress scale successfully discriminated between stress levels, with highly stressed students obtaining higher scores on the PDI Stress scale than did unstressed students.

In general, studies of life stress have reported modest correlations between life-change scores and dependent measures (Sarason et al., 1978). In contrast, all validity coefficients involving the Psychological Distress Inventory subscales were highly significant statistically ($p<.001$). That the level of concurrent validity associated with the PDI represents an improvement over other measures of its type may be attributable to the PDI's format: Respondents are allowed to rate the degree of impact for each experienced event. The PDI's effectiveness in discriminating among students with varying degrees of psychological distress provides initial confirmation for the research and clinical utility of the measure.

The Perceived Stress Scale: A Non-Event-Specific Measure of Global Perceived Stress. The Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) is a 14-item instrument designed to assess the degree to which situations in one's life are appraised as being stressful. Items on the PSS all pertain to thoughts, feelings, or reactions which are stress-related. Seven of the 14 scale items (4, 5, 6, 7, 10, and 13) are positively phrased; the remaining seven (1, 2, 3, 8, 11, 12, and 14) are negatively phrased. The PSS asks a respondent to indicate on a

scale ranging from "0" ("never") through "4" ("very often") the frequency with which he/she has had a particular thought or feeling associated with stress. An individual's total score on the PSS is obtained through a reversal of the scores on the seven positive items (i.e., 0 = 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0) and adding the results to the scores for the seven negative items.

Unlike the PDI Stress scale, a measure of event-specific stress, the PSS is a measure of non-event-specific global perceived stress. The distinction between stress measures which are event-specific and those which are non-event-specific is an important one from the standpoint of stress research. An event-specific measure of stress, such as the Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978) employed in the Safranek and Schill (1982) study, or the Life Events of College Students Checklist (Sandler & Lakey, 1982) used in the Martin and Lefcourt (1983) study, asks respondents to indicate which one of a number of potentially unpleasant events listed actually occurred in their lives within the past six-month or one-year period and then to assign weights to each of these experienced events in terms of how aversive they found those events to be. Event-specific measures of stress yield a cumulative life-stress score based upon the sum of the weightings of the experienced events. In contrast, non-event-specific measures, such as the PSS, emphasize the subjective experience of being or feeling stressed (the experience of global stress), with such items as "How often have you felt nervous and 'stressed'?" or "How often have you felt that you were about to lose control over your life?" Assessments of non-event-specific stress yield a stress score for each respondent based upon the summation of the reported frequencies of occurrence for the various stress-related reactions or feelings listed.

Reliance upon an event-specific measure of stress as the chosen measure within a research study in lieu of employing both event-specific and non-event-specific measures within the same design has certain drawbacks: First of all, event-specific stress measures are not sensitive to chronic stress due to ongoing life circumstances, to stress which is derived from events occurring in the lives of family members or close friends, to stress arising from expectations concerning future events, or to stress arising from events not included in the scale listing. That such instruments cannot reflect all potential sources of tension operating within a respondent's life prevents their use as indices of generalized or global stress. Furthermore, event-specific stress measures are of no predictive value in the case of respondents to whom none of the listed events have occurred or for whom experience or cultural background renders certain events non-threatening or non-stressful. Assessments of global stress possess the distinct advantage of a built-in sensitivity to chronic stress generated by ongoing life circumstances, to stress from expectations concerning future events as well as reflecting stress due to events not included in the event listings of life-events-based measures.

In addition to satisfying certain of the objections raised in opposition to measures of event-specific stress, use of the PSS provides benefits such as scale brevity, ease of administration, the inclusion of items which are succinctly and unambiguously worded, and item content which is culture-fair.

The formulators of the PSS reported the results of studies of internal consistency for their measure: For college-age respondents, Coefficient Alpha reliabilities were .84 and .85. The creators of the PSS point out

the difficulty of obtaining satisfactorily high test-retest reliabilities when dealing with measures of dynamic state, and reported that, in a college-age population, such correlations were subtantially higher for the PSS over brief retest intervals (such as several days) than for lengthier ones (6 weeks or more). In terms of the face validity of the PSS, scale items were formulated specifically to assess the degree to which individuals regarded their lives as unpredictable, uncontrolled, and overloading. Factors of unpredictability, lack of control, and overload have been consistently pinpointed as the central components of the stress experience (Averill, 1973; Cohen, 1978; Glass & Singer, 1972; Lazarus, 1966, 1977; Seligman, 1975).

Research in support of the concurrent validity of the PSS reported correlations between the various scales of the PSS and the College Student Life Event Scale (CSLES; Levine & Perkins, 1980) ranging from .20 to .35, indicating a statistically significant albeit rather weak relationship.

In terms of the predictive validity of the PSS, the scale's authors argued that, as the instrument was designed specifically to tap the generalized level of stress actually experienced by an individual, not merely stress reactions associated with specific events, their measure would improve predictability of stress-associated illness beyond the level of accuracy available from event-based stress measures. As a test of this expectation, Cohen et al. correlated PSS scores and scores on the CSLES with a pair of measures of stress-related outcomes: the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), a measure of current level of depressive symptomatology, and the Cohen-Hoberman Inventory of Physical Symptoms (CHIPS; Cohen & Hoberman, 1983), a checklist of common physical complaints. Cohen et al.'s expectations

were confirmed for both depressive and physical symptomatology: Correlations between the PSS and the CES-D and the PSS and the CHIPS were .76 and .65, compared to .23 and .32 respectively for the CSLES/CES-D and CSLES/CHIPS correlations (all respondents in these studies were of college-age).

Furthermore, the PSS was found to be a more accurate predictor of social anxiety in a pair of college samples than was the CSLES. The Social Avoidance and Distress Scale (SADS; Watson & Friend, 1969), an instrument which taps both the desire to avoid contact with others (social avoidance) and the experience of distress in social interaction (social distance), was selected as the measure of social anxiety. The correlations between PSS scores and social anxiety scores attained a higher level of statistical significance ($r = .37$ and $r = .48$ for the samples, $p < .001$) than was observed for the correlations between CSLES scores and social anxiety scores ($r = .13$, $p < .02$ for one sample; $r = .26$, $p < .01$ for the second sample).

One disadvantage of employing a measure of non-event-specific global perceived stress is its open-ended nature. Responses to items such as "In the last month, how often have you felt nervous and 'stressed' ?" may be as reflective of stress-related outcomes such as physical illness or depression as they are indicative of level of present stress. The intent behind the PSS is, after all, the prediction of <u>future</u> illness rather than the mere assessment of the consequences of <u>current</u> illness. In order to preclude the possibility of a distortion of results owing to this dual nature of certain of the items of the PSS, the following passage was appended to the PSS instructions: "If you have had any physical illness within the past month, please try to answer the

questions as if you had not been sick. Do not consider your illness in making your responses." In effect, research participants were being cautioned to discount the effects of physical disorders in their appraisals of stress-related thoughts, feelings, and perceptions.

In short, the PSS seems to be a sound choice as an assessment of stress. The instrument has a satisfactory level of reliability and has been correlated with a number of other instruments, among them a life-events-based stress measure, an index of social anxiety, and measures of depressive and physical symptomatology. For all comparisons cited, the PSS proved a better predictor of the outcome in question—be it somatization, anxiety level, or magnitude of depression—than were results forthcoming from a measure of event-specific stress. An additional benefit to be derived from the use of the PSS is the novel perspective it affords from which to examine the interrelationship between humor and stress.

The Beck Depression Inventory: A Measure of Psychological Distress. The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) has had a wide application as an assessment of depth of depression. Beck formulated a listing of 21 categories of symptoms and attitudes associated with depression (e.g., loss of interest in social contacts, feelings of being a failure, insomnia, feelings of pessimism, etc.), each category being represented in the BDI by a separate series of four symptom statements (the four statements together comprising one BDI item), with the statements assigned weights ranging from 0 to 3 score points depending upon the intensity of the particular symptom which is being expressed.

Assessing as it does the level or depth of depression, the BDI is a measure of dynamic state; test-retest reliabilities are consequently rather

low. Internal consistency for the BDI is high, however, with a corrected split-half reliability coefficient of .93. Furthermore, all item-scale correlations were statistically significant ($p < .01$). The BDI was validated on a college-age sample by Bumberry, Oliver, and McClure (1978), who also reported a significant correlation between students' BDI scores and psychiatrists' ratings of students' distress ($r = .77$, $p < .001$).

The Somatization Scale of the Hopkins Symptom Checklist: A Measure of Somatic Complaints. The Hopkins Symptom Checklist (HSCL; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) is a self-report rating scale of physical symptomatology thought to be stress-related. Although a number of revisions of the original HSCL have become available, the basic instrument consists of 58 items representing five primary symptom dimensions or scales: somatization, depression, anxiety, obsessivity-compulsiveness, and interpersonal sensitivity. The present study employed only the Somatization scale, which will serve as the focus of the discussion.

The HSCL Somatization scale is comprised of 12 items pertaining to a wide range of physical symptoms. Respondents are asked to indicate *those symptoms which they themselves have experienced within the past* month and then to rate the aversiveness of these symptoms along a 5-point scale ranging from "1" = "not at all aversive" through "5" = "extremely aversive." A respondent's total score on the Somatization scale is determined through a summation of the ratings for the relevant items.

Considerable attention has been given to research into the psychometric properties of the HSCL. In one study, the HSCL was administered to a group consisting of 1435 individuals diagnosed as anxious neurotics. The reliability coefficients for the HSCL in general and for the Somatization scale in particular were impressive: For the Somatization scale

data, an internal consistency (split-halves) analysis yielded an alpha coefficient of .87; item-total scale correlations for the various items comprising the Somatization scale ranged from .57 to .75, indicating a significant degree of shared variance among scale items. A test-retest reliability analysis was performed on HSCL data obtained from a subsample of 425 anxious neurotic outpatients, all of whom were evaluated on two separate occasions (one week apart) prior to the initiation of psychotherapeutic treatment. The resulting test-retest reliability coefficient of .82 for the Somatization scale indicated that score stability for the scale across a one-week period is satisfactorily high. The inter-rater reliability for the Somatization scale was calculated to be .73 for an individual rater and considerably higher for pairs of raters. This level of consistency falls well within the range of acceptability for the majority of clinical observers' ratings scales and is strikingly high considering the small number of raters involved and the self-report rather than clinical nature of the HSCL subscales. Based upon the various reliability estimates cited, then, the Somatization scale of the HSCL possesses a high degree of reliability.

A study by Derogatis, Lipman, Covi, Rickels, and Uhlenhuth (1970) provided evidence in support of the construct validity of the HSCL. Each one of the HSCL clusters or dimensions, as defined by expert clinicians, was contrasted with the empirical symptom dimensions (factors) which resulted from the application of factor-analytic techniques to 837 patient ratings made by psychiatrists. These clusters constituted an operational definition of the hypothetical symptom constructs as provided by the clinical-rational experience of the clinicians; the factors furnished an empirical measure of the manner in which the various symptoms

co-occurred in clinical reality. Derogatis and his colleagues reported a high level of agreement between the two sets of symptom structures, indicating considerable validity for the constructs as defined in this manner.

A number of studies have furnished evidence for the criterion-related validity of the HSCL subscales, most employing sensitivity to the effects of psychotropic drugs as their criterion measure. As a result of several collaborative studies (Lipman, Park, & Rickels, 1966; Rickels, Lipman, Park, Covi, Uhlenhuth, & Mock, 1971; and Uhlenhuth, Rickels, Fisher, Park, Lipman, & Mock, 1966) with anxious neurotic outpatients, it was reported that the symptom dimensions of the HSCL are sensitive to the treatment effects associated with anti-anxiety drugs; the HSCL scales have also been found to be sensitive to the symptoms associated with minor withdrawal phenomena from the milder tranquilizers (Covi, Park, Lipman, Uhlenhuth, & Rickels, 1969). Hesbacher, Rickels, Hutchison, Sablosky, Whalen, and Phillips (1970) reported sensitivity for all of the HSCL subscales to the effects of various drug treatments for anxiety.

In lieu of employing sensitivity to drug effects as a criterion variable, certain research studies in support of the validity of the HSCL scales have selected sensitivity to distinctions in clinical status as the criterion measure. Rickels, Lipman, Garcia, and Fisher (1972) compared the distress levels recorded at initial visit in gynecologically normal female patients with those found at post-treatment in anxious neurotic outpatients on the symptom dimensions of the HSCL. Gynecological patients were classified as either emotionally "labile" (i.e., mildly tense or anxious) or as "nonlabile" by their treating physician, whereas neurotic patients were designated by several independent

raters as "unimproved," "mildly improved" or "markedly improved" following a drug treatment program. These categorizations resulted in five distinct groups. Results of the study were highly consistent in that the rank-ordering of the five groups on all five of the HSCL dimensions paralleled exactly the rank-ordering of these groups in terms of their adjudged stress levels: The lowest HSCL scores were recorded for the gynecologically "nonlabile" group (evaluated as being the least clinically distressed); the highest HSCL scores were obtained by the "unimproved" neurotics (evaluated as being the most clinically distressed).

In summation, the HSCL, of which the Somatization scale is a part, is a reliable, valid instrument for the evaluation of stress-related symptoms. A sizable body of research has demonstrated the measure's sensitivity to alterations in clinical status occurring as a result of multiple therapeutic as well as treatment factors.

Measure of Humor Appreciation: The Printed Joke Stimuli. The assessment of humor appreciation employed in the present study consisted of a series of 20 printed jokes (10 of which were hostile targetted (other-directed) in nature, and 10 of which were non-hostile, non-targetted in nature). Each joke was accompanied by a 6-point rating scale (where "1" = "not at all amusing" and "6" = "extremely amusing"). For each respondent, ratings for the various jokes were summed to yield an overall joke appreciation score. Furthermore, ratings for the 10 hostile targetted jokes and for the 10 non-hostile, non-targetted jokes were summed independently for each subject to yield, respectively, an appreciation score for hostile targetted jokes and for non-hostile, non-targetted jokes. The breakdown of joke stimuli as presented to male and to female subgroups was as

follows:

male respondents rated:

- 10 hostile targetted jokes
  - 5 anti-female (sexist) jokes
  - 5 ethnic-racial jokes
- 10 non-hostile, non-targetted jokes
  - 5 pure sexual jokes
  - 5 absurd-nonsensical jokes

female respondents rated:

- 10 hostile targetted jokes
  - 5 anti-male jokes
  - 5 ethnic-racial jokes
- 10 non-hostile, non-targetted jokes
  - 5 pure sexual jokes
  - 5 absurd-nonsensical jokes

Jokes which are self-referent for a given respondent tend not to be evaluated as favorably as are other hostile targetted jokes. Consequently, in order to minimize evaluator bias in rendering joke amusement ratings, anti-male jokes were excluded from those jokes to be rated by male respondents, and, similarly, anti-female jokes (sexist jokes) were excluded from those jokes presented to female respondents.

The 25 jokes which were employed in the experimental phase of the research were the result of a piloting of a pool of 42 jokes representing five of the more prominent joke categories. Four standardized compilations of humor available in the psychological literature (Cattell & Tollefson, 1949-1966; Hahner, 1979; Hassett, 1978; and Mindess, Miller, Turek, Bender, & Corben, 1985) provided source material for the jokes to be rated. One aspect of the pilot phase of the study involved the solicitation of amusement ratings for the initial pool of joke stimuli. All jokes chosen

for inclusion in the experimental phase humor appreciation measure had been evaluated in the piloting as being of "moderate" funniness, i.e., as having a mean amusement rating ranging from 1.5 to 2.5 on a 6-point scale ranging from "0" ("not at all amusing") through "5" ("extremely amusing"). Furthermore, jokes selected for the experimental phase humor appreciation measure all met the criterion of having received comparable funniness ratings from male and female subgroups. A second aspect of the pilot phase of the research involved the validation of the hostile targetted joke—non-hostile, non-targetted joke dichotomy in the 25 jokes selected for the experimental phase. Toward this end, a second group of respondents were asked to render evaluations of the 25 jokes along the dimension of hostility. It was noted that jokes which had been designated a-priori as "hostile targetted" in nature were consistently rated by student respondents as more hostile than were those jokes categorized a-priori as "non-hostile, non-targetted." Additionally, in order to avoid a confounding of joke funniness level with level of joke hostility, care was taken in the piloting phase of the research to select only those non-hostile, non-targetted jokes adjudged by student evaluators as comparable in funniness to the hostile targetted jokes.

Procedure

The researcher made an appearance in the classroom, provided his name and academic affiliation, and proceeded as follows:

> I would appreciate your assistance with a research study I am involved in. My work concerns the relationship between important life events, certain personality characteristics or traits, and the ways in which people such as yourselves experience and react to various types of jokes. Participation in this study is, of course, voluntary; you need not take part if you do not wish to do so. Those of you who do participate

> will be completing four questionnaires, and then rating a series of 20 jokes.
>
> Each of you who takes part in the study will be provided with a booklet containing the four questionnaires along with the series of jokes. Please read all instructions carefully before completing each form and be sure to use a slash mark when you are rating the jokes or when responding to any other items involving ratings scales. At the end of the booklet, you will find a sheet which asks you to tell me your age, your sex, and so forth. Please do answer that one when you come to it, as I plan to use this information in several data analyses having to do with student characteristics or demographics. Finally, I wish to emphasize that your responses will be completely anonymous; please do not place your name or any other identifying information on any of the forms except that which is specifically asked for on the demographics sheet. The data forthcoming from this study will be released only in the aggregate; no individual data will be made public. So, if you're willing to help me with this, and I do hope that you are, please study the instructions with care, complete all forms, and then there'll be time for us to discuss my research. Thank you.

Each participant was provided with a booklet containing the five research measures in addition to the demographics sheet. A period of approximately thirty minutes was allocated for completion of questionnaires, after which a de-briefing session was conducted in which student reactions and comments were solicited and the rationale for the study outlined in detail.

Results

Descriptive Statistics

Demographic characteristics for respondents in the present study are provided in Table 1. Results for white and non-white respondent subgroups were compared with respect to scores on the principal measures; no inter-group differences were found. With the race-of-participant factor discounted as a relevant consideration in the present study, data analysis proceeded along the lines of a cross-sex comparison.

Table 1

Demographic Characteristics of Research Participants (N = 144)

Respondent Sex	Age Distribution				Ethnic Breakdown	
	17-22	23-28	29-34	35+	White	Non-White[b]
Female (n = 86)	67	8	9	2	35	51
Male (n = 58)	44	2	7	5	30	28

[a]Includes the sub-categories "White Irish," "White Italian," "White German," "White Polish," and "Other White of European Descent."

[b]Includes the sub-categories "Non-Mexican Hispanic," "Black," "American Indian," "American Eskimo," "West Indian," and "Other."

Table 2 provides descriptive statistics for all measures in the present study, broken down by respondent sex. The comparisons between male and female subgroup means along the principal research dimensions, as well as the range of the score distributions, will be discussed.

Table 2

Descriptive Statistics for Principal Measures

Measure	Subgroup	N	Min. Score	Max. Score	Mean[a]	S.D.	Range
Appreciation Score, Hostile Jokes	Females	86	0	50	20.53	9.16	1 - 43
	Males	58	0	50	20.86	9.63	4 - 43
Appreciation Score, Non-Hostile Jokes	Females	86	0	50	20.35	8.73	5 - 44
	Males	58	0	50	21.83	8.81	5 - 43
Event-Specific Stress Score (PDI)	Females	86	0	100	23.49	15.26	3 - 80
	Males	58	0	100	26.66	14.40	3 - 60
Global Perceived Stress Score (PSS)	Females	86	0	56	29.27*	7.46	15 - 49
	Males	58	0	56	25.81*	7.70	9 - 47
Somatization Score (HSCL)	Females	86	12	60	22.05	6.76	13 - 45
	Males	58	12	60	21.00	6.65	12 - 38
Depression Score (BDI)	Females	86	0	63	11.40	8.68	0 - 38
	Males	58	0	63	9.12	7.44	0 - 29

Note. For all measures, the higher the score, the greater the degree of the variable observed.

[a]Two-tailed tests of the significance between subgroup means were conducted for all measures.

*$p < .01$.

From an inspection of Table 2, it is seen that male and female subgroups differed only with regard to level of non-event-specific global perceived stress, as measured by the PSS, with females registering significantly higher scores on this measure of thoughts, feelings, and perceptions relating to the stress experience ($\underline{M}$ for females = 29.27 vs. $\underline{M}$ for males = 25.81; $\underline{t}$ = 2.69, df = 142, $p < .01$). Although the difference between male and female subgroup means on the PDI Stress scale, the measure of event-specific stress, was not significant statistically ($\underline{M}$ for males = 26.66 vs. $\underline{M}$ for females = 23.49; $\underline{t}$ = 1.25, df = 142, $p > .05$), it is worth noting that analysis of the data involving subgroup mean scores on the two components of the PDI Stress scale score (i.e., <u>number of PDI Stress scale events experienced during the prior six-month period</u> and <u>average negativity rating across all experienced events</u>) yielded differences for both components: Whereas males on the average reported having experienced a greater number of the PDI events as listed than did females during the most recent six-month period ($\underline{M}$ for males = 7.95 vs. $\underline{M}$ for females = 6.48; $\underline{t}$ = 2.04, df = 142, $p < .05$), females assigned higher average aversiveness ratings to those events experienced ($\underline{M}$ for females = 3.71 vs. $\underline{M}$ for males= males = 3.40; $\underline{t}$ = 2.51, df = 142, $p < .05$). The net result of these two comparisons between subgroup means was an average male-female difference on the variable of overall PDI Stress scale score which was not statistically significant.

The frequency distributions of scores for male and female respondent subgroups for the principal measures in the present study are presented as Figures 1A through 6B in Appendix A.

For both respondent subgroups, the score distribution for each of the seven principal measures was subjected to a skewness test, an indi-

cator of the extent to which a given score distribution approximates a normal curve. In order to justify the application of parametric statistics to the score distributions, the resulting coefficients of skewness must fall within the range of -2 (negatively skewed) to +2 (positively skewed). For the male respondent subgroup, the skewness coefficients ranged from +.193 to +.953; for the female respondent subgroup, the values of such coefficients ranged from +.154 to +1.186. The criterion of distributional normality and hence the appropriateness of the application of parametric statistics to the research data have been established.

In addition to the factor of skewness, degree of score dispersion was employed as a criterion to evaluate the distributions obtained in the present study. Although the score distributions were seen to be satisfactory approximations to normal curves, certain of the distributions were rather restricted in nature (i.e., confined to a portion or segment of the theoretical scoring range). As Figures 1A and 1B illustrate, male and female subgroup score distributions for hostile targetted joke appreciation are rather well-dispersed over the theoretical scoring range, with some gaps occurring at the upper extreme of the range. Figures 2A and 2B confirm that the same holds true for male and female subgroup score distributions for the measure of appreciation of non-hostile, non-targetted jokes. From an inspection of the remaining figures in Appendix A, it is evident that, with the exception of the measure of global perceived stress (Figures 4A and 4B for male and female subgroups, respectively), score distributions for the non-humor measures are somewhat to markedly restricted: (1) scores on the Stress scale of

the PDI (Figures 3A and 3B for male and female subgroups, respectively) tended to concentrate at the lower end of the theoretical scoring range for both male and female subgroups, with only 8.62% of males (5 out of 58 scores) and 5.81% of females (5 out of 86 scores) exceeding the midpoint of the theoretical scoring range, indicating that this sample experienced (or at least reported) a relatively low level of event-based stress as measured by the PSS Stress scale; (2) HSCL Somatization scale score distributions for male and female subgroups are somewhat restricted, given the theoretical scoring range for this measure, with only 12.07% of males (7 out of 58 scores) and a comparable 12.97% of females (11 out of 86 scores) exceeding the midpoint of the theoretical scoring range and no scores falling at or near the theoretical range's upper extreme, signifying the presence of a relatively low level of somatization in this sample; and, finally, (3) BDI scores for both respondent subgroups are clustered at or near the lower extreme of the measure's theoretical scoring range, with 81.03% of males (47 out of 58 scores) and 70.93% of females (61 out of 86 scores) falling below the lowest quartile (one-quarter point) of the range, indicating a markedly low level of psychological distress as measured by the BDI.

Intercorrelations Between Pairs of Measures

The results of correlations performed among the various predictor, criterion and moderator variables used in the present study are given in Table 3, broken down by respondent subgroup. From an inspection of the table, it is evident that certain of the correlations are statistically significant.

Table 3

Intercorrelations Among Predictor, Criterion and Moderator Variables

Variable	Respondent Subgroup	N	Appreciation Score Hostile Jokes	Appreciation Score, Non-Hostile Jokes	Event-Spec. Stress Score	Global Perceived Stress Score	Somatization Score	Depr.. Score
Appreciation Score, Hostile Jokes	Females	86	1.00					
	Males	58	1.00					
Appreciation Score, Non-Hostile Jokes	Females	86	.72****	1.00				
	Males	58	.88*****	1.00				
Event-Specific Stress Score (PDI)	Females	86	.14	.11	1.00			
	Males	58	-.05	-.04	1.00			
Global Perceived Stress Score (PSS)	Females	86	-.02	-.03	.27**	1.00		
	Males	58	.00	-.10	.29*	1.00		
Somatization Score (HSCL)	Females	86	-.05	.07	.28**	.35****	1.00	
	Males	58	.11	.05	.39***	.39***	1.00	
Depression Score (BDI)	Females	86	.01	-.04	.28***	.67*****	.37****	1.00
	Males	58	.12	.11	.31**	.62****	.26*	1.00

Note. All r's are Pearson Product-Moment Correlation Coefficients.

*p<.05. **p<.01. ***p<.005. ****p<.001. *****p<.0001.

For both male and female respondent subgroups, a significant positive correlation was obtained between appreciation for hostile targetted jokes and appreciation for non-hostile, non-targetted jokes. This significant correlation resulted from the screening process which occurred during piloting of the joke stimuli, one objective of which was to obtain selections of hostile targetted jokes and non-hostile, non-targetted jokes comparable in amusement or funniness level. In the absence of any information pertaining to the correlations for the two respondent groups between appreciation scores for each of the two joke types, the parity that was obtained between the two joke selections in terms of mean amusement level could be interpreted in either of two ways: (1) as an indicator that respondents, by and large, tended to evaluate the non-hostile, non-targetted jokes as a group at about the same level of favorability as they did the hostile targetted jokes as a group (i.e., a given respondent might indicate either a high, a moderate, or a low level of appreciation for both types) or (2) as a consequent of roughly equivalent numbers of raters within each subgroup expressing strong preferences for each type (i.e., comparable numbers of respondents indicating either a high level of appreciation for hostile targetted jokes and a low to moderate level of favorability toward non-hostile, non-targetted jokes or the reverse pattern). In view of the high positive correlation disclosed between amusement ratings of hostile targetted jokes and those of non-hostile, non-targetted jokes, it is clear that (1) rather than (2) obtains: By and large, respondents in this study did not appear to differentiate between joke types as far as rendering joke evaluations was concerned.

In terms of the study's non-humor measures, statistically significant positive correlations were also obtained for both respondent subgroups between event-specific stress and each of the two outcome measures, somatization and depression. For the research sample as a whole, higher PDI scores were associated with higher levels of depression and of somatic complaints. Furthermore, scores of both males and females on the measure of non-event-specific global perceived stress, the PSS, were also significantly positively correlated with depression and somatization scores.

The relationship between global stress and depression for both males and females, as well as that between global stress and somatization for the female subgroup, was of a statistically higher magnitude than the association found to obtain between event-specific stress and either of the two outcome measures for that subgroup. This finding is in accord with previous research which has underscored the greater utility of employing a measure of non-event-specific global stress in lieu of a life-events-based measure of stress in the prediction of physical or psychological illness.

Finally, for both male and female subgroups, a significant positive correlation was obtained between depression scores and scores on the somatization measure, the restricted nature of the score distributions for the two criterion measures notwithstanding. However, none of the correlational coefficients resulting from pairings of either of the humor appreciation measures with any of the predictor or criterion measures were statistically significant for either of the respondent groups.

Table 4 provides mean inter-joke correlations of funniness ratings for within-joke-category and between-joke-category (i.e., hostile

targetted vs. non-hostile, non-targetted jokes) pairings, broken down by sex of respondent. From the table, it is seen that correlational pairings involving hostile jokes were on the average highly significant, as were pairings of non-hostile, non-targetted jokes. Also, the average correlation for hostile joke—non-hostile, non-targetted joke pairings was also significant statistically for both males and females. It appears that the joke appreciation measure employed in the present study tapped the presence of a generalized orientation to react favorably to jokes rather than reflecting two distinct joke preference patterns (i.e., preference for hostile jokes over non-hostile jokes, or vice-versa).

Table 4

Mean Inter-Joke Correlations of Funniness

Respondent Subgroup	Pairings of Hostile Jokes	Pairings of Non-Hostile Jokes	Hostile Joke—Non-Hostile Joke Pairings
Females (n = 86)	.34**	.30**	.28*
Males (n = 58)	.39**	.34**	.31*

*$p < .01$. **$p < .005$. (one-tailed significance)

Note. Correlations reported are Pearson Product-Moment Correlations.

Moderator Analyses (Hypotheses I and II)

The next phase of the data analysis consisted of two series of stepwise hierarchical multiple regression analyses, conducted in order to test the soundness of the two principal research hypotheses.

The first series of regressions provided an assessment of the respective moderating influences of the two humor appreciation variables, appreciation for hostile targetted jokes and appreciation for non-hostile, non-targetted jokes, upon the effects of event-specific stress, as measured by the PDI Stress scale. For both male and female subgroups, a regression was run for each humor appreciation measure as follows:

1. SOMATIZATION = EVENT-SPECIFIC STRESS + APPRECIATION OF HOSTILE TARGETTED JOKES + INTERACTION.
2. SOMATIZATION = EVENT-SPECIFIC STRESS + APPRECIATION OF HOSTILE, NON-TARGETTED JOKES + INTERACTION.
3. DEPRESSION = EVENT-SPECIFIC STRESS + APPRECIATION OF HOSTILE TARGETTED JOKES + INTERACTION.
4. DEPRESSION = EVENT-SPECIFIC STRESS + APPRECIATION OF NON-HOSTILE, NON-TARGETTED JOKES + INTERACTION.

The results of these analyses are presented in Table 5.

It is evident from an inspection of Table 5 that none of the regression coefficients (BETA's) associated with the interaction terms at Steps 3a, 3b, 3a', and 3b' (such terms serve as indices of the hypothesized stress-moderating effect of a favorable orientation toward either joke type) attained statistical significance for either the male or the female subgroup, indicating that, in this sample, the relationship of the primary predictor, level of event-specific stress, to somatization

Table 5

Hierchical Stepwise Regressions of Event-Specific Stress (PDI) and Two Types of Joke Appreciation on Somatization and Depression

		Subgroup	R^2	BETA	F
REGRESSION MODELS PREDICTING TO SOMATIZATION (HSCL)	1. Event-Specific Stress Alone (PDI)	Females	.08	.28**	7.10**
		Males	.15	.39***	9.94***
	2a. Event-Specific Stress (PDI) and Appreciation of Hostile Tgtd. Jokes	Females	.09	-.09	3.89*
		Males	.17	.13	5.58**
	2b. Event-Specific Stress (PDI) and Appreciation of Non-Hostile, Non-Tgtd. Jokes	Females	.08	-.02	3.52*
		Males	.15	.06	5.03**
	3a. Event-Specific Stress (PDI) and Appreciation of Hostile Tgtd. Jokes and Interaction	Females	.09	-.27	2.75*
		Males	.19	.40	4.11*
	3b. Event-Specific Stress (PDI) and Appreciation of Non-Hostile, Non-Tgtd. Jokes and Interaction	Females	.09	-.36	2.65
		Males	.17	.40	3.66*
REGRESSION MODELS PREDICTING TO DEPRESSION (BDI)	1'. Event-Specific Stress Alone (PDI)	Females	.08	.28**	7.35**
		Males	.09	.31*	5.83*
	2a'. Event-Specific Stress (PDI) and Appreciation of Hostile Tgtd. Jokes	Females	.08	-.03	3.66*
		Males	.11	.13	3.47*

*$p < .05$. **$p < .01$. ***$p < .005$.

Table 5 (cont.)

			Subgroup	R^2	BETA	F
REGRESSION MODELS PREDICTING TO DEPRESSION (BDI) (cont.)	2b'.	Event-Specific Stress (PDI) and Appreciation of Non-Hostile, Non-Targetted Jokes	Females	.08	-.07	3.85*
			Males	.11	.12	3.33*
	3a'.	Event-Specific Stress (PDI) and Appreciation of Hostile Tgtd. Jokes and Interaction	Females	.09	-.21	4.35*
			Males	.14	.30	4.64*
	3b'.	Event-Specific Stress (PDI) and Appreciation of Non-Hostile, Non-Tgtd. Jokes and Interaction	Females	.11	-.28	4.87*
			Males	.13	.27	4.14*

*p$<$.05. **p$<$.01. ***p$<$.05.

and depression measures did not differ systematically as a function of changes in level of appreciation for hostile targetted jokes or in level of appreciation for non-hostile, non-targetted jokes.

For the outcome measures of somatization and depression, R-squared (R^2) values (fraction of variance accounted for) were computed for regression models including event-specific stress (PDI Stress scale score) as a single factor, event-specific stress in combination with each of the two joke appreciation measures, and the full regression equation (model) with the interaction term included. From an examination of the R-squared values in Table 5, it can be seen that, for both outcome measures, entry into the regression model of one or the other joke appreciation term alone or the term in combination with the interaction term does not increase the value of R-squared to any significant degree above its level in the model consisting of level of event-specific stress (PDI Stress scale score) alone: Neither joke appreciation variable, when entered into the regression

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Note. In the case of each of the two outcome measures, separate regressions were run for each joke appreciation variable (the variables hypothesized to exert a moderating influence upon the effects of event-specific or global stress) in lieu of a regression analysis in which the factors are entered one at a time into a single regression equation. This procedure was followed in order that an independent assessment be obtained of the contribution of each joke appreciation variable to the variance of the criterion or dependent measure (either event-specific stress or non-event specific global perceived stress). In view of the substantial correlation obtained for both male and female respondent subgroups between the two joke appreciation measures (refer to Table 3 on page 62)——hence, the high degree of shared variance between the two measures——entry of both variables into the same regression would likely serve to obscure the influence upon the dependent measure exercised by whatever factor is entered second.

equation by itself or in combination with the interaction term increased predictability of the criterion measure (illness outcome) beyond that level resulting from application of the event-specific stress score term alone. The results presented in Table 5 do not substantiate either of the principal research hypotheses with regard to event-specific stress (the reader is referred to pages 45-47 for a detailed statement of these hypotheses).

The next series of regressions constituted a measure of the respective moderating influences of level of appreciation for hostile targetted jokes and level of favorability toward non-hostile, non-targetted jokes upon the effects of <u>non-event-specific global perceived stress</u>, as assessed by the PSS. This series of regressions ran as follows for each respondent subgroup:

1. SOMATIZATION = GLOBAL PERCEIVED STRESS + APPRECIATION OF HOSTILE TARGETTED JOKES + INTERACTION.
2. SOMATIZATION = GLOBAL PERCEIVED STRESS + APPRECIATION OF NON-HOSTILE, NON-TARGETTED JOKES + INTERACTION.
3. DEPRESSION = GLOBAL PERCEIVED STRESS + APPRECIATION OF HOSTILE TARGETTED JOKES + INTERACTION.
4. DEPRESSION = GLOBAL PERCEIVED STRESS + APPRECIATION OF NON-HOSTILE, NON-TARGETTED JOKES + INTERACTION.

Results of these analyses are provided in Table 6.

According to Table 6, none of the regression coefficients (BETA's) associated with the interaction terms in Steps 3a, 3b, 3a', and 3b' are statistically significant for either respondent subgroup: For this sample, then, the association obtaining between level of non-event-specific global perceived stress and the two illness outcome measures

Table 6

Hierarchical Stepwise Regressions of Non-Event-Specific Global Perceived Stress (PSS) and Two Types of Joke Appreciation on Somatization and Depression

REGRESSION MODELS PREDICTING TO SOMATIZATION (HSCL)

		Subgroup	R^2	BETA	F
1.	Global Perceived Stress (PSS) Alone	Females	.12	.35****	11.92***
		Males	.15	.39***	10.17***
2a.	Global Perceived Stress (PSS) and Appreciation of Hostile Tgtd. Jokes	Females	.13	-.04	5.99***
		Males	.17	.11	5.48**
2b.	Global Perceived Stress (PSS) and Appreciation of Non-Hostile, Non-Tgtd. Jokes	Females	.12	.02	5.91***
		Males	.16	.09	5.31**
3a.	Global Perceived Stress (PSS) and Appreciation of Hostile Targetted Jokes and Interaction	Females	.13	.04	3.94*
		Males	.17	-.11	3.61*
3b.	Global Perceived Stress (PSS) and Appreciation of Non-Hostile, Non-Tgtd. Jokes and Interaction	Females	.13	-.26	3.99*
		Males	.17	-.27	3.61*

*$p < .05$. **$p < .01$. ***$p < .005$. ****$p < .001$.

*****$p < .0005$. ******$p < .0001$.

Table 6 (cont.)

REGRESSION MODELS PREDICTING TO DEPRESSION (BDI)

		Subgroup	R^2	BETA	F
1.	Global Perceived Stress (PSS) Alone	Females	.46	.67******	70.19******
		Males	.38	.62******	34.52******
2a.	Global Perceived Stress (PSS) and Appreciation of Hostile Targetted Jokes	Females	.46	.03	34.77******
		Males	.39	.12	17.93******
2b.	Global Perceived Stress (PSS) and Appreciation of Non-Hostile, Non-Tgtd. Jokes	Females	.46	-.02	34.71******
		Males	.41	.17	19.15******
3a.	Global Perceived Stress (PSS) and Appreciation of Hostile Tgtd. Jokes and Interaction	Females	.46	.06	35.12******
		Males	.39	.13	17.74******
3b.	Global Perceived Stress (PSS) and Appreciation of Non-Hostile, Non-Tgtd. Jokes and Interaction	Females	.46	.01	34.68******
		Males	.41	.21	19.27******

*$p < .05$. **$p < .01$. ***$p < .005$. ****$p < .001$.

*****$p < .0005$. ******$p < .0001$.

did not differ systematically as a function of either level of favorability toward hostile jokes or level of appreciation for non-hostile, non-targetted jokes.

R-squared (R^2) values (fraction of variance accounted for) were then calculated for regression models including non-event-specific global perceived stress (PSS score) as a single factor, global stress in combination with each of the joke appreciation measures, and the full regression model with the interaction term included. From an examination of the R-squared values in Table 6, it is clear that, for both somatization and depression, entry into the regression model of one or the other joke appreciation term alone or in combination with the interaction term does not inflate the value of R-squared to any noticeable degree above its level in the regression model consisting of global stress score alone: Neither of the joke appreciation variables, then, when entered into the regression as a second main predictor variable by itself or in combination with the interaction term increased predictability of the criterion measure (illness outcome) beyond that level obtaining for the regression step consisting of global perceived stress score as the single term.

According to Table 6, then, neither of the principal research hypotheses, Hypothesis I (a favorable orientation toward hostile targetted jokes will moderate the relationship between a stress measure and illness outcome) or Hypothesis II (a favorable orientation toward hostile targetted jokes will be a more effective stress moderator than a favorable orientation toward non-hostile, non-targetted jokes), was confirmed with respect to the variable of non-event-specific global perceived stress.

Secondary Analysis: Hypothesis II

An additional series of regressions was run for each respondent subgroup in order to evaluate Hypothesis II, the supplementary hypothesis which proposed that an appreciation for hostile targetted jokes, or secondarily, a favorability toward non-hostile, non-targetted jokes moderates the relationship between level of objective stress (the number of negative events experienced from those listed on the PDI Stress scale) and level of non-event-specific global perceived stress, as measured by the PSS. The series of regressions ran as follows:

1. GLOBAL PERCEIVED STRESS = OBJECTIVE STRESS + APPRECIATION OF HOSTILE TARGETTED JOKES + INTERACTION.

2. GLOBAL PERCEIVED STRESS = OBJECTIVE STRESS + APPRECIATION OF NON-HOSTILE, NON-TARGETTED JOKES + INTERACTION.

The results of these regressions are presented in Table 7.

An inspection of Table 7 reveals that, for the female subgroup, the regression coefficients (BETA's) associated with the interaction terms in Steps 3 and 3' are not significant statistically, indicating that, for female respondents, the magnitude of the association obtaining between level of objective stress and level of global perceived stress was unrelated to level of appreciation for either hostile targetted jokes or for non-hostile, non-targetted jokes.

With respect to the male respondent subgroup, the table shows that the regression coefficients (BETA's) associated with the interaction terms at Steps 3 and 3' (level of joke appreciation X level of objective stress) are significant statistically. For male respondents in this

Table 7

Hierarchical Stepwise Regressions of Objective Stress (PDI Stress Scale Events Experienced) and Appreciation of Hostile Targetted Jokes or Non-Hostile, Non-Targetted Jokes on Non-Event-Specific Global Perceived Stress

	Sex	R^2	BETA	F
1. Objective Stress (Number of PDI Stress Scale Events Experienced) Alone	Females	.04	.20	3.67
	Males	.03	.16	1.46
2. Objective Stress (Number of PDI Stress Scale Events Experienced) and Appreciation of Hostile Targetted Jokes	Females	.04	-.06	1.95
	Males	.03	.01	.72
2'. Objective Stress (Number of PDI Stress Scale Events Experienced) and Appreciation of Non-Hostile, Non-Tgtd. Jokes	Females	.04	-.05	1.92
	Males	.04	-.11	1.04
3. Objective Stress (Number of PDI Stress Scale Events Experienced) and Appreciation of Hostile Targetted Jokes	Females	.06	-.47	1.74
	Males	.11	.94*	2.23
3'. Objective Stress (Number of PDI Stress Scale Events Experienced) and Appreciation of Non-Hostile, Non-Tgtd. Jokes and Interaction	Females	.05	-.18	1.33
	Males	.14	1.15*	2.84*

*$p < .05$.

study, then, an association was found between the magnitude of the relationship obtaining between objective stress level and non-event-specific global perceived stress level, on the one hand, and level of favorability for hostile jokes or level of appreciation for non-hostile, non-targetted jokes, on the other. The R-squared (R^2) values (fraction of the variance accounted for) at Steps 3 and 3', the full regressions with the interaction term included, represent more than threefold increases over the corresponding values at Steps 2 and 2'.

Prior to the formulation of any hard-and-fast conclusions with regard to the role of joke appreciation in the alleviation of stress, the direction of the statistically significant term noted above must be determined. The magnitude of the relationship between objective stress and non-event-specific global per ɛived stress may be observed to increase, to remain the same, or to decrease as level of appreciation for hostile targetted jokes or for non-hostile, non-targetted jokes increases. A <u>decrease</u> in the magnitude of the objective stress—global perceived stress relationship as level of joke appreciation increases would indicate that the factor of joke appreciation is either a moderator of objective stress (i.e., attenuates its influence upon global stress), as a <u>hydraulic</u> model of the joke appreciation—stress relationship would predict, <u>or</u> that joke appreciation is merely associated with a more broadly based agent or process which is itself responsible for stress palliation, as a diagnostic model would predict. An <u>increase</u> in the magnitude of the objective stress—global perceived stress relationship as level of joke appreciation increases would signify that a high level of joke appreciation is associated with a strengthening in the connection between the life disruption which is experienced

and the extent to which one's life is perceived as being one which is characterized by stress.

In order to arrive at a determination, for the male subgroup, of the direction of the association between level of appreciation for hostile targetted jokes or for non-hostile, non-targetted jokes, on the one hand, and the magnitude of the objective stress--global stress relationship, on the other hand, it was necessary to correlate objective stress scores with global stress scores according to level of respondent appreciation for hostile targetted jokes. For the male subgroup, the correlation between objective stress scores and global perceived stress scores was not significant statistically ($r = .1593$, $N = 58$, $p < .05$), indicating that level of stress-associated thoughts, feelings, and perceptions could not be predicted with accuracy from level of life eventfulness. However, when male respondents were divided in terms of registering a "high" or a "low" level of appreciation for hostile targetted jokes, i.e., "high" = scores greater than 21 and "low" = scores less than 21, a striking contrast was found between the two groups with regard to the correlations obtained between objective stress and global perceived stress. Furthermore, this contrast was in a direction opposite to the hypothesized inverse relationship between level of joke appreciation and the magnitude of the objective stress--global stress relationship: For males categorized as "high" in favorability toward hostile targetted jokes ($N = 26$), objective stress scores and global perceived stress scores were found to be strongly associated ($r = .3304$, $p < .05$); for males designated as "low" in appreciation for hostile targetted jokes ($N = 27$), objective stress and global perceived stress were found to be unrelated ($r = -.1410$, $p > .05$). When males were categorized in

terms of level of favorability toward non-hostile, non-targetted jokes (i.e., "high" = scores greater than 22; "low" = scores less than 22), the pattern of results parallelled those which were reported for the male subgroups divided in accordance with level of appreciation for hostile targetted jokes: For males "high" in favorability toward non-hostile, non-targetted jokes (N = 26), a significant correlation emerged between objective stress and global stress scores ($r = .3479$, $p < .05$), whereas for males "low" in appreciation for non-hostile, non-targetted jokes (N = 27), there was no association noted between objective stress scores and scores for global perceived stress ($r = -.0621$, $p > .05$). Regardless of joke category, then, a high level of joke appreciation in males seems to signal the presence of a strong association between level of life eventfulness (objective stress) and level of stress-associated thoughts, feelings, and perceptions (global stress).

A follow-up statistical analysis involved within-male subgroup comparisons along the dimension of global perceived stress. Males already categorized as "high" or "low" in terms of level of appreciation for hostile targetted jokes were then subdivided with respect to level of objective stress ("high" = scores greater than 7; "low" = scores less than 8), creating a 2 X 2 factorial design ((HIGH/LOW) in level of appreciation for hostile targetted jokes X (HIGH/LOW) in level of objective stress). Similarly, male research participants already designated as "high" or "low" in terms of level of favorability toward non-hostile, non-targetted jokes were then subcategorized in terms of objective stress score (i.e., "high" or "low" as before), generating a second 2 X 2 ((HIGH/LOW) non-hostile, non-targetted joke appreciation X (HIGH/LOW) objective stress) factorial design. Those procedures

resulted in a four-way division of males for each humor appreciation variable, or a total of eight distinct respondent subgroups. Table 8 presents mean global stress scores for male respondents as a function of level of appreciation for hostile targetted jokes and as a function of level of objective stress (Table 8A) and then as a function of level of favorability toward non-hostile, non-targetted jokes and level of objective stress (Table 8B). An inspection was made of the cell means within each of the tables, with an eye toward significant inter-category comparisons (i.e., differences between means which amount to more than five scale points). For both Table 8A and Table 8B, the only marked inter-category difference in terms of mean global stress score occurred between males high in both level of joke appreciation and objective stress and males high in joke appreciation and low in objective stress: For males registering a high level of appreciation for hostile targetted jokes and a high level of objective stress, mean global perceived stress scores were significantly greater than for those males having a high level of favorability for hostile targetted jokes and scoring low in objective stress ($\underline{t} = 2.25$, $df = 24$, $p < .05$); similarly, for males recording a high level of appreciation for non-hostile, non-targetted jokes and a high level of objective stress, the average global stress score exceeded that obtained by male participants having a high level of receptivity toward non-hostile, non-targetted jokes but a low level of objective stress ($\underline{t} = 2.20$, $df = 24$, $p < .05$). In short, for both categories of jokes, a given level of joke appreciation interacted with a given level of objective stress, generating a significant increase in the dependent measure, global perceived stress. The two interaction effects are illustrated in Figures 1A and 1B.

Table 8

Table 8A: Mean Global Stress Scores for Male Respondents as a Function of Level of Appreciation for Hostile Targetted Jokes and Objective Stress

		Objective Stress	
		HIGH[a]	LOW[b]
Hostile Tgtd. Joke Appreciation	HIGH[c]	29.18 ⟷ (n = 11)	22.40 (n = 15)
	LOW[d]	24.67 (n = 15)	26.50 (n = 12)

Table 8B: Mean Global Stress Scores for Male Respondents as a Function of Level of Appreciation for Non-Hostile, Non-Targetted Jokes and Objective Stress

		Objective Stress	
		HIGH[e]	LOW[f]
Non-Hostile, Non-Tgtd. Joke Appreciation	HIGH[g]	29.10 ⟷ (n = 10)	22.19 (n = 16)
	LOW[h]	26.67 (n = 15)	26.18 (n = 11)

a = scores greater than 7. b = scores less than 8.
c = scores greater than 21. d = scores less than 21.
e = scores greater than 7. f = scores less than 8.
g = scores greater than 22. h = scores less than 22.

Figure 1A. Interaction Effect of Non-Hostile Non-Targetted Joke Appreciation and Objective Stress on Level of Global Perceived Stress

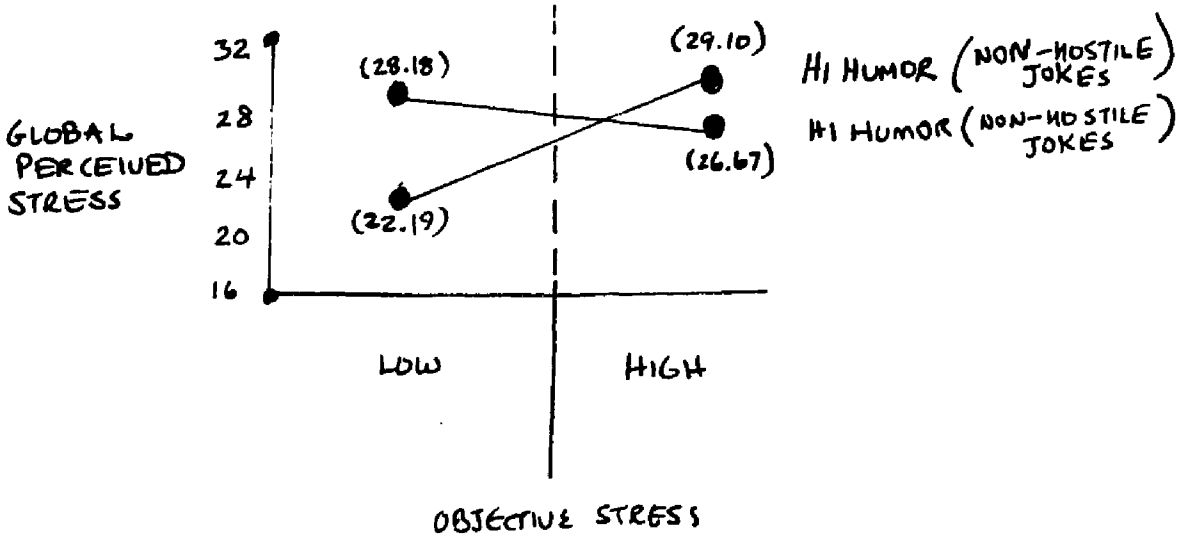
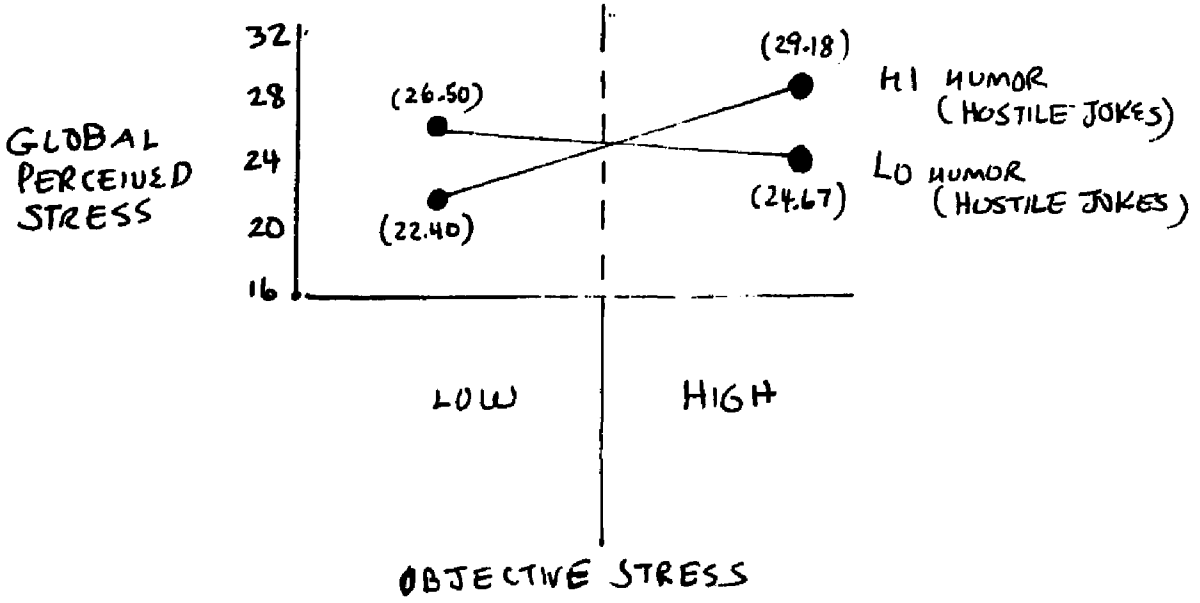


Figure 1B. Interaction Effect of Hostile Targetted Joke Appreciation and Objective Stress on Level of Global Perceived Stress



Discussion

Research Findings: Synopsis and Analysis

Principal Hypotheses: Hypothesis I and Hypothesis II

The first of the two principal hypotheses, Hypothesis I, which posited that an appreciation for hostile targetted (other-directed) jokes will moderate the effects of life-events-based or non-event-specific global perceived stress, i.e., lessens or weakens the magnitude of the relationship between either type of stress and illness, was not substantiated by the data. However stress was measured, its effects were not seen to be influenced by level of appreciation for hostile targetted jokes: The strength of the association between event-specific stress or global perceived stress, on the one hand, and somatization or depression, on the other hand, was unrelated to level of favorability toward hostile targetted jokes.

Hypothesis II, the second of the two principal research hypotheses, stated that level of appreciation for hostile targetted (other-directed) jokes will function as a more effective stress buffer than will extent of favorability toward non-hostile, non-targetted jokes, although it was anticipated that an appreciation for the latter joke category would bear an association with stress alleviation. Given the dependence of Hypothesis II upon the verification of Hypothesis I for its own substantiation, the former was, by dint of the previously cited negative findings for Hypothesis II, also disconfirmed.

Although neither of the research hypotheses received support, the present study did replicate the findings of previous research with

respect to the patterns of correlations disclosed among the various predictor and criterion measures, such as the finding of a highly positive relationship for both male and female subgroups between level of event-specific stress and illness outcome (somatization and depression) or the finding of an even more pronounced association between level of non-event-specific stress and illness outcome. These patterns of replication attest to the adequacy of the non-humor measures employed.

One possible reason for the observed pattern of results involves the attenuation of any stress-buffering effects on the part of an appreciation for either hostile targetted or non-hostile, non-targetted jokes due to the narrowness (lack of dispersion) of the score distributions noted for both respondent subgroups for event-specific stress, somatization and depression. The reader is referred to the appropriate figures in Appendix A. Given the restrictedness of the range of scores for both respondent subgroups on the measures of somatization and depression (i.e., the HSCL Somatization scale and the BDI, respectively), the observed lack of any association between joke appreciation, on the one hand, and the strength of the relationship between event-specific stress or non-event-specific global perceived stress and level of illness outcome, on the other hand, is not unexpected. The score distributions for both somatization and depression (particularly the former) were likely too narrow to engage any stress-moderating effect which might be associated with a favorability for hostile or non-hostile, non-targetted jokes. Although the present research sample did include several individuals over the age of 15, the bulk of the respondents, i.e., 75.86% (44 out of 58) of the males and 77.91% (67 out of 86)

of the females were between the ages of 17 and 22 (college-age). For such a youthful population, it is likely that, assuming the operation of a reasonably high stress level, neither somatization nor depression constitutes a widely employed avenue for the working through of stress-associated tensions; for such individuals, a measure of anxiety or of generalized affective state is perhaps a more promising tool for the assessment of stress-induced disorder. A broader range of somatization and depression scores would likely be evident in an older sample (e.g., 40-55), giving rise to the possibility of disclosing a stronger association between level of any stress-moderating variable and physical or psychological illness than was evident for the present younger sample. Furthermore, it is likely that, by and large, college-aged individuals report low levels of event-based stress (as indexed by the PDI Stress scale, in the case of this study), in contrast to the moderate to high levels of event-specific stress which are not uncommon in middle-aged populations. Granted that the score distributions for the somatization and depression measures, as well as for the event-specific stress measure, are rather narrow, the restrictedness of the score distribution for event-specific stress, however, was probably not as determinative of this study's nonconfirmation of the two central hypotheses as was the restrictedness of the distributions for the illness outcome measures. Although, when stress was assessed through a life-events-measure, the hypothesized relationship between level of joke appreciation (either joke type) and stress moderation was not found to be operative, this association was also not disclosed when the focus was upon stress of a generalized or global nature, even though, for both respondent sub-

groups, the distribution of scores on the measure of global stress (the PSS) was normal and characterized by a wide dispersion over the theoretical scoring range.

A second factor which may account for the study's null findings with respect to the central research hypotheses is the nonrepresentativeness of the selection of hostile targetted jokes employed. As has already been mentioned, the research design required that selections of hostile targetted jokes and of non-hostile, non-targetted jokes be equated for funniness level prior to proceeding with the experimental phase of the study in order that differential funniness level be discounted as a possible factor underlying any finding of greater effectiveness for a favorable orientation toward hostile targetted jokes (in comparison to favorability toward non-hostile, non-targetted jokes) in buffering stress reactivity. However, one proposition which has emerged from the humor research is that hostile jokes tend to register higher average amusement ratings with evaluators than is the case for non-hostile, non-targetted jokes. In order to make available to raters in the experimental phase of the study a selection of non-hostile, non-targetted jokes comparable in funniness to the hostile targetted jokes to be rated, care was exercised during the formulation of the joke appreciation measure to incorporate only those hostile jokes receiving mild to moderate hostility ratings and average amusement ratings from evaluators in the pilot phase. To a degree, the exclusion of the more biting hostile jokes, jokes more representative or typical of the particular domain, in favor of the more innocuous (often less amusing) put-down jokes--jokes which do not allow for the same level of aggressive energy discharge as do those more caustic barbs--may have been partially respon-

sible for the finding that a favorable orientation toward hostile targetted jokes was not found to be associated with the moderation of stress, as predicted by Hypothesis I, let alone more strongly associated with stress amelioration than is appreciation of non-hostile, non-targetted jokes, as posited by Hypothesis II. Had the present study employed a selection of hostile targetted jokes which more adequately represented the domain of hostile jokes in terms of level of hostile content (i.e., employed a more ecologically valid joke selection), the anticipated significant association between level of favorability toward hostile jokes and the moderation of stress, as well as the hypothesized pattern of a stronger association between the appreciation of hostile jokes and the reduction of stress than that obtaining between non-targetted joke appreciation and stress moderation, may have been evident.

Another point pertaining to attempts to equate selections of hostile and non-hostile, non-targetted jokes for amusement level must be made: As has already been noted, in the interest of a well-designed research study, an essential or defining quality associated with hostile jokes as a group, i.e., their higher than average favorability ratings, was eliminated or controlled for. Hence, any conclusions to be drawn with regard to the nonconfirmation of the principal research hypotheses must be qualified in light of the somewhat artificial (nonrepresentative) nature of certain of the joke stimuli employed. Admittedly, employing a more representative selection of hostile jokes (jokes having funniness levels more typical of the domain of hostile jokes) has its own disadvantage: The interpretation of any greater effectiveness in stress reduction which might have been disclosed for appre-

ciation of hostile jokes would be ambiguous, owing to the strong possibility that the difference between hostile and non-hostile, non-targetted jokes in terms of stress alleviation could just as well be attributable to the mean difference in amusement level for the two joke categories as to the mean difference in level of hostile content.

Efforts to equate hostile targetted and non-hostile, non-targetted joke selections along the dimension of funniness were, on balance, successful, resulting in a highly significant correlation for both males and females between appreciation scores for hostile targetted jokes and favorability scores for non-hostile, non-targetted jokes. This situation, in effect, served to set up the second major research hypothesis, Hypothesis II, as a "straw man": If two factors are very significantly correlated, as was the case here, and one factor is anticipated to exert an effect upon a dependent measure, then that factor's correlate will tend to have an effect of comparable magnitude. In light of the markedly high correlation between appreciation scores for hostile targetted jokes and appreciation scores for non-hostile, non-targetted jokes, the former could not be expected to exercise a more profound influence as a stress buffer than might be found for the latter.

The nature of the joke appreciation measure rather than the substantive joke content is a third possible explanation for the null findings in the present study. The lack of support for the principal research hypotheses may be partially attributable to the distinction between the roles of active and passive humor involvement in the moderation of stress. Measures of joke appreciation such as the present questionnaire are assessments of passive (or reactive) humor involvement,

and call for respondents to render an evaluation of a series of humor stimuli, most often along the dimension of funniness. In contrast, measures of active humor involvement take the form of either self-report ratings scales or of behavioral assessments, and may focus upon one or more of the following: (1) the propensity of an individual to imbue people, situations and/or events with an aura of humor; (2) the capacity of a person to generate humor in various contexts; and (3) the extent to which an individual attributes importance to humor in day-to-day functioning, including its role as a potential stress palliative.

Any assessment of active humor involvement taps the extent to which a tendency for an individual to actively involve himself/herself in humor-related activities or situations is operating. In light of the lack of support forthcoming from this study for the notion that a favorable orientation toward hostile jokes (and, to a lesser extent, an appreciation for non-hostile, non-targetted jokes) serves to buffer stress, consideration must be given the possibility that active humor involvement provides some safeguard against the negative effects of stress, whereas a more passive, reactive form of humor involvement carries no such benefit. Although no research study has as yet demonstrated a clear-cut association between passive humor involvement, such as an appreciation of jokes, and stress alleviation, evidence in support of the stress-ameliorating effects of active involvement with humor is mixed: Although Safranek and Schill (1982) reported no association between an assessment of the frequency and intensity of humor-related behavior and depression or somatization, Martin and Lefcourt (1983) noted a statistically significant inverse relationship

between levels of several aspects of such active humor involvement (i.e., humor-related behavior; humor sensitivity; humor generation; and humor usage in stress-coping) and negativity of various mood states. At the very least, these findings underscore the need for more extensive research into the dynamics of humor involvement, as well as the nature of its role as a stress buffer.

The Supplementary Research Hypothesis: Hypothesis III

Hypothesis III, the supplementary hypothesis, proposed that the magnitude of the relationship between level of objective stress (number of PDI Stress scale events experienced within the most recent six-month period) and level of non-event-specific global perceived stress (score on the PSS, a measure of the level of stress respondents feel in their lives: the frequency of occurrence of a variety of stress-associated feelings, thoughts, and reactions) will be inversely related to level of appreciation for hostile targetted or for non-hostile, non-targetted jokes. This hypothesis was not supported for either the male or the female respondent subgroup. In the female group, in fact, a reversal pattern was noted: For males registering a high level of appreciation for hostile targetted jokes or for non-hostile, non-targetted jokes, the relationship between objective stress and global stress was found to be significant and positive—not negative, as had been hypothesized.

Objective stress and global stress were found to be uncorrelated in the male and female respondent subgroups as a whole. This finding is not surprising, considering that the former is nothing more than a numerical value representing magnitude of potential life disruption,

whereas the latter reflects stress-associated feelings and reactions which are non-event-specific as well as those which are event-bound (i.e., free-floating in nature: generalized anxiety, apprehensions regarding future events, etc.). In the overall sample, then, global perceived stress was not seen to be a simple function of number of life changes experienced. The reversal pattern suggests that, in contrast to the overall research sample, males who possess a well-developed sense of joke appreciation are to some degree characterized by a balance or proportionality between level of life eventfulness (objective stress level) and their magnitude of felt stress (global perceived stress). It appears from this finding that males who tend to view the world in a humorous manner are less susceptible to non-event-specific or non-concretized (free-floating) stress. For these individuals, the stress experience tends to be a more direct reflection of specific past or ongoing events than is the case for males possessed of a less finely developed sense of humor. The proclivity for such males to infuse the world with humor may be looked upon as an appropriate, positive, survival-oriented strategy for coping.

Assuming that the above pattern of results is something other than a chance finding embedded in a series of null results, the pattern favors a diagnostic or descriptive interpretation of the humor-stress relationship: For males in our society (and likely certain women), a high level of generalized joke appreciation constitutes an indicator of the presence of a strong association between objective stress (number of PDI events experienced) and global perceived stress, rather than, as the hydraulic model posits, an agent instrumental in buffering the

individual against aversive thoughts and feelings resulting from the impact of negative life events.

In essence, then, a strong connection between level of life eventfulness and the degree to which one perceives one's life as stressful and demanding seems to typify male individuals high in appreciation for humor. Such humor involvement may act to mitigate emotional overreactivity to stressors, hence lessening the tendency for males to respond disproportionately to specific subsets of life events and/or to succumb to the feelings of generalized apprehensiveness and free-floating anxiety which tend to inflate global perceived stress scores over and above whatever contribution is made by discrete events.

Analysis of research data for the female respondent subgroup did not disclose the proportionality between magnitude of life events and global stress level which had been observed to obtain for male respondents. This seems to imply that, in the case of males, there is, in addition to a receptivity to humor, a second factor contributing to the proportionality, a factor which tends to characterize males as a group and which operates to mitigate emotional overreactivity to stressors (Sarason, 1979): a task orientation to stress-coping. In short, a humorous stance toward life in conjunction with an instrumental or task orientation toward dealing with stressors serves to lessen the emotional impact of life's disruptions to the extent that level of global stress tends to constitute a measured, proportional reaction to the amount of life change experienced.

Commentary on Patterns of Sex Differences

As the issue of male-female differences was of only incidental concern to the present research, it was thought desirable to employ male and female subgroups which were as comparable as possible with respect to the six principal variables in the study, i.e., event-specific stress, global perceived stress, depression, somatization, appreciation for hostile targetted jokes, and appreciation for non-hostile, non-targetted jokes. Attempts to equate males and females along these dimensions were, on the whole, successful: The sexes were found to differ only with regard to level of global perceived stress, with the female subgroup registering a significantly higher mean PSS score. Apart from constituting a clear indication that it is the female in our society who is subjected to a higher level of global stress, while at the very same time afforded fewer legitimate avenues for stress reduction, the observed sex difference in terms of mean global stress score may be attributable to the greater reactivity on the part of a female following exposure to unpleasant events or occurrences, and/or the more pronounced tendency for females to render honest, realistic self-appraisals (likely a reflection of the greater sensitivity of males to the social appropriateness of admitting to feelings of self-doubt or anguish). It remains for future research to clarify the circumstances and factors underlying the male—female difference in stress level.

Although males and females were comparable with regard to overall score on the PDI Stress scale (i.e., event-specific stress score), they

were found to differ in terms of the two components of event-specific stress, i.e., number of PDI Stress scale events experienced and the mean negativity weighting for events experienced: Males typically reported having experienced a greater number of events over the previous six-month period, whereas females assigned a higher average aversiveness rating over experienced events. The first pattern is understandable in view of the societal emphasis upon instrumentality and risk-taking in its males. The latter pattern can be interpreted as an indication of females' heightened reactivity to stress-associated stimuli.

IMPLICATIONS OF STUDY FOR NOTION OF HUMOR AS A STRESS PALLIATIVE

The present study did not disclose any association between level of appreciation for hostile targetted jokes or level of favorability toward non-hostile, non-targetted jokes and the amelioration of stress-related symptoms such as physical illness or depression. These null findings notwithstanding, however, there remains the possibility that future investigations may pinpoint a salutary role for humor appreciation and other aspects of passive humor involvement within certain contexts.

The systematic exploration of the dynamics of the function of humor involvement in stress-coping is a compelling area of research. Among key issues for such a research exploration would be a consideration of the following: (1) the types of stressors upon which humor operates most effectively; (2) those aspects of active or passive involvement which hold the most promise as stress moderators; (3) the

manner in which the development of such humor involvement proceeds or may be fostered in individuals; and (4) the relationship between specific situational variables or personality traits (such as the "hardy personality," the stress-resistant personality prototype advanced by Kobasa (1979)) and (a) the propensity to employ humor as a stress-coping mechanism as well as (b) the efficacy of such usage. An additional research concern may center around the specification or the clarification of the precise dynamics underlying the humor—stress moderation association.

Of necessity, the present study was correlational in nature, incorporating into its design two retrospective measures of stress (the PDI and the PSS); consequently, such research cannot be expected to disclose anything more than the presence of <u>associations</u> (if they obtain). Longitudinal studies (particularly those focusing upon populations demographically distinct from the present sample) are necessary in order to tease apart and to foster a deeper understanding of the causal relationship which might be operating (e.g., is the humor involvement—stress management relationship more accurately characterized as a <u>descriptive</u> model rather than a <u>hydraulic</u> one?; if evidence for a hydraulic model were to emerge, what would be its precise role within the broader scenario of the shift in cognitive perspective presumed by many researchers to be the underlying connective mechanism between humor involvement and the amelioration of stress?). Such long-term investigations should avail themselves of humor involvement indices which relate specifically to the

use of humor in stress-coping; scores on these instruments would be expected to correlate strongly with measures of psychological and/or physical health.

Whatever form is assumed by investigations into the connection between humor involvement and stress—coping, humor's role or function as a stress buffer must be placed in proper perspective. An easily accessible means with which to confront stressful events or situations, humor, if it is deftly employed, may take the edge off of a threatening event or situation through a shift in perspective, affording the opportunity for the emotional and physical refortification necessary for prolonged coping. However, involvement with humor is but one available mode for the alleviation of stress. It is, furthermore, an indirect mode with short-term efficacy. At some point, involvement with humor must be supplemented with if not supplanted by strategies which are engineered to deal directly with the stressor—strategies with proven effectiveness over the long haul. In addition to the transiency of its salutary effects, humor has another drawback: Its excessive use in order to strike a psychological distance from, to deny the existence of, or to trivialize some problem or situation which should be dealt with directly may be detrimental to emotional maturity and to psychological growth.

The argument may be advanced that active humor involvement carries its own benefits with regard to stress—coping, and so may certain forms of passive humor involvement (e.g., joke receptivity). Its appeal and wide accessibility not withstanding, humor is not

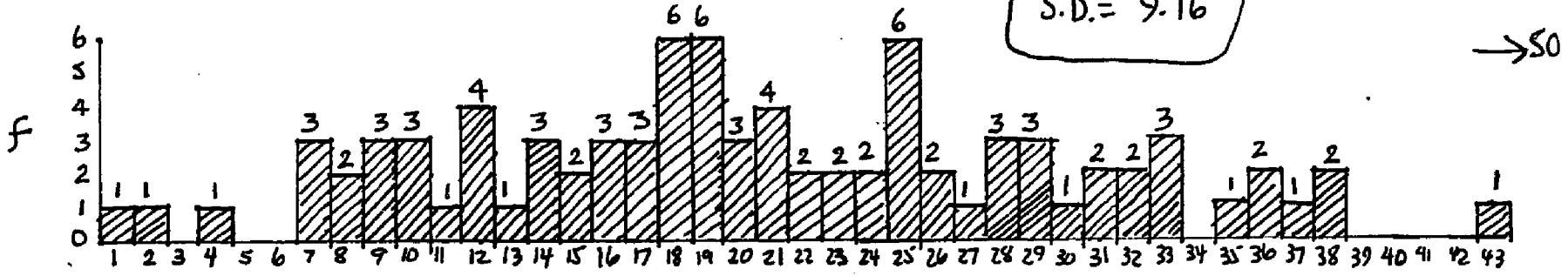
to be looked upon as the primary means of staving off the deleterious effects of stress, but rather should be accorded its rightful place within a balanced repetoire of stress-coping strategies, one or another of which may be applied to a specific situation. A systematic, measured approach to the study of humor's role in the management of stress will lend new meaning to the proposition that the use of humor in its myriad of forms and colors is perhaps the most human aspect of the human experience.

APPENDIX A: SCORE DISTRIBUTIONS FOR PRINCIPAL MEASURES, BROKEN DOWN BY RESPONDENT SUBGROUP

FIGURE 1A. FREQUENCY DISTRIBUTION FOR HOSTILE JOKE APPRECIATION SCORES

FEMALE RESPONDENTS (N=86)

$\bar{X}$ = 20.53
S.D. = 9.16

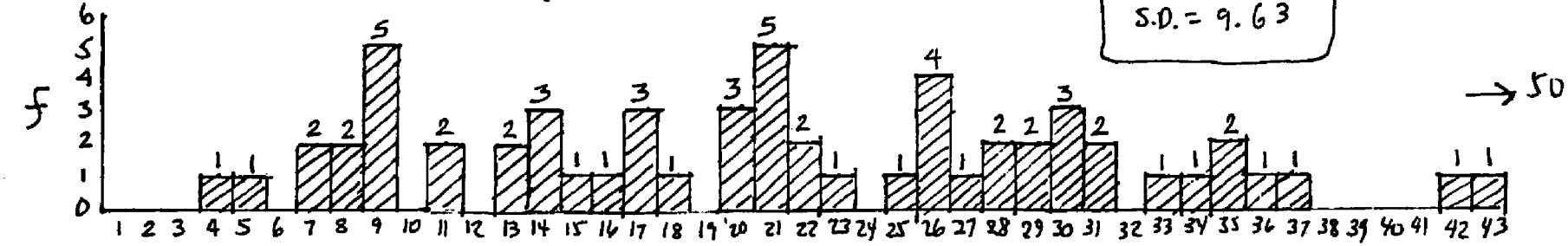


HOSTILE JOKE APPRECIATION SCORES

FIGURE 1B. FREQUENCY DISTRIBUTION FOR HOSTILE JOKE APPRECIATION SCORES

MALE RESPONDENTS (N = 58)

$\bar{X}$ = 20.86
S.D. = 9.63



HOSTILE JOKE APPRECIATION SCORES

FIGURE 2A. FREQUENCY DISTRIBUTION FOR NON-HOSTILE, NON-TARGETED JOKE APPRECIATION SCORES

FEMALE RESPONDENTS (N=86)

$\bar{X}$ = 20.35
S.D. = 8.73

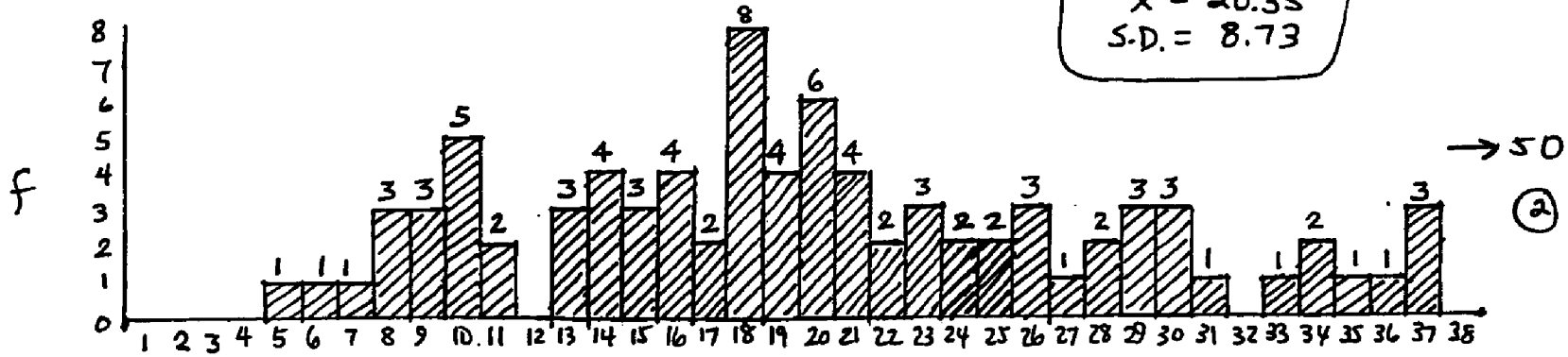


FIGURE 2B. FREQUENCY DISTRIBUTIONS FOR NON-HOSTILE, NON-TARGETED JOKE APPRECIATION SCORES

MALE RESPONDENTS (N=58)

$\bar{X}$ = 21.83
S.D. = 8.81

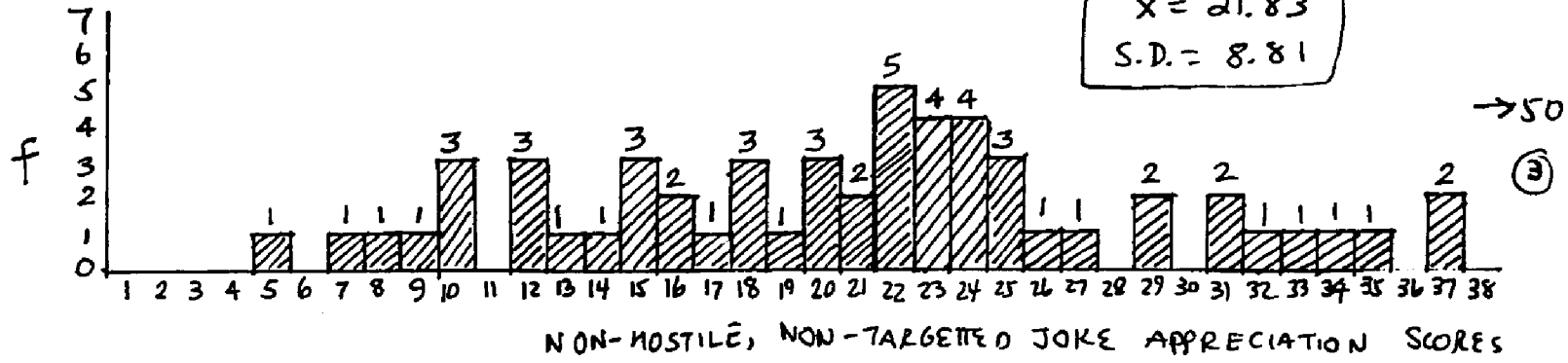


FIGURE 3A. FREQUENCY DISTRIBUTION FOR EVENT-SPECIFIC STRESS SCORES

FEMALE RESPONDENTS (N=86)

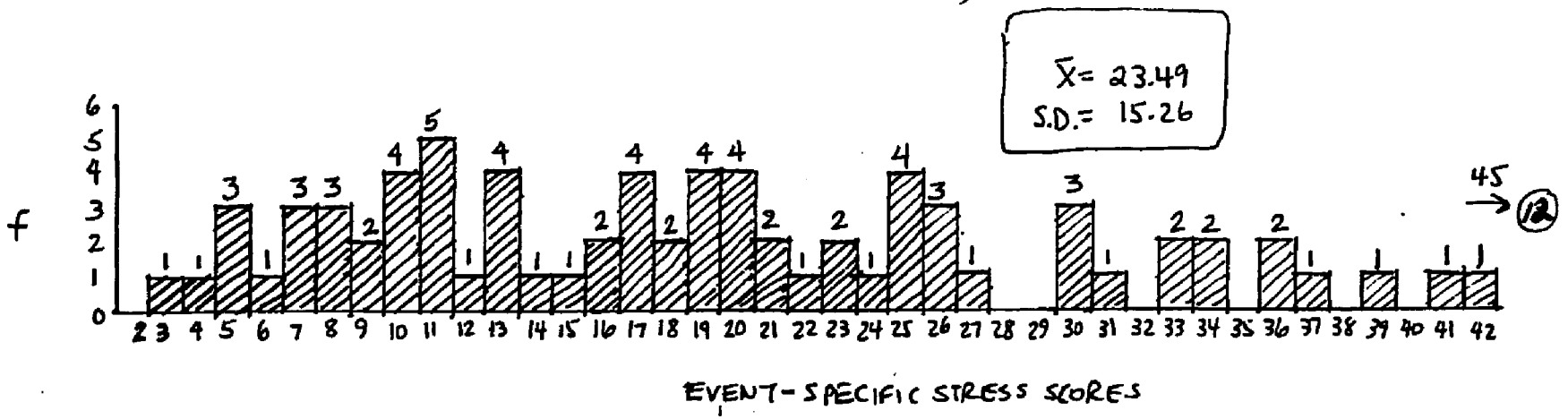


FIGURE 3B. FREQUENCY DISTRIBUTION FOR EVENT-SPECIFIC STRESS SCORES

MALE RESPONDENTS (N=58)

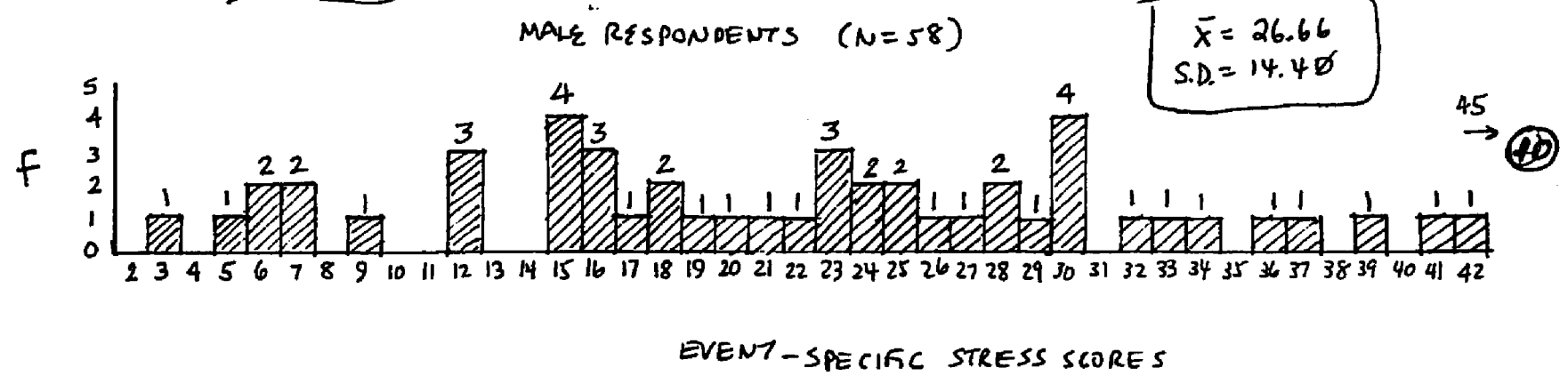


FIGURE 4A. FREQUENCY DISTRIBUTION FOR GLOBAL PERCEIVED STRESS SCORES
FEMALE RESPONDENTS (N=86)

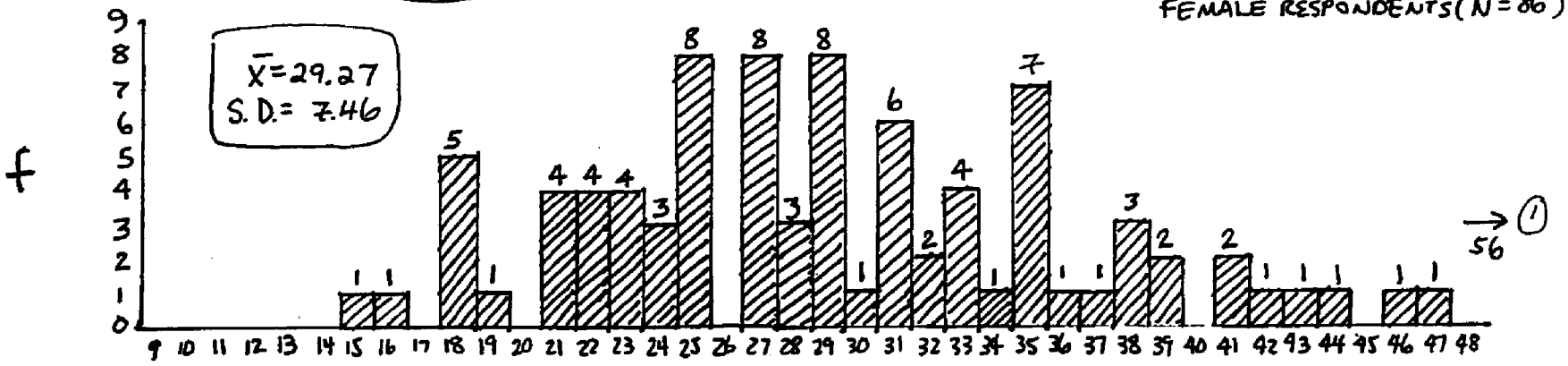


FIGURE 4B. FREQUENCY DISTRIBUTION FOR GLOBAL PERCEIVED STRESS SCORES
MALE RESPONDENTS (N=58)

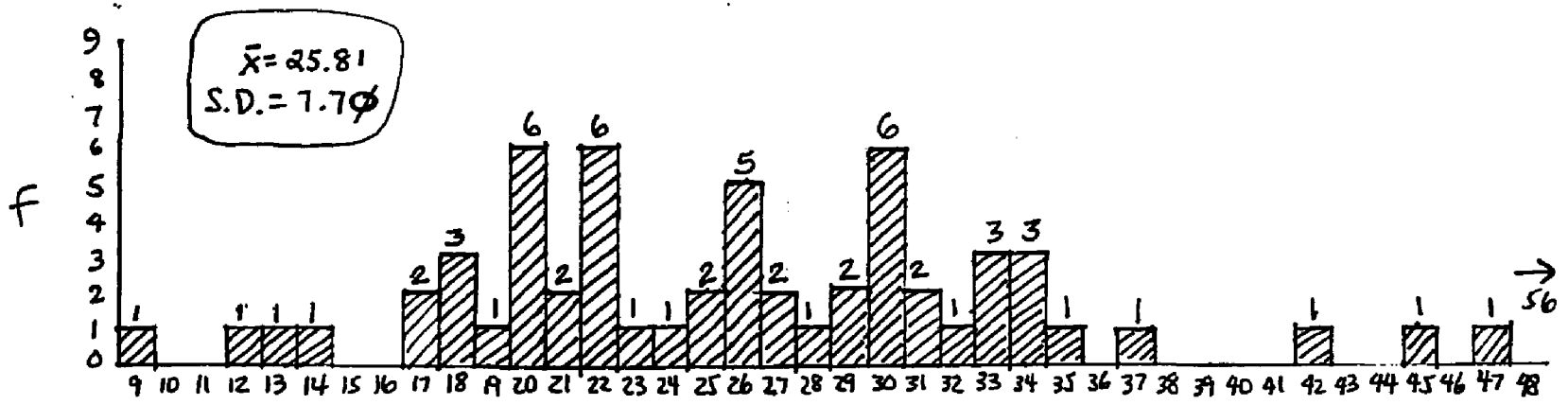


FIGURE 5A. FREQUENCY DISTRIBUTION FOR SOMATIZATION SCORES

FEMALE RESPONDENTS (N=86)

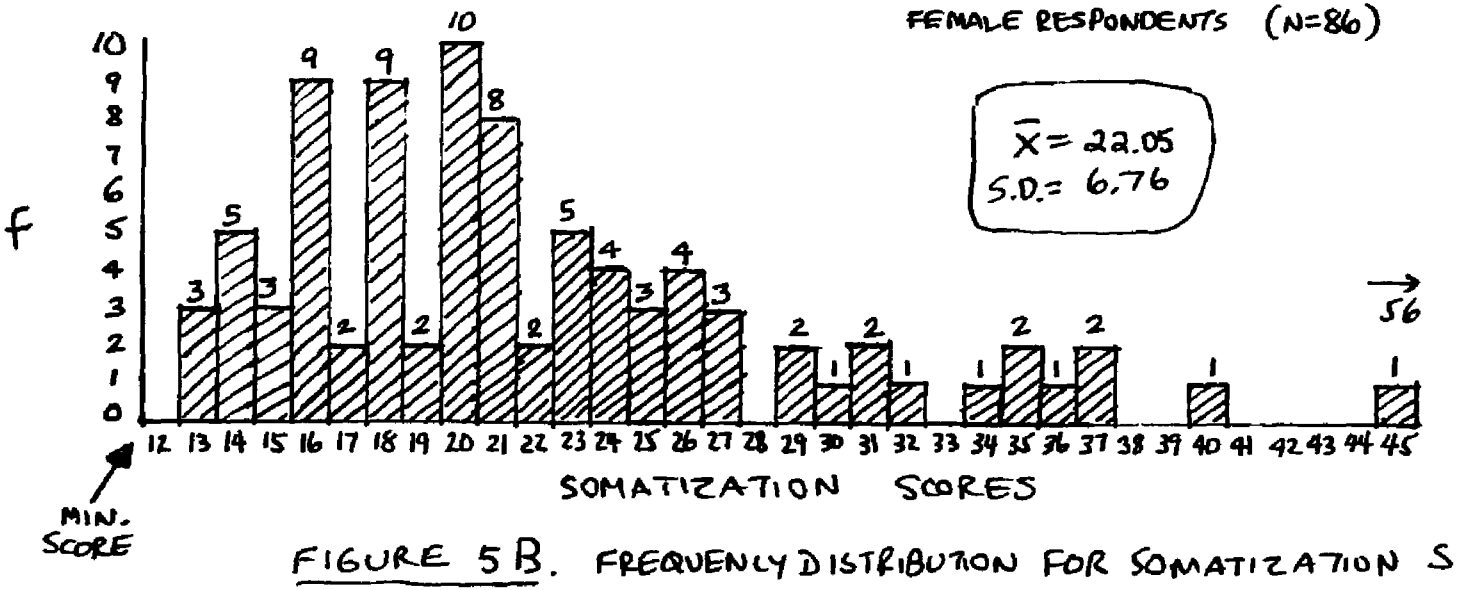


FIGURE 5B. FREQUENCY DISTRIBUTION FOR SOMATIZATION SCORES

MALE RESPONDENTS (N=58)

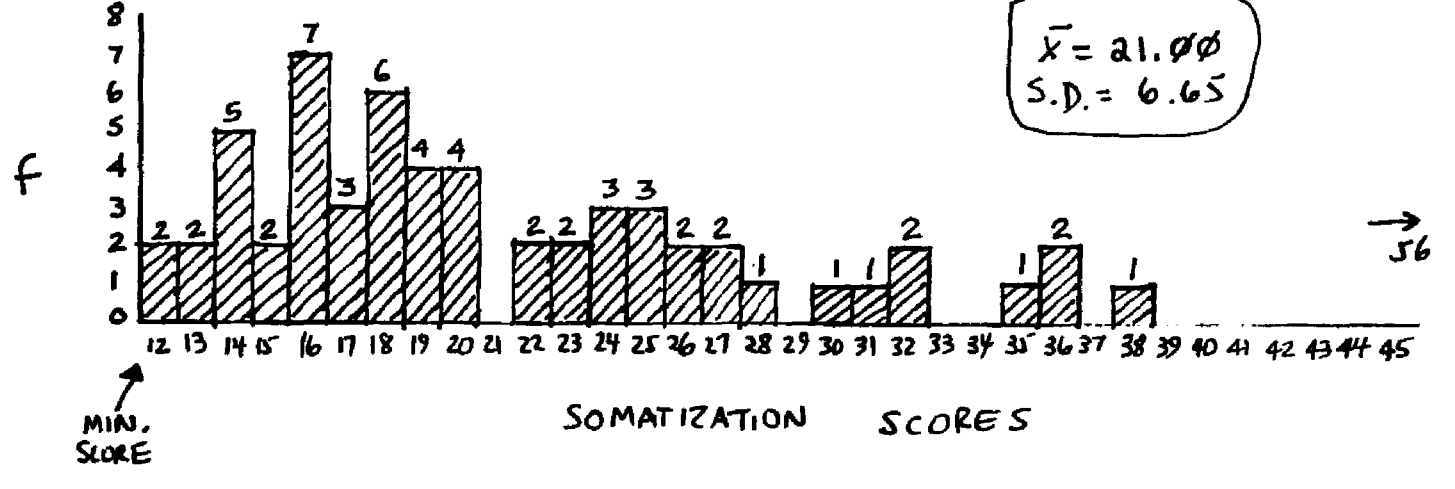


FIGURE 6A. FREQUENCY DISTRIBUTION FOR DEPRESSION SCORES

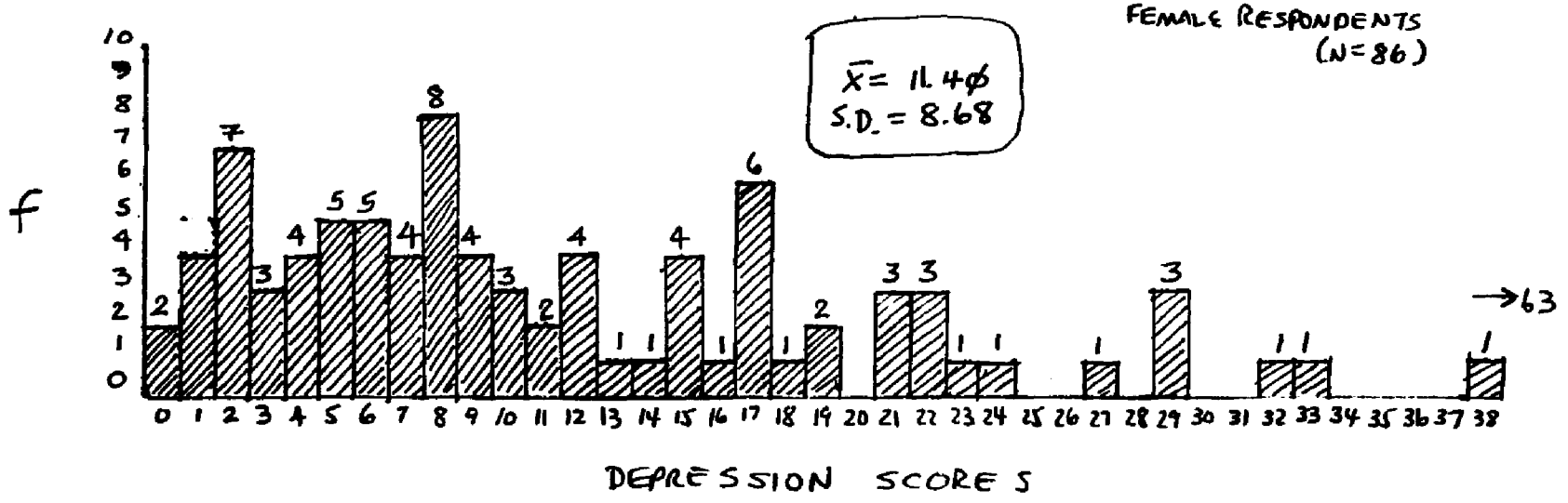
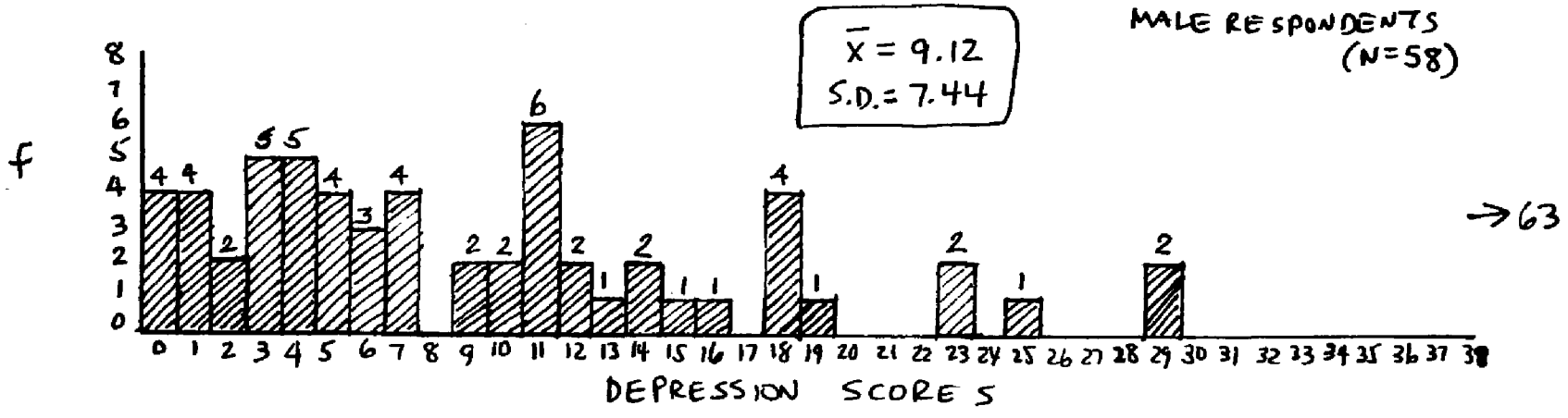


FIGURE 6B. FREQUENCY DISTRIBUTION FOR DEPRESSION SCORES



APPENDIX B: SPECIMEN RESEARCH QUESTIONNAIRES

APPENDIX B:

Health Questionnaire

Below is a list of problems and complaints that people sometimes have. Please read each one carefully, and then circle the numbered descriptor that best describes how much discomfort that particular problem has caused you during the past month, including today. Do not skip any items. If you change your mind about an answer to an item, please erase your first answer completely. Thank you.

IN THE PAST MONTH, INCLUDING TODAY, HOW MUCH WERE YOU DISTRESSED BY:

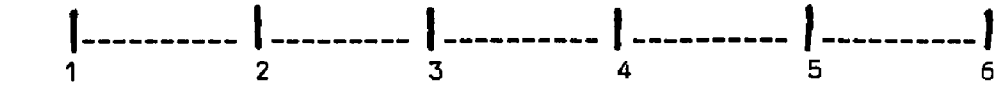
(Circle one number to the right of each item to describe) how you feel.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
1.	HEADACHES.....1	2	3	4	5
2.	FAINTNESS OR DIZZINESS.....1	2	3	4	5
3.	PAINS IN THE HEART OR CHEST..1	2	3	4	5
4.	FEELING LOW IN ENERGY OR SLOWED DOWN.....1	2	3	4	5
5.	PAINS IN LOWER PART OF BACK....1	2	3	4	5
6.	MUSCLE SORENESS.1	2	3	4	5
7.	TROUBLE GETTING YOUR BREATH.....1	2	3	4	5
8.	HOT OR COLD SPELLS.....1	2	3	4	5
9.	NUMBNESS OR TINGLING IN BODY PARTS.....1	2	3	4	5
10.	LUMP IN THROAT..1	2	3	4	5
11.	WEAKNESS IN PARTS OF BODY...1	2	3	4	5
12.	HEAVY FEELINGS IN ARMS AND LEGS.....1	2	3	4	5

Sense of Humor Questionnaire: Joke Ratings

Here is a series of 20 jokes chosen to represent several categories of jokes which are probably familiar to you. Please read each one of the jokes carefully and use the rating scale provided to tell me just how funny or amusing you feel the joke to be. In making your ratings, please use slash-marks (/) only, and be sure to consider only the funniness of the joke, not how clever or original you feel it is. Finally, please make an effort not to laugh aloud as it may disturb those around you.

1) What do they call a pretty woman in Russia? A foreigner.



1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

2) Did you hear about the telethon to promote masturbation? Everyone is lending a hand!

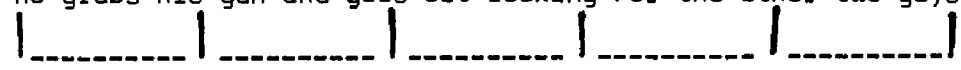
1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

3) A well-dressed couple was approached by a beggar, who asked them for change. The woman replied, "We never give money out here on the street!" The beggar responded, "What do you want me to do? Open up an office?"

1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

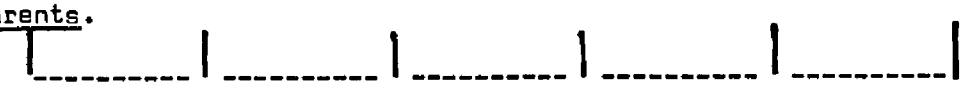
4) What is the very first thing that an Iranian man does when he finds out that his wife has given birth to triplets?

---He grabs his gun and goes out looking for the other two guys.



1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

5) What do you call people who use the rhythm method of birth control? Parents.



1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

FOR FEMALE RESPONDENTS ONLY

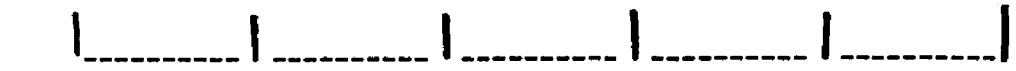
6) What can you do with a dog with four broken legs? Take it for a drag.

1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

7) Wife to husband: "I had a checkup at the doctor today, dear, and he told me that I had the most beautiful breasts he had ever seen!"

Husband to wife: "Did he say anything about your fat ass?"

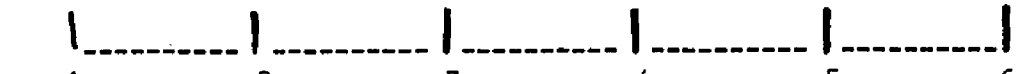
Wife: "No, your name didn't even come up in the conversation."



1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

8) How do you tell the Chinese and the Japanese apart?

The Chinese are the ones with the cameras labelled, "Made in Japan."



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9) Two women were lounging by a pool. "Mrs. Brown," one said to the other, "I've never seen a ring quite like that one."

"I was hoping you would notice it," she said. "But it comes with a curse!"

"A curse?" the other inquired.

"Mr. Brown!"

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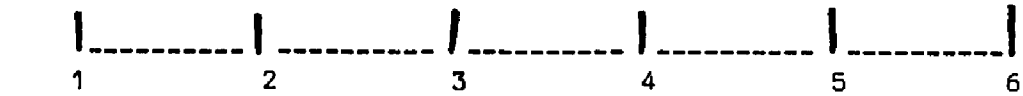
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

10) What is the difference between a canoe and a Jew?



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FOR MALE RESPONDENTS ONLY

6) What can you do with a dog with four broken legs? Take it for a drag.

1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

7) Some men have a rather dismal view of marriage: To them, it's like having a subscription to Playboy Magazine and receiving the same centerfold every month.

1	2	3	4	5	6
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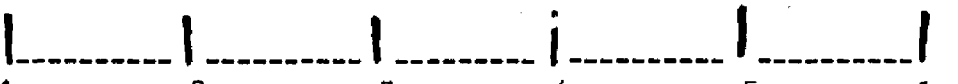
8) How do you tell the Chinese and the Japanese apart?

The Chinese are the ones with the cameras labelled, "Made in Japan."



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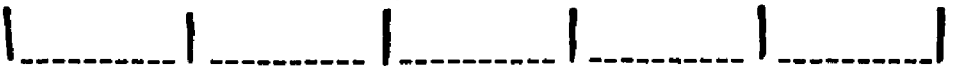
9) Two men were in love with the same girl. One of them suggested to the other that they play a game of cards to see who would get her.

His companion agreed, but added, "Let's play a penny a point on the side just to make it interesting."



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not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

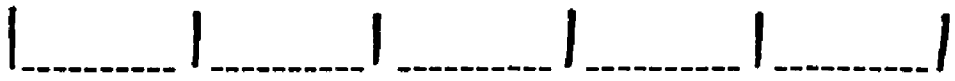
10) What is the difference between a Jew and a canoe?

A canoe has been known to tip.

1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

FOR FEMALE RESPONDENTS ONLY

11) Men are a conceited species. I heard of one fellow who asked to be buried face down so that, even in death, the world had to



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not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

12) The new teacher was giving her first sex-education lecture to a group of 10th-Graders. "There are eight basic positions for sexual intercourse," she began.

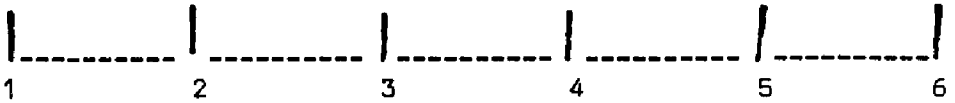
"Nine!" insisted a voice from the back of the room.

Flustered, the teacher began again. "There are eight basic---"

"Nine!!!" interrupted the voice, even more emphatic than before.

Ignoring the interruption, the teacher continued. "The first one is called the missionary position, with the man on top and the woman facing him."

"Oh," said the voice thoughtfully. "TEN!"



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13) A tombstone for a local man who was a failure as a lover read as follows: STIFF AT LAST!

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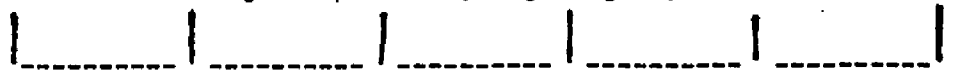
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

14) The manager of a gambling club was trying to find a way to tell a woman that her husband had died in the casino. He phoned her, saying, "Mrs. Smith, I am sorry to inform you that your husband lost several thousand dollars on the roulette wheel today."

---"He should drop dead!" she snapped.

"Madame," the manager replied, "you just got your wish!"



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FOR MALE RESPONDENTS ONLY

11) In what ways are a woman's legs like fertilizer?

They have to be spread in order to do any good!

1	2	3	4	5	6
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12) The new teacher was giving her first sex-education lecture to a group of 10th-Graders. "There are eight basic positions for sexual intercourse," she began.

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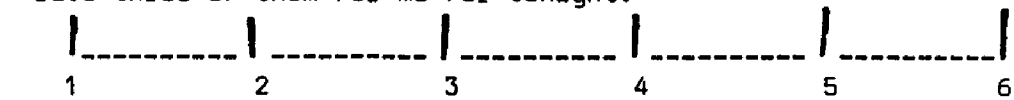
"Oh," said the voice thoughtfully. "TEN!!!"

1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

13) "Is this the Salvation Army?" "Yes, it is."

"Do you save bad women?" "Yes, we do."

"Save three of them for me for tonight."



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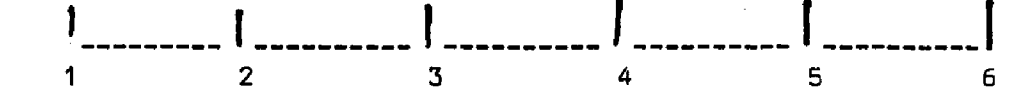
14) "I just don't understand women," one man commented to another on the street. "They can maneuver their shopping carts successfully along an 18-inch supermarket aisle...yet they drive their cars home and knock the doors off a 14-foot garage!"



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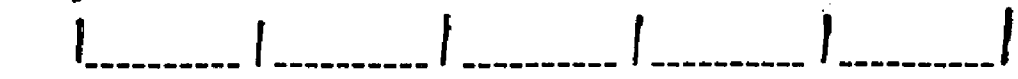
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

15) A policeman walked up to a man with a frog growing out of his ear.

Policeman: "Sir, what <u>is</u> that thing sticking out of your ear?"

Frog: "I don't know, but it started out as a wart!"



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16) A doctor entered a patient's room in the hospital. "I've got some good news and some bad news," he said.

---"Give me the bad news first, Doc," the fearful patient responded. "We're going to have to cut off both of your legs above the knees!" said the doctor.

---"Oh, my God!" the patient cried out. What could be good news after that?

"Well, the guy in the next bed will give you a good price for your shoes and pants!"

1	2	3	4	5	6
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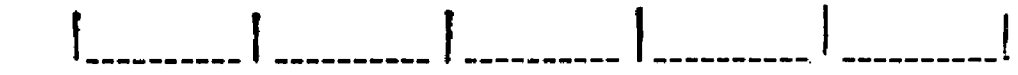
17) Q: What did Raggedy Anne say while she was sitting on Pinocchio's face?

A: Tell the truth...tell a lie...tell the truth...tell a lie...



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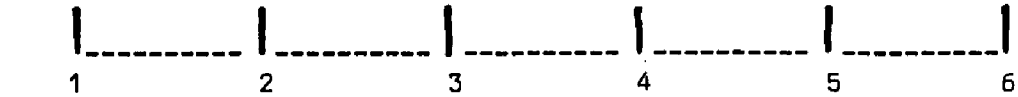
18) How do you get a Mexican out of the bath tub? Turn <u>on</u> the water.



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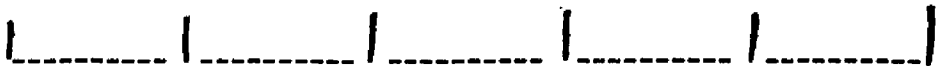
19) Did you hear about the patient who tripped in a doctor's office and pierced his back against a row of thumbtacks? Three days later, his doctor sent him a bill asking for $50 for acupuncture.

1	2	3	4	5	6
not at all amusing	slightly amusing	somewhat amusing	rather amusing	very amusing	extremely amusing

20) A five-year-old boy was walking with his father in the park when they see two dogs mating. The boy's father explains that they are making puppies. That very same night, the child walks into his parents' bedroom while they are making love. "What are you doing, Daddy?" the boy asks. "We're making your baby brother or sister. "Oh," says the kid. "Well, why don't you turn Mommy over? I'd rather have the puppy."



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